Research Paper

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Iran and Nuclear Restraint
Lessons from Elsewhere

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Summary

- The Joint Comprehensive Plan of Action (JCPOA), agreed between the E3/EU+3 and Iran in July 2015, allows for Iran to exercise its right to develop a full fuel-cycle capability for peaceful purposes, including the low enrichment of uranium.

- Iran will thus retain the technical capability to develop nuclear weapons for some considerable time to come. This 'freeze and rollback' period is seen by some, particularly Israel and Saudi Arabia, as a concern, but it could actually be useful in enabling a genuine approach to building trust with Iran.

- The forthcoming period of nuclear restraint in Iran is also a period that will be characterized by some as 'nuclear hedging'. The two, are, however, inextricably linked. Nuclear restraint is part of a hedging strategy, and a hedging strategy is part of nuclear restraint. Allowing for some restrained nuclear hedging during the rollback period provides the cover that politicians often need to demonstrate that they are playing their cards well, and that they will not be made to look naive or foolish.

- The lesson from the examples of South Africa and Brazil, and Iran's chemical weapons programme in the 1980s, is that rollback and restraint is possible and realistic. There is no genie to be squashed back into a bottle. Iran will retain the ability and the right to enrich uranium, and that capability may well be the vital factor that allows the JCPOA to work in both the short and the long term.

Introduction

Since the Joint Comprehensive Plan of Action (JCPOA) was agreed between the E3/EU+3[1] and Iran, on 14 July 2015, international attention has focused on the long-term viability of efforts to ensure that Iran's nuclear capabilities remain purely for peaceful purposes. Built into the JCPOA are a set of highly intrusive inspections, and transparency and confidence-building measures. Through these, any attempts by Iran to subvert the agreement should be detected, and subsequent 'snapback' sanctions decisions should be rapid. The JCPOA allows for Iran to exercise its right to develop a full fuel-cycle capability for peaceful purposes, including the low enrichment of uranium. Although the deal has been structured for longevity, it remains possible for misunderstandings to escalate, and for the hard-won deal to unravel.

Policy-makers must understand that this is not a new situation. Restraining Iran's nuclear capabilities successfully will mean learning the lessons from other historic situations, including the cases of Iraq and North Korea. In particular, it is important to explore the relationship between nuclear hedging and nuclear restraint, and to draw on positive lessons from the past to see these significant international efforts foster long-term peace and security in the Middle East.

Nuclear weapons are the only weapons of mass destruction (WMD) not yet addressed through a global prohibition treaty. Although the 1968 nuclear Non-Proliferation Treaty (NPT) prohibits the majority of states from possessing nuclear weapons, it does nevertheless provide for five states (China, France, Russia, the United Kingdom and the United States) to hold them – at least until they fulfil the requirement to negotiate nuclear disarmament. States that have remained outside the NPT (India, Israel and Pakistan) are legally unconstrained, and North Korea, which announced its withdrawal from the Treaty in 2003, recognizes no prohibition. Overall, despite an inadequate international regime, numbers of nuclear weapons have markedly decreased since the end of the Cold War. The United States and Russia have reduced their stockpiles significantly; and, of the nuclear weapons that have been retained, although hundreds remain on high alert, most have been taken into storage. By early 2014 the United States had some 7,300 nuclear warheads in total, Russia about 8,000, France 300, China 250, the United Kingdom 225, India approximately 90–110, Pakistan around 100–120, and Israel perhaps 80.[2] Experts predict, however, that unless global nuclear disarmament and non-proliferation efforts are stepped up significantly and consistently, an increase – probably small – in the numbers of nuclear weapons possessors over the next 20 years is likely.[3] As part of such a shift, the probability of nuclear weapons being used would likely increase with the rise in possessors – particularly the risk of their use by countries with unstable regimes in unstable regions. In addition, new analysis shows that the number of near-inadvertent and near-accidental nuclear detonations during the Cold War was considerably higher than had been factored

[1] China, France, Germany, Russia, the United Kingdom and the United States, with the High Representative of the European Union for Foreign Affairs and Security Policy.
[2] *SIPRI Yearbook 2014*. Oxford University Press, http://www.sipri.org/yearbook/2014.
3 Potter, William and Mukhatzhanova, Gaukhar. *Forecasting Nuclear Proliferation in the 21st Century*, Vols 1 & 2. Stanford University Press, 2010.

into risk calculations,[4] and the consequences of nuclear weapons use, even at a low levels, are now known to be worse than previously understood.[5]

Nuclear weapon possession can be presented as a three-phase history in which the first wave of proliferation was created by the United States (1945), the USSR/Russia (1949) and the United Kingdom (1952); the second comprised the two remaining recognized nuclear weapons states, France (1960) and China (1964); and the third wave then occurred among states with regional insecurity perceptions: India (1974) and Pakistan (circa 1987), apartheid South Africa (1977), and Israel (generally agreed to be circa 1967, although this is not publicly acknowledged[6]). The testing of nuclear devices in 2006, 2009 and 2013 by North Korea may herald a fourth phase in which states that perceive themselves to be under threat from the United States and its allies and are under sanctions – and have a national sense of resentment that they merit greater global power and respect – are developing nuclear weapons in the hope or belief that they would thus prevent any such attack. Recent events in North Korea have highlighted again the precariousness of the strategy of military threats and nuclear deterrence, and fears surrounding the likelihood of the use of nuclear weapons in a conflict that could quickly spiral out of control.

Fortunately, there are many more examples of nuclear restraint than there are instances of nuclear exuberance. Unrestrained nuclear developments have only truly been seen at the height of the Cold War in the United States and the Soviet Union, when all sense of perspective seemed to have been lost. Each country deployed at different times a peak stockpile of over 30,000 nuclear warheads and had in place plans for first strike, counter strike and mutual assured destruction – strategies that would have taken the rest of the world with them had the ideological struggle resulted in a nuclear war.

All other countries, even those with nuclear weapons capabilities, have exercised restraint at some points in their programmes, as have the United States and Russia since the end of their nuclear stand-off. Restraint has been due to a variety of factors, including: financial and resource constraints; regional security and relationships; caution and prudence; secrecy; domestic and political pressures; security guarantees; and international treaties (particularly the NPT).

Likewise, Iran seems to have had periods of externally and self-imposed restraint. Even throughout times of restraint, however, fears remain over the nuclear hedging that the sustained capabilities imply. So what can be learned from other examples that might assist in developing an understanding of nuclear restraint, hedging and rollback in Iran?

[4] Lewis, Patricia, Williams, Heather, Pelopidas, Benoît and Aghlani, Sasan, *Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy*, Chatham House Report, April 2014, http://www.chathamhouse.org/publications/papers/view/199200#sthash.S38JEn1R.dpuf. Schlosser, Eric, *Command and Control,* Penguin, 2013.

[5] 'Nuclear Famine: Two Billion People at Risk', International Physicians for the Prevention of Nuclear War (2013), p. 20, http://www.ippnw.org/pdf/nuclear-famine-two-billion-at-risk-2013.pdf. Mills, Michael J, Toon, Owen B, Turco, Richard P, Kinnison, Douglas E and Garcia, Rolando R. 'Massive Global Ozone Loss Predicted Following Regional Nuclear Conflict', *Proceedings of the National Academy of Sciences*, Vol. 105, No.14 (2008), pp. 5307–12.

[6] Cohen, Avner, *The Worst Kept Secret: Israel's Bargain with the Bomb*. Colombia University Press, 2010.

Other countries have had the capability to explore the nuclear option but decided against acquiring (or retaining) nuclear weapons. These states include: Argentina, Australia, Belarus, Brazil, Canada, Egypt, Germany, Greece, Indonesia, Italy, Japan, Kazakhstan, Libya, Norway, Romania, South Korea, Sweden, Switzerland, Taiwan, Turkey, Ukraine and Yugoslavia.[7] Iraq in the 1980s came close, with workable designs and fissile materials, but was forced back from its nuclear weapons plans as a result of Saddam Hussein's decision to invade Kuwait in 1990, the discoveries by the International Atomic Energy Agency (IAEA) and the UN Special Commission (UNSCOM) of weapons of mass destruction activities in 1991, and subsequent action by the UN Security Council. Syria was in the process of building a nuclear facility that was bombed by Israel in 2007 (reminiscent of the 1980 and 1981 bombings of the Osirak reactor by Iran and Israel respectively), and South Africa developed nuclear weapons but voluntarily and unilaterally dismantled them.

One of the lessons learned from countries that have developed nuclear capabilities and come back from the brink is that nuclear rollback and restraint is possible and realistic. There is no genie to squash back into a bottle. Rollback can: 1) be enforced successfully – as in the case of Iraq in the 1990s; 2) be brought about through significant political change and domestic support – such as in South Africa; and 3) be a gradual domestic political decision cemented over time, and can arise from political understanding and shifts – such as the vast majority of states' decisions to join the NPT in the 1970–98 period.

Another more controversial lesson is that nuclear hedging and nuclear restraint are inextricably linked. They could even be thought of as two sides of the same coin.[8]

Nuclear hedging is a deliberate strategy to explore and develop a nuclear weapons capability without actually crossing the weaponization line until a point is reached where there is a decision to do so for political or security reasons – whether that decision is made public or kept secret. Nuclear hedging can be characterized as a form of nuclear weapons capability that stays just short of illicit.

Nuclear restraint is a strategy in which a nuclear weapons capability – either in development or in rollback – is kept in check with calculated omissions in the capabilities that are communicated publicly or at least strongly inferred. Nuclear restraint measures could include decisions, for example: not to conduct a nuclear weapons test; not to deploy nuclear warheads; to limit the degree of uranium enrichment; or not to separate plutonium, despite the clear ability to do so. Such communicated restraint is designed to demonstrate goodwill and a desire to be seen a responsible player in the nuclear realm. Nuclear restraint has been employed throughout the history of nuclear weapons development in many countries and in many guises. Indeed, nuclear restraint is part of a hedging strategy, and a hedging strategy is part of nuclear restraint.

During the long periods of decision-making on which direction to take, most countries that decided against nuclear weapons kept restrained capabilities for years as an insurance policy. Indeed, it could be argued that successful rollback only occurs if nuclear restraint during the process of the rollback allows for some hedging as an insurance policy. A certain amount of restrained nuclear

[7] Walsh, Jim, 'Lessons from Success: The NPT and the Future of Non-proliferation', paper prepared for the Weapons of Mass Destruction Commission#41, Stockholm, October, 2005, p. 13, http://www.un.org/disarmament/education/wmdcommission/files/no41.pdf.
[8] Levite, Ariel, 'Never Say Never Again: Nuclear Reversal Revisited', *International Security*, Vol. 27, No. 3, (Winter 2002/3) p. 69.

hedging during the rollback period provides the cover that politicians often need to demonstrate that they are playing their cards well, that they will not be made to look naive or foolish.[9] It presents a risk, however, for neighbours and adversaries, in that they might face a nuclear threat if the nuclear hedge is then used as a way out of the rollback.

This paper considers, for the purpose of illumination, three cases: South Africa's and Brazil's nuclear programmes, and Iran's chemical weapons programme in the Iran–Iraq war. In some respect, Brazil's experience offers the most relevant example for Iran, in that Brazil did not cross the weaponization threshold whereas South Africa did. On the other hand, far more suspicions linger over the South African programme than over Brazil's – even today – and so the depth of distrust is more comparable with the Iran situation. There are further lessons that can be learned from other programmes, but within the limits of this paper these three examples serve to illustrate several key lessons from the experience of restraint.

South Africa

From the mid-1970s to the mid-1980s, apartheid South Africa developed highly enriched uranium gun-type nuclear bombs, building six in total, each with a yield of some 10–18 kilotons.[10] Because of its racist policies, and Soviet influence in the region, the apartheid South African government felt under threat from surrounding countries, and feared invasion particularly from communist forces in Angola. However, South Africa did not want to declare its nuclear weapons capabilities openly, as it was already under international sanctions and was seen as a pariah state by the international community.[11] As a result, the regime practised a form of nuclear restraint, building a small number of warheads, not flaunting their capability, and not using the capability as an overt threat. From 1978 South Africa's nuclear weapons strategy was based on three main planks of thinking:

- Refusal to confirm or deny a capability, thereby deliberately creating uncertainty;
- A contingency to acknowledge discreetly the existence of the nuclear weapons to key allies (particularly the United States) if South Africa were to come under imminent threat of invasion; and
- A plan to demonstrate the capability through an underground nuclear test if the discreet acknowledgment had no effect.[12]

[9] For excellent discussions on domestic nuclear drivers see: Solingen, Etel, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*, Princeton Studies in International History and Politics, Princeton University Press, 2007; Solingen, Etel, *Sanctions, Statecraft, and Nuclear Proliferation*, Cambridge University Press, 2012; Sagan, Scott D., 'Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb', *International Security*, Vol. 21 no. 3, pp. 54–86, Winter 1996/1997; and Potter, William C., Mukhatzhanova, Gaukhar, *Forecasting nuclear proliferation in the 21st century*, Vols 1 and 2, Stanford Security Studies/Stanford University Press, 2010.
[10] Albright, David. 'South Africa's Secret Nuclear Weapons', Institute for Science and International Security, 1 May 1994, www.isis-online.org.
[11] Lt-Col Roy E. Horton III, 'Out Of (South) Africa: Pretoria's Nuclear Weapons Experience', USAF Institute for National Security Studies, Occasional Paper #27, August 1999, http://www.fas.org/nuke/guide/rsa/nuke/ocp27.htm.
[12] Stumpf, Waldo, 'Birth and death of the South African nuclear weapons programme', presentation given at the conference '50 Years After Hiroshima', organized by USPID (Unione Scienziati per il Disarmo) and held in Castiglioncello, Italy, 28 September–2 October 1995, http://www.fas.org/nuke/guide/rsa/nuke/stumpf.htm.

South Africa seems never to have had any intention of deliberate use; rather it was believed that the mere exposure of the weapons' existence would bring the United States and others to its aid in a possible time of dire need.

From 1989 South Africa halted its nuclear weapons programme, and by 1991 it had dismantled the devices and all the highly enriched uranium (HEU) in storage. South Africa acceded to the NPT in July 1991, its IAEA safeguards agreement entered into force in September, and IAEA inspections began in November of that year.

It wasn't until March 1993 that the existence of the former South African nuclear weapons programme and its dismantlement were made public. The IAEA then carried out a series of investigations to confirm full dismantlement. Between 1991 and the announcement in 1993 South Africa had the opportunity, materials and brainpower to reverse its decision to dismantle – admittedly at considerable cost. There are no records to suggest that this nuclear hedge was seriously entertained, and the gap of two years was certainly due to the transition from apartheid to democracy. None the less, South Africa did have a period in which the restraint, rollback and hedge approach was in play.

Brazil

For some 40 years, from the 1950s to the 1990s, Brazil developed a full uranium fuel cycle including unsafeguarded enrichment and fuel fabrication capabilities. Brazil has produced uranium enriched to levels below 20 per cent, and it has had the technical capability to go down the weapons route, including a space rocket/ballistic missile capability. The enriched uranium is part of a naval military programme for nuclear submarines.[13] However, former Brazilian President José Sarney revealed that in the 1980s Brazil sought to develop nuclear weapons as a counter to Argentina's military capabilities and policies.[14] Brazil's army, navy and air force each had active nuclear research programmes[15] – there were even preparations for a nuclear test[16] – and by 1989 they had produced small amounts of 20 per cent U-235. At the very least, Brazil can be said to have hedged its nuclear options.

Brazil, having in 1991 jointly created the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), which monitors and reports on the peaceful use of nuclear energy in the two countries, renounced all interest in nuclear weapons in the 1990s and joined the Treaty of Tlaltelolco in 1994, the Nuclear Suppliers Group (NSG) in 1996, and the NPT and the Comprehensive Nuclear-Test-Ban Treaty (CTBT) in 1998.[17]

[13] http://www.reuters.com/article/2013/03/01/brazil-defense-submarines-idUSL1N0BT5WK20130301.
[14] Squassoni, Sharon and Fite, David. 'Brazil's Nuclear History', *Arms Control Today*, October 2005, http://www.armscontrol.org/act/2005_10/Oct-Brazil-History.
[15] Albright, David, Berkhout, Frans, and Walker, William, *World Inventory of Plutonium and Highly Enriched Uranium 1992*. London: SIPRI. Oxford University Press, 1993, p. 182.
[16] Squassoni, Sharon and Fite, David, 'Brazil's Nuclear History'.
[17] As a point of principle, Brazil has yet to sign the Additional Protocol, but the 1991 Argentina-Brazil-ABACC-IAEA Quadripartite Agreement includes similar measures and is recognized by the NSG as an alternative to the Additional Protocol. Joint Communiqué, President Dilma Rousseff and President Cristina Fernández de Kirchner, July 2011, http://www.abacc.org.br/?p=4407&lang=en.

It is worth comparing and contrasting the international response to Brazil's enrichment programme with the outcry against Iran's enrichment efforts. Prior to the Brazilian-Argentine Cooperation Agreement for the Development and Application of the Peaceful Uses of Nuclear Energy in 1980 and the subsequent creation of ABACC, there were considerable concerns. But it was a different era. Many countries had yet to join the NPT. France, for example, having tested its first nuclear weapon in 1960 and subsequently assisted other nuclear aspirants (such as Israel and Iraq), did not join the Treaty until 1992. Similarly, China, having first tested its nuclear weapons capability in 1964, did not join the Treaty until just before France in 1992.

Few today would accuse Brazil of pursuing an active nuclear weapons programme and yet the materials, technologies and nuclear knowledge are still in place there. What have changed are the political relationships in the region and, as part of that, the degree of transparency between Brazil, Argentina, ABACC and the IAEA.

Iran

Perhaps one of the greatest examples of restraint in the development, production and deployment of weapons of mass destruction is to be found in the case of Iran. This is not in the realm of nuclear weapons, where a roller coaster of some restraint and potential for exuberance has been evident, whatever Iran's intention, over the decades. Rather, it is in the chemical weapons domain that Iran has shown considerable restraint and leadership.

Throughout the 1980–88 Iran–Iraq war, Iraq deployed and used chemical weapons against Iran. It is estimated that between 50,000 and 100,000 Iranians were harmed by these attacks, with many still suffering today. The brutal March 1988 atrocity against the Kurds in Halabja is well documented; less so are the other repeated chemical attacks against Kurds on both sides of the Iran–Iraq border. In such circumstances there are few countries that would have shown restraint, and retaliation in kind by Iran would have been well understood; however, it is now generally accepted that it did not use chemical weapons. Iran did develop a capability towards the end of the war, but '… following the establishment of [the] cease fire, the decision to develop chemical weapons capabilities was reversed and the process was terminated'.[18] Ayatollah Ruhollah Khomeini then pronounced a *fatwa* against the production and use of chemical weapons in retaliation against Saddam Hussein's forces.[19, 20]

Since the adoption of the Chemical Weapons Convention in 1992, Iran has been a leader in the field of chemical weapons disarmament, taking the initiative in many discussions and negotiations at the

[18] Alborzi, Mohammad R, 'Statement to the Third Session of the Conference of the States Parties of the Chemical Weapons Convention', 16–20 November 2000, http://www.nti.org/country-profiles/iran/chemical/.
[19] Aghlani, Sasan, 'Nuclear assurances: when a fatwa isn't a fatwa', 8 March 2013, http://www.opendemocracy.net/opensecurity/sasan-aghlani/nuclear-assurances-when-fatwa-isn%E2%80%99t-fatwa.
[20] Note that Khomeini's edict against chemical weapons use would have come about during the midst of battle, and would have been made amid strong lobbying from the military, and opposing politicians. It is likely therefore that there wasn't just one pronouncement against chemical weapons use, but that it was repeated in debate for some time. This is borne out by statements attributed to former Prime Minister Mir-Hossein Mousavi, who said that Iran would not produce chemical weapons 'until Islam allowed them' (see 'Iranians Back Off Claim for Weapons', *Washington Times*, 31 December 1987, p. 9), implying that a verdict against them would have been subject to a re-reading of the issue given different circumstances, and a statement from foreign minister Ali Akbar Velayati suggesting that Iran might retaliate in kind to chemical weapons attacks. My thanks go to Sasan Aghlani for this information. Also see NTI, 'Iran Chemical Chronology': 1987, http://www.nti.org/media/pdfs/iran_chemical.pdf?_=1316555748.

Organisation for the Prohibition of Chemical Weapons (OPCW) in The Hague, and it has also established a day of remembrance for the victims of chemical weapons. After chemical weapons were used in a massive attack in Syria in August 2013, anecdotal evidence suggests that Iran played a constructive role in persuading the Assad regime to abandon its chemical weapons capability and allow international teams to destroy production and filling equipment in situ and to remove all chemical weapons stocks for disposal. According to German intelligence, Iranian officials expressed shock and outrage at the use of chemical weapons in Syria. This should come as no surprise. Some 30 years have elapsed since the horrific use of chemical weapons by Iraq. The generation now in power in Tehran were in their 20s and 30s at that time: many were soldiers, and many lost brothers and fathers, and so suffered personally as a result of the chemical attacks.[21]

If Iran – so soon after the 1979 revolution – showed such restraint at such a difficult time, and decided against the use of chemical weapons on humanitarian and ethical grounds, should the NPT states parties allocate more weight to the 2005 *fatwa* issued by Ayatollah Ali Khamenei against nuclear weapons? Of course, Iran's own domestic human rights abuses and its state support for Hezbollah's activities undermine any line of argument that suggests entering into a trusting relationship with it. Scepticism and lack of trust on both sides has generally dominated the debate; nevertheless, past practice with chemical weapons should be factored into the analysis.

Iran has at least demonstrated that it can show restraint in the chemical and nuclear weapons domains. For some considerable time to come, even though a deal with a strong set of implementation and verification procedures has been negotiated, Iran will retain the technical know-how and capability to develop nuclear weapons. Is Iran therefore in the same state of nuclear hedging as many other countries have been before giving up the ambition?

If so, then – as with Brazil – permitting a period of controlled, restrained nuclear hedging within the framing of nuclear rollback could enable a genuine approach to building trust with Iran. Allowing for some restrained nuclear hedging during the forthcoming 'freeze and rollback' period would allow Iranian politicians opposed to nuclear weapons to carry with them those who would otherwise prefer to keep a weapons option.

Conclusion

The negotiations over Iran's nuclear programme have been fundamentally about reducing the risks to an acceptable level through the conclusion of a comprehensive agreement, and actively managing the risks subsequently through intensive surveillance, while lifting nuclear sanctions.[22] Success on these lines could effectively support the forces in Iran that are genuinely in favour of the 'nuclear energy for all; nuclear weapons for none'[23] policy, and would assist in the elimination of nuclear weapons from the region. Indeed, the stakes are high for the elimination of all WMD in the Middle

[21] Zein, Ali, 'Former Iranian president's remarks on Syria chemical attack makes waves', 2 September 2013, https://now.mmedia.me/lb/en/reportsfeatures/former-iranian-presidents-statement-about-syria-chemical-attack-makes-waves.
[22] For an excellent discussion on Iran's rollback and hedge, see Bowen, Wyn and Moran, Matthew, 'Living with nuclear hedging: the implications of Iran's nuclear strategy'. *International Affairs*. July 2015, Volume 91, Number 4, http://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/INTA91_4_01_BowenMoran.pdf.
[23] The motto inscribed on the small model uranium centrifuges that Iranian diplomats give out as mementos.

East. The only country that is assumed to possess nuclear weapons is Israel, but no Israeli government has yet admitted to this. Israel has declared that it will 'not be the first to introduce' nuclear weapons to the region.[24] Despite enthusiastic support for the NPT in the Middle East – aside from Israel, which is the only country there to remain outside the Treaty – the majority of serious cases of non-compliance with NPT and IAEA safeguards have occurred in the region. Resolving the concerns over Iran's nuclear programme will go a long way towards establishing the conditions required for negotiating a Middle East WMD-free zone. Such a zone – long proposed[25] – has the potential to be a positive game-changer in the Middle East, enabling a wider discussion on regional security, conflict prevention and arms control, and involving Israel, the Arab states and Iran in a positive cycle of security enhancement through the elimination of WMD in the region and globally.

[24] Cohen, Avner, *Israel and the Bomb*. Colombia University Press, 1998, pp. 207–15.
[25] Lewis, PM, *All in the Timing: The Weapons of Mass Destruction Free Zone in the Middle East*, Chatham House, http://www.chathamhouse.org/publication/all-timing-weapons-mass-destruction-free-zone-middle-east.

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