

Libya and the Quest for Chemical Weapons

by
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INTRODUCTION

Beginning in the mid-1980s, an increased concern emerged among Western nations regarding the proliferation of chemical weapons. This interest was partially generated as the result of an intensified scramble by Third World nations to obtain chemical warfare agents in the aftermath of their successful use in the Iran-Iraq War. Such weapons can provide Third World nations with an enhanced military capability which under certain circumstances will entail the capacity to inflict massive numbers of casualties. Western concern over the proliferation of chemical weapons was renewed as a result of Operation DESERT STORM when it was feared that the Iraqis would use their chemical warfare capability against the United Nations coalition forces and/or Israel.¹

The purpose of this article is to examine the Libyan effort to develop chemical weapons and then to consider what options such weapons will provide to Libya. A secondary purpose is to consider the possible motives for the Libyan interest in chemical weapons. In making such an assessment, it is important to consider that a fire of uncertain proportions swept Libya's key chemical warfare facility at Rabta in March 1990. While initial reports suggested that the fire severely damaged the factory, this was not the case. As will be pointed out later, the fire caused limited damage and was almost certainly a Libyan hoax.

Before beginning this analysis, the sources and approaches to this subject will be outlined. The chemical warfare plant at Rabta was built clandestinely, and the Libyan government continues to deny that it is anything but a pharmaceutical plant. While this represents a problem for research, the Libyans do have several disadvantages that have made it extremely difficult to conceal their activities. The Libyans were not equipped to build such a factory themselves and therefore needed to import almost all of the components for the site. They also had to rely extensively on foreign experts to design the plant and make it operational. None of these factors are conducive to keeping the work at Rabta a secret.

Additionally, the US government under Presidents Reagan and Bush chose to reveal a great deal of the information known to them about the plant. This was done for several reasons. One key reason was to convince US allies of the nature of the problem. The Germans (then West Germans) were particularly difficult to convince, though they did accept the US viewpoint after long and intense diplomatic and political coordination. Later, Germany itself issued a number of statements of public concern about the Libyan chemical capability.² A second widely suspected reason why so much information was released involved the possibility that the US

was preparing domestic and international opinion for a possible military strike on this target or at least to convince the Libyans should the US leadership decide it was necessary to destroy the plant.

In making their remarks, US presidents were relying on reports issued to them from the US intelligence community, which had been focusing its attention on the plant for some time. According to the US State Department, the plant had been identified by US intelligence sources in 1985 and was thereafter subjected to considerable scrutiny.³ This meant that the Western intelligence community had a number of years to focus a variety of technical assets on the activities within the plant. The Western agencies may also have been able to develop human intelligence agents during this period as the plant had numerous European consultants visiting it and was partially staffed with semi-skilled laborers from Southeast Asia.⁴

Even without human intelligence assets, it seems virtually inconceivable that the US intelligence community would not be able to ascertain whether or not chemical weapons were being produced at Rabta given the considerable time period that they had to make such an evaluation. Furthermore, US intelligence has in the past been required to monitor the activities of similar Soviet installations where it is assumed that security measures would be more elaborate and where technical systems must face a variety of atmospheric problems (e.g. frequent cloud cover) that would not be present with a target in the Libyan desert.⁵

LIBYA AND CHEMICAL WEAPONS WITHIN THE MIDDLE EASTERN CONTEXT

Libyan interest in the acquisition of chemical weapons is not an isolated event. It is instead one of the more worrisome aspects of the overall trend of chemical weapons acquisition throughout the Middle East. In order to understand Libyan interest in chemical weapons, it is useful to consider briefly how chemical arms have become an important factor in the Middle Eastern military equation.

Chemical weapons use in the modern Middle East dates back to the 1960s, when Egyptian expeditionary troops used mustard gas and phosgene on the primitive tribesmen in what later became North Yemen.⁶ While these attacks initially appeared as an isolated set of events, some information exchange and probable chemical weapons transfers occurred between Egypt and at least one other Arab state (Syria) in the era following the 1962-67 Yemen War.⁷ In the aftermath of the 1973 Arab-Israeli War Syria embarked upon its own chemical weapons acquisition program, which had reached an advanced stage by the mid-1980s. This program included the construction of probable chemical weapons factories in the cities of Homs, Hama, and Damascus.⁸

Within the Middle East, however, it is clearly Iraq that has had the greatest impact on changing attitudes toward chemical warfare. Beginning in 1983, the Iraqis began to employ domestically-developed lethal chemicals against the Iranians with some notable initial success in breaking up human wave attacks by Iranian infantry.⁹ Baghdad was later able to integrate chemical attacks into its offensive

military doctrine to help eject Iran from Iraqi territory.¹⁰ The Iraqis are also known to have used chemical weapons against its own Kurdish population in the 1980s and to have provoked the Iranians into developing their own chemical warfare production facilities.¹¹

After the Iran-Iraq War, Baghdad's leader, Saddam Hussein renewed his bid to claim Arab leadership. In doing so, he stressed his military power and the potential of Iraqi ballistic missiles should they be armed with chemical warheads. In April 1990, Saddam announced that Iraq had mounted binary nerve gas warheads on its extended-range SCUD missiles, and that he would use them to destroy half of Israel if Iraq were attacked by the Israelis.¹² These threats were later seen as empty during Operation DESERT STORM, when the Iraqis used only conventionally-armed SCUDs to attack Israel. Prior to the war, however, Saddam's threats were popular in much of the Arab World and were seen as adding strength and dignity to the Arab response to Israeli military strength.

In the unrestrained atmosphere of chemical weapons acquisition and use in the Middle East, the aspirations of Libyan leader Muammar Qadhafi are therefore hardly an exception. Rather, Libya has sought to acquire a military asset that is already widespread throughout the region. This capability had proven useful militarily and had previously bolstered a rival Arab country's claims to regional leadership. Yet, while the Libyan program has undoubtedly been encouraged and accelerated by the Iraqi use of chemical weapons, this is not the origin of the Libyan interest. The former West German government has issued a white paper indicating that it was receiving intelligence reports about Libyan interest in producing chemical weapons as early as 1980.¹³ Tripoli's interest correspondingly increased with Iraq's 1983-88 use of these weapons on the battlefield. It is also unlikely that Qadhafi would view the Iraqi chemical program as a positive factor in the absence of a similar Libyan effort. Qadhafi has traditionally disdained Saddam Hussein's claims to Arab leadership and even supported Iran during the Iran-Iraq War.

The current Libyan chemical weapons effort centers around a large and modern production plant at Rabta, forty miles southwest of Tripoli. Construction of this facility appears to have been initiated in 1984, shortly after lethal chemicals were used in the Iran-Iraq War.¹⁴ Considerable assistance in building the Rabta complex was provided by European and Japanese firms. The German company Imhausen-Chemie played a central (if illegal) role in its construction, while other supplies may have come from Switzerland, Austria, and Hong Kong.¹⁵ As of early 1990, the Rabta facility was considered totally operational by the US and Germany, although uncertainties resulting from the March 1990 fire temporarily confused the issue of the plant's operational status.

The potential for the Rabta plant to produce chemical weapons became a focus of intense controversy in the aftermath of a series of public US warnings to Libya. The first of these warnings occurred in December 1987 when the US State Department publicly expressed concern over the plant at Rabta. This process reached a high point when then President Ronald Reagan remarked in December

1988 that the US was considering using force to destroy the Libyan complex, a position that was supported by President-elect George Bush.¹⁶ Qadhafi responded by claiming that the factory was a pharmaceutical plant and had nothing to do with chemical weapons.

Despite public concern expressed by the State Department as early as 1987, Libya does not appear to have responded to the possibility of increased scrutiny directed at the plant. No serious measures to conceal its nature were apparent except for the Libyan denials. Anti-aircraft protection, however, was provided for the complex, far exceeding that normally associated with economic targets, which are also protected in some instances.¹⁷ These weapons were in place prior to the threats by President Reagan. In addition, CIA Director William Webster identified a facility for producing bomb casings directly next to the plant with the obvious implication that they could be filled with chemicals as part of the production process. This latter facility was built with the assistance of Japan Steel Works.¹⁸ The desert location of both sites also seemed unusual for civilian activities.

Finally, communications between the plant and other Libyan and non-Libyan entities were apparently monitored by US assets. Open accounts of this activity suggest that key telephone discussions between Libyans and West Germans involved with the plant were intercepted. This compelling evidence of German commercial complicity later served as a partial basis for the arrest, guilty plea and conviction of the former director of the firm, Imhausen-Chemie.¹⁹

THE RABTA FIRE AND LIBYAN PRODUCTION CAPABILITIES

The issue of Libyan chemical weapons production took a dramatic twist in March 1990, when a massive fire was reported to have severely damaged the Rabta plant. In describing the results of this fire, US officials initially estimated that the facility was damaged to the point that operations could not be resumed for at least one year. President Bush denied US involvement in setting the fire, although the media continued to speculate on the possibility of US, German or Israeli sabotage.²⁰ An alternative explanation was that the Libyans did not have the technical expertise to operate the plant safely without substantial foreign technical assistance, and that they therefore started the fire as the result of an accident. The key questions for US policy-makers remained who started the fire and what if any retaliation would the Libyans take?

Yet, the story of the "massive" fire at Rabta seemed to unravel fairly quickly, and US officials were expressing doubt about the extent of the fire by late March. Also, on the basis of satellite imagery taken by the commercial French satellite system "Spot," the president of that corporation made an April 1990 speech stating that the fire was faked or exaggerated. Spot Image President Pierre Bescond said that analysis of the imagery taken of the plant revealed that the "black areas are mostly paint."²¹ The implication of this evidence was that the Libyans had started a controlled fire, exaggerated its consequences, and then painted portions of the Rabta facility in order to simulate fire damage for overhead photography. The

attempt would have to be considered fairly ineffective if it failed to deceive the Spot analysts. The capability of this commercial system is extremely limited when compared with advanced US reconnaissance systems specifically designed for intelligence purposes.²²

Also, while hardly depending upon the Spot satellite, US officials suggested that Bescond was correct. Detailed US photo-reconnaissance photographs would clearly reveal the existence of painted scorch marks with much greater clarity than the commercial system. Additionally, reports emerged of massive numbers of old tires that were apparently moved to the plant. These could have been used to produce a deception fire. On 18 June 1990, US Presidential spokesman, Marlin Fitzwater, referring to the issue of fire damage stated, "It now seems most likely that it was a hoax."²³ By this time, the only conceivable scenarios that did not involve a deliberate fire would be ones in which the Libyans had a limited fire problem and then attempted to exaggerate its consequences.

Yet, even if the fire did no damage whatsoever, the exact nature and scope of chemical weapons activities at the Rabta plant remain uncertain. Virtually all estimates of the plant's potential are quite staggering, and former CIA Director Webster has called the Libyan facility "the largest chemical plant that I know for chemical warfare."²⁴ The *New York Times* suggested that the production capacity of this plant is between 10 and 40 tons of chemicals per month.²⁵ It is also widely reported that one of the primary agents produced at Rabta is mustard gas. Other reports suggest that the plant can also produce sarin (GB) and/or tabun (GA), highly toxic nerve agents.²⁶

The descriptions of the Rabta plant as producing multiple types of chemical agents seem reasonable and appropriate to Libyan needs. Mustard gas retains its military utility despite its World War I origins. It has the capability to incapacitate or kill and is slow to break up under combat conditions. Sarin and tabun, on the other hand, are much more toxic but do not have the persistency of mustard agent. Persistent and non-persistent agents have different military applications so that their functions complement each other. Also, the Libyans may have initiated their chemical warfare production with mustard gas as a stepping stone to the production of the deadlier nerve agents.

After the deception fire the activity at Rabta may have been slowed down or halted to add credibility to Tripoli's claims that massive damage had rendered the plant inoperable. Such a slowdown would reduce the profile of the plant in case US officials were again considering an attack. Surprisingly, Qadhafi announced the reopening of the "pharmaceutical plant" shortly after Operation DESERT STORM.²⁷ Qadhafi may have felt the distraction of the coalition withdrawal from Iraq would leave him more latitude to engage in controversial policies. This, of course, ignored the possibility that the US could have become more assertive against Arab radicals in the aftermath of the action against Iraq.

Adding to concern about Rabta was a series of reports in the German and US media stating that the plant was expanding and that the Libyans were building a

second chemical weapons factory at a different location. The expansion of Rabta has been reported to involve as many as eight S-shaped concrete bunkers, which may be used for storage of chemical agents. There is also speculation that they could involve research on biological warfare weapons.²⁸ While the validity of such speculation remains unproven, this interest would seem consistent with the Libya's interest in expanding its non-conventional war-fighting capabilities. Also, highly potent biological weapons, including anthrax, are not difficult to produce and may be within Libyan capabilities if resources were to be channeled in this direction.

The second suspected chemical warfare plant is reported to be totally underground in a location several hundred miles south of Tripoli. It was reportedly first detected in May by the Israelis, who then provided their information to the CIA. When asked about a *Washington Times* story that initially raised this issue Fitzwater stated, "[T]here are a couple of places [in Libya] indicated as possible sites and they are being watched but nothing has panned out so far." On the same subject, he also said, "We are prepared to believe the worst."²⁹

Under the above circumstances, it seems likely that the Libyans have already obtained a significant chemical warfare production capability. It is doubtful that American efforts to impose a policy of tightened exports of chemical weapons-relevant technology had any serious impact on the Libyan facilities' ability to produce lethal chemicals. Indeed, the US Administration's suggestion that the Rabta plant was in production in 1990 makes it likely that embargoes are too late. It is much easier to prevent the construction of such a plant through an embargo than it is to use an embargo to halt the operations of an already-completed factory. This condition suggests that US military threats against the Rabta facility may serve not so much to prevent production as to suggest that it may be in considerable danger should the Libyans actually start utilizing chemical weapons produced there.

Perhaps responding to the fear of an American attack, the Libyans have been encouraging or possibly forcing civilians to settle around the Rabta plant.³⁰ In this way, Qadhafi insures that any US attack will involve the negative publicity of significant civilian casualties. The possibility that other chemical weapons facilities may be spread throughout the country would also support the Libyan effort to retain this option in the face of possible US military activity. Finally, the extensive production capacity of the Rabta plant suggests that canisters of lethal chemicals could be shipped from the plant and stockpiled throughout Libya. This would insure that a continued Libyan chemical warfare option was not dependent on the well-being of Rabta or any other production facility. The Libyans would, however, have to be careful that their storage techniques were designed to encourage the maximum possible shelf-life for the chemicals which tend to deteriorate more quickly without careful attention to such matters as storage conditions and temperature. The less pure an agent, the greater the need for optimal storage conditions to preserve it.

CHEMICAL WEAPONS AND LIBYAN CONVENTIONAL CAPABILITIES

In order to understand the potential utility of chemical weapons for Libya, consideration must be given to the overall missions of the Libyan military and the conditions under which Libya might call upon its military to conduct operations. It is also important to consider the importance of a strong military in Libya's attempts to deter potential attack as well as bolster the domestic legitimacy of the regime.

Since Qadhafi came to power in 1969, he has shown a consistent interest in acquiring a large and modern army and air force. This led to an arms build-up that the Libyan leadership justified as a response to Israeli military superiority in the Middle East. Later, however, it became apparent that Libya also had a variety of additional missions for its military. These included a combat role in Africa — in practice focusing on Chad, but also Uganda in 1978 — and defense against Egypt with which Qadhafi maintained chronically bad relations from 1973 until a 1989 reconciliation.³¹ Finally, Qadhafi believes himself to be an important leader capable of playing a regional role beyond that of leading Libya. He clearly views his aspirations to Arab leadership as being bolstered by the possession of a large and powerful military machine.

Despite this abundant military arsenal, the Libyan military faces severe problems. Among the officer corps constant questions of military reliability and loyalty arise. Numerous coup attempts have been reported, and there is speculation that Qadhafi has been injured at least once by plotters.³² The need to subject the officer corps to continuing scrutiny as well as occasional purges is hardly a positive factor for the combat potential of any military organization. Equally serious are problems with the rank and file of the Libyan army. Because of the small manpower pool and the lack of technical skills among the Libyan population, a large and high-quality military is not possible. Furthermore, Libyan troops have not appeared to be highly motivated in the past. During the 1987 fighting in Chad, for example, significant numbers of young conscripts surrendered to Chadian forces.³³ Later, many of these troops made it clear that they had no desire to return to Libya.

The culmination of Libya's military shortcomings are seen most clearly when examining its military performance in combat. Libya engaged in a number of military actions in the 1970s and 1980s, and in no case has the Libyan military performance been good. In July 1977, for example, Qadhafi's recurring problems with then Egyptian President Anwar Sadat erupted into a border clash. Against virtually no Egyptian losses, the Libyans lost between 10 and 20 Mirage aircraft, 30 to 40 tanks as well as an unknown, but possibly substantial, number of infantrymen.³⁴ Within one year of this confrontation, the Libyans intervened in support of the Ugandan regime of Idi Amin, which was attempting to fend off a Tanzanian/Ugandan exile invasion force. While casualties on both sides of this conflict were heavy, the Libyan expeditionary force was routed by Tanzania and the Ugandan regime fell.³⁵

Both the response to the Egyptian attack and the actions in support of the Ugandan regime represent combat between conventional forces in which the Libyans did not fight well. In both cases the weaknesses of the Libyan military were underscored despite the possession of modern weapons. In the case of the attack by Egypt, the losses were incurred in an action that was never considered a full-scale invasion but rather a punitive raid aimed at punishing Qadhafi for anti-Egyptian policies in the Sudan. The full vulnerability of Libya must have loomed large at this time and the desire for some kind of non-conventional force equalizer could only increase. Furthermore, the Libyans, despite repeated efforts, had been unable to make much progress in obtaining nuclear weapons.³⁶ Chemical weapons became a logical alternative, although Tripoli continued to seek nuclear technology from abroad.³⁷

While the Egyptian and Ugandan conflicts underscored Libyan military weakness, continuing military problems in Chad were probably even more important. Chad represents an area of fundamental interest to the Libyans. It is an area that they can use as a stepping stone for acts of intervention in Africa as well as a key staging point for enemies to threaten the Libyan regime. In this latter regard, a number of states, including France and the United States, have maintained warm relations with anti-Libyan forces in Chad. France has also stationed troops in Chad and provided logistical support for anti-Libyan forces in Chad. On a regional level, Egypt, Sudan, and especially Israel have at various times been interested in consolidating their relations with anti-Libyan groups in Chad to harass or destabilize the Qadhafi regime.³⁸

While France is the most important external power currently involved with Chad, Israel is probably the Qadhafi regime's most committed enemy. In the early 1980s, the Israelis even considered engaging in a massive effort to restructure the Chadian army along the lines of their efforts in Zaire. This option was rejected, however, on a cost-benefit basis by then Defense Minister Ariel Sharon. This decision did not rule out lower level support through the use of the Israeli intelligence service, Mossad, or the provision of captured PLO weapons to anti-Libyan Chadians.³⁹ It is also of interest that Israel's closest ally in Africa, Zaire, displayed a continuing interest in Chad and deployed troops there initially under Organization of African Unity (OAU) auspices. While the presence of Zairian troops in Chad outlasted the OAU mandate, the commitment was later to dissolve due to financial considerations.⁴⁰ Nevertheless, the potential for Israel to escalate its involvement in Chad through direct action or surrogates is a matter of residual concern for the Libyans.

The Libyan military record in Chad is one of missed opportunities and combat failures. Libya first intervened militarily in Chad in 1980. A second intervention in 1983 was met by fierce resistance from anti-Libyan factions led by Hassen Habre. This resistance has been characterized by one analyst as a "brilliant counteroffensive" which failed only because of the sustained application of Libyan airpower and artillery.⁴¹ The Libyans did not follow up even this limited victory,

however, because of an emergency deployment of French troops to Chad. Between 1983 and 1987, the Libyan political position in Chad deteriorated, with factions previously friendly to Qadhafi rallying to his adversaries.

In late 1986, Libya's attempts to consolidate control over northern Chad caused Tripoli's former allies to begin coordinating their military operations with Qadhafi's enemies. In response the Libyans increased their presence in northern Chad and mounted a massive air and ground offensive that led to the capture of four Chadian towns.⁴² By early 1987, however, the Chadians had turned things around. In March, the Libyan air base of Ouadi Doum was captured when its 5,000 defenders were overcome by a smaller and less well-armed Chadian force. Libya's army showed virtually no professionalism in this encounter, and panicked troops suffered high casualties running through their own minefields to escape the Chadians.⁴³

The Libyans were forced to evacuate their main base at Faya Largeau within days of the defeat at Ouadi Doum. The Libyan air force was then sent to bomb large numbers of vehicles and equipment left behind in order to deny them to the Chadians. The massive defeat totally demoralized the Libyan military, and a large number of pilots and officers defected to Egypt. A September 1987 cease-fire was put into place as a result of efforts by the OAU, leaving the Libyan position in Chad confined to the disputed Aouzou Strip. Later, in 1988, diplomatic relations were restored between Libya and Chad on terms that were not favorable to the Qadhafi government. This did not end tensions between the two governments.⁴⁴

It is likely the war in Chad that provides the most dramatic example of how conventional military shortcomings could have influenced the Libyan decision to seek and acquire chemical weapons. Indeed, there have been charges by the government of Chad that Libya had used chemical weapons against their soldiers in September 1987, when the Libyans were in the final phase of their defeat. According to these accounts, Libya acquired blister agents from Iran and tested them against Chadian soldiers. While some of the Chadians suffered skin burns, the chemicals were not used in sufficient quantity to be decisive, nor could they realistically be expected to reverse the Libyan defeat. The US, nevertheless, took the threat seriously enough to send 2,000 chemical protective masks to Chad.⁴⁵

The probable use of chemical weapons by Libya in Chad is logical from a military point of view. Prior to limited US assistance, Chadian troops were completely unprepared for this type of warfare. In the event of renewed hostilities, Chadian ability to cope with chemical weapons attack will depend upon the amount of aid that is provided to them from the US, France, and other Western nations. While the use of protective masks may be adequate for dealing with a mustard gas attack, anything short of anti-chemical suits would be inadequate for the Chadians should they be faced with a nerve gas attack.

LIBYAN CHEMICAL WEAPONS AND LONG-RANGE STRIKES

Another area of concern to the West involves Libyan capabilities and willingness to engage in long-range strikes against Israel or US and other military

targets in Europe. Libyan readiness to strike at both sets of targets has been suggested on several occasions, but would probably only occur in the most dire of confrontations. The threat is, however, sufficiently serious not to be ruled out and therefore deserves thoughtful consideration. This is particularly the case as the Libyans are seeking to expand the capabilities of the two possible delivery systems for a Libyan chemical attack against distant targets. These are long-range ballistic missiles and aircraft that can be refueled in the air.

Currently, the Libyans possess several types of Soviet-designed missiles, the most important of which is the SCUD-B missile. In the aftermath of the April 1986 US bombing of Libya, one of these missiles was fired at the US base on the island of Lampedusa, Italy. This missile either missed through technical shortcomings, Libyan ineptness or because Colonel Qadhafi wanted to show defiance without provoking a Western response.⁴⁶

Unmodified Soviet SCUD-B missiles have a range of 300 kilometers, placing only a limited number of targets at risk from these systems. There is, however, evidence that the Libyans may be able to acquire the technology to increase the range of their SCUDs by an unspecified number of kilometers. Such action was taken by Iraq prior to Operation DESERT STORM to increase dramatically the ranges of their own systems. The Iraqis relied upon European and especially German scientists to help them, and Libya has been able to tap into this manpower pool as well.⁴⁷ According to the Congressional testimony of former US Secretary of Defense Frank Carlucci, Qadhafi has also been quite successful in acquiring the aid of German missile scientists.⁴⁸

The Libyans may also obtain support from other Third World countries with advancing military space industries to improve and diversify their missile holdings. The North Koreans, for example, have provided SCUD missiles to a variety of Middle Eastern clients in the past and are widely believed to have exported either SCUD or 1,000 kilometer range No Dong-1 missiles to Libya. Qadhafi has strongly denied that his country has these weapons, but he has also given speeches suggesting such missile acquisition would be useful and important for Tripoli.⁴⁹ Also, the Libyans have indicated an interest in Brazilian ballistic missile and space technology.⁵⁰ Finally, the sale by China of CSS-2 Intermediate Range Ballistic Missiles (IRBMs) to Saudi Arabia produced Libyan interest in this system. These missiles have a range of 3,000 kilometers and would be exceptionally dangerous in Libyan hands. Fortunately, the Bush Administration seems to have obtained a specific Chinese promise not to sell more IRBMs in the Middle East. The sanctions imposed on China by President Clinton over Chinese sales of shorter range missiles to Pakistan also make it unlikely that Beijing will consider supplying any missiles to the Libyans.

Apart from ballistic missiles, the other system that is most useful for long-range strikes is bomber aircraft. Currently, some unrefueled Libyan bombers have sufficient range to strike a variety of targets, including Israel and US bases in Western Europe. Of particular importance for these missions are Soviet-made SU-

24 "Fencer-D" aircraft sold to Libya in the late 1980s. The Fencer has a large conventional ordnance capacity, and estimates of its unrefueled combat radius are as high as 1,800 kilometers. In 1989, Soviet spokesman Gennady Gerasimov denied reports that the Libyans had received 15 of these aircraft, stating the number was "something like six, no more."⁵¹ Even with this smaller number, the Fencers could be devastating as a long-range strike weapon if they were armed with chemical munitions. In a near-term time frame their considerable payload would make them an asset in waging a limited war in areas such as Chad.

Additionally, the Libyans have displayed a considerable interest in obtaining the technology for in-flight refueling of aircraft. In 1988, for example, it was disclosed that Libya was cooperating with West Germany to adapt C-130 Hercules transport planes and some fighters to take probe and drogue aerial refueling units.⁵² This attempt seems to have been abandoned due to technical difficulties and the high level of training required for mid-air refueling operations. Later, in March 1980, however, the *New York Times* quoted Pentagon sources as stating that Libya had successfully tested a system for refueling fighter-bombers in flight.⁵³ This capability would eliminate the need for the Fencers to fly at higher fuel efficient altitudes where they would be more detectable and vulnerable. Also, the smaller fighter-bombers in the Libyan air force could be placed in range of Israel by aerial refueling systems.

The main deterrent to Libyan use of chemical weapons for long-range strikes is of course retaliation. Israel has made large-scale retaliation a central feature of its foreign policy regarding hostile attacks. This policy has also been strongly asserted with regard to chemical weapons and implicitly underscored with specific reference to Libya. In July 1987, the Israelis tested a new long-range missile system, the Jericho 2B, by firing it into the Mediterranean Sea north of Libya.⁵⁴ This may well have been a signal to the Qadhafi regime. Additionally, a succession of Israeli Defence Ministers have promised multi-fold retaliation should Israel be attacked with chemical weapons. This is an exceptionally serious threat as Israel possesses both chemical and nuclear weapons, although the latter remain formally undeclared. Interestingly, the existence of such threats appear to have deterred the Iraqis from using chemical weapons against Israel when they struck that country with SCUDs during Operation DESERT STORM.

Likewise, a Libyan willingness to strike Western bases in Europe would involve issues of penetrating US defenses and then dealing with a US response. This problem would virtually rule out a Libyan first strike. Qadhafi may, however, seek such a capability as a way of threatening the West with a response should they consider undertaking operations against Libya.

LIBYAN CHEMICAL WEAPONS AND TERRORISM

A final concern created by the Libyan acquisition of chemical weapons involves Qadhafi's potential role in transferring these weapons to allies and/or international terrorist groups. Concern about terrorists armed with chemical

weapons was especially intense during the last years of the Reagan Administration and served as the core of then Secretary of State George Shultz's keynote address in the January 1989 Paris Conference on chemical weapons.⁵⁵ Since that time interest in this issue has waned.

A concern implied in Shultz's statement is that the Libyans may supply chemical weapons to terrorists much as they have provided them with other highly provocative forms of support. In the past, for example, Qadhafi has supplied the Irish Republican Army with SA-7 shoulder-fired anti-aircraft missiles as well as several tons of the Czech-made plastic explosive Semtex.⁵⁶

Qadhafi is also associated with many of the most erratic fringe elements of the international terrorist movement, including Palestinian extremist Abu Nidal.⁵⁷ While the Libyans may be more circumspect with lethal chemicals than with other weapons, there are potential circumstances under which Tripoli might consider it advantageous to supply terrorists with lethal chemicals. Should Qadhafi find himself in an escalating crisis with the West, he might, like Saddam Hussein, threaten to unleash terrorists. Using chemical weapons to make the terrorist threat more formidable might be seen as enhancing his deterrent capability.

CONCLUSION

The options provided to Libya by the possession of chemical weapons have been sufficiently alluring to the Qadhafi regime to justify the risks that possessing such systems create. The Libyans perceive both defensive and offensive military advantages from these systems as well as prestige and recognition within the Arab world. These factors are major considerations in Libyan foreign policy, and the pursuit of such options may be seen as justifying such options.

It also appears unlikely that the Libyans are approaching the end of their program to create weapons of mass destruction. The probable expansion of the Rabta facility, the existence of other potential sites for similar activity, the employment of European scientists on missile research, and continuing interest in biological and nuclear arms underscore an ongoing commitment to programs aimed at strengthening efforts to arm Libya with unconventional weapons. In this regard, the experience of handling, storing, and weaponizing chemicals could be of considerable value in preparing the way for a large-scale biological warfare program. Biological weapons would be even deadlier than nerve agents and are much more appropriately described as the "poor man's atomic bomb" than are chemical weapons.

Ironically, the Rabta plant and other suspected chemical weapons sites may have become something of a hostage to responsible Libyan behavior within the international community. As Western concerns over Qadhafi's expanding programs multiply, Tripoli may become reluctant to provoke the West with terrorism, confrontations over the Gulf of Sidra or other factors providing excuses for a reprisal raid that would strike at Libya's chemical weapons infrastructure. This could, however, be a temporary phenomenon as Libyan capabilities grow and Libyan

assets are dispersed and hardened. Eventually, Qadhafi may feel secure in the knowledge that his weapons systems could not be destroyed in a clean surgical strike. In this regard, the experience of the US military's inability to destroy Iraqi SCUDs on the ground during Operation DESERT STORM may be seen as particularly instructive for the Libyans. Once chemicals could be weaponized on mobile missiles, they could remain a threat even after waves of Western bombing attacks.

In summary, the Libyan chemical warfare effort is both dangerous in itself and as a stepping stone to other efforts regarding weapons of mass destruction. Steps need to be taken to work against this effort. New German laws as well as criminal prosecutions of individuals previously aiding Libya have been a useful first step in this direction. Further coordination and cooperation among responsible states must also go forward, particularly regarding the sale of relevant technology (often sold illegally) and the movement of foreign nationals to Libya with the purpose of selling weapons technology services to Tripoli.

Endnotes

Research for this project was completed prior to the author's joining the Lawrence Livermore National Laboratory. The opinions expressed here are those of the author and are not meant to reflect the views of the Lawrence Livermore National Laboratory or the Department of Energy.

1. See "Are We Ready for Chemical War?" *Newsweek*, 4 March 1991, p. 29; and Shai Feldman, "Israeli Deterrence and the Gulf War," in Joseph Alpher, ed., *War in the Gulf Implications for Israel* (Boulder, CO: Westview, 1991), 184-208.
2. For a useful study of this process see Thomas C. Wiegale, *The Clandestine Building of Libya's Chemical Weapons Factory: A Study in International Collusion* (Carbondale, IL: Southern Illinois University Press, 1992), especially chapter 6.
3. Michael Brzoska, "Behind the German Export Scandals," *Bulletin of the Atomic Scientists*, (July/August 1989), p. 33. Also see "Showdown With Libya," *Newsweek*, 13 January 1989, Part 1, p. 11.
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