

## Intelligence and Nuclear Proliferation: An Introduction to the Special Issue

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“The atomic bomb was an interesting intelligence problem ...”(R. V. Jones, Director of Scientific Intelligence<sup>1</sup>)

Intelligence has long played an integral role in the context of western and broader international responses to the proliferation of nuclear weapons and efforts to contain the associated technology, materials and expertise. There are, of course, many challenges associated with accurately assessing proliferation intentions, processes, programmes and the underlying scientific and technical wherewithal. There is also an uneven record in this respect.

On the one hand, the inaccuracy and misjudgements that characterized the British and American intelligence assessments related to Iraq's nuclear and other weapons programmes in 2002–3 resulted in a costly war of choice to topple the Saddam Hussein regime fought officially on the erroneous grounds of forcible disarmament. The understandable controversy that followed regarding the lack of evidence of weapons of mass destruction (WMD) has, arguably, clouded what have otherwise been several important intelligence successes in recent years. Indeed, intelligence collection and analysis has played a pivotal role in national and international responses to the suspect nuclear activities of Libya, Iran and Syria since 2001.

US-UK intelligence efforts *vis-à-vis* the A. Q. Khan proliferation network provided significant insights into the increasingly trans-national and non-state-based nature of proliferation and were a major contribution to nuclear rollback in Libya.<sup>2</sup> Lord Butler's review of British intelligence noted the ‘uncovering and dismantlement of this network is a remarkable tribute to the work of the intelligence agencies’.<sup>3</sup> Moreover, the timely insights into the nature of Libya's nuclear activities provided by American and British intelligence helped to increase the pressure on the regime and to accelerate and cement its decision of December 2003 to abandon its nuclear and other WMD programmes.<sup>4</sup> Significantly, this included the interdiction in October 2003 of the rather innocuous-sounding *BBC China* – a boat en route to Libya to deliver a cargo of gas centrifuge enrichment equipment from the A. Q. Khan network to the country's nuclear weapons programme. The intelligence gathered on Libya increased US-UK confidence in the subsequent dismantlement of the weapons programmes, and British and American intelligence officers also played a pivotal role in bringing the Libyans to the negotiating table through ‘covert diplomacy’. This intelligence success helped to lay the foundations for the UK and Libya to foster closer trade links in the years following: the unpromising start of counter-proliferation intelligence made a significant contribution to the development of a useful bilateral link that was only scuppered by the Arab Spring-inspired uprising in late 2010, and which resulted in Colonel Gadhaffi's overthrow in October 2011.

Iran's nuclear programme has become a key focus of western intelligence agencies, although intelligence assessments have caused some controversy in this case too. In December 2007, for example, the public release of the summary findings of the US National Estimate (NIE) on Iran's nuclear programme and intentions, which concluded in part that Iran had ‘halted’ its military nuclear activities in 2003, significantly undermined the position of those arguing at

that time in favour of using military force to enforce non-proliferation in this context.<sup>5</sup> Moreover, US allies in Europe reportedly assessed that Iran had probably continued to work on weaponization after 2003.<sup>6</sup>

More recently, at a G8 meeting in Pittsburgh in September 2009, Presidents Barack Obama and Nicolas Sarkozy and Prime Minister Gordon Brown released previously secret US, French and British intelligence on Iran's efforts to construct a clandestine enrichment facility inside a mountain about 20 miles from the city of Qom. The announcement was prompted by Iran's realization that the facility had been identified by external intelligence organizations which prompted it to deliver 'a vague, terse letter to the International Atomic Energy Agency' (IAEA) noting that a second uranium enrichment site was being built.<sup>7</sup> The site was subsequently placed under IAEA Safeguards. There has also been a suggestion that the UK Secret Intelligence Service has engaged in covert measures to disrupt Iran's weaponization efforts.<sup>8</sup>

In neighbouring Syria two years previously in 2007, Israel had launched a preventive military attack against a suspected clandestine heavy water reactor under construction.<sup>9</sup> The discovery of the reactor by Israel had reportedly occurred after a review of all potentially relevant intelligence on nuclear proliferation in the region following its failure to detect Libya's acquisitions via the A. Q. Khan network.<sup>10</sup> In April 2008, US intelligence officials subsequently gave a public and very detailed briefing on the intelligence case against Syria and its suspected clandestine plutonium reactor which Israeli aircraft had destroyed the previous September.<sup>11</sup> While Israel had informed Washington of the existence of the Syrian site prior to the attack, the Bush administration opted not to launch a military strike of its own.<sup>12</sup>

## **Intelligence and Nuclear Proliferation**

Nuclear proliferation is a dynamic process characterized by evolving political motivations, opaque strategic intentions and an ever-changing technical backdrop, typified by often innovative illicit procurement techniques and elaborate deception efforts on the part of proliferators to conceal the existence, or progress, of nuclear weapons related activities. Indeed, Ellis and Kiefer note that 'since the nature of the specific proliferation challenges presented by states, as well as their underlying motives, varies considerably, it is unlikely that a one-size-fits-all policy will achieve the desired non-proliferation objectives in every case'.<sup>13</sup> They further emphasize that 'forecasting trends, divining intentions, and estimating capabilities are central to understanding the proliferation enterprise'.<sup>14</sup>

The dynamic nature of proliferation has obvious implications in itself, but it also has far reaching connotations when considered from the perspective of intelligence collection and analysis. Certainly, intelligence is central to understanding and coping with or managing the nuclear proliferation problem, whether the focus is the target country itself or the locations from and the transit routes via which materials, equipment, components and knowledge are sourced. The pre-eminence of intelligence comes from the lengths to which proliferators seek to hide their efforts, and nuclear weapons programmes are invariably the most secret aspect of what tend to be very secretive regimes. As Lord Butler concluded, 'proliferating states usually represent difficult targets for intelligence collectors, and weapons programmes are

usually particularly difficult targets within them'.<sup>15</sup> Similarly, the United States' WMD Commission report gloomily recorded: 'there is no single strategy the Intelligence Community can pursue to counter the "proliferation" menace'.<sup>16</sup> This raises the question of what policy makers can reasonably hope that intelligence might achieve if there is no magic formula to hand.

From the perspective of intelligence, capabilities and intentions are two very different things. In terms of capability, a nuclear weapons programme is an incredibly expensive and complicated entity and, to be successful, will generally require several key elements: access to sufficient financial resources; a solid scientific base ranging from scientists at the top down to competent engineering technicians at the bottom; sufficient quantities of raw material; the industrial and engineering wherewithal to manufacture a weapon; and an effective procurement mechanism to secure infusions of technology, materials and technical knowledge from abroad as and when necessary. Bringing all of this together also requires effective leadership and skilled management at various levels across a programme. From an intelligence perspective then, an awareness of the capability of a state requires addressing certain essential questions including among others: what is the state of the scientific infrastructure in country x? What level of training in nuclear-related subjects is on offer? Have scientists studied abroad and if so where and with whom? What technologies and materials can be sourced domestically and what will need to be acquired from abroad?

Most elements on the capability side of the equation are, generally speaking, more straightforward to spot and to understand. A nuclear weapons programme will, of necessity, be a large-scale endeavour with numerous different sites often deployed across a country. While physical manifestations of weapons programmes such as buildings can often be located, intelligence efforts can also be confounded through active deception efforts on the part of the target state, such as using dual-use facilities, building plants underground or using front companies and fake end-use declarations as part of strategic procurement efforts. While a certain amount of information can be inferred from the size, layout and history of facilities, it is still vital to discover what is actually taking place within them in order to keep pace with progress. Moreover, because it is extremely unlikely that everything required for a weapons programme can be produced domestically, monitoring financial transactions and procurement patterns becomes crucial and can be very productive avenues of inquiry for intelligence collection and analysis.<sup>17</sup>

Capability can, of course, be split into two because a *theoretical* capability is a very different prospect to a *practical* capability, yet the two do not necessarily follow on sequentially. In other words, a state may have the theoretical knowledge to construct a nuclear weapon, but lack the practical means to do so. Alternatively, of course, a state may have the practical means to build a weapon but lack the scientific know-how because of an inability to interpret theoretical plans, for example. But knowledge of capability alone, whether theoretical or practical, cannot reveal everything. Indeed, perhaps the first signal that a state may be contemplating a nuclear weapons programme will involve an assessment of intentions. However, intentions are far more difficult to discern than capabilities. As former CIA chief weapons hunter David Kay testified to the US Senate: 'the real challenge for intelligence is going to be getting to our political leadership not just judgments about capabilities, but judgements about real intentions. And that is tough'.<sup>18</sup> Indeed, when it comes to preventing proliferation the focus

of intelligence efforts will be on gauging *strategic* intention; the desire to acquire a nuclear weapon in the first place. Yet, it may also be important to distinguish between other types of intention such as *latent* intention characterized by a desire to draw together the infrastructure and knowledge required to build a nuclear weapon, but without actually taking a political decision to do so. A *tactical* intention might include, for example, the desire to actually use a weapon once acquired or to retain it as a last resort capability. While the different types of intention may be related one does not necessarily imply another. Thus, the delineation between capabilities and intentions is not always a neat and tidy one. The close relationship between the two and the blurring of their use can, and has, led to poor quality intelligence estimates.<sup>19</sup>

### **Expanding the Literature**

Although in recent years proliferation-related intelligence has become a topic frequently mentioned in media reports, and has been central to recent crises and conflicts in Iran and Iraq, there is a remarkably small literature dedicated to this topic.<sup>20</sup> Given the historic, current and future importance of the subject, and the need for policy makers to firmly grasp both the utility and limitations of intelligence in this context when formulating policy options, the limited nature of the literature is a cause of concern. It is for this reason that the Centre for Science and Security Studies, King's College London, organized a conference in June 2010 to examine the nature, role, utility and limitations of intelligence collection, analysis and assessment *vis-à-vis* the scientific, technical and motivational dimensions of nuclear proliferation. Funded as part of a grant from the MacArthur Foundation, the aim was to generate original knowledge and understanding of how nuclear intelligence has been and could potentially be applied to uncover and understand historical and contemporary cases of proliferation. An important underlying rationale was to understand the factors that have contributed to misjudgements on the part of intelligence organizations with regard to both under-estimating and over-estimating specific challenges and problems in the nuclear proliferation field. The importance of examining and learning from 'misjudgements in both directions' was highlighted in the UK context as a key lesson in Lord Butler's *Review of Intelligence on Weapons of Mass Destruction* following the Iraq invasion.<sup>21</sup>

Originally drafted for the conference in June 2010, the six articles in this special issue of *Intelligence and National Security* each address a specific issue under the broad header of intelligence and nuclear proliferation. The three contributions by Montgomery and Mount, Desouza and Lau, and Ryan all focus on the issue of intelligence success and failure. The papers collectively consider a range of case-studies – A. Q. Khan, India, Iran, Iraq, Israel and North Korea – and evaluate the performance of the US intelligence community. The results do not make for happy reading. Although there is clearly a recognition that nuclear weapons programmes represent some of the most difficult intelligence targets, and that active denial and deception techniques are the norm, the historical analyses in these studies suggest that the US has more often got it wrong than right in predicting when a nation might develop a nuclear capability. The authors have found, variously, challenges and problems at all stages of the intelligence cycle, from the identification of sources, to analysis, to politicization of the intelligence process. In many ways this should come as no surprise; indeed, it is somewhat reassuring to read that no one factor has consistently led to the failures. What these articles do highlight is that there is no quick fix to the problems and that the inherent difficulties of the

intelligence challenge are such that success will be the rarity. This raises a further point, namely a reconsideration of what could or should be expected from the intelligence community in this arena?

The three other articles by Ogilvie-White, Acton and Schulte consider intelligence and nuclear proliferation in the context of international efforts to verify the compliance of states with formal non-proliferation commitments. As each of the authors illustrates, the use of intelligence by international verification organizations, notably the IAEA, has been fraught with controversy and contention primarily due to concerns, right or wrong, over the impartiality and questionable motives of some governments that provide information to assist the verification process. At the same time, however, it is also recognized that organizations like the IAEA need to enhance their collection and use of intelligence whether this is provided by member states, derived from open sources such as scientific and technical literature or accessed via commercial satellite imagery. The authors give due consideration to ideas to enhance the use of intelligence by international verification organizations and to reduce political opposition on the part of some states. Among other things, ideas are proposed for establishing a General Accountability Obligation on the part of states that sign up to international non-proliferation/disarmament commitments (Schulte); building wider support for cooperative intelligence initiatives among developing countries (Ogilvie-White); and developing greater trust between the international verification organizations and national intelligence agencies (Acton). Ultimately, it becomes clear from the latter three articles that the barriers to moving forward in these respects are pretty formidable, and significant progress is unlikely to occur any time soon, if at all.

#### Notes

<sup>1</sup> Reginald V. Jones, 'Scientific Intelligence', *CIA Studies in Intelligence* 6/3 (1962) p.76.

<sup>2</sup> See: Wyn Q. Bowen, 'Intelligence, Interdiction and Dissuasion: Lessons from the Campaign against Libyan Proliferation', in James R. Wirtz and Peter R. Lavoy (eds.) *Over the Horizon Proliferation Threats* (Stanford: Stanford University Press 2012) pp.221-39.

<sup>3</sup> The Rt Hon The Lord Butler of Brockwell, *Review of Intelligence on Weapons of Mass Destruction Report of a Committee of Privy Counsellors*, HC898, 14 July 2004, p.19.

<sup>4</sup> For more see Wyn Q. Bowen, *Libya and Nuclear Proliferation: Stepping Back from the Brink*. (Adelphi Paper 380: London 2006).

<sup>5</sup> See Wyn Bowen and Michael Goodman, 'Nuclear Reaction: The Intelligence on Iran's Capabilities', *Jane's Intelligence Review*, March 2008, pp.3-5.

<sup>6</sup> David Albright and Paul Brannan, *The New National Intelligence Estimate on Iran: A Step in the Right Direction*, Institute for Science and International Security, 22 March 2012 < <http://isis-online.org/isis-reports/detail/the-new-national-intelligence-estimate-on-iran-a-step-in-the-right-directio/>>.

<sup>7</sup> David E. Sanger and William J. Broad, 'US and Allies Warn Iran Over Nuclear "Deception"', *New York Times*, 25 September 2009.

<sup>8</sup> 'MI6 Chief Sir John Sawers: 'We Foiled Iranian Nuclear Weapons Bid', *Daily Telegraph*, July 2012 < <http://www.telegraph.co.uk/news/uknews/terrorism-in-the-uk/9396360/MI6-chief-Sir-John-Sawers-We-foiled-Iranian-nuclear-weapons-bid.html>>.

<sup>9</sup> Alexander G. Higgins, 'Report: Iranian Defector Tipped Syrian Nuke Plans', *The Associated Press*, 18 March 2009 < [http://www.nti.org/e\\_research/profiles/syria/nuclear/2079\\_4510.html](http://www.nti.org/e_research/profiles/syria/nuclear/2079_4510.html)>.

<sup>10</sup> Dan Raviv and Yossi Melman, *Spies against Armageddon: Inside Israel's Secret Wars* (Sea Cliff, NY: Levant Books 2012) pp.314-15.

<sup>11</sup> 'Background Briefing with Senior US Officials on Syria's Covert Nuclear Reactor and North Korea's Involvement', Office of the Director of National Intelligence (ODNI) Press Briefing, 24 April 2008 < <http://www.fas.org/irp/news/2008/04/odni042408.pdf>>.

<sup>12</sup> Raviv and Melman, *Spies against Armageddon*, p.317.

<sup>13</sup> Jason D. Ellis and Geoffrey D. Kiefer, *Combating Proliferation: Strategic Intelligence and Security Policy* (Baltimore, MD: The Johns Hopkins University Press 2004) p.196.

<sup>14</sup> *Ibid.*, p.57.

<sup>15</sup> Butler. *Review of Intelligence*, p.38.

<sup>16</sup> The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, Washington, DC, USGPO, 2005, p.502.

<sup>17</sup> See Robert D. Blackwill and Ashton Carter, 'Role of Intelligence', 'The Role of Intelligence', *New Nuclear Nations: Consequences for U.S. Policy* (New York: Council on Foreign Relations Press 1993), ch.9, pp.219-29.

<sup>18</sup> Cited in Jacques E. C. Hymans, *The Psychology of Nuclear Proliferation: Identity, Emotions, and Foreign Policy* (Cambridge: CUP 2006) p.216.

<sup>19</sup> Michael S. Goodman, 'Jones' Paradigm: The How, Why, and Wherefore of Scientific Intelligence', *Intelligence and National Security* 24/2 (2009) pp.236-56.

<sup>20</sup> There is some work on the subject. For example, Jeffrey Richelson, *Spying on the Bomb: American Nuclear Intelligence from Nazi Germany to Iran and North Korea* (NY: W. W. Norton 2006); Ellis and Kiefer, *Combating Proliferation*; Torrey C. Froscher, 'Anticipating Nuclear Proliferation: Insights from the Past', *The Nonproliferation Review* 13/3 (2006) pp.467-77; Richard L. Russell, 'A Weak Pillar for American National Security: The CIA's Dismal Performance against WMD Threats', *Intelligence and National Security* 20/3 (2005) pp.466-85; Maria Ryan, 'Filling in the "Unknowns": Hypothesis-Based Intelligence and the Rumsfeld Commission', *Intelligence and National Security* 21/2 (2006) pp.286-315.

<sup>21</sup> Butler, *Review of Intelligence on Weapons of Mass Destruction*, p.146.