

# SYRIA'S PROLIFERATION CHALLENGE AND THE EUROPEAN UNION'S RESPONSE

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## I. INTRODUCTION

Compared to its other controversial activities, Syria's pursuit and development of weapons of mass destruction (WMD) has attracted relatively little scrutiny, even after its nascent nuclear programme was exposed and destroyed by the Israeli air force in September 2007. Yet, Syria ranks with Iraq under Saddam Hussein and Libya under Muammar Gaddafi as the most ambitious Arab state in terms of its WMD acquisitions. Its investment in chemical weapons (CWs) and missile development has been significant, and its nuclear venture has contradicted long-held assumptions about Syrian strategic behaviour.<sup>1</sup>

The escalation of the current conflict in Syria, which began as an uprising against the government of President Bashar al-Assad in March 2011, gives greater impetus to efforts to determine the fate of Syria's WMD programmes. Preventing the potential loss of control over sensitive material and technology, and addressing the low-probability but high-risk scenario of the use of CWs, as well as what becomes of the CW experts, have emerged as serious concerns for the international community.

This paper aims to shed light on Syria's WMD motivations and on how they fit in its security thinking and policy; describe how its neighbours, enemies and the international community have addressed this matter; and explain why European Union (EU) policy on Syria has failed to take WMD considerations seriously and ultimately failed to influence Syrian decision making.

<sup>1</sup> Many analysts and policymakers held the view that Syria's scarce resources, lack of technology and talent, and cautious decision making precluded any interest in the development of a nuclear programme. Even after the al-Kibar reactor was destroyed, some continued to hold this view. See e.g. Hersh, S. M., 'A strike in the dark', *New Yorker*, 11 Feb. 2008.

## SUMMARY

Syria's desire to acquire weapons of mass destruction (WMD) is shaped by the perceived imbalance of power with Israel but also by a volatile regional environment. As a result, Syria has overcome resource scarcity and other structural constraints to build a significant chemical weapons arsenal, develop missile capabilities and, to the surprise of many, build a nuclear reactor. The European Union (EU) has attempted to offer economic and political incentives to encourage a gradual Syrian shift away from WMD as part of a greater effort to moderate Syria. However, Syrian strategic thinking, concerned with the regional balance of power and confrontation with the United States and Israel, appears to have largely ignored the EU.

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## II. SYRIA: REGIONAL AMBITIONS AND STRATEGIC CONSTRAINTS

Ever since the ascent of President Hafez al-Assad in 1970 and his subsequent consolidation of power, Syria has played a central role in modern Arab politics and the geopolitics of the Middle East.<sup>2</sup> As the self-proclaimed champion of Arabism, keen to project power and an image of steadfastness, Syria has made ideological and strategic choices that have often clashed with global and regional dynamics. At times, Syria has found ways to adapt and even benefit from changing Middle Eastern realities. At no point, however, has it fundamentally altered its strategic posture.

Modern Syria, which maintains contentious relations with all its neighbours, has attempted to assert itself as a regional power despite considerable structural constraints. Surrounded by militarily stronger states (Iraq under Saddam Hussein, United States-backed and nuclear-armed Israel, and North Atlantic Treaty Organization (NATO) member Turkey) and weak polities (fractured Lebanon, frail Jordan and stateless and militant Palestinians), at odds with a number of Arab states and engaged in three major wars with Israel (which has occupied the Golan Heights since 1967), Syria has had to develop innovative, often asymmetric strategies to fulfil its regional ambitions and achieve external security despite acute resource scarcity.

Indeed, Syria's objective attributes of power hardly measure up to its ambitions: its economy and its industrial base have remained relatively small; its oil resources do not compare with those of other Arab states; and the regime has organized its military so as to ensure its loyalty rather than maximize its performance.<sup>3</sup> Indeed, the Assad regime has had to balance foreign policy objectives with the paramount goal of securing its survival as a minority government. This has shifted precious resources towards building loyal, albeit competing, security agencies—strong enough to check each other but weak enough to not constitute a challenge to the regime. Antiquated military doctrine and organization, as well as human talent and resources too limited to dedicate to research and development, have impeded Syria's defence

industry, making the country dependent on foreign arms suppliers.

Importantly, largely because of its own ideological and strategic ambitions, Syria has had few reliable and capable allies in the Arab world. Egypt, with which Syria partnered in 1967 and 1973 against Israel, signed peace with the latter in 1979—a move that Syria perceived as backstabbing. The rich, Sunni and pro-Western Gulf monarchies have always been suspicious of Syria's pseudo-republican, Alawite, socialist character and pro-Soviet Union and later pro-Iran orientation. Syria allied with Iran against the rival Baathist regime of Saddam Hussein.

To secure strategic depth and try to shape the regional agenda despite the odds, Syria has over the years entered into unlikely alliances with other regional actors: the Kurdish Workers' Party (Partiya Karkerên Kurdistan, PKK) against Turkey; various Lebanese factions to secure its western flank, assert its domination of its small neighbour and pressure Israel; Khomeinist Iran after its 1979 Islamic Revolution and war with Iraq; and Palestinian groups throughout the region to control and manipulate the Palestinian cause. The ability of Syria to play a spoiling role gave it the influence that its intrinsic military and economic power could not. In the past decade, its force-multiplying alliance with Iran and Hezbollah and the perception that it stood steadfast against Israel have compounded this strategy. However, Syria also had to adapt to changing regional conditions. For example, it endorsed and deployed troops to the USA-led coalition that freed Kuwait after the 1990 invasion, but vocally opposed the 2003 US invasion of Iraq. In 2002–2003 it also collaborated with Western security agencies against the threat of Islamist terrorism but later facilitated the entry of foreign fighters into Iraq to counter US forces.

### The place of WMD programmes in Syria's security policy

The prime determinant of Syria's WMD has been the perceived imperative of achieving strategic parity with Israel.<sup>4</sup> The humiliating defeats inflicted by Israel, the resulting occupation of the Golan Heights, the deepening imbalance of power between the two countries and Israel's own nuclear arsenal have shaped

<sup>2</sup> Seale, P., *Assad: The Struggle for the Middle East* (University of California Press: Berkeley, CA, 1990).

<sup>3</sup> See Pollack, K., *Arabs at War: Military Effectiveness, 1948–1991* (Bison Books: London, 2004).

<sup>4</sup> Laipson, E., 'Syria: can the myth be maintained without nukes', *The Nuclear Tipping Point: Why States Reconsider their Nuclear Choices*, eds K. M. Campbell, R. J. Einhorn and M. Reiss (Brookings Institution Press: Washington, DC, 2004).

Syria's strategic outlook and mindset. In the 1980s, after a series of setbacks against the Israeli Army in Lebanon, Syria invested considerably in military expansion, modernization and restructuring in a bid to establish parity.

This quest, however, proven largely unsustainable and quixotic as Israel's defence industry, military culture and security relationship with the USA gave it an insurmountable qualitative and quantitative edge that Syria conceivably might only be able to erode through sustained foreign support and patronage.<sup>5</sup> With meagre resources, an inadequate military culture and a weakening, less-than-reliable Soviet patron, Syria was in no position to maintain its policy of conventional parity. That became amply clear at the turn of the 1990s, when Syria approached economic bankruptcy, witnessed the collapse of the USSR and had to adapt to rising US influence in the region.

Compounding this was the reality that for Israel, a militarily weakening Syria ruled by the minority Alawite regime was increasingly easy to deter, as evidenced by the absolute calm that reigned over the occupied Golan Heights in the years after the 1974 Israel–Syria disengagement agreement. Syria was therefore forced to operate asymmetrically, sponsoring Palestinian and Lebanese radical factions and strengthening its alliance with Iran even as it ostensibly recognizes the USA's influence and the need to adapt to new geopolitical realities, including entering peace talks with Israel.

### III. SYRIA'S PROLIFERATION RECORD

#### Chemical weapons

Syria is not a signatory to the 1993 Chemical Weapons Convention (CWC). The prominence of Israel in Syrian military thinking, combined with Syria's inherent weaknesses in its military capabilities, led it to pursue CWs and, allegedly, conduct research into the use of biological agents as weapons. Syria's CWs are not tactical or battlefield weapons, but rather a strategic deterrence against Israel's conventional superiority and its nuclear weapons arsenal.

Syria began work on CWs in the 1970s under President Hafez al-Assad, who placed supervision of the country's chemical and biological programmes

<sup>5</sup> Cordesman, A. and Nerguizian, A., *The Arab–Israeli Military Balance in 2010* (Center for Strategic and International Studies: Washington, DC, 2010).

under the Scientific Studies and Research Centre (CERS), established in 1971 as a civilian research centre. Although the centre's public purpose is to advance and coordinate Syria's scientific work, it has been identified as the main body in charge of the research and development (R&D), procurement and production of CWs and biological weapons (BW). CERS is not an independent organization; it is a government agency that reports to the President and functions under the auspices of the Ministry of Defence. The centre is in charge of facilities that have produced chemical agents in Dumayr, Khan Abu Shamat and Furqlus, mainly built in the 1980s. The various facilities are located north of Damascus, near Homs, in Hamah and in Al-Safirah, south east of Aleppo.<sup>6</sup>

Syria's has not undertaken its chemical weapon development alone. Its relative backwardness in technological and industrial development, compounded by limited funds, has meant that most of its capability has been developed using outside help. Syria has been actively seeking materials and know-how for its programme. According to certain reports it first received chemical munitions, in the form of artillery shells and bombs filled with sarin and mustard gas, from the Egyptians in the run-up to the 1973 October War.<sup>7</sup> Syria's decision to embark on a fully fledged programme was likely tied to the defeat of its close ally Egypt by Israel and the subsequent humiliation of the 1982 Lebanon War, which served to highlight Israel's military superiority.

There is debate about what other countries Syria cooperated with, and how closely. The US Central Intelligence Agency (CIA) said in 1989 that 'Western European firms were instrumental in supplying the required chemicals and equipment. Without the provision of these key elements, Damascus would not have been able to produce chemical weapons'. It also identified several German firms involved in selling dual-use items.<sup>8</sup> The USSR was named as a supplier of precursors in the late 1970s, and possibly actual CWs in the 1980s, but these allegations have been disputed. US intelligence identified the USSR as a supplier of defensive CWs, including some decontamination

<sup>6</sup> Nuclear Threat Initiative (NTI), 'Centre D'Etude et Recherche Scientifique (CERS)', 2011, <<http://www.nti.org/facilities/875/>>.

<sup>7</sup> Normark, M. et al., 'Syria and WMD: incentives and capabilities', Swedish Defence Research Agency report, June 2004, <<http://www2.foi.se/rapp/foir1290.pdf>>, p. 34.

<sup>8</sup> Webster, W., US Director of Central Intelligence, Prepared Testimony before the US Senate Committee on Governmental Affairs, 9 Feb. 1989, p. 5.

equipment. The extent to which Russia was aware of the business its officials conducted with Syria, particularly in the development of Syria's offensive CWs capability, is still disputed.<sup>9</sup>

In 2003 the CIA stated that 'Syria remained dependent on foreign sources for key elements of its CW programme, including precursor chemicals and key production equipment', confirming that Syria was still unable to develop an indigenous CW programme.<sup>10</sup> Reports of cooperation with Iran that emerged following this assertion remain unverified. In 2005 Iran had allegedly agreed to assist Syria in setting up an indigenous production capability for VX, sarin and mustard gas, through provision of technical assistance, transfer of knowledge and materials. One report alleged that Syria had 'imported hundreds of tons of sodium sulphide, hydrochloric acid and ethylene glycol-MEG from Iran, which are precursors for the production of mustard blister agents and sarin nerve gas', just enough to weaponize a handful of bombs and missiles (military use of CW requires hundreds, if not thousands of tonnes of precursors in order to be effective).<sup>11</sup> Syria is also said to have received assistance from the Democratic People's Republic of Korea (DPRK, or North Korea).<sup>12</sup>

How big is Syria's stockpile of CWs and what does it possess? According to a 1993 report, 'Syria has the largest and most advanced chemical warfare programme in the Arab world'.<sup>13</sup> Today, assessments vary, but it is globally accepted that Syria has developed and stockpiled hundreds of tons of VX, sarin and

mustard gas.<sup>14</sup> In 2003 a CIA assessment stated that 'Damascus already held a stockpile of the nerve agent sarin, but apparently has tried to develop more toxic and persistent nerve agents'.<sup>15</sup> Indeed, sarin was the first agent Syria experimented with, fitting the agent into bombs, artillery shells and rockets. In order to supplement its deterrence, after Syria acquired Scud missiles, it began to investigate the viability of using both sarin and VX nerve agents in a missile warhead.

By the mid-1990s it was estimated that Syria had developed between 100 and 200 warheads filled with sarin for its Scud-B and Scud-C missiles, and thousands of chemical bombs filled with the nerve agents VX and sarin.<sup>16</sup> VX is significantly more lethal than sarin and lasts longer in the environment, increasing exposure rates and making it more attractive as a chemical weapon.<sup>17</sup> In addition to both nerve agents, Syria is said to produce mustard gas, a blister agent. These are the three standard agents that any traditional state military programme will seek to acquire. Despite this worrying assessment, it is important to note that Syria's CW stockpile is likely to be growing old and the agents themselves are likely to have deteriorated significantly. Specifically, VX and sarin are very susceptible to degradation if not made to the highest purity. Iraq's VX, for example, had an effective shelf life of about 6 months, while its sarin was useful for one to two years. Although the degradation products are still toxic, they are less so than the original formulation. Assuming Syria's VX and sarin stockpiles are of a similar quality to Iraq's, it will need to 'replenish' its stockpile periodically, or maintain an industrial capability to rapidly produce agents when needed, leaving it susceptible to supplier controls.

There is little open source data on Syria's efforts to test its warheads, but reports of testing in 2001 and 2005 have emerged.<sup>18</sup> Syria has continued to invest

<sup>9</sup> In 1997 *The Jerusalem Post* published an article stating that Russia was closely involved in Syria's chemical weapon programme, including through direct shipments of VX nerve gas and information exchanges via Russian scientists. Lesham, D., 'Syria's deadly secret', *Jerusalem Post*, 6 May 1997.

<sup>10</sup> Central Intelligence Agency, 'Unclassified report to Congress on the acquisition of technology relating to weapons of mass destruction and advanced conventional munitions: 1 July through 31 Dec. 2003', <[https://www.cia.gov/library/reports/archived-reports-1/july\\_dec2003.htm#top](https://www.cia.gov/library/reports/archived-reports-1/july_dec2003.htm#top)>.

<sup>11</sup> Hughes, R., 'Iran aids Syria's CW programme', *Jane's Defence Weekly*, 21 Dec. 2005. For more information see ed. M. Fitzpatrick, *Iran's Nuclear, Chemical and Biological Capabilities: A Net Assessment* (International Institute for Strategic Studies: London, 2011), p. 108.

<sup>12</sup> The involvement of Iran and North Korea in Syria's programme was fervently debated following an explosion that occurred in July 2007 at a Syrian military facility in Aleppo. See Hughes, R., 'Explosion aborts CW project run by Iran and Syria', *Jane's Defence Weekly*, 26 Sep. 2007; and Binder, M., 'Explosion at Syrian military facility: a chemical weapons accident?', *WMD Insights*, Nov. 2007.

<sup>13</sup> Eisenstadt, M., 'Syria's strategic weapons', *Jane's Intelligence Review*, 1 Apr. 1993.

<sup>14</sup> Zanders, J.-P., European Union Institute for Security Studies, Interview with author, Paris, 23 Jan. 2012.

<sup>15</sup> Central Intelligence Agency (note 10).

<sup>16</sup> Eisenstadt, M. (note 13), p.169; Nuclear Threat Initiative, 'Syria chemical chronology', Oct. 2008, <[http://www.nti.org/media/pdfs/syria\\_chemical.pdf?\\_id=1316466790](http://www.nti.org/media/pdfs/syria_chemical.pdf?_id=1316466790)>; and Eisenstadt, M., 'Dealing with Syria's chemical weapons: military options', 17 July 2012, <<http://www.washingtoninstitute.org/policy-analysis/view/dealing-with-syrias-chemical-weapons-military-options>>.

<sup>17</sup> For more information on how VX works and what its effects are see 'Facts about VX', US Centers for Disease Control and Prevention, <<http://www.bt.cdc.gov/agent/vx/basics/facts.asp>>.

<sup>18</sup> Isby, D. C., 'Syrian Scud carried a simulated chemical warhead', *Jane's Missiles and Rockets*, 1 Sep. 2001; Cordesman, A. H., 'Syrian weapons of mass destruction: an overview', Center for Strategic and

in and develop its facilities throughout the past two decades.<sup>19</sup> The international community has remained relatively powerless in the face of Syria's acquisition of these unconventional weapons. Although Syria was encouraged to accede to the CWC and sporadically discussed it with the Organisation for the Prohibition of Chemical Weapons (OPCW), it never took the step, always citing Israel's nuclear programme and status outside of the 1968 Non-Proliferation Treaty (NPT) as reasons. However, in 2003 the US Congress approved a bill that would impose sanctions on Syria unless it stopped the development of its missile, chemical, biological and nuclear programmes. In May 2004, the US Government adopted the Syria Accountability and Lebanese Sovereignty Restoration Act, which contained a series of financial sanctions targeting Syria's support of terrorism, its WMD programmes and its 'destabilizing activities in Iraq and Lebanon'.<sup>20</sup> Despite this, and although Syria is aware that a CWs arsenal is no match for Israel's nuclear weapons, it continues to consider them an important element of its deterrence posture.

While the Syrian regime itself never clarified the reasoning or doctrine behind its development of CWs, its rationale for developing an ambitious CW programme was clearly aimed at building an equalizer, however symbolic and inadequate, to counter Israel's military superiority. That CWs required a relatively low investment, were less technology demanding, and were easier to conceal and deploy undoubtedly made them particularly attractive.

Syrian CWs certainly have a limited utility in terms of deterrence against Israel. Israeli analysts agree that Syria is highly unlikely to use CWs in a pre-emptive strike on Israel, which would then undoubtedly retaliate massively and decisively. However, in the event of direct conflict, CWs could be used as an instrument of terror against civilians. If aimed at population centres, they could also delay and inflict damage on an invading force storming Syria via the Golan Heights, as well as complicate Israeli mobilization by putting a premium on civil defence and crowding important roads. The value of such

tactics was made clear by Saddam Hussein's use of CWs against Iranian forces during the Iran–Iraq War.

Several reports claim that Syria has the capacity to deliver nerve gas with its rockets and missiles. CWs have the theoretical potential to inflict mass casualties over a wide area if applied homogeneously and at lethal concentrations. Ballistic missiles, however, are poorly suited for the delivery of chemical agents. Missiles have a limited payload capacity and, more importantly, arrive at the target at great speeds, often at more than 1000 metres per second. These rapid descent velocities make it difficult to disperse the materials effectively, often resulting in very uneven distribution of a small quantity of lethal agent. Finally, because Syria's missiles are inaccurate, it is not possible to distribute the warheads precisely around a specific target in an attempt to saturate the area at lethal concentrations. Nonetheless, missiles armed with chemical warheads could significantly complicate operations at airbases and other military facilities if personnel were unprotected. Protected troops, or civilians with gas masks and other protective gear, would significantly minimize the number of casualties. Troop mobility offers further protection against chemical attacks.<sup>21</sup>

Syria would be more likely to use its missile arsenal for attacks against urban targets to create terror in an attempt to weaken the political resolve of its adversaries. In that case, based on historical data, the casualty rates would be low—less than three to five deaths per missile on average. The rate could be halved if the attacked country employed early warning measures to notify citizens of an impending attack, allowing them to seek shelter.<sup>22</sup> Tactical missile defences would further reduce the expected casualties, most likely significantly.

One Israeli analyst claimed that CWs and associated delivery systems became, for lack of better options, the 'core' of Syria's security strategy, a 'wild card' that would create enough uncertainty in the minds of Israeli decision makers to prevent an escalation of an existential nature.<sup>23</sup> Interestingly, Syria's chemical arsenal has not been used for arrogant reasons. While President Bashar al-Assad has hinted at times at the

International Studies, 2 June 2008, <[http://csis.org/files/media/isis/pubs/080602\\_syrianwmd.pdf](http://csis.org/files/media/isis/pubs/080602_syrianwmd.pdf)>, p. 7; and Hughes, R., 'Explosion aborts CW project run by Iran and Syria', *Jane's Defense Weekly*, 26 Sep. 2007.

<sup>19</sup> Jasani, B., 'Chemical romance: Syria's unconventional affair develops', *Jane's Intelligence Review*, 12 Feb. 2009.

<sup>20</sup> See US Embassy in Syria, 'US trade and financial sanctions against Syria', <<http://damascus.usembassy.gov/sanctions-syr.html>>.

<sup>21</sup> Historically, chemical attacks have been successful and devastating against large concentrations of unprotected, immobile forces. Mobile forces with detection capabilities and protection are relatively immune to chemical attacks. International Institute for Strategic Studies (IISS), *Iran's Ballistic Missile Capabilities: A Net Assessment* (IISS: London, May 2010), pp. 127–129.

<sup>22</sup> International Institute for Strategic Studies (note 21).

<sup>23</sup> Israeli analyst, Interview with author, Washington, DC, Jan. 2012.

possession of secret capabilities to remind Israel of the potential cost of a military operation, Syria has generally stood by its policy of ambiguity, even at the cost of its prestige. In 2009, when asked whether he had ambitions to produce weapons of mass destruction, including CWs, Assad responded: 'Chemical weapons, that's another thing. But you don't seriously expect me to present our weapons programme to you here? We are in a state of war.'<sup>24</sup>

Today, Syria's CWs arsenal is of particular concern due to the instability within the regime. Given how little is known about the exact size of the country's stockpiles and their location, fears have emerged concerning the security of facilities, possible loss of control to unknown or terrorist groups, the possible transfer of weapons to non-state actors and possible use against civilians or armed rebels for regime protection. In addition, there is concern over what will become of Syria's CWs experts, including technical and manufacturing specialists as well as procurement staff with intimate knowledge of the networks.

### Biological weapons

Syria is a signatory to the 1972 Biological and Toxin Weapons Convention (BTWC) but has not yet ratified it. It is, however, a party to the Geneva Conventions, which also ban the use of biological weapons. Little information on Syria's BW capabilities is available in the public sphere. In addition, many reports differ on whether Syria's research into biological agents was intended for military purposes or not. In 2004 a Swedish national defence agency stated that:

Although realizing that R&D aiming at making biological weapons is not published in open literature, there are no indications that Syria has the scientific level and infrastructure needed for establishing an offensive BW programme. . . . Thus, our conclusion is that Syria does not have an offensive biological weapons programme today.<sup>25</sup>

However, in 2008 the USA examined the programme and came to the opposite conclusion:

<sup>24</sup> 'Peace without Syria is unthinkable', Interview with Syrian President Bashar Assad, *Der Spiegel*, 19 Jan. 2009, <<http://www.spiegel.de/international/world/0,1518,602110-2,00.html>>.

<sup>25</sup> Normark et al. (note 7), pp. 32–33.

[Syria] has a programme to develop select biological agents as weapons. The programme is judged to be in the research and development stage, with Syria's biotechnical infrastructure capable of supporting limited biological agent development. However, Syria is not known to have successfully weaponized biological agents in an effective delivery system.<sup>26</sup>

Syria has invested heavily in its blooming pharmaceutical industry in the past two decades. Some of this development has allegedly been carried out by CERS. In addition, Syria's extensive experience with CWs could be adapted for use in the BWs sphere. However, according to some experts, despite conducting research into the development of BWs, Syria does not have the capability or the capacity to develop BWs today.<sup>27</sup> More importantly, there is no indication that it intends to do so.

Nevertheless, the lack of publicly available information on Syria's alleged BW programme adds to growing concerns over the potential consequences of the current government's loss of control over its WMD.

### Syria's nuclear programme

According to a report from the Center for Strategic and International Studies (CSIS) published after the bombing of the al-Kibar facility in 2007, 'Syria has long had an interest in acquiring nuclear weapons'.<sup>28</sup> Although Syria acceded to the NPT in 1969, and has repeatedly called for a Middle East free of WMDs, it has clearly harboured nuclear ambitions.

Several Arab states began to contemplate the use of nuclear power in the 1950s under US President Dwight Eisenhower's 'Atoms for Peace' programme. Syria did not follow their lead, although it did become a member of the International Atomic Energy Agency (IAEA) in 1963, prior to signing the NPT. Only later did

<sup>26</sup> Maples, M. (Lieut. Gen.), 'Current and projected national security threats to the United States', Statement for the Record before the US Senate Committee on Armed Services, 27 Feb. 2008, <<http://www.dia.mil/public-affairs/testimonies/2008-02-27.html>>. The USA reversed the assessment in 2011, when it judged that it was 'unclear' whether Syria was developing or even considering biological weapons. See US State Department, 'Adherence to and compliance with arms control, nonproliferation, and disarmament agreements and commitments', Aug. 2011, <<http://www.state.gov/t/avc/rls/rpt/170447.htm>>.

<sup>27</sup> Zanders (note 14).

<sup>28</sup> Cordesman, A. H., 'Syrian weapons of mass destruction: an overview', Center for Strategic and International Studies, 2 June 2008, <[http://csis.org/files/media/csis/pubs/080602\\_syrianwmd.pdf](http://csis.org/files/media/csis/pubs/080602_syrianwmd.pdf)>, p. 3.

it begin to show interest in nuclear power: the Syrian Atomic Energy Commission was established in 1976, at which time Syria also commenced exploration of the feasibility of nuclear power with the IAEA. Syria had legitimate reasons for its interest in nuclear power, including the rapid growth of domestic electricity consumption. Throughout the 1980s Syria held negotiations with international suppliers, in search of a partner for the construction of a reactor. In addition, there have been reports of Syria allegedly soliciting centrifuge information from the A. Q. Khan network in order to build up its knowledge and technology for the nuclear fuel cycle.

Syria did not have the technological capacity, knowledge or financial resources required to develop a programme on its own. It was only in 1996 that Syria's Chinese-built, 30-kilowatt SRR-1 research reactor became critical. Syria also worked closely with the IAEA on legitimate Technical Cooperation Projects, but its presumed military nuclear ambitions remained relatively hidden until 2007.<sup>29</sup> In fact, as late as 2001 the USA assessed that 'Syria is not pursuing the development of nuclear weapons'.<sup>30</sup>

#### *What drove Bashar al-Assad to embark on a nuclear venture?*

The centrepiece of the covert Syrian nuclear programme was the al-Kibar reactor, which was meant to produce plutonium that could have been used for nuclear weapons at a later stage. Importantly, however, no reprocessing facility has been identified to date. Syria's efforts to conceal the programme, its efforts to clean the al-Kibar site after its destruction, its non-cooperation with the IAEA and its lack of explanation for the need for such a facility all raise serious questions about its objectives. In May 2011 an IAEA report found that the al-Kibar facility was 'very likely' a nuclear reactor whose construction should have been declared to the agency.<sup>31</sup> Accordingly, the Board of Governors of the IAEA referred the matter to the

<sup>29</sup> For more information on International Atomic Energy Agency (IAEA)–Syria cooperation see IAEA, 'Technical Cooperation: Information records on Syrian Arab Republic', 1 Feb. 2012, <<http://tc.iaea.org/tcweb/projectinfo/ProjectInfoByCountry.asp?cid=SYR>>.

<sup>30</sup> US Office of the Secretary of Defense, 'Proliferation: threat and response', Jan. 2001, <<http://www.fas.org/irp/threat/prolif00.pdf>>, p. 43.

<sup>31</sup> International Atomic Energy Agency (IAEA), 'Implementation of the NPT Safeguards Agreement in the Syrian Arab Republic', 24 May 2011, <<http://www.iaea.org/Publications/Documents/Board/2011/gov2011-30.pdf>>.

United Nations Security Council for non-compliance with Syria's safeguards obligation. The question of why Bashar al-Assad decided to start building the al-Kibar reactor is unlikely to be settled unless his regime falls or government insiders with direct knowledge of the decision-making process defect.

The revelation of the construction of the al-Kibar nuclear reactor, despite the very reluctant cooperation of the Syrian Government, came as a shock to most as it shattered long-held assumptions made by experts and officials regarding Syria's interest in nuclear weapons. Prior to September 2007 a wide consensus existed in the non-proliferation community that Syria was not interested in such a programme. Even after the destruction of al-Kibar and the airing of evidence by Western intelligence agencies, analysts suspicious of the US administration of George W. Bush refused to accept this stunning development because of the Iraq WMD fiasco. For a start, it was argued that Syria lacked the money, resources, talent and technology to embark on such a costly venture.<sup>32</sup> More importantly, Assad was believed to be cognizant of, and averse to, the strategic and political costs of what Israel and the West would regard as an extreme provocation. He was thought to be satisfied with his existing CW capabilities and unwilling to take greater risks.

Why then did Assad approve the construction of the al-Kibar reactor? Determining the timing of the decision would help, but only regime insiders closely involved in the decision-making process can provide that answer. According to US intelligence, there was no sign of building at al-Kibar in May 2001, while satellite imagery taken in September 2002 shows the beginning of construction. Planning started earlier, however, and was preceded by negotiations with North Korea 'as early as 1997'.<sup>33</sup>

It is important to remember the context in which Bashar al-Assad decided to go ahead with the construction of the al-Kibar reactor. Having

<sup>32</sup> Hersh, S. M., 'A strike in the dark', *New Yorker*, Feb. 2008. When John Bolton, US Undersecretary of State for International Security, asserted Syrian interest in nuclear weapons in 2002 and 2003, and told the US Congress that US officials were 'looking at Syria's nuclear programme with growing concern and continue to monitor it for any signs of nuclear weapons intent', he was widely derided. 'Ex-officials say Bolton inflated Syrian danger', *New York Times*, 26 Apr. 2005.

<sup>33</sup> Council on Foreign Relations, 'Background briefing with senior US officials on Syria's covert nuclear reactor and North Korea's involvement', Office of the Director of National Intelligence, 24 Apr. 2008, <<http://www.cfr.org/syria/background-briefing-senior-us-officials-syrias-covert-nuclear-reactor-north-koreas-involvement/p16105>>.

succeeded his father as Syrian President in July 2000, he had instantly received international and regional acceptability when Arab and European leaders and the US Secretary of State, Madeleine Albright, attended his father's funeral. The incoming Bush administration was open to dialogue with Assad, an attitude that would harden only after the terrorist attacks on the USA of 11 September 2001 and the US invasion of Iraq in 2003. At the regional level, Syria did not yet face a particularly different or challenging landscape. Although the Israel–Syria track was at a standstill and a new power equation was emerging in Lebanon between Hezbollah and Israel, tensions between Syria and Israel were not acute. Syria's hegemony over Lebanon remained unquestioned by the Arab world and the international community. Iraq itself was contained, although a showdown with the UN and the USA in 1998 over its WMD programmes maintained uncertainty about Saddam Hussein's intentions and potential secret activities.

The answer, according to a former adviser to the Syrian Government who defected, is sheer opportunism: 'Assad did it because he could, not because of a strategic vision'.<sup>34</sup> The adviser suggested that Assad wanted primarily to add yet another card to his hand for a potential grand bargain with Israel and the USA at some unspecified stage. Importantly, Assad had allegedly made no decision as to whether Syria would pursue nuclear weapons or be content merely with a nuclear capability.

One Western official pointed out that given the short period of time between Assad assuming power and the beginning of construction, the al-Kibar project was likely his father's secret legacy.<sup>35</sup> Plans must have been drawn up with the blessing of Hafez al-Assad—with Syria–North Korea nuclear cooperation probably having begun towards the end of his long presidency—and then shelved for unknown reasons, only to be revived by his son. By doing so, some speculate that Bashar al-Assad might have been trying to demonstrate his decisiveness to the security and military chiefs who may have doubted the ability of the young president to lead. The fact that Hafez al-Assad had initiated this programme allowed his son to overcome any scepticism on the part of the regime's barons. Other Western officials venture that Bashar al-Assad

launched the nuclear programme to make up for his lack of achievements. Another Western diplomat insists that the programme was actually imposed on Bashar al-Assad, who was still too weak to oppose his father's advisers.<sup>36</sup>

Whatever the truth, the fundamental point remains that Bashar al-Assad proved more prone to risk taking than was thought by most analysts and most governments. In building al-Kibar, he breached Syria's obligations under the NPT in an attempt to radically alter the balance of power with Israel. He found resources to dedicate to that venture even as the Syrian state and economy faced difficult challenges. He leveraged his relationship with North Korea, a pariah state suspected of proliferation that had already provided Syria with military and technological assistance, even at the risk of having such links exposed.

Assad's rationale for pursuing the construction of al-Kibar may well have changed over time. The strategic landscape in the Middle East changed considerably after construction began at the facility. In response to September 2001, US foreign policy became more aggressive and binary. Antagonistic states were told to change their behaviour or else face US reprisals. In particular, the USA invaded Iraq in March 2003 over its suspected, although ultimately non-existent, WMD programmes. Many US architects of that war also favoured a more hawkish policy toward Syria on the basis of its ties to Palestinian rejectionist groups and Hezbollah and its facilitation of the entry of foreign fighters into Iraq to fight the US occupation forces. In October 2003 Israeli jets destroyed Syrian radars and bombed a Palestinian camp in Syria in retaliation for attacks by Syrian-backed Palestinian militants.

This tug of war culminated in a showdown over Lebanon in which Assad's attempts to perpetuate hegemony were countered by a Western and Arab effort. International and Lebanese popular pressure forced Syrian forces out of Lebanon in April 2005, two months after the assassination of the former Lebanese Prime Minister, Rafik Hariri. Persistent although ultimately overstated talk of Assad's imminent demise continued for several years.

From Assad's perspective, all of these developments probably justified, and perhaps amplified, the need to develop a nuclear capability as a strategic hedge. Keen

<sup>34</sup> Former adviser to the Syrian Government, Interview with author, London, Jan. 2012.

<sup>35</sup> European official, Interviews with author, Paris and Brussels, Feb. 2012.

<sup>36</sup> European diplomats, Interviews with author, Washington, DC, Nov. 2007.



on demonstrating his independence from Western states at a time of immense pressure, he deepened his alliance with Iran and Hezbollah and worked hard to fashion an image of defiance and self-confidence. Following Russia's agreement to write-off a large chunk of Syrian debt in January 2005, and prompted by the concern that a future war between Hezbollah, Iran and Israel might drag Syria into the conflict, Assad proceeded to invest heavily in the modernization of his military and to acquire sophisticated weapon systems, including air defence capabilities less vulnerable to Israeli air attacks.

Another powerful rationale was the diminished prospects of peace with Israel. A large segment of Syria's elite believed that after the collapse of the Syria–Israel talks in 2000 (and especially the disappointing Geneva meeting between Hafez al-Assad and US President Bill Clinton), Israel would never agree to peace, sharpening the need for an unconventional equalizer. Another group believed that even if a peace agreement was signed, in the words of a former Syrian adviser, 'Syria ran the risk of becoming a new Egypt'.<sup>37</sup> By this, it was meant that Israel might well have decided, after making peace with its Arab arch-enemy, to maintain its nuclear arsenal under the pretext of regional uncertainty or Iran's own nuclear pursuit, humiliating Syria just as it humiliated Egypt after the 1979 peace treaty. The same adviser later added another, improbable rationale for the al-Kibar venture: to prove its seriousness, Syria could have added the surprise revelation and dismantlement of the al-Kibar reactor as a sweetener to a peace arrangement with Israel.

Many other questions about al-Kibar remain unanswered. While the central role of North Korea is now widely accepted, the extent of Iranian knowledge of, if not support for the programme is unknown, as is the possibility that Syrian scientists and technicians may have benefited from Iranian expertise.<sup>38</sup>

In reality, Assad paid a relatively small price for Syria's violation of the NPT. While other proliferators have been ostracized and punished, Syria emerged from this episode relatively unscathed except for the destruction of al-Kibar, a project whose value amounted to hundreds of millions of dollars, according to an estimate by a European official.<sup>39</sup> No sanctions

directly linked to the nuclear venture were imposed on Syria, either bilaterally or through multilateral institutions (although Syria was already under heavy US sanctions). By September 2007 Syria had successfully battled its isolation, in large part thanks to the rise of its allies Iran and Hezbollah, the latter's perceived victory in the 2006 war with Israel, US travails in Iraq and the region, and Assad's ability to survive this dangerous period.

Another factor in mitigating the international response was the muted Syrian reaction to the Israeli strike: instead of lashing out and retaliating in kind, Assad seemed relieved that Israel had sufficed itself with an assertion of military superiority without public bombast and further humiliation. Ironically, the episode of the al-Kibar reactor, which could have upset the Israel–Syria strategic equation, had little bearing on the rules that had governed their relations since 1974. By November 2007 Syria was invited by the USA to attend the Annapolis peace conference. In following years the USA and the EU pursued engagement with Syria even more aggressively.

### **Ballistic missile capabilities**

Since 1948 Syria has fought three wars and engaged in a number of skirmishes with Israel, including a short but violent conflict in the Lebanese Bekaa Valley in 1982, during which the Israeli Air Force destroyed more than 80 Syrian aircraft.<sup>40</sup> Although the Syrian and Israeli air forces are roughly the same size, Israel has dominated the combat theatre with its more technically sophisticated warplanes, superior aerial weapons and better trained pilots. Syria has sought to counter Israeli air superiority over the past four decades by purchasing a combination of new aircraft, advanced air defence systems, long-range artillery rockets and ballistic missiles. Today, ballistic missiles are Syria's only weapon capable of reliably striking strategic targets deep inside Israel.

Long-range artillery rockets, supplied to Syria by the USSR as part of brigade-level weapons packages, were first used in October 1973, when Syrian forces fired roughly 24 FROG-7s at Israeli military targets.<sup>41</sup> The

<sup>40</sup> Dupuy, T. N. and Martell, P., *Flawed Victory: The Arab–Israeli Conflict and the 1982 War in Lebanon* (Hero Books: Fairfax, VA, 1986), p. 145.

<sup>41</sup> Wisconsin Project on Nuclear Arms Control, 'Syria missile development: 1997', *Risk Report*, vol. 3, no. 2 (Mar.–Apr. 1997), <<http://www.wisconsinproject.org/countries/syria/missiles.html>>.

<sup>37</sup> Former adviser to the Syrian Government (note 34).

<sup>38</sup> On the allegations of Iran–Syria cooperation on al-Kibar see Ottolenghi, E., 'A still-open nuclear file', *Haaretz*, 26 Aug. 2011.

<sup>39</sup> European official, Interview with author, Paris, October 2010.

terribly inaccurate rockets more often than not missed their targets, and instead struck the adjacent villages in northern Israel.<sup>42</sup> Israel, believing that Syria was intentionally attacking civilian targets, protested at Syria's use of the rockets to the UN and retaliated with airstrikes against Homs and other cities in Syria.

Realizing the limited strategic utility of its inaccurate rockets, Syria sought access to more capable systems. Syria received its first shipment of Scud-B missiles from the USSR in 1974, as part of a massive military resupply effort following the 1973 October War.<sup>43</sup> Presumably the 300 kilometre-range missiles were intended to provide the Syrians with a limited strike capability against targets in Israel to deter Israeli attacks against Syrian cities. Syria may have received additional Scud missiles from the USSR in 1980–81.<sup>44</sup> In 1982, after its devastating loss of aircraft in Lebanon, Syria convinced the USSR to transfer an unspecified number of more advanced and accurate 70–100 km-range SS-21 ballistic missiles.<sup>45</sup> Syria reportedly attempted to obtain 500 km-range SS-23 missiles from the USSR in 1986 and again in 1987, but these requests were refused.<sup>46</sup> Some 20 years later, Russia similarly rejected a request from Syria to procure highly sophisticated, short-range Iskander-E missiles.<sup>47</sup>

The USSR's refusal to sell SS-23 missiles to Syria prompted Syria to seek DF-15 missiles from China in the late 1980s and again in 1991. There have been no open source reports of 500–700km-range DF-15 missiles being paraded or tested in Syria, suggesting that China succumbed to intense US pressure not to transfer the missiles, or related technologies.<sup>48</sup>

<sup>42</sup> Wisconsin Project on Nuclear Arms Control (note 41).

<sup>43</sup> Pierre, A. J., *The Global Politics of Arms Sales* (Princeton University Press: Princeton, NJ, 1982), pp. 138–139.

<sup>44</sup> 'Iran and Iraq trade strikes on refineries', Associated Press, 13 Aug. 1986.

<sup>45</sup> Normark et al. (note 7), p. 69. The USSR produced several models of the SS-21 missile, with each successive model increasing in reliability, range and accuracy. Given the timing of the SS-21 transfers, it is likely that Syria received the first generation version of the missile. In the USSR, the missile designation is 9M79 and the system designation is OTR-21 or 9K79 (the system name is Tochka).

<sup>46</sup> Normark et al. (note 7), p. 71.

<sup>47</sup> Katz, Y., 'Russia tells Syria: no missile sales for now', *Jerusalem Post*, 21 Nov. 2008; and Blanche, E., 'Russia turns down Syrian missile request', *Jane's Missiles and Rockets*, 1 Sep. 2008.

<sup>48</sup> Cirincione, J., Wolfsthal, J. and Rajkumar, M., 'China', *Deadly Arsenal: Nuclear, Biological and Chemical Threats* (Carnegie Endowment for International Peace: Washington, DC, 2005), p. 176. While Syria may not have received the missiles, it may have received DF-15 transporter erector launcher (TEL) vehicles from China prior to the termination of the deal; these launchers, if they arrived, were likely used for Scud-B and Scud-C missiles, as their design is almost identical.

Having failed to acquire missiles from China, Syria in 1991 turned to North Korea for the purchase of about 24 Scud-C missiles and 20 transporter erector launchers (TELs), a deal which reportedly included the construction of two missile assembly facilities in Syria, one near Aleppo and another near Hama.<sup>49</sup> Additional Scud-C and TEL shipments to Syria from North Korea occurred during the mid-1990s, although it is unclear how many were sent and whether the shipments included complete missiles or else key components for assembly at Syrian facilities. Syria flight-tested a Scud-C in July 1992, allegedly with North Korean technical assistance. A second test was performed in 1997. Most publicly accessible reports suggest that more than 100 missiles were supplied during this period.<sup>50</sup>

Seeking to take advantage of its strategic depth to protect its missiles from pre-emptive attacks by Israeli warplanes, Syria is believed to have asked North Korea for longer-range systems. Available evidence indicates that Syria was either unsuccessful in attempts to procure the 900km-range Nodong, or elected to focus instead on the acquisition of a small number of Scud-D missiles. The precise origins of the Scud-D missiles that Syria acquired in May 2000 are unclear. They may have been developed in North Korea, or in Syria with extensive North Korean technical assistance.<sup>51</sup> Syria flight-tested several Scud-Ds in 2005, with at least one missile flying off track and landing in Turkey.<sup>52</sup> In 2012 the UN Panel of Experts on North Korea confirmed a shipment of items with ballistic missile applications from North Korea destined for Syria intercepted in October 2007.<sup>53</sup>

There have been scattered reports of Syria procuring a small number of Nodong missiles from North

<sup>49</sup> Center for Nonproliferation Studies (CNS), 'Eye on proliferation: WMD country profiles: North Korea: missile: import/export'; Emerson, S., 'The postwar Scud boom', *Wall Street Journal*, 10 July 1991; and Gertz, B., 'Libya may buy N. Korean missiles', *Washington Times*, 4 June 1991.

<sup>50</sup> Sciolino, E., 'US tracks a Korean ship taking missiles to Syria', *New York Times*, 21 Feb. 1992, p. A9; Lardner, G. Jr., 'Probe ordered in failure to track N. Korean ship', *Washington Post*, 14 Mar. 1992, p. A17; Waller, D. et al., 'Sneaking in the Scuds', *Newsweek*, 22 June 1992, pp. 42–46; 'Israeli concern over Syrian "Scud" tests', *Jane's Defence Weekly*, 22 Aug. 1992, p. 1; and 'Increase in Egypt's "Scuds" leads to BAE pull-out', *Jane's Defence Weekly*, 5 Sep. 1992, p. 31.

<sup>51</sup> Bermudez, J. Jr., *A History of Ballistic Missile Development in the DPRK*, Occasional Paper no. 2 (Center for Nonproliferation Studies: Monterey, CA, Nov. 1999), pp. 19, 26, 32.

<sup>52</sup> ed. Fitzpatrick (note 11).

<sup>53</sup> UN Panel of Experts on North Korea, final report to the UN Security Council (S/2012/422), 14 June 2012, paragraph 57.

Korea.<sup>54</sup> It is unclear if these reports confuse Scud-D developments with possible Nodong activities, or if they refer to a separate deal between Syria and North Korea. The timing of the alleged transfer coincided with the secret nuclear activity undertaken by Syria in the mid-2000s and before Israel destroyed the illicit nuclear reactor in 2007, suggesting that the Nodong was procured as a nuclear delivery platform. The Nodong, with its larger airframe and greater payload capacity, is better equipped to carry a first-generation nuclear warhead than any of the Scud missiles in Syria's extensive arsenal. Moreover, leaked diplomatic cables from the US State Department assert that Syria has been attempting to purchase components for the Nodong missile.<sup>55</sup> So it is reasonable to conclude that Syria was at least looking to purchase the Nodong, if it had not done so already. Yet, despite these reports, the Nodong has not been flight-tested by Syria, nor has it appeared in Syrian military parades or military depots.

In the more than three decades that Syria has been acquiring Scud-type missiles, very few of the missiles have been test-launched. Syria appears to have flight-tested roughly five to eight Scud-C missiles and two or three Scud-Ds in 2005 and 2007.<sup>56</sup> A handful of Scud-Bs may have been tested in the 1970s, but there is no public record of such launches. The limited number of tests is inconsistent with the development activities required to establish an indigenous production line for the missiles. It also conflicts with the testing needed to validate a licensed production line. It is therefore reasonable to conclude that Syria does not possess a capacity to manufacture Scud-type missiles in domestic plants, although it may be able to assemble Scud-type missiles if the necessary engines and other unique components can be purchased from abroad. Lacking an indigenous production capability for liquid-

<sup>54</sup> See e.g. 'Israel: Western intel "sources" say Syria acquires N. Korean No-Dong missiles', *Middle East Newslines*, 26 Sep. 2007; 'Syria may have DPRK No Dong missile', *World Tribune*, 28 Sep. 2007; and Rios, A., 'The North Korea-Syria nexus: Congress needs to ask tough questions', 21 Apr. 2008, <[http://www.americanprogress.org/issues/2008/04/syria\\_nexus.html](http://www.americanprogress.org/issues/2008/04/syria_nexus.html)>.

<sup>55</sup> US State Department, 'Missile Technology Control Regime (MTCR): Syria's ballistic missile program', Cable to US Embassy in Paris, no. 09STATE98667, 23 Sep. 2009, <<http://wikileaks.org/cable/2009/09/09STATE98667.html>>.

<sup>56</sup> Sandler, N., 'Israeli concern over Syrian "Scud" tests', *Jane's Defence Weekly*, 22 Aug. 1992, p. 11; Bermudez (note 50), p. 19; Hong Szp, C., '[Israel] Pukhan-Chungdong missile connection magara', *Chugan Chosun*, 12 Apr. 2001; Kass, L., 'The growing Syrian missile threat', *Middle East Quarterly*, vol. 12, no. 4 (2005); 'Israeli media says Syria has tested Scud', *Agence France-Presse*, 2 Feb. 2007; and Ben-David, A., 'Syria test fires "Scud D" missile', *Jane's Defence Weekly*, 2 Feb. 2007.

propellant missiles leaves Syria vulnerable to supplier disruptions or cut-offs.

Recognizing this weakness, Syria appears to have invested considerable effort and resources in creating an indigenous capacity to produce solid-propellant rockets and missiles, and in refurbishing the ageing propellant grains contained in the SS-21 missiles imported from the USSR in the 1980s.<sup>57</sup> It is unclear if Syria received technical assistance and training, as well as the necessary industrial equipment and infrastructure, from China or Iran. The appearance of a Syrian version of the Iranian Fateh-110—a semi-guided, 250 km-range missile, known in Syria as the M-60—rather than the more technically sophisticated and capable Chinese B611M, P-12, BP-12A or SY400 missiles suggests that Iran has been the primary supplier of assistance, but Chinese participation cannot be ruled out.

The acquisition and operation of solid-propellant production facilities allows Syrian specialists, over an extended time, to accrue the experience and knowledge needed to build an assortment of short-range missiles indigenously, although Syria must still import key propellant ingredients.<sup>58</sup> In addition to the M-600, Syria can now produce countless artillery rockets with ranges of 50–250 km.

Perhaps more importantly, this accrued experience and tacit knowledge could, in theory, provide a foundation for the development of larger, longer-range ballistic missiles. However, given Syria's near-term strategic needs, short-range systems will remain a strategic priority. Such systems provide Syria with the firepower needed to implement the tactics employed by Hezbollah in 2006, when the militant group fired some 4400 short-range rockets into northern Israel to great effect. In the foreseeable future, therefore, Syria is likely to focus on leveraging its domestic production capacity to acquire a massive inventory of short-range, solid-propellant rockets and missiles for use against Israel, or another regional adversary, in any future conflict. The possible collapse of the Bashar al-Assad regime in Syria would not necessarily change this calculus.

<sup>57</sup> Solid-propellant missiles have a shelf life of 10–20 years, depending on the storage conditions. As such, SS-21 missiles acquired in the 1980s would be unreliable unless their propellant grains were replaced.

<sup>58</sup> See e.g. Center for Nonproliferation Studies (note 49).

### *Syria's ballistic missiles and rocket inventory*

Syria deploys its Scud and SS-21 missiles in three or four brigades, with additional brigades and battalions fielding long-range artillery rockets, such as the M-600 and an assortment of unguided systems. The total number of missiles assigned to the brigades is not confidently known, but various reports suggest that Syria has about 200 SS-21 missiles deployed on 18 mobile launchers and 260–300 Scud-type missiles on 24–36 TELs. The distribution of Scud-B, Scud-C and Scud-D versions is not known, although it is reasonable to conclude that only around 12 missiles are of the Scud-D variety. Syria may have a handful of Nodong missiles deployed on one or two mobile launchers, although they have not been seen in public. The number of M-600s is not known, but given Syria's assumed capacity to manufacture the rockets domestically, the stockpile is likely to grow by 5–12 rockets per month.

Syria's mix of Scud-type ballistic missiles and semi-guided, long-range artillery rockets, including the M-600, lack the accuracy needed to be effective against military targets when armed with high-explosive warheads. Syria's missiles and rockets could, however, be used to harass fixed-site military bases and airfields, but such attacks would only complicate adversary operations; they could not halt them unless Syria launched a majority of its stockpile at a single target and, even under such circumstances, the desired results would be temporary.

Syria has assembled a reasonably large inventory of short-range ballistic missiles and large artillery rockets to offset its relatively weak and ineffective air force. Rockets and missiles are Syria's only reliable means of striking deep inside Israeli territory. But the missiles are not effective weapons of war; they are too inaccurate to destroy military targets dependably unless fired in very large numbers and, even then, they may not succeed. Nonetheless, Syria continues to value its missiles and rockets, as they provide some strategic deterrence, a perception that was almost certainly enhanced by Hezbollah's successful use of rockets in its conflict with Israel in 2006. It therefore seems unlikely that Syria would abandon its quest for additional and more sophisticated missiles. Syria will rely on its domestic capacity to produce short-range, solid-propellant rockets and missiles to satisfy its strategic

needs, and will likely forego further purchases of Scud-type missiles.

#### IV. EUROPEAN UNION INITIATIVES TO CONTAIN SYRIAN PROLIFERATION

##### How the EU approached Syria: policy constraints and failures

For European states, dealing with Syria has always presented a complex policy challenge. Factors that have informed European bilateral and multilateral approaches toward Syria include geographical proximity; historical baggage; multidimensional relations; concerns about Syrian behaviour in the region (especially in Israel, Lebanon and the Palestine territories); the Arab–Israeli conflict; the Middle East's geopolitical dynamics; and interactions with other external powers.

When it came to Syria's formulation of foreign and security policy, however, relations with Europe mattered less than enmity with Israel; Syria's alliance with the USSR and later Iran; its bid for regional leadership and quest for strategic depth in the Levant; and the need to balance potential foreign aggressors (namely the USA). It is within these parameters that European policy towards Syria took shape.

Starting in the 1990s, when Syria joined the international coalition against Saddam Hussein and entered peace talks with Israel, Europe's policy was to encourage and facilitate Syria's participation in ambitious European projects in the Mediterranean as a way to moderate its security policy. Accordingly, Syria attracted the attention of major European states and inevitably created competition among them, with France usually carrying the greatest weight, closely followed by the United Kingdom, Germany and Italy.

European states, either independently or collectively, viewed Syria primarily through the prism of the Israeli–Arab conflict and its impact on regional security. Their priority was to help and coax Israel and its Arab neighbours, including Syria, towards peace. Syrian proliferation was, in the words of a European diplomat, 'item 4 or 5 on our list', a by-product rather than a cause of the conflict.<sup>59</sup> According to the same diplomat, EU officials accepted the view that Syria's proliferation problem would only be resolved through a regional security framework in which the EU played

a supporting rather than a leading role. The EU's main responsibility, as seen from Brussels and other capital cities, was normative: to introduce and reinforce, through words and agreements, international laws and norms that condemn and seek to limit and ban WMD capabilities.

This attitude was met with criticism from US officials, as well as some EU officials: for them, the EU's conviction that it played a minor role regarding Syria's WMD ambitions, while true, had too often been translated into a complacent policy approach. One observer who followed the talks with Syria scathingly remarked:

Because they could do little about it, and because some diplomats were of the view that Syria's WMD programmes were almost legitimate ventures given Israel's own nuclear capabilities, the EU ended up pushing the issue down on its list of priorities. . . . When you can't do much about a problem, just say it is not that important or urgent.<sup>60</sup>

As a result of the EU's perspective and constraints, its strategy was to create interdependency by entangling Syria in a web of agreements, commitments and benefits that would incrementally modify Syria's behaviour and, over time, shape its security policy. The thinking was to make it politically and economically costly for Syria to go down the road of WMD development and acquisition. Equally importantly, the objective was to make it difficult for Syria to block or refuse to join a regional security arrangement that included provisions on WMD arsenals should peace with Israel become a real possibility.

Despite earnest efforts by the EU to bring coherence and discipline to EU policy in its immediate neighbourhood, a common European strategy towards Syria remained more of an aspiration than a reality. This affected the articulation and prioritization of EU interests regarding Syria: some countries placed high emphasis on human rights and political reform, while others were reluctant to do so for reasons of pragmatism, expediency or economic interest. As the European official put it, except for the few moments when consensus reigned (sometimes forced), EU influence over Syria amounted to considerably less

<sup>59</sup> European diplomat, Interview with author, Paris, Oct. 2010.

<sup>60</sup> European official, Interview with author, Paris, Feb. 2012.

than the sum of the influence of each of its members.<sup>61</sup> Crucially, those divides allowed Syria to pit European countries against each other.

Nevertheless, even if EU policy had been more coherent and coordinated, its influence over Syria would still have paled in comparison with that of the regional and international factors considered more important by Syria. Indeed, since the EU could not provide any of the immediate, tangible and significant strategic and security benefits that Syria sought to bolster its regional posture, EU outreach was always met with a mix of opportunism and scepticism. Insofar as relations with the EU opened the door to other actors, allowed Syria to break its isolation or provided access to markets and assistance, they could moderate Syrian behaviour; however, they could not change it decisively, and certainly could not affect Syrian security policy. As its economic woes sharpened, Syria certainly started to value the benefits associated with EU cooperation, even though such benefits remained secondary to the regime's survival, domestic control and regional posture.

### **The EU–Syria dialogue on non-proliferation**

The EU–Syria dialogue was structured under the framework of the Euro–Mediterranean Partnership (also known as the Barcelona Process), which was meant ‘to strengthen [EU] relations with the countries in the Mashriq and Maghreb regions’. The ambitious Barcelona Process had several dimensions, one of which (known as the Political and Security Basket) was aimed at reinforcing dialogue on political and security issues, including WMD.

In November 1995 the foreign ministers of the countries in the Euro–Mediterranean area (including those of Syria and Israel) adopted the Barcelona Declaration, which called on Middle Eastern states to:

promote regional security by acting, inter alia, in favour of nuclear, chemical and biological non-proliferation through adherence to and compliance with a combination of international and regional non-proliferation regimes, and arms control and disarmament agreements such as NPT, CWC, BWC, CTBT and/or regional arrangements such as weapons free zones including their verification regimes, as well as by

fulfilling in good faith their commitments under arms control, disarmament and non-proliferation conventions. . . . [and] pursue a mutually and effectively verifiable Middle East Zone free of weapons of mass destruction, nuclear, chemical and biological, and their delivery systems.<sup>62</sup>

The declaration also reiterated support for international and regional non-proliferation regimes. In 2004 the EU launched its European Neighbourhood Policy to reflect the lessons and experiences of the Barcelona Process and promote security and stability in its immediate neighbourhood.

The participation of both Syria and Israel in the Euro–Mediterranean Partnership was hailed as a success. At the time, Syria refused to participate in forums where it might have to interact with Israel, or which could lead to mutual or binding obligations before peace talks had successfully concluded. This explained why, for example, Syria refused to join the Arms Control and Regional Security talks aimed at addressing security issues in parallel with the Arab–Israeli peace process. However, participation in the Euro–Mediterranean Partnership entailed no bilateral obligation towards another non-EU member. At the time, Syria was slowly opening its economy, with the State Planning Commission pledging in 2004 that the country would adopt capitalist principles by 2012.<sup>63</sup> Such a transition required new markets as well as foreign economic and technical assistance. With no potential Arab or Asian partner, the EU was the lone actor able to extend such benefits. The question for Syria remained the political and strategic cost of partnering with the EU.

### **The Trade and Cooperation Agreement and the WMD clause**

As part of the Barcelona Process, the EU hoped to conclude bilateral Association Agreements with each of the non-EU members of the Euro–Mediterranean Partnership. The agreements extended a number of trade and economic benefits to their signatories in exchange for commitments on economic and political reform, human rights and regional stability. The

<sup>62</sup> European Commission, Barcelona Declaration, adopted at the Euro–Mediterranean Conference, 27–28 Nov. 1995, <ec.europa.eu/research/iscp/pdf/barcelona\_declaration.pdf>.

<sup>63</sup> Haddad, B., ‘Syria’s curious dilemma’, *Middle East Report*, vol. 35, no. 236 (fall 2005).

<sup>61</sup> European official (note 60).

prologue of each agreement directly referenced the Barcelona Declaration, thus embedding language on non-proliferation.

Although heavily courted, Syria emerged as one of the most reluctant would-be signatories. It worried about the prospect of compromising its long-held Arab nationalist and socialist convictions as well as the risk of being slowly dragged into a process that would eventually constrain Syrian options and orientation. Still, the need to avoid isolation and build new relationships in the post-Gulf War era while negotiating peace with Israel required accommodating the EU insistence on progress, although at a slow pace.

By the time Syria took the negotiations seriously, however, the regional and international environments had radically changed. The attacks of September 2001, the collapse of the Israeli–Arab peace process and the more aggressive US policy in the Middle East (which culminated in the invasion of Iraq) threatened to corner Syria just as the largely inexperienced Bashar al-Assad succeeded his father as president.

In June 2003, largely in response to the growing international debate about the perceived nexus between terrorism and proliferation, the EU announced a new, stronger non-proliferation strategy. Consequently, from November 2003 the European Commission implemented the Council of the EU's decision requiring an explicit WMD non-proliferation clause in any new agreement.<sup>64</sup>

The addition of such a clause directly concerned Syria. Several EU member states (including the UK) had already sought in their bilateral talks to convince Syria to renounce CWs or at least sign the CWC and ratify the BTWC—dangling before it the prospects of significant returns similar to those received by Libya after it spectacularly abandoned its WMD programmes in 2003. Other EU member states (including Italy and Spain) disagreed with the emphasis on the CWC, arguing that CW presented no imminent or real threat to Israel and distracted from the more important task of integrating Syria into a political framework that would gradually moderate it.

In any case, Syria showed no interest in following the Libyan model. Rather, Syria—suspecting the USA of seeking regime change in the country, given escalating

US rhetoric and sanctions—adopted a defiant posture against the USA over the latter's invasion of Iraq. Syria also consolidated its hold over Lebanon, upped its support for Palestinian rejectionist groups and deepened its relationship with Iran.

According to a former Syrian adviser, the Syrian leadership felt both trapped and singled out by the EU's tougher WMD language requirements.<sup>65</sup> An additional embarrassment for Syria was that Israel, having signed its own Association Agreement in 1995 (which entered into force in 2000), did not have to accept the tougher language on WMD. The former adviser pointed out that the Syrian public, outraged by the false WMD claims used by the USA to justify its invasion of Iraq as well as the lack of Israeli reciprocity, would not have accepted any such concession.

It is possible (although impossible to verify at present) that Syria was also concerned about the implications of such a clause while construction at the al-Kibar reactor was ongoing. The same former Syrian adviser asserted that it was highly unlikely that any of the Syrian negotiators would have known about the secret nuclear programme launched by Bashar al-Assad in 2001. They had therefore negotiated in good faith, although the state they represented had not.

Still, as relations with the USA rapidly soured, Syria needed to preserve open communication with the EU as a buffer. It thus decided to pursue negotiations with the European Commission while strongly insisting on the removal or rewording of the WMD clause. By the end of 2003, a draft of the Association Agreement, including a watered down clause on non-proliferation, was ready for examination by the various EU member states. Some EU diplomats hailed the mere inclusion of a clause, however altered, as a Syrian concession, while others saw its alteration as a problematic signal and precedent.<sup>66</sup> Later, as political relations deteriorated EU parliamentarians and, more importantly, several EU states (notably the UK, Germany and the Netherlands) registered their opposition to a softened agreement and insisted on tougher proliferation language, highlighting EU divisions on the approach to Syria. On a visit to Damascus in August 2004, the German Foreign Minister, Joschka Fischer, said: 'We have an interest in finalizing the Association Agreement but for us it is crucial that the clause about

<sup>64</sup> For analysis of the EU non-proliferation clause see Aliboni, R., 'The non-proliferation clause in a preventive perspective', *Conflict in Focus*, no. 4 (Dec. 2004); and Grip, L., 'The EU non-proliferation clause: a preliminary assessment', SIPRI Background Paper, Nov. 2009, <[http://books.sipri.org/product\\_info?c\\_product\\_id=394](http://books.sipri.org/product_info?c_product_id=394)>.

<sup>65</sup> Former adviser to the Syrian Government, Interview with author, Dubai, Nov. 2011.

<sup>66</sup> European diplomat, Interview with author, London, Jan. 2012.

weapons of mass destruction will be also accepted. . . . It is for the European Union important to reach an agreement about this clause, not to water down this clause.<sup>67</sup> Negotiations concluded in October 2004 with minor changes to the WMD clause, essentially stressing Syria's responsibility to uphold its existing obligations rather than imposing expansive new ones.

The Association Agreement eventually fell victim to the escalation in tension between the EU and Syria over Lebanon. In September 2004 Syria, the dominant power in Lebanon, forced an extension of the term of the Lebanese President despite the adoption of a UN Security Council resolution asking for Syria's military withdrawal from Lebanon and free presidential elections. In February 2005 Hariri was killed by a car bomb in Beirut. Many suspected Syrian involvement in the assassination of Hariri, an increasingly strident critic of Syria and a personal friend of French President Jacques Chirac. France, this time joined by all the EU member states, advocated a policy of isolation against Syria.

### **Engaging Syria and resurrecting the Association Agreement**

The Association Agreement was resurrected in 2009 after most EU states had decided, separately rather than in a concerted way, to end Syria's isolation and engage with it over a host of political and security issues. Several countries were eager to rebuild ties with Syria, regardless of the lack of progress on the issues that had initially fissured the relationship. Other countries made a strategic bet that a rapprochement with Syria would help temper its behaviour and eventually lure it away from Iran, at a time of Iranian regional ascendancy. Tellingly, France rescued Syria from the EU-imposed purgatory that it had been in since 2005; France's new President, Nicolas Sarkozy, had launched an ambitious, if rather unclear, Union for the Mediterranean. Syria was also rewarded for not standing in the way of a temporary resolution to the protracted Lebanese political crisis.

This time, however, Syria was in no rush to conclude negotiations with the EU.<sup>68</sup> Reassured by advantageous regional dynamics, Syria was simultaneously developing ties with the politically and economically

significant states of Turkey and Qatar, consolidating its alliance with Iran and restarting a political dialogue with the USA. In this context, after the failed negotiations of 2003–2004 that were followed by several years of tense diplomatic confrontation, the EU's attempts to court Syria were met with frostiness.

More importantly, Syria was even less willing to accommodate European pressure on non-proliferation issues. In 2009 the EU resubmitted the last draft it had handed to Syrian authorities in 2004, with minor technical changes. The language was neither softened, which angered the Syrian negotiating delegation, nor toughened to reflect the post-al-Kibar reality that Syria had been engaged in nuclear proliferation while negotiating the previous agreement.

Still, proponents of economic modernization in Syria saw tangible benefits for the country. While Syria witnessed several years of strong growth, structural challenges, a massive drought, dwindling oil resources and the weakness of the private sector threatened its economic viability. Reformers in the Syrian Government hoped that the lure of the EU market and assistance would help restructure the economy, but their reasoning was rebuffed by those who feared the social consequences of economic liberalization, by the nepotistic elite that had so far benefited from the very controlled opening of the economy and by those in the ruling circles who saw no strategic value in a rapprochement with the EU.

An EU diplomat serving in Syria at the time admitted that it was always unclear how much priority the Syrian Government gave to concluding the Association Agreement, or relations with the EU in general, largely because of the opacity of regime dynamics.<sup>69</sup> The Syrian interlocutors on whom they pinned their hopes, especially the Deputy Prime Minister for Economic Affairs, Abdallah Dardari, were not necessarily able to sway the real decision makers or to deliver on their professed intentions. Whatever the real reasons, Syria declined to approve the Association Agreement in October 2009.

### **The EU and the al-Kibar controversy at the IAEA**

The revelation of the existence of a burgeoning Syrian nuclear programme took EU officials, like almost everyone else, by surprise. According to a European intelligence official, several of his colleagues in foreign

<sup>67</sup> 'German, Syrian FM's discuss Syria's progress toward EU association agreement', *Daily Star*, 30 Aug. 2004.

<sup>68</sup> Syrian economist, Interview with author, Dubai, Oct. 2011.

<sup>69</sup> European diplomat, Interview with author, London, Jan. 2012.



ministries remained incredulous for some time after Israeli jets destroyed the al-Kibar facility.<sup>70</sup> EU officials in charge of non-proliferation generally favoured a tough line against Syria at the IAEA, especially given the North Korean connection.

Still, even after Syria's nuclear venture was exposed and the IAEA was tasked with looking into it, the impact on the ongoing EU rapprochement with Syria was minimal. According to an EU diplomat, several member states as well as the EU institutions worried that this revelation would derail what was deemed a more important and promising political track that had gathered momentum. Some argued that the US invitation to Syria to attend the Annapolis peace talks a mere two months after the bombing showed that even the USA believed in a softer line. Moreover, a US proliferation analyst said that her EU interlocutors maintained that 'After all, there is no longer a Syrian nuclear programme to worry about. The Israelis solved the problem for us'.<sup>71</sup>

According to the same analyst, the USA and the EU shared a common interest in a slow-paced IAEA process, which would have led to inspections and possibly a diplomatic showdown.<sup>72</sup> The USA was suffering from war fatigue and was frustrated by Assad's resilience, while the EU was eager to return to its traditional emphasis on diplomacy.

Other considerations also explain why the EU (and the USA) had little interest in stressing the nuclear matter. Western officials saw Iran's nuclear ambitions as a more important and urgent challenge to address at the IAEA (where political capital and diplomatic muscle needed to be spent cautiously and sparingly) than Syria's destroyed nuclear infrastructure. Moreover, since Syria had had time to clean up and conceal the al-Kibar site and other suspected facilities, there was the risk that a special IAEA inspection would not uncover anything significant. Moreover, a stalemate with Syria at the IAEA could have forced the USA and the EU to bring the matter to the UN Security Council, where it would have been even more difficult to resolve, and where the Israeli air operation would

have been equally and publicly scrutinized. Israel itself was not interested in bringing attention to the matter at a time when the secret Turkish-brokered effort to achieve peace between the two states was progressing. For Israel, al-Kibar had become a 'side story' because a chastened Syria would not dare rebuild a nuclear programme, according to an Israeli analyst.<sup>73</sup>

For its part, Syria viewed the IAEA process as a potential stick that the USA and the EU would brandish should Syria remain defiant. Yet, after cleaning up the al-Kibar site, Syria calculated that stalling IAEA requests for inspection and transparency would come at little cost, as long as the matter was confined at the IAEA level. Syria's position was further strengthened by the expected impossibility of reaching a consensus at the UN Security Council and the reluctance of the USA and the EU to escalate the matter further.

In summary, there is little evidence that the revelation that Syria maintained a secret nuclear programme has had an impact on EU policy towards Syria, largely because of the priority given to an uncertain political track and because of an assumption that Syria's proliferation challenge could only be addressed in a regional security framework, which itself depended on peace between Syria and Israel. Only when a domestic uprising shook Syria, starting in March 2011, did EU policy towards Syria take a fundamental turn.

## V. CONCLUSIONS

EU non-proliferation policy towards Syria is difficult to either credit or criticize. Despite all of its outreach and efforts, the EU remained a marginal factor in President Bashar al-Assad's strategic decision making: it was neither a catalyst nor a brake on Syria's WMD ambitions and programmes. The building of the al-Kibar reactor just as the EU pushed for a non-proliferation clause in what was thought to be a key element of EU policy, and the fact that the Association Agreement was resurrected in 2009 despite this revelation, are evidence of this. There is, however, little indication that a tougher line on non-proliferation would have brought better results than the weak, wishful approach that has characterized EU policy in the years since the coming to power of al-Assad.

As Syria unravels, it is becoming clear that the two issues that received the least attention from EU

<sup>70</sup> European official, Interview with author, Paris, Oct. 2010.

<sup>71</sup> US proliferation analyst, Interview with author, Washington, DC, Jan. 2012.

<sup>72</sup> On the IAEA and Syria see Hibbs, M., 'The IAEA and Syria', 6 Mar. 2011, Carnegie Endowment for International Peace, <<http://www.carnegieendowment.org/2011/03/06/syria-and-iaea/25y4>>; and Schulte, G. L., *Uncovering Syria's Covert Reactor*, Policy Outlook (Carnegie Endowment for International Peace; Washington, DC, Jan. 2012).

<sup>73</sup> Israeli analyst (note 23).

countries—human rights and non-proliferation—have become the most relevant for Syria's future. Syria's possession of a large and sophisticated CW arsenal is among the factors that complicate any resort to military intervention against the Assad regime. Use of CWs against civilians and domestic opponents, while unlikely, cannot be discounted. The Assad regime is engaged in an existential fight in which all instruments could be wielded. The precedent set by Saddam Hussein in Halabja in 1988 could inspire Assad's inner circle should the insurgency pose a mortal threat to the regime.

The type of control mechanisms will matter: are local commanders allowed to use CWs for tactical protection should their bases be overrun by rebels or does the ultimate decision reside, more likely, in Damascus? While small, the risk that Assad would also use CWs against an adjacent country out of despair or rage also worries neighbouring states.

In such dire circumstances, one cannot discount the transfer of missile, rocket or WMD capabilities to other actors, including Hezbollah. Assad's relatives and advisers have already hinted that the regime would retaliate by all means and make the region less safe.<sup>74</sup> This could include transferring CWs to Hezbollah to make clear to Israel and the international community the costs of regime change. While the strategic and political risks for Hezbollah of accepting such transfer are enormous, and it will carefully calculate the strategic and political risk of accepting CWs, the loss of a regime that guaranteed supply lines and strategic depth may force Hezbollah to accept greater risks. Syria has mounted CW canisters on conventional shells whose potential transfer would be more difficult to monitor and which could add to Hezbollah's arsenal to terrorize the Israeli population.

Loss of control over WMD stockpiles is another worrying possibility. Some sensitive sites (such as CERS in Damascus and the CW production facility in Homs) are close to areas of intense unrest; others are located in regions that have remained relatively stable so far (e.g. Al-Safirah and Lattakia).<sup>75</sup> Many rebel groups, some of which espouse radical world

views, now operate in Syria and may find the prospect of seizing CWs for later use, blackmail or transfer enticing. There is also the possibility that regular units in charge of protecting WMD capabilities could defect or dissolve, allowing looters to plunder sensitive sites.<sup>76</sup>

The USA and other countries have commenced contingency planning to identify and seize CW caches. A White House spokesman acknowledged as much when he said that 'Syria is a country of significant proliferation concern, so we monitor its chemical weapons activities very closely'.<sup>77</sup> However, the task is massive as production and storage facilities are spread throughout the country, and intelligence on the location and scale of the facilities would need to be watertight before taking action to secure them.

There is little that the EU can do at the moment besides clearly signalling to Assad that the use or transfer of CWs is a red line that would automatically trigger a NATO reaction. The EU (along with the USA) must prepare to engage in reducing the risk that CWs might proliferate to new actors within and beyond Syria by, for example, cooperating with Syria's neighbours to tighten border controls and security. Keeping in mind the likely deterioration of Syria's CWs, the EU must also strengthen export controls, which could be effective in blunting Syria's future stockpiles. Finally, the international community, including the EU, should plan for ways to minimize the leaking of Syrian expertise in chemical weapon production should Assad's regime lose control over the country.

<sup>74</sup> Rami Makhlouf, a prominent cousin of Bashar al-Assad, said: 'If there is no stability [in Syria], there's no way there will be stability in Israel. No way, and nobody can guarantee what will happen after, God forbid, anything happens to this regime'. Quoted in Shadid, A., 'Syrian elite to fight protests to the end', *New York Times*, 10 May 2011.

<sup>75</sup> For a map of Syria's key WMD and missile sites see Nuclear Threat Initiative (NTI), <<http://www.nti.org/gmap/?country=syria&layers=biological,chemical,missile,nuclear>>.

<sup>76</sup> Spector, L. S., 'Syrian conflict promises toxic outcome: part I', *YaleGlobal*, 26 June 2012.

<sup>77</sup> Entous, A. and Solomon, J., 'US steps up watch of Syria chemical weapons', *Wall Street Journal*, 15 Feb. 2012.

**ABBREVIATIONS**

BTWC	Biological and Toxin Weapons Convention
BW	Biological weapons
CERS	Scientific Studies and Research Centre
CIA	Central Intelligence Agency
CW	Chemical weapon
CWC	Chemical Weapons Convention
IAEA	International Atomic Energy Agency
IISS	International Institute for Strategic Studies
NATO	North Atlantic Treaty Organization
NPT	Non-Proliferation Treaty
OPCW	Organisation for the Prohibition of Chemical Weapons
WMD	Weapon(s) of mass destruction

## A EUROPEAN NETWORK

In July 2010 the Council of the European Union decided to create a network bringing together foreign policy institutions and research centres from across the EU to encourage political and security-related dialogue and the long-term discussion of measures to combat the proliferation of weapons of mass destruction (WMD) and their delivery systems.

## STRUCTURE

The EU Non-Proliferation Consortium is managed jointly by four institutes entrusted with the project, in close cooperation with the representative of the High Representative of the Union for Foreign Affairs and Security Policy. The four institutes are the Fondation pour la recherche stratégique (FRS) in Paris, the Peace Research Institute in Frankfurt (PRIF), the International Institute for Strategic Studies (IISS) in London, and Stockholm International Peace Research Institute (SIPRI). The Consortium began its work in January 2011 and forms the core of a wider network of European non-proliferation think tanks and research centres which will be closely associated with the activities of the Consortium.

## MISSION

The main aim of the network of independent non-proliferation think tanks is to encourage discussion of measures to combat the proliferation of weapons of mass destruction and their delivery systems within civil society, particularly among experts, researchers and academics. The scope of activities shall also cover issues related to conventional weapons. The fruits of the network discussions can be submitted in the form of reports and recommendations to the responsible officials within the European Union.

It is expected that this network will support EU action to counter proliferation. To that end, the network can also establish cooperation with specialized institutions and research centres in third countries, in particular in those with which the EU is conducting specific non-proliferation dialogues.

<http://www.nonproliferation.eu>



## FOUNDATION FOR STRATEGIC RESEARCH

FRS is an independent research centre and the leading French think tank on defence and security issues. Its team of experts in a variety of fields contributes to the strategic debate in France and abroad, and provides unique expertise across the board of defence and security studies.

<http://www.frstrategie.org>



## PEACE RESEARCH INSTITUTE IN FRANKFURT

PRIF is the largest as well as the oldest peace research institute in Germany. PRIF's work is directed towards carrying out research on peace and conflict, with a special emphasis on issues of arms control, non-proliferation and disarmament.

<http://www.hsfc.de>



## INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

IISS is an independent centre for research, information and debate on the problems of conflict, however caused, that have, or potentially have, an important military content. It aims to provide the best possible analysis on strategic trends and to facilitate contacts.

<http://www.iiss.org/>



## STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

<http://www.sipri.org/>