

AMERICAN MILITARY UNIVERSITY

**A LAMP Analysis of Nuclear Proliferation in
the Middle East: Iraq, Iran and Libya.**

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Contents:

	<i>Page</i>
Introduction	1
Step I, II & III.	
The Issue and the Actors Involved.	2
Iraq	3
Libya	5
Iran	8
Step IV & V.	
The Possible Courses of Action and the Major Scenarios	10
Step VI, VII & VIII.	
Analysis of the Alternative Futures	12
Step IX & X.	
The Consequences and the Potentials of Transposition	13
Scenario 1: Regional Stabilisation	14
Scenario 2: Status Quo	16
Scenario 3: Regional Destabilisation	18
The Potentials of Transposition	20
Step XI & XII.	
The Focal Events and the Indicators	21
Conclusion	22
Appendix	
I. Conventions and Treaties	I
II. Iraq, Iran and Libya	II
III. The Analysis Utilising the LAMP Software	IV
Bibliography	VII

Introduction.

Paradoxically, the end of the Cold War reduced the likelihood of World War III but increased the possibilities of local wars. This is as a consequence of the disintegration of the superpower controlled bipolar system into a loose polyarchy of crosscutting alignments and antagonisms.¹ Because of the uncertainty this system entails, many third world states face a new security dilemma, where the only real security is one they can provide for themselves. This translates into obtaining up-to-date arsenals, which throughout history has proved to trigger arms races, war-provoking military confrontations and strained relations between neighbouring states. A region, which has suffered severely from political and religious antagonism and turbulence in the Post-Second World War period is the Middle East, where the strive for security and national identity has lead to a high level of militarisation throughout South West Asia and North Africa. As a result, international relations in the Middle East are characterised by a volatile and highly dynamic political climate, where the arms race has created a strive for more effective and devastating weapons of mass destruction. Chemical weapons nowadays form a part of the arsenals of many Middle Eastern states and have despite the 1925 Geneva Protocol and the 1972 Biological Weapons Conference, been used as offensive means, both in international disputes as well as against domestic dissident populations.

As chemical weapons become an established part of the military doctrine, they cease to be an advantage in the strategic sense. For the states that feel they suffer from a security problem or an external threat, this may trigger the escalation in an arms race and a desire to obtain an even more fearsome weapon: the nuclear weapon.

¹ Brown, Seyom. *The Causes and Prevention of War*. (New York, 1994) p.224.

In order to perform a prediction for the future of nuclear proliferation in the Middle East, we will apply the theory of LAMP (Lockwood Analytical Method for Prediction) to assess the prospects for the acquisition of WMDs in the region.

Step I, II and III:

The Issue for the Prediction of the Most Likely Future and the Actors Involved.

The purpose of this paper is to estimate the probability of three specific states in the Middle East becoming nuclear powers within the next twenty years, and also what implications the different alternative futures will have for the region. The three actors to be analyzed are The Republic of Iraq, The Islamic Republic of Iran and The Socialist People's Republic of Libya. These states have been suspected of attempting to acquire or develop weapons of mass destruction, despite their participation in the 1968 treaty on non-proliferation of nuclear weapons.¹ In order to evaluate the above states possible aspirations of becoming nuclear powers, the following issues must be addressed:

- What is the 'nuclear history' of the state? The purpose is to illustrate previous attempts of proliferation and to answer the question below.
- Does the state have the technological and scientific means to pursue a nuclear weapons program? If not, can it acquire the weapons by other means?
- What factors play a part in the state's decision-making process regarding the development or acquisition of nuclear weapons? I.e. an identification of the conflicts the state is involved in and the potential threats the state faces.
- What would the state want to achieve by becoming a nuclear power? I.e. in what respect would nuclear WMDs strengthen its regional and international position, and how would they improve its security?

¹ See appendix I.

Iraq

The Iraqi nuclear program dates back to 1968, when a 5 MWt Soviet supplied research reactor became operational in Tuwaitha, 20 km west of Baghdad. The reactor was too small however to be of any military significance. The same was the case for a French supplied second research reactor in the same area, which produced up to 800.000 watts. The country took its first steps towards nuclear capabilities in 1975, when the state signed an agreement with France regarding the supply of a 40 MWt nuclear reactor, and also set up a nuclear research institute with a staff of 600 engineers.¹ Iraq claimed to observe all the safeguards prescribed by IAEA but Israeli, Saudi and Iranian sources revealed their fears that the country was preparing for a production of nuclear weapons. As a result of these suspicions, Israeli agents undertook a major operation in France in 1979, where the production of the reactor and other material destined for Iraq was sabotaged and an Egyptian nuclear physicist in Iraqi service was assassinated. The Israeli airforce ended the campaign in 1981 by bombing and leveling the Iraqi Osiraq nuclear reactor to the ground, just before it was completed. The sources proclaiming that Iraq was pursuing nuclear capabilities based their allegations on the facts that Iraq had stockpiled large amounts of natural uranium ore and had obtained equipment for purification of uranium oxide. There is also some evidence that in 1980, Iraq ordered 11.000 kilograms of uranium metal fuel pins from West Germany, pins that were of the right size to fit into Osiraq. The Iraqi nuclear program was later downsized after the war with Iran had proved to be more costly than expected, but was never abandoned. Iraq had throughout the 1980s been shopping for electronic devices commonly used to trigger the uranium core of a nuclear bomb which was proved in 1990, when Iraqi agents were caught in British

¹ Calvocoressi, Peter. *World Politics Since 1945*. (London, 1991) p.357.

customs, attempting to smuggle US made krytron switches to Baghdad.¹ At the time of the Iraqi invasion of Kuwait, independent sources estimated that the state was at least five years from developing its first nuclear weapon. It had enough enriched uranium to produce at least two functional bombs and the expertise to undertake such a venture. After the Gulf war, the possibilities of any production diminished as UNSCOM started the process of dismantling the Iraqi nuclear facilities.

Any Iraqi attempts to develop nuclear weapons in the next decade will have to overcome some severe obstacles. The two most complex problems for Iraq are first of all the UN weapon inspections, which effectively prevent Iraq from undertaking an organized and secret pursuit of nuclear capability. Even after the UN has achieved its stated result and left the country, Iraq will have to start from scratch with the process of acquiring the material needed for the production of WMDs. The second major obstacle is the Israeli and U.S policies of preventing Iraq from acquiring weapons of mass destruction. Jerusalem sent a clear statement in form of the Osiraq bombing in 1981, that it would not tolerate a nuclear-armed Iraq. Israel went to great length to perform the attack and was fully aware of the consequences it would bring with it. The United States has proved to be prepared to re-deploy forces in the Gulf if Iraq does not fully comply with the UN work of crippling the potential production of nuclear and chemical weapons.

Iraq has a difficult strategic position in the Middle East. Its long time aspirations to become the leading Arab state has resulted in a collapsed unification, disputes with neighbouring states and an increasing number of adversaries. The nationalistic Pan-Arabic Ba'th movement, which has dominated the state since 1968, has distanced Iraq from most of the rest of the Arab world.

¹ Catudal, Honore. *Israel's Nuclear Weaponry*. (London, 1991) p.107.

This is because of the Ba'thist ideas of secularisation and by its excising of power politics in the pursuit of greater influence in the region. Saddam Hussein, who took control of the party in 1979, reasserted the Iraqi position in the Gulf and his chief adversaries Syria, Egypt and Israel were joined by Iran and Saudi Arabia. This means in effect, that Iraq today is surrounded by political and religious antagonists of which one, Israel, has a nuclear arsenal and of which two, Egypt and Iran, have shown interest in producing such an arsenal.¹

A future acquisition of nuclear weapons could effectively enhance Iraqi influence in the Middle East, as the country's defense problem would be of less importance. It would also mean that Iraq would have diminished the Israeli military advantage and could enjoy a great opportunity to pursue its interests throughout the Middle East. The downside of nuclear proliferation would be the possibility of international isolationism for Iraq, as 95% of the foreign revenue comes from oil export to the West; the economical effects would be severe.

Libya

In 1976, an agreement with France regarding a purchase of a 600 MWe reactor was reached but strong international reactions forced France to withdraw from the project. Libya had more luck with the Soviet Union however who agreed to supply Libya with a research reactor and assist in the establishment of a nuclear research center.

The complex was built at Tajoura near Tripoli and finished in 1981. The reactor had a power output of 10 MWt and used high-enriched uranium as fuel. In 1977, the Soviets also agreed to sell Libya two nuclear power reactors, each capable of generating 440 MWt and therefor suitable for a possible production of nuclear weapons.

¹ See appendix II regarding the Iraqi geographical borders.

The plant was to be used for providing electricity for a project to desalinate seawater, but the project stalled a number of times and was finally discarded due to the collapse of the Soviet Union. Libya has had lengthy nuclear collaboration with Argentina and Brazil, and has been trying to extend it but without much success. Libya has also obtained a large amount of uranium oxide from Niger, much of which has been re-exported to Pakistan where it has been used in the Pakistani uranium-enrichment program.¹ It is thought Tripoli has also helped to finance the Pakistani nuclear weapons program in exchange for the technology to produce the weapons, or even for a Pakistani supply of ready-made nuclear warheads. Colonel Qadhafi also tried to buy nuclear weapons from China (in 1970) and possibly the Soviet Union, but been refused. Libyan plans to import nuclear reactors, the investment in sending students abroad to study nuclear physics, the activities at the research center at Tajoura, collaboration with Pakistan, Argentina and Brazil are some of the reasons to believe Libya is proper candidate for nuclear proliferation.

The motives for a Libyan acquisition of nuclear weapons are somewhat diffuse. The country's geographical position casts doubts over of what use the weapons would be to Libya as nuclear missiles and bombs can only be for offensive use. Libya has however a reputation as being the most unstable state in the Middle East and lead by the least predictable regime in the region, whose hatred of Israel and the United States and ambitions for regional status are well known. The potential threats the state faces are very much self-inflicted. Materialistic, logistic and political support for terrorist groups such as the Irish Republican Army, Black September, Rote Armee Fraktion and also local Middle East and African armed groups combined with the state's own terrorist acts has lead to Libya being internationally isolated.

¹ Barnaby, Frank. *The Invisible Bomb*. (London, 1989) p.99.

The UN sanctions in form of a trade embargo have paralyzed large parts of the Libyan armed forces, as spare parts for the Russian, French, Italian and German weaponry no longer are imported. The huge rearmament program of the 1980s has therefor turned into an enormous economical loss and a problem for national security as the foreign built armed vehicles, ships and aircraft have slowly turned into scrap-metal. Until 1992, Libya spent more money on military equipment than any other state in Africa as the military expenses exceeded \$10.000 per capita.¹

This may have lead to a revitalized Libyan desire of acquiring non-conventional weapons, such as weapons of mass destruction in an effort to provide state security. An attempt to produce nerve and mustard gas at a chemical factory in Rabata was cast aside after the chemists proved incompetent and the plant was turned into factory producing washing powder. The inability to produce chemical weapons could very well prompt the state to focus on acquiring WMDs on the 'black market' or intensify collaboration with its nuclear partners. The possibility of an own development of nuclear weapons may prove realistic as the country has the materialistic means of starting a nuclear weapons program. The weaponry crisis is not the only reason for a possible desire to acquire nuclear weapons. There are also the Libyan efforts of becoming a recognized regional superpower and the increasing alienation of Libya in Middle Eastern politics to take in account.

The circumstances speaking against a Libyan nuclear weapons project are the UN sanctions that has been imposed since 1992. Even though the export of oil is exempted, inflation and insufficiency of every day goods has resulted in an increased crime rate and a more substantial opposition against the dogmatic regime. The Libyan government is anxious to end the sanctions in order to gain control over the states

¹ Zdenek Cervenka, *Libyen-Är Tiden ute för Kaddafi?* p.10.

financial difficulties and before the lack of food products become imminent. A production of nuclear weapons would have a negative effect on the international communities' view regarding the revocation of the sanctions and would possibly even widen the trade embargo to enclose petroleum products, which are the backbone of the Libyan economy. A second complication of an acquisition of nuclear weapons is the imminent risk of US or Israeli repercussions, in form of bombing the nuclear power plants and installations suspected of manufacturing the weapons. It is doubtful whether Israel and the United States would accept Libya becoming a nuclear power and any attack preventing such an event would be welcome or maybe even initiated by Spain and Italy, who would be within reach of Libyan strikes.

Iran

The Iranian Shah Mohammed Pahlavi's reaction to India's first nuclear test in 1974 was a statement remarking that Iran should acquire nuclear weapons if any other state in the region did so. Under his regime, Iran had a very large nuclear program. The Shah was anxious to establish Iran as a regional superpower, an ambition that led to the purchases of large quantities of sophisticated conventional weapons. Iran was also aware of the Iraqi and Pakistani nuclear progress, two states that were not only competing with the Iranian ambitions, but were also enemies of the Iranian regime. Another sign of Iran's intentions was the construction of two large nuclear power reactors 60 kilometers north of Bushehr, as a country with as much oil as Iran does not need other means to produce electricity. Each of the reactors was to have a capacity of 1.200 MWe and was to be joined by two other reactors with the capacity of 900 MWe. The plan was to provide the country with 20 or so nuclear reactors by the year 2000.

Arrangements were also made to guarantee supplies of low-enriched uranium fuel and the sponsoring of thousands of students sent to France, West Germany, Belgium, Canada and the United States to be trained in a variety of nuclear specialties.¹ By the time the Shah was overthrown, a research center staffed by highly skilled scientists had been set up in Teheran, complemented by research reactor of 5 MWt. The new Khomeini regime stopped the construction of the power plant at Bushehr, disapproving of Iran's dependence on the West and signed a bilateral agreement regarding nuclear collaboration with both Pakistan and Argentina. A second research institute, the Isafahn Nuclear Center, was also set up despite the exodus of scientists after the revolution. The Iranian reserve of 5.000 tons worth of high-grade natural uranium in the Yazd province was also explored for a possible mining operation. The war with Iraq meant a significant setback for the nuclear program as several facilities, among them the Bushehr site, were bombed and many scientists killed.

Iran claims the spiritual and political leadership of the Islamic world. It will not want any other Muslim state, like Pakistan, to obtain too much prestige by becoming Islam's only recognized nuclear-weapon power. Pakistan and India, both nuclear powers, are not considered to be of any political threats to Tehran. This does not mean Iran is willing to suffer from a subdued position in regard to its neighbors in the east. Both India and Pakistan have a pro-Iran Shi'ite minority, which continues to cause disturbances in their countries and the two states have also orientated themselves towards the West, which strains their relationship with Iran. Other more obvious neighbouring enemies are Iraq and Afghanistan, both opposed to the Iranian revolution and its fundamentalist approach to religion. The fear of Iran in the Middle East after the religious revolution has to a great extent isolated the state.

¹ Fuller, Graham. *The Center of the Universe: The Geopolitics of Iran*. (Boulder, 1991) p.156.

Iran has been forced to acknowledge its failure to export the revolution and has started to open up towards the rest of the region as well as to the West. Iran is however still a state facing several political and religious enemies throughout the Middle East and the world. An acquisition of nuclear weapons would strengthen Iran's regional status in the strategic sense, but would also work against the process of introducing a more pragmatic approach in order to normalise the state's international relations.

**Step IV and V:
The Possible Courses of Action and the Major Scenarios.**

There are two courses of action open to all three actors regarding the acquisition of nuclear weapons in the next twenty years:

1. **Proliferation:** One, two or all three states become nuclear powers after having developed their own arsenal of nuclear bombs or warheads. An alternative to an independent development program is that the weapons have partly or completely been obtained elsewhere.
2. **Non-proliferation:** All three states have either failed to develop their own arsenal or abstained from doing so.

The three most realistic future scenarios are as follows:

1. **Regional stabilisation:** This scenario assumes the Israeli-Palestinian peace process proceeds with improved Arab-Israeli relations as a result. Political relations in the region continue to turn increasingly pragmatic, both the Islamic states vis-à-vis to each other and towards the West. The result of a political stabilisation in The Middle East would be a decreasing need for deterrence and exercise of power politics.

2. **Status quo:** Israel continues to neither confirm, nor deny its nuclear capabilities and Israeli-Arab relations remain wary. The division between the secularist and the orthodox Islamic governments prevails but without any immediate risks of armed intermezzos. This scenario is one where nuclear proliferation may improve the state's regional influence, but would also act against the state as it would experience deteriorating relations and economy and may as a further consequence trigger an arms race.
3. **Regional destabilisation:** Israel declares itself a nuclear power, with consequently increased Arab-Israeli tensions. The question of nuclear proliferation becomes immediate to all states that have hostile relations with Jerusalem. Destabilisation may also be caused by an escalating conflict between the secularist and the orthodox Muslim governments, with rearmament and imminent risks of armed confrontations as a consequence. The result of a regional destabilisation would be an increasing use of power politics and need for deterrence.

There are as we can see two factors that play a part in the future scenarios: The actions of Israel and the divisions between the two ideological forms of authority; Ba'thism with its secularist approach to religion and revolutionary Islam with its fundamentalist approach. It is also important to mention that the future for proliferation for two of the actors, namely Iraq and Iran, is to a great extent dependent on the course of action of each of the both states. It is unlikely, even if scenario one predominates, that Iran would not pursue a nuclear weapons program if Iraq becomes a nuclear power and vice-versa. The future of Libyan proliferation on the other hand, is less dependent on the actions of the other Islamic states. For Libya, the future form of its relationship with the West is more determined.

**Step VI, VII and VIII:
Analysis of Alternative Futures.**

In analysing the alternative futures, X equals the numbers of courses of action, Y equals the number of actors involved and Z equals the total number of alternative futures to be compared. To accomplish this step, we use the formula $X^{Y=Z}$

The equation for each scenario is: $2^3 = 8$

As we can see, there are eight possible alternative futures identified for each of the three scenarios. The following pairwise comparison for every scenario determines their relative probability.

Scenario 1: Regional Stabilisation

Future	Iraq	Iran	Libya	Votes
Nº 1	P	P	P	4
Nº 2	P	P	N	5
Nº 3	P	N	N	3
Nº 4	N	N	N	7
Nº 5	N	N	P	6
Nº 6	N	P	P	0
Nº 7	P	N	P	1
Nº 8	N	P	N	2

Scenario 2: Status Quo

Future	Iraq	Iran	Libya	Votes
Nº 1	P	P	P	4
Nº 2	P	P	N	6
Nº 3	P	N	N	3
Nº 4	N	N	N	7
Nº 5	N	N	P	4
Nº 6	N	P	P	0
Nº 7	P	N	P	3
Nº 8	N	P	N	1

Scenario 3: Regional Destabilisation

Future	Iraq	Iran	Libya	Votes
Nº 1	P	P	P	4
Nº 2	P	P	N	7
Nº 3	P	N	N	4
Nº 4	N	N	N	6
Nº 5	N	N	P	4
Nº 6	N	P	P	0
Nº 7	P	N	P	2
Nº 8	N	P	N	1

P = *Proliferate*,
N = *Non-proliferate*.

The ranking of the alternative futures for each scenario, from the highest relative probability to the lowest based on the number of votes received:

	Scenario 1		Scenario 2		Scenario 3	
<i>Ranking</i>	<i>Future</i>	<i>Votes</i>	<i>Future</i>	<i>Votes</i>	<i>Future</i>	<i>Votes</i>
1.	Nº 4	7	Nº 4	7	Nº 2	7
2.	Nº 5	6	Nº 2	6	Nº 4	6
3.	Nº 2	5	Nº 5	4	Nº 5	4
4.	Nº 1	4	Nº 1	4	Nº 1	4
5.	Nº 3	3	Nº 3	3	Nº 3	4
6.	Nº 8	2	Nº 7	3	Nº 7	2
7.	Nº 7	1	Nº 8	1	Nº 8	1
8.	Nº 6	0	Nº 6	0	Nº 6	0

**Step IX & X:
The Consequences and the Potentials of Transposition.**

As we can see in the table above, the rankings are quite similar in all three scenarios. Future number 4 is the highest ranked in both scenario one and two and on second place in scenario three. Future number 2 and 5 are also highly ranked in all scenarios while future 6, 7 and 8 have ended up at the bottom in all three. The reason why the rankings are altogether consistent is as mentioned earlier, due to the crosscutting assumption that an Iraqi proliferation will lead to an Iranian likewise and vice-versa. This while a Libyan proliferation is somewhat unconstrained by the different scenarios and the future of the other two states. Future 4 is overall the highest ranked as an effect of the split distribution of the votes to future 2 and 5.

In all, we can predict according to the ranking, that the three most likely futures regardless of the scenarios are:

1. No state proliferate
2. Iraq and Iran both proliferate
3. Only Libya proliferate

To give the ranking a meaning, the top three alternative futures in each scenario will now be analyzed in terms of their consequences for the topic in question. The three highest ranked futures in each scenario will be examined in detail while the next five are dealt with in the later section ‘The Potentials of Transposition’.

The main aspects to be considered here are the following issues:

- Impacts on state security in the region
- Prospects of future international interventions (not necessarily armed ones)
- Implications for future international relations
- Possibilities of future conflicts and their extent
- Possibilities of a future arms race or disarmament in the region

Scenario 1, Regional Stabilisation.

Future 4: No state proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Positive	Few/Uncomplicated	Pragmatic	Few/Limited	Disarmament

This future is the most representative for this scenario as regional stabilization is to an extent dependent on all states abstaining from the utilization of the power politics, something which is characteristic for nuclear powers. The Middle East remaining a nuclear free zone (as Israel’s nuclear status is unconfirmed) will have a positive effect on the internal relations in the region as well as the Middle East’s relations with the West. It is no guarantee for peace but it would aid in marking the way for a more pragmatic approach to politics and increased openness of closed regimes such as Libya and Iran. It is also a future where dynamic conflict solving is preserved as ‘nuclear’ diplomacy would severely reduce the prospects for constructive mutual negotiations.

Future 5: Libya proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Positive	Few/One Major	Pragmatic	Few/Limited	Disarmament

This alternative future would not necessarily impede the continuing prospects for stability in the Middle East as Libya is a minor player in regional politics and mistrusted also among its fellow Arab nations. This future would have a greater impact on the West however, particularly on Europe and the United States, as these are the two main targets for Libyan aggression. Suspicions of a nuclear-armed Libya would undoubtedly lead to repercussions for the country. In this future, an armed Western intervention, probably supported by most states in the Middle East would most likely take place. A Libyan arsenal of nuclear weapons would not only undermine the non-proliferation treaty and question its validity in the Middle East, but also put the country in a position where it can put forward demands that are not in line with the policies of the international community. A Libyan proliferation followed by an international intervention is unlikely to harm the positive development in the Middle East or the regions relations with the West.

Future 2: Iraq and Iran proliferate.

Security	Interventions	Int. Relations	Conflicts	Arms
Negative	Few/Cautious	Less Pragmatic	Few/Limited	Rearmament

This alternative future would have a definite negative effect on the entire region, as it would undermine the security of Israel and the non-nuclear powers such as Saudi Arabia, Egypt and Syria. The Arabic states and the international community would however probably accept the nuclear status of Iraq and Iran rather than jeopardise the peaceful development which this scenario is based on.

It would inevitably lead to an Israeli confirmation of its nuclear capabilities and probably a cautious rearmament throughout the Middle East.

It is doubtful whether the stable development would continue as Israel would find itself in a challenging position and the Islamic community would be weary of Iraqi and Iranian intentions. Proliferation of the two would however not be a major threat to security in the Middle East as long as the pragmatic political process continues.

Scenario 2, Status Quo.

Future 4: No state proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Unchanged	Some/Limited	Cautious but Positive	Few/Limited	No Change

This future is one that would occur if the present development in the Middle East continues. The security situation where Iran appears as a fading threat due to the regimes increasingly less dogmatic attitude, where Iraq has little room for maneuvering and where Israeli-Arab relations are increasingly stable, should lead to a Middle East developing in a positive direction. It should also lead to the Islamic community having little patience with destabilizing states such as Libya and Iraq with the result the Middle East will move towards better and more open relations with the Western world. International interventions and regional conflicts should be few due to economical and social progress but the Arab community will remain disunited as a solution to the religious and political differences have not been found. There should not be any reason to suspect any further arms races or increased block politics but neither should we believe a de-militarization of the region would take place. This is a future that favors trade and prosperity rather than power politics, which would have a stabilizing effect on the politics in the Middle East.

Future 2: Iraq and Iran proliferate.

Security	Interventions	Int. Relations	Conflicts	Arms
Negative	Extensive	Dogmatic	Few/Limited	Rearmament

A proliferation of the two antagonists Iraq and Iran would in this scenario have much more serious effects than the same future in scenario one. An international response in form of extensive sanctions including the export of oil would most likely take place. The reaction from Israel would inevitably be a declaration of the country's own nuclear capabilities as well as an increasingly cautious attitude towards the entire Middle East. The two states would find themselves even more isolated than at the present and there would be a high risk of further rearmament throughout the Middle East. The prospects of nuclear proliferation of other states in the region are high as the esprit de corps of the non-proliferation treaty would already be void and the two countries in question most likely would form new foreign policies promoting an increase of their spheres of influence. The dogmatic power politics this future advocates will inevitably lead to a Middle East where ideological antagonism rules out any attempts of co-operation and stabilization for some time to come.

Future 5: Libya proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Unchanged	Some/Major	Cautious	Few/Limited	No Change

This future would for Libya resemble that of the same future in scenario 1. International or Israeli punishment actions would take place in order to halt a Libyan production of nuclear weapons and attempts would be made to destroy the weapons already produced. As Libya is an isolated minor player, this future would not significantly change the political equilibrium as long as the Libyan weapons are dismantled or destroyed. Libya would thereafter find itself even more secluded and also rigorously monitored by the international community.

Scenario 3, Regional Destabilisation.

Future 2: Iraq and Iran proliferate.

Security	Interventions	Int. Relations	Conflicts	Arms
Very Negative	Extensive	Dogmatic	Some/Serious	Rearmament

This alternative future would have a capital impact on the region as all states would find themselves with a major security crisis. An Israeli proliferation or declaration of it being a nuclear power would be inevitable and the Arab-Jewish relations severely disrupted. In addition, the non-proliferation treaty would be considered null and void with the result that a number of states such as Saudi Arabia Egypt and Syria, probably starting their own nuclear programs in order to even out the military balance. An Iraqi and Iranian switch towards expansionistic politics in order to expand their spheres of influence, would take place with the possibilities of armed conflicts throughout the region as a result. This future would be one where power politics and dogmatic relations would dominate the entire Middle East and their relations with the West. Iraq as well as Iran would most likely start making demands on the international community, which would find it difficult if not impossible to stabilise the political situation. Severe international reactions would be expected and possibly an armed intervention to restrict the two states capabilities of using their nuclear weapons, but any such event would be associated with great risks. It is dubious if Israel would let the two states proliferate without doing their outmost to prevent it. Israeli air strikes in the volatile situation this scenario assumes, would lead to reactions from the Islamic community which may result in a major arms race and war throughout the region. This is also a scenario where the risk of a nuclear war would be high if either side believes they could carry out a nuclear strike on their opponent but avoid being hit themselves. This alternative future is clearly the most undesirable one.

Future 4: No state proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Unchanged	Some/Cautious	Dogmatic	Some/Serious	Rearmament

In this future the military balance remains intact despite rearmament and conflicts throughout the Middle East. There is not as much room for power politics as there would be if any state proliferates but we could expect a dogmatic and antagonistic political environment. International attempts to stabilize the situation would take place with the focus on preventing a conflict involving Israel. It is a future, which would prevent any meaningful political and social development in the region as resources and efforts would be concentrated on a further militarization of the Middle East. Tense relations could very well spark a few armed conflicts that would be difficult to solve, but the non-existence of nuclear weapons would minimize the risks of escalation to outside the region.

Future 5: Libya proliferates.

Security	Interventions	Int. Relations	Conflicts	Arms
Unchanged	Some/Major	Dogmatic	Some/Serious	Rearmament

A Libyan proliferation would most likely not do more harm to the unstable situation in the Middle East. Such an event may be the excuse for other states to pursue their own nuclear weapons program as the non-proliferation treaty would be in question, but the actual threat a Libyan arsenal poses would be dealt with by punishment actions by either the UN, the United States or Israel. Libya would in this alternative future face the same consequences as in the two futures in the previous scenarios and meet with a prompt response from the international community. Israel and possibly Egypt would make sure Libya is neutralized after such an event, as the leadership of the country is a totally irrational actor causing much harm in Middle Eastern politics and relations.

The Potentials of Transposition.

As nuclear proliferation in many cases has some considerable impact on the scenarios and consequences that we have investigated earlier, there are several potentials of transposition within each scenario as well as crosscutting through all three scenarios. The problem which has been mentioned earlier regarding nuclear proliferation, is that one actor cannot solely shape a events to come as the future for two of the states in question are so closely connected. An Iraqi nuclear acquisition would with all likelihood lead to an Iranian attempt to even out the military balance, this regardless of the scenario. As we shall see, the variety of alternatives for transposition would all lead to one of the four different futures examined earlier:

1. Iraq and Iran both proliferate, 2. Libya proliferates, 3. No state proliferate or
4. All three states proliferate.

Scenario 1

Regional Stabilization

Future:	Event:	Likely Transposition:
N ^o 1	All three prolif.	Scenario 3, Same future
N ^o 2	Iraq & Iran prolif.	None
N ^o 3	Iraq proliferate	Future 2
N ^o 4	No state prolif.	None
N ^o 5	Libya proliferate	None
N ^o 6	Iran & Libya prolif.	Future 1
N ^o 7	Iraq & Libya prolif.	Future 1
N ^o 8	Iran proliferate	Future 2

Scenario 2

Status Quo

Future:	Event:	Likely Transposition:
N ^o 1	All three prolif.	Scenario 3, Same future
N ^o 2	Iraq & Iran prolif.	Scenario 3, Same future
N ^o 3	Iraq proliferate	Future 2
N ^o 4	No state prolif.	None
N ^o 5	Libya proliferate	None
N ^o 6	Iran & Libya prolif.	Future 1
N ^o 7	Iraq & Libya prolif.	Future 1
N ^o 8	Iran proliferate	Future 2

Scenario 3	Future:	Event:	Likely Transposition:
<i>Regional Destabilization</i>	N ^o 1	All three proliferate.	None
	N ^o 2	Iraq & Iran proliferate.	None
	N ^o 3	Iraq proliferate	Future 2
	N ^o 4	No state proliferate.	None
	N ^o 5	Libya proliferate	Future 1
	N ^o 6	Iran & Libya proliferate.	Future 1
	N ^o 7	Iraq & Libya proliferate.	Future 1
	N ^o 8	Iran proliferate	Future 2

**Step XI & XII:
The Focal Events and the Indicators.**

Below are the focal events with their associated indicators for any actor that follows an alternative future of proliferation:

- **Resists full-scope IAEA safeguard inspections.**
 - Refuse IAEA inspectors access to sensitive areas.
 - Make complaints about the frequency or conduct of IAEA inspectors.
 - Question the efficiency of inspections in rivalry states.
- **Gives the United Nations notice of its withdrawal from the Non-Proliferation Treaty.**
 - Claims other regional NPT states are developing nuclear weapons.
 - An Israeli declaration of nuclear capabilities.
 - Argues the state does not receive the assistance it requires in order to develop its own peaceful nuclear program.
- **High level of activity at nuclear plants, research centres and around underground storage facilities.**
 - Construction, improvement or expansion of underground facilities.
 - Increased activity and higher level of security around nuclear installations and underground storage facilities.
 - Satellites photograph suspicious installations or objects.

Below are the focal events with their associated indicators for any actor that follows an alternative future of non-proliferation:

- **International proclamation that any proliferation attempts will be punished and torn asunder.**
 - International community continues to make Iraq an example of its determination to prevent further production of WMDs.
 - A continued close monitoring of Iraq and Libya.
- **Positive and peaceful development in the entire Middle East.**
 - An increasingly pragmatic Iranian regime.
 - Stable Israeli-Arab relations.
 - Sanctions against Iraq and Libya prove successful.

Conclusion

During the writing of this paper, Iran under President Sayed Mohammed Khatami declared that the export of the Iranian revolution no longer is of any meaning. The Iranian president also declared his intentions of implementing a policy of neutrality and a continuing effort to establish permanently good relations with the West.

It is yet to see whether the region continues its modernization and adjustment to the international order, but the development in last half-decade points towards a future where the Middle East leaves its reputation of being the world's 'unstable corner' behind. It is clear however, that proliferation in the region would effectively prevent any further peaceful development and pragmatic relations, with a recession towards a militarised and volatile situation as a result. This analysis is of course only an exercise in how to use the LAMP method and would probably look different if undertaken by professional analysts, but it should provide an outline of the contemporary situation.

Appendix:

I. Conventions and Treaties

League of Nations Treaty Series, vol. 49.

The Geneva Protocol prohibits the wartime use of Asphyxiating, poison, and other gases and bacteriological methods of warfare.

UN Convention 14860 of 1972:

Convention on the prohibition of the development, production and stockpiling of bacteriological (biological) and toxin weapons and on their destruction.

Participants of interest for this paper, and the year when they adopted the convention are the following states:

Afghanistan 1975, Cyprus 1975, Democratic Yemen 1972, Egypt 1972, Ethiopia 1975, India 1975, Iran 1975, Iraq 1972, Jordan 1975, Kuwait 1975, Lebanon 1975, Morocco 1972, Pakistan 1975, Qatar 1975, Saudi Arabia 1975, Somalia 1972, Syrian Arab Republic 1972, Tunisia 1975, Turkey 1975, United Arab Emirates 1972 and Yemen 1972.

UN Treaty 10485 of 1968:

Treaty for the non-proliferation of nuclear weapons.

The treaty is essentially a grand bargain between the nuclear weapons 'have' and the 'have-nots'. The latter are to abstain from acquiring nuclear weapons in return for receiving substantial assistance from the nuclear-capable countries in developing their own nuclear programs. Any signatory has the right to withdraw from the treaty after a three-month notice. This would theoretically mean that any nuclear weapons aspirant could acquire the means to develop the weapons, give a three-month notice, and start producing them without breaching the treaty.

Participants of interest for this paper, and the year when they adopted the convention are the following states:

Afghanistan 1970, Ethiopia 1970, Iran 1970, Iraq 1970, Jordan 1970, Kuwait 1968, Lebanon 1968, Libya 1968, Morocco 1968, Somalia 1970, Southern Yemen 1968, Sudan 1968, Syria 1969, Tunisia 1970, Turkey 1969, United Arab Republic 1968 and Yemen 1968.

Source: United Nations Treaty Collection

II. Iraq, Iran and Libya



Republic of Iraq

Bordering States: Iran 1,458 km, Jordan 181 km, Kuwait 242 km, Saudi Arabia 814 km, Syria 605 km and Turkey 331 km.

International Participation: ABEDA, ACC, AFESD, AL, AMF, CAEU, CCC, ESCWA, FAO, G-19, G-77, IAEA, IBRD, ICAO, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, Inmarsat, Intelsat, Interpol, IOC, ITU, NAM, OAPEC, OIC, OPEC, PCA, UN, UNCTAD, UNESCO, UNIDO, UPU, WFTU, WHO, WIPO, WMO, WtoO.

International Disputes: Iran and Iraq restored diplomatic relations in 1990 but are still trying to work out written agreements settling disputes concerning border demarcation, prisoners-of-war, and freedom of navigation and sovereignty over the Shatt al Arab waterway. In November 1994, Iraq formally accepted the UN-demarcated border with Kuwait which had been spelled out in Security Council Resolutions 687 (1991), 773 (1993), and 883 (1993). This formally ends earlier claims to Kuwait and to Bubiyan and Warbah islands. Dispute over water development plans by Turkey for the Tigris and Euphrates Rivers.



Islamic Republic of Iran

Bordering States: Afghanistan 936 km, Armenia 35 km, Azerbaijan 611 km, Iraq 1,458 km, Pakistan 909 km, Turkey 499 km and Turkmenistan 992 km.

International Participation: CCC, CP, ECO, ESCAP, FAO, G-19, G-24, G-77, IAEA, IBRD, ICAO, ICC, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, Inmarsat, Intelsat, Interpol, IOC, IOM (observer), ISO, ITU, NAM, OIC, OPEC, PCA, UN, UNCTAD, UNESCO, UNHCR, UNIDO, UPU, WCL, WFTU, WHO, WIPO, WMO and WtoO.

International Disputes: Iran and Iraq restored diplomatic relations in 1990 but are still trying to work out written agreements settling outstanding disputes concerning border demarcation, prisoners-of-war, and freedom of navigation and sovereignty over the Shatt al-Arab waterway. Iran occupies two islands in the Persian Gulf claimed by the UAE: Lesser Tunb and Greater Tunb. It jointly administers with the UAE the island Jazireh-ye Abu in the Persian Gulf claimed by the UAE.

In 1992, the dispute over Abu Musa and the Tunb islands became more acute when Iran unilaterally tried to control the entry of third country nationals into the UAE portion of Abu Musa island. Tehran subsequently backed off in the face of significant diplomatic support for the UAE in the region, but in 1994 it increased its military presence on the disputed islands. Periodic disputes with Afghanistan over Helmand water rights. Caspian Sea boundaries are not yet determined.



Socialist People's Libyan Arab Jamahiriya

Bordering States: Algeria 982 km, Chad 1,055 km, Egypt 1,150 km, Niger 354 km, Sudan 383 km and Tunisia 459 km.

International Participation: ABEDA, AfDB, AFESD, AL, AMF, AMU, CAEU, CCC, ECA, FAO, G-77, IAEA, IBRD, ICAO, ICRM, IDA, IDB, IFAD, IFC, IFRCs, ILO, IMF, IMO, Intelsat, Interpol, IOC, ISO, ITU, NAM, OAU, OIC, OPEC, UN, UNCTAD, UNESCO, UNIDO, UNITAR, UPU, WFTU, WHO, WIPO, WMO, WtoO and WtrO.

International Disputes: the International Court of Justice (ICJ) ruled in February 1994 that the 100,000 sq km Aozou Strip between Chad and Libya belongs to Chad and that Libya must withdraw from it by 31 May 1994. Libya has withdrawn some of its forces in response to the ICJ ruling, but still maintains part of the airfield and a small military presence at the airfield's water supply located in Chad. Maritime boundary dispute with Tunisia. Claims part of northern Niger and part of south-eastern Algeria.

Source: The CIA World Book of Facts 1996.

III. The Analysis Utilising the LAMP Software

The analysis in this paper has been performed without the support of Lumintel's LAMP software. The following is the same analysis but with the difference that it has been synthesised by LAMP 97¹

Step one:

Problems

Problem_Id	Problem_Description
6	Nuclear Proliferation

Step two:

Actors

Problem_Id	Code	Name
6	IQ	Iraq
6	IN	Iran
6	LY	Libya

Step four:

Courses_of_Action

Problem_Id	COA_Code	COA_Description
6	N	Not Proliferate
6	P	Proliferate

Step five & six:

Scenarios

Problem_Id	Scenario_Number	Scenario_Description	Number of Futures	Number of Pairs
6	14	Regional Stabilization	8	28
6	15	Status Quo	8	28
6	16	Regional Destabilization	8	28

Actor_COA_Exclusions

Problem_ID	Actor_Code	COA_Code	Exclusion_Flag
6	IQ	P	No
6	IQ	N	No
6	IN	P	No
6	IN	N	No
6	LY	P	No
6	LY	N	No

¹ LAMP 97 refers to an updated version of the original software, which has been modified in order to be used together with Microsoft Access 97.

*Step seven:***Futures**

Problem_Id	Scenario_Number	Future_Number	COA 1	COA 2	COA 3	Number_Votes
6	14	1	P	P	P	4
6	14	2	P	P	N	5
6	14	3	P	N	P	1
6	14	4	P	N	N	3
6	14	5	N	P	P	0
6	14	6	N	P	N	2
6	14	7	N	N	P	6
6	14	8	N	N	N	7
6	15	1	P	P	P	4
6	15	2	P	P	N	6
6	15	3	P	N	P	3
6	15	4	P	N	N	3
6	15	5	N	P	P	0
6	15	6	N	P	N	1
6	15	7	N	N	P	4
6	15	8	N	N	N	7
6	16	1	P	P	P	4
6	16	2	P	P	N	7
6	16	3	P	N	P	2
6	16	4	P	N	N	4
6	16	5	N	P	P	0
6	16	6	N	P	N	1
6	16	7	N	N	P	4
6	16	8	N	N	N	6

*Step eleven:***Focal Events**

Problem_Id	Scenario_Number	Future_Number	Focal Event	Focal Event Key
6	1-3	1, 2, 3, 5, 6, 7 & 8	Resists full-scope inspections	1
6	1-3	1, 2, 3, 5, 6, 7 & 8	Gives notice of withdrawal from the NPT	2
6	1-3	1, 2, 3, 5, 6, 7 & 8	High level of activity at nuclear facilities	4
6	1-3	4	International proclamation against proliferation	5
6	1-3	4	Peaceful development	6

*Step twelve:***Indicators**

Problem Id	Scenario Number	Indicator Number	Focal Event Key	Indicator Text
6	1-3	1	1	Refuse IAEA inspectors access to sensitive areas
6	1-3	2	1	Complaints about frequency or conduct of IAEA inspectors
6	1-3	3	1	Question the efficiency of inspections in rivalry states
6	1-3	1	2	Claims other regional NPT states are developing WMDs
6	1-3	2	2	An Israeli declaration of nuclear capabilities
6	1-3	3	2	State does not receive the assistance to dev. its nuc.prog.
6	1-3	1	3	Construction, improvement or expansion of facilities
6	1-3	2	3	Increased activity and higher level of security
6	1-3	3	3	Satellites photograph suspicious installations or objects
6	1-3	2	4	Continues to prevent Iraqi production of WMDs
6	1-3	3	4	A continued close monitoring of Iraq and Libya
6	1-3	1	5	An increasingly pragmatic Iranian regime
6	1-3	2	5	Stable Israeli-Arab relations
6	1-3	3	5	Sanctions against Iraq and Libya prove successful

Step 3, 9 and 10 are not included as they consist only of text and are impossible to incorporate in table-form.

Step 8 is not included, as it is easy enough to see the result in the table for step 7.

Also the actual voting process in step 7, the pairwise comparison, has been left out for space reasons.

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US Arms Control and Disarmament Agency: www.acda.gov

United Nations Treaty Collection: www.un.org/Depts/Treaty/enter.htm