# The unkicked addiction

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**Despite optimistic attempts to rid the world of nuclear weapons, the threat they pose to peace is growing**

IN JANUARY 2007 Henry Kissinger, George Shultz, William Perry and Sam Nunn—two Republican secretaries of state, a Democratic defence secretary and a Democratic head of the Senate Armed Services Committee—called for a global effort to reduce reliance on nuclear weapons. The ultimate goal, they wrote in the *Wall Street Journal*, should be to remove the threat such weapons pose completely. The article generated an astonishing response. Long seen as drippily Utopian, the idea of getting rid of nuclear weapons was suddenly taken on by think-tankers, academics and all sorts of very serious people in the nuclear-policy business. The next year a pressure group, Global Zero, was set up to campaign for complete nuclear disarmament. Its aims were endorsed by scores of government leaders, present and past, and hundreds of thousands of citizens.

In April 2009 Barack Obama, speaking in Prague, promised to put weapons reduction back on the table and, by dealing peacefully but firmly with Iran's nuclear ambitions, to give new momentum to the nuclear Non-Proliferation Treaty (NPT). Processes could now be set in train, he said, that would lead to the worldwide renunciation of nuclear weapons within a generation. This speech, along with his ability not to be George W. Bush, was a key factor in landing Mr Obama the Nobel peace prize a few months later.

The following year he returned to Prague to sign an arms agreement with Russia, New START, which capped the number of deployed strategic warheads allowed to each side at 1,550. His co-signatory, Russia's then president, Dmitry Medvedev, had endorsed Global Zero's aims. A month later the NPT's quinquennial review conference agreed a 64-point plan intended to reinforce the treaty's three mutually supportive legs: the promise that all countries can share in the non-military benefits of nuclear technology; the agreement by non-weapons states not to become weapons states; and the commitment of the weapons states to pursue nuclear disarmament. There were hopes that, when the parties to the NPT met again in May 2015, there would be substantial progress to report.

## An idea whose time has gone

Alas, no. Mr Obama's agreement with Iran remains possible, even likely—but it will hardly be one that energises the cause of a nuclear-free world (see box on next page). Iran will continue to sit close to the nuclear threshold, retaining an ability to enrich uranium which, if it were to withdraw from the agreement, would allow it to create a bomb's worth of weapons-grade material in about a year. That is more than the current estimated breakout period of three months, and long enough, it is felt, for America and its allies to mount a response, should it come to that. But it is hardly a huge step back from the threshold, or forward for peace.

And the Iran deal is pretty much the only item on 2010's list of high hopes that has got anywhere at all. Co-operation on New START has been suspended thanks to Russia's aggression in Ukraine; promised follow-on measures have been abandoned. Vladimir Putin, Mr Medvedev's predecessor and successor, takes every opportunity to laud his country's nuclear prowess, and is committing a third of Russia's booming military budget to bolstering it.

It is not the only power investing in its nukes (see box on subsequent page). America is embarking on a $348-billion decade-long modernisation programme. Britain is about to commit to modernising its forces, as well, while France is halfway through the process. China is investing heavily in a second-strike capability. In short, there has been no attempt to reduce the role of nuclear weapons in the military and security doctrines of the five permanent members of the UN Security Council, despite their commitments under the NPT. An initiative aimed at making nuclear weapons illegal under international humanitarian law, backed by over 150 NPT signatory countries, has attracted little to no support from the weapons states and only lip service from countries which wel- ▸▸

Negotiating with Iran

# Deal or no deal?

**Negotiations on Iran's enrichment and plutonium facilities are nearly over**

WITH the March 24th deadline for reaching agreement looming, and Israel's prime minister, Binyamin Netanyahu, kicking up a fuss in Washington (see page 30), the outlines of a deal to constrain Iran's nuclear programme are in place. But as another round of negotiations between Iran and the P5+1 countries—America, Britain, China, France, Germany and Russia—wrapped up in Montreux, Switzerland, on March 4th, there were still gaps between the parties.

The aim of the negotiators is to increase by at least a year the "breakout" time it would take Iran to create enough weapons-grade material to make a bomb—currently estimated to be about three months. To that end, in return for an easing of sanctions, Iran should reduce both the capacity of its uranium-enrichment facilities and its stocks of low-enriched uranium. According to the London-based International Institute for Strategic Studies the shape of the deal may be like this:

- Iran would cut the number of centrifuges it is using for enrichment from the 9,500 in service today to about 7,000. Most would be at Natanz; perhaps only a few hundred would be in the deep underground hard-to-bomb facility at Fordow (see map). Its other centrifuges, including 9,000 that are installed but not operating, would be placed in secure stores under the seal of the International Atomic Energy Agency.
- Much of Iran's 8,000kg stockpile of low-enriched uranium would be either exported to Russia or converted into uranium oxide, which cannot easily be used for further enrichment.
- The way in which material passes between the remaining centrifuges would be changed so as to make it harder to get up to high levels of enrichment.
- Because bombs can also be made from plutonium, Iran's reactor at Arak would be reconfigured to produce only around 1kg of plutonium a month.

These measures would remain in force for ten years, after which there would be a staged relaxation and the time taken for a bomb's worth of enrichment would start to reduce again. The rate at which it might do so is a continuing concern for the P5+1 negotiators, especially as Iran wants to develop faster centrifuges between now and then.

For its part Iran is demanding the immediate removal of all sanctions against it. Although Mr Obama can suspend most American sanctions, only a deeply sceptical Congress can legislate to end them, a non-starter for the foreseeable future. A final unresolved issue is that no reliable inspection regime can be implemented unless Iran provides a full account of its weapons programme, something it has refused to do because it still denies one ever existed.


come America's nuclear protection.

The truth is that enthusiasm for a push to zero was never quite as global as it seemed. America's superiority in conventional weapons, although not readily converted into lasting victory in real wars, was striking enough to make gradual nuclear disarmament attractive to a number of American security professionals and academics. Some of them, former cold warriors, shared a guilty awareness of how close the planet had come to destruction as a result of accident and miscalculation. In a world of failing banks and successful jihadists, nuclear weapons felt to many like dangerous, expensive anachronisms.

Elsewhere, things looked rather different. Nuclear weapons are an effective way to make up for a lack of conventional military power—as America readily appreciated when, in the 1950s, it used the threat of retaliation with its comparatively sophisticated nuclear weapons to hold off massed Soviet tank divisions in Europe. Now the fact of America's immense conventional power puts the boot on other feet.

The evening-up effect is most obvious for the smallest fry. A presumed handful of weapons allows North Korea to bully and subvert its otherwise far more powerful southern neighbour and cock a snook at America. One of the reasons China continues to provide the hermit kingdom with energy and food aid is the fear of what a Kim regime facing collapse might do with its nukes. Iran has wanted a nuclear option in part because of the contrasting fortunes of the two other countries that appeared with it on Mr Bush's "axis of evil" in 2002: North Korea and Iraq. Some Ukrainian politicians bemoan the fact that, in 1994, the country gave up the nuclear weapons it had inherited from the Soviet Union. The security guarantees it received in return from Britain, France, America and Russia ring more than a little hollow today.

### Calling Major Kong

But big countries, too, can value the heft added to their conventional might by nuclear supplements. Thérèse Delpech, a distinguished French nuclear strategist, argued shortly before her death in 2012 that the West's adversaries were already deploying a range of asymmetric tactics to offset their conventional military disadvantage; it would be wrong to assume that nuclear weapons might not find a place in that range. Russia is a case in point. In 1999 Mr Putin was struck by the effectiveness of the West's precision weapons in Kosovo. When he became president a year later he introduced a military doctrine of "de-escalation", in which the threat of a limited nuclear strike, probably though not necessarily against a military target, could be used to force an opponent back to the status quo ante. It was aimed at deterring America and its NATO allies from involving themselves in conflicts in which Russia felt it had vital interests.

The key to the doctrine's credibility is for the West to believe that Russia might be willing to take the risk of using nuclear weapons because it cares far more about the outcomes in its "near abroad" than others do. Since 2000 nearly all Russia's big military exercises have featured simulations of limited nuclear strikes, including one on Poland in 2009. After a crash modernisation effort, Russia now has greater confidence in its conventional forces. That may explain why a major exercise staged in 2013 went without a simulated nuclear attack. But the conflict in Ukraine is disconcertingly similar to the kind that Russian forces have consistently war-gamed and planned for. Russia's keenness for nuclear-backed bullying can be seen in its threats to launch pre-emptive strikes against American missile-defence sites due in Romania this year and in Poland in 2018. In late 2013 Russia stationed nuclear-capable Iskander missiles in Kaliningrad, the enclave which borders Poland and Lithuania.

The thought of "nuclear combat—toe-to-toe with the Russkies", as Major Kong put it in Stanley Kubrick's "Dr Strangelove", feels like a return to the cold war. But this is different. In the cold war the two sides were broadly committed to international

stability, with nuclear weapons seen as a way to preserve, rather than challenge, the status quo. This did not mean there were no risks—things could quite easily have gone terribly wrong by accident or design, and the mutual interest in stability could have waned. But both American and Soviet leaders showed themselves highly risk-averse when it came to nuclear weapons. Protocols such as the use of the "hot line" evolved to defuse and manage crises, and great care was taken to prevent the possibility of accidental or unauthorised launch. The development of "second-strike" nuclear forces, which could guarantee a response even after the sneakiest of sneak attacks, bolstered stability.

The new nuclear age is built on shakier foundations. Although there are fewer nuclear weapons than at the height of the cold war (see chart on next page), the possibility of some of them being used is higher and growing. That increasing possibility feeds the likelihood of more countries choosing the nuclear option, which in turn increases the sense of instability.

Many of the factors that made deterrence work in the cold war are now weakened or absent. One is the overarching acceptance of strategic stability. Some of today's nuclear powers want to challenge the existing order, either regionally or globally. Both China and Russia are dissatisfied with what they see as a rules-based international order created for and dominated by the West. There are disputed borders with nukes on both sides between India and both China and Pakistan.

The kind of protocols that the cold-war era America and Soviet Union set up to reassure each other are much less in evidence today. China is particularly cagey about the size, status and capabilities of its nuclear forces and opaque about the doctrinal approach that might govern their use. India and Pakistan have a hotline and inform each other about tests, but do not discuss any other measures to improve nuclear security, for example by moving weapons farther from their border. Israel does not even admit that its nuclear arsenal exists. The protocols that used to govern the nuclear relationship between America and Russia are also visibly fraying; co-operation on nuclear-materials safety ended in December 2014.

## Arsenals and aspirations

### United States *(estimated total warheads: 4,764)*

In line with its 2010 New START agreement with Russia, America has no plans to increase the size of its strategic arsenal, but it is developing a new warhead that would fit on both submarine-launched and ground-launched missiles. The 14 *Ohio*-class ballistic-missile submarines currently in service will be replaced at a rate of about one a year from 2027 onwards. There is also a programme to field a new long-range bomber capable of penetrating enemy air defences and a new air-launched missile for it to carry. The ability of such a system to attack well-defended targets using low-yield weapons is seen as making it a particularly credible deterrent against a minor nuclear power.

**Operational nuclear warheads, 2014**


### Russia *(4,300)*

Several new intercontinental ballistic missiles (ICBMs) are being planned as replacements for old land-based systems. One of them, the liquid-fuelled Sarmat, is a monster which can carry up to 15 independently targeted warheads; some see it as being designed for use as a first-strike weapon. Ten new Borei-class submarines, three of which have recently entered service, will allow Russia to keep ballistic-missile submarines on permanent patrol for the first time since the end of the cold war. The country also has plans for a stealthy nuclear bomber. Having once promised to reduce its commitment to tactical nuclear weapons, Russia appears to be increasingly incorporating them into its war-fighting doctrines. It may be developing new ones to be carried on cruise missiles, which might violate the Intermediate-Range Nuclear Forces treaty of 1987.

### China *(250)*

Despite testing its first nuclear weapon half a century ago, China had until recently built up its nuclear forces extremely slowly. Until 2006 its only ICBMs were a small number of liquid-fuelled DF-5As which sat in silos that were vulnerable to a first strike. But with the recent arrival of the DF-31A, which can be moved around on roads, and the deployment, after many false starts, of at least four Jin-class ballistic-missile submarines, China now has a plausible second-strike capability. If it chose to make new warheads it could easily accomodate them on some of its huge arsenal of medium- and short-range missiles. President Xi Jinping appears to have dropped the country's long-standing promise not to be the first to use nuclear weapons.

### France *(300)*

The core of the force is four *Triomphant*-class missile submarines, the most recent of which entered service in 2010. France is also updating its airborne systems with 40 new Rafales that can carry the ASMPA cruise missile. A thorough-going modernisation programme for the submarines, aircraft, missiles, warheads and weapons-production facilities will continue into the next decade.

### Britain *(225)*

Four ageing *Vanguard*-class missile submarines will be replaced with new *Trafalgar*-class boats in the middle of the next decade; they will be equipped with refurbished American Trident D5 missiles because, unusually for a nuclear power, Britain does not design its own missiles. It is possible that the next government will only commit to building three of the submarines, which would make it much harder always to have one on patrol at sea.

### Pakistan *(120)*

In the world's fastest-growing nuclear-weapons progamme, Pakistan has up to 11 aircraft, ballistic missiles and cruise missiles in development as delivery systems. Particularly troubling is the possibility of low-yield, short-range ballistic-missile systems (Hatf-2 and Hatf-9) for early use against an attack by conventional Indian forces.

### India *(110)*

The Agni family of land-based missiles are improving in range, payload and accuracy. The new road-mobile Agni V has a range of up to 8,000km (5,000 miles); later versions will carry multiple warheads. India's first missile submarine, the *Arihant*, is being deployed after years of troubled development. It will be followed by three more.

### Israel *(80)*

The mobile Jericho III missile, with a range of 6,000km, will soon be deployed. Israel also has F-16 and F-15 aircraft capable of nuclear attacks and three *Dolphin*-class submarines that can fire nuclear-capable cruise missiles with a range of around 1,500km, making it one of only five nations to have a land-sea-air triad of delivery systems.

### North Korea *(10)*

Though the reality is hard to disentangle from the rhetoric, North Korea may have as many as ten warheads and designs that would miniaturise them for use on missiles; it could probably add one weapon a year. Its Scuds can reach most of South Korea and its Nodongs could hit Japan. Its work on a Pacific-spanning ICBM continues.


Sources: *The Economist*; SIPRI

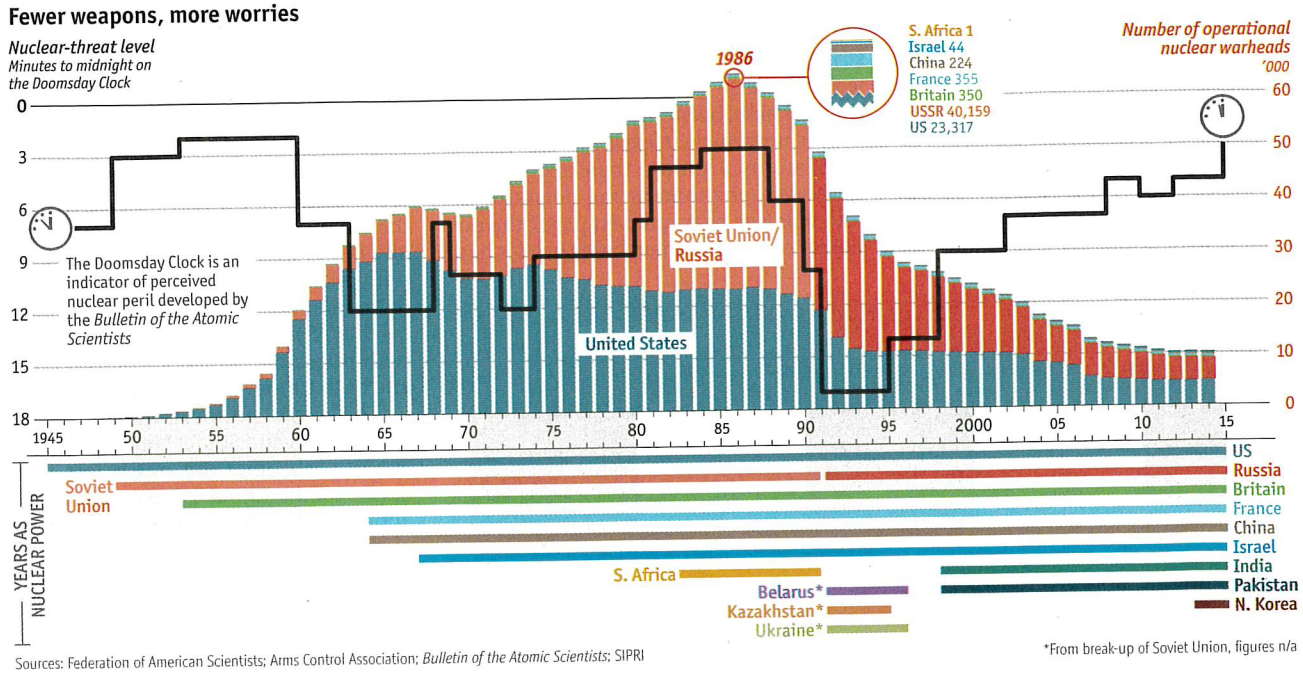
### Can't live with them...

Second-strike capabilities—which theorists believe, under some circumstances, to strengthen deterrence—are spreading, which may provide some comfort. An assured second-strike capability greatly reduces the destabilising "use them or lose them" dilemma that a country with a small or vulnerable nuclear force faces in a crisis. Russia, America, France and Britain have long enjoyed this assurance thanks to missile submarines that are practically invulnerable while at sea. China now has mobile missiles that might survive a first strike, and is deploying its own fleet of ballistic-missile submarines. India has just begun trials of its first missile sub. Israel has submarines which can launch cruise missiles that could carry nuclear warheads.

It is worth remembering, though, that the prospect of one of the two parties in a conflict developing such a capability while the other lacks it can in itself be destabilising. There is also a worry that the leaders of some current and aspirant nuclear powers may be less risk-averse than their cold-war analogues. A wariness of leaders who feel their regimes to be under internal or external threat, or whose religion or ideology embraces apocalyptic confrontation, adds to fears about nuclear weapons in North Korea and possibly Iran.

Weak institutions also increase the danger of the unauthorised use of weapons, or

## Fewer weapons, more worries




Sources: Federation of American Scientists; Arms Control Association; *Bulletin of the Atomic Scientists*; SIPRI

*From break-up of Soviet Union, figures n/a

of some ending up with non-state groups. This danger is especially acute in Pakistan, where responsibility for short-range systems may be delegated to field commanders during a crisis, a large part of the army has been radicalised and jihadist networks have multiplied.

Putting together the risk that nuclear suasion could be used to push for change instead of stability, the increasing number of actors, and the ever greater possibilities for confusion as to what might actually be going on, Ms Delpech wrote in 2012 that the world was entering a new "era of strategic piracy". This new piracy was characterised by lawlessness and deception, and she saw it as including surprise attacks as well as blatant threats. China was a particular concern because of its refusal to engage in serious discussions about what sort of strategic stability might suit it. The West, she warned, was ill prepared.

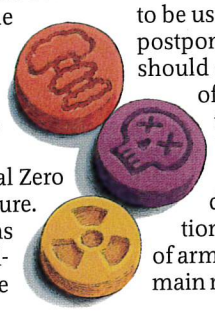
Some strategists believe that, given the existential threat nuclear weapons pose, new forms of deterrence will be found. It worked in the cold war and *mutatis mutandis* can work today. But as Lawrence Freedman, a British strategist, observes, "deterrence works; until it doesn't." In a much more complicated and chaotic future, "doesn't" becomes more likely, especially if thought is not given to the problem. America is willing to spend heavily on new nuclear kit, but there is little sign of the intellectual effort needed to develop new theories of deterrence.

One way to bolster stability could be through a more overt doctrine of extended deterrence on America's part. In Asia and the Middle East, America's security guarantees to its allies are more ambiguous than they are in Europe, where the NATO commitment is clear. China's growing military capabilities and the wild card of North Korea threaten Japan and, less so, South Korea, American allies that have thus far forborne from becoming nuclear-weapons powers. Both could do so quickly were they so minded. Were Iran to break out from the NPT and pursue a bomb, Saudi Arabia, the UAE and maybe Egypt, too, would be under pressure to do so.

America can help practically as well as doctrinally. It has increasingly effective anti-ballistic missile systems that it can share with allies; they might sometimes be destabilising, but perhaps not as much so as proliferation would be. America is also developing "prompt global strike"—the ability to deliver a precision strike using conventional weapons anywhere in the world within an hour—which would allow the possibility of quickly neutralising small, hostile nuclear forces without recourse to nuclear weapons.

### ...Can't live without them

Such things are not much help, though, against the largest and smallest threats. An emerging near-peer nuclear power such as China may have a much higher tolerance for risk during some sorts of regional crisis (over Taiwan, say) than has been seen in the past. At the other end of the spectrum, when it comes to non-state groups without assets that can be held at risk, deterrence may simply not have much to offer.



The recent hopes for a Global Zero now seem desperately premature. As long as great-power relations remain unstable, regional rivalries linger unresolved and rogue states continue to see nuclear weapons as a way of intimidating purportedly powerful adversaries, the incentive to hang on to nuclear weapons will outweigh other considerations. This is all the more true given that nobody has shown convincingly that renouncing nuclear weapons would really make the world safer.

The economist and strategist Thomas Schelling has argued that a world of renunciation has no good answer to the problem of reconstitution—the ability of a former nuclear power to restore its nuclear capability very quickly. No government could allow itself to lose a war that it would win if it were to re-produce nuclear weapons. Thus there would be very strong incentives to cheat, for example by caching some weapons-grade material just in case. Mr Schelling concludes that such a world might have a dozen countries with "hair-trigger mobilisation plans to rebuild nuclear weapons and mobilise or commandeer delivery systems". "Every crisis would be a nuclear crisis", he warns. "Any war could become a nuclear war."

Mr Obama was right six years ago to warn the world against complacency when it came to nuclear weapons. The knowledge that at some point, either by accident or design, one or more is very likely to be used is no reason not to work hard to postpone that wicked day. Their use should certainly never be considered part of the normal currency of international relations. But for now the best that can be achieved is to search for ways to restore effective deterrence, bear down on proliferation and get back to the dogged grind of arms-control negotiations between the main nuclear powers. ■