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R. Rajaraman

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Article

On the Unravelling of Global Nuclear Order

R. Rajaraman

Abstract

There is a growing concern among many, particularly the liberals, that the nuclear order constructed with great effort among the nuclear weapon states is unravelling. These apprehensions have increased with the assumption of the US Presidency by Donald Trump. This article describes the main elements of the nuclear order as it existed until a few years back. It then describes the various developments that have contributed to its allege break down. It thereafter underlines that while both the Order and its undoing have primarily to do with the two leading powers, the US and Russia, it also affects other nations. Consequently, the article assesses what this Order, and its alleged breakdown, imply for India.

The last few years have seen increasing concern among the strategic community that the nuclear order painstakingly put in place among the nuclear weapon countries of the world is slowly unravelling. This concern originated in the first instance from the US, particularly the "liberal" wing of its commentators, who have strongly expressed their apprehensions on this count. Not entirely coincidentally, these apprehensions have become deeper with the assumption of the US Presidency by Donald Trump.

An example of expression of such misgivings is the Doomsday Clock setting of the Bulletin of Atomic Scientists[1], a widely respected indicator of the state of nuclear dangers in the world. In 2019 the Bulletin set its Clock at a precarious 2 minutes before midnight as an expression of its concern. In the latest 2020 setting the Clock was moved even closer to midnight—just 100 seconds away[2]. This was the closest it had even been to "midnight",

Prof. Rajaraman Emeritus Professor of Physics, Jawaharlal Nehru University.

which stands for a nuclear holocaust, ever since the Clock was instituted by the Bulletin in 1947. By now analysts from other nations, including India, have also started discussing this problem.

This article gives an overview of these developments. It recalls the main elements of the nuclear order (henceforth referred to as the "Order") as it existed until a few years back. It then describes the various developments that have contributed to its alleged break down. It is evident, both the Order and its unravelling have primarily to do with the two superpowers, the US and Russia (USSR). But it also affects other nations. As part of this discussion we assess what this Order, and its alleged breakdown, imply for India.

The various components of the Order can be divided into two categories. One dealt with ***nuclear non-proliferation*** and the other with ***arms reduction***. These two components may be viewed as Horizontal and Vertical Non-Proliferation respectively. It is important to distinguish between them and discuss each separately. Although in a larger sense they are both aimed at mitigating the dangers of nuclear weapons, the specific motivations for each were different, as were their ethical underpinnings.

Nuclear Non-proliferation

The Non-proliferation regime was designed to prevent nuclear weapon capabilities from spreading to more and more nations. The main instrument introduced to enforce such prohibition among the international community was the Nuclear Non-Proliferation Treaty (NPT), which came into force 1970[3]. By then all the permanent members of the Security Council with Veto powers (the "P5", consisting of the US, USSR, UK, France and China)) had successfully tested nuclear weapons and were building up their arsenals to varying extents. Once they all had nuclear weapons in their pockets, they presumably decided that these weapons were dangerous after all! So, as the (self-appointed) trustees of the world's security, they decided that while it was okay for them to possess nuclear weapons, it would be unsafe to let any other nation have them! To that end they enacted the UN-sponsored NPT, which certainly introduced some order into the nuclear activities of nations. But it was not an equitable order. Rather, it was like the British rules of governance imposed on colonial India which, while they introduced an element of orderliness into the administration of the country were, however, discriminatory and exploitative in favour of the rulers.

NPT divided the world into the Haves and the Have-nots:

i. **Nuclear Weapon States(NWS**) which had "....exploded a nuclear weapon prior to 1 January 1967" ---- i.e. just the P5, and

ii. (**Non-NWS**), i.e. the rest of the states, who were forbidden by the Treaty to build our own nuclear weapons

Highly asymmetrical though this arrangement was, NPT was amazingly successful in getting 190 signatory state-parties. Among the carrots the Treaty offered to the NNWS were

a. help in developing civilian nuclear power and

b. the promise by NWS (in Article VI of NPT) to "pursue negotiations in good faith ..... on a treaty on general and complete disarmament...."

Feeling that the Treaty was discriminatory, India did not join it. Nor did Pakistan and Israel.

NPT is viewed as a successful element of the global order because, of the 185-odd NNWS signatories, only one (N Korea) has built nuclear weapons. But admiration of this achievement must be tempered by the noting that of these 185 nations that did not build nuclear weapons, most were in any case developing nations without the financial or technical wherewithal to make such weapons. It made more political sense for them to eschew ambitions of possessing nuclear weapons and instead accept the help offered in NPT towards developing civilian applications of nuclear technology. As for the technologically developed nations outside the P5, such as Japan and western Europe, they were covered by the nuclear umbrella of the US nuclear forces. ***Besides, its success is only partial***. In the 50 years since NPT came into being, the NWS have ***not*** kept their side of the promise in Article VI.

CTBT and FMCT

The success of NPT in establishing some nuclear Order by preventing horizontal proliferation spawned other treaties meant to augment and strengthen the Order. One was the The Comprehensive Test Ban Treaty (CTBT), which bans all nuclear explosions on earth. There was already in existence a Partial Test Ban Treaty, in force since 10th October 1963, which prohibited nuclear tests in the atmosphere, outer space or underwater[4]. It left out underground nuclear tests. CTBT filled this lacuna by extending this prohibition to cover ***all nuclear tests*** on earth. Although the treaty document was placed for signature way back in 1996, it has not come into force till today. That is because of a clause that the Treaty would not come into force until it was ratified by all members of a "specified" set of countries, which included India. In the event India decided not to sign CTBT. Others like the US, and China have signed but not ratified it so far.

Strenuous efforts have also been made to negotiate another treaty which was intended to control, and if possible, cutoff further production of weapon usable fissile materials. Popularly known by the acronym FMCT (where the letter C could stand either for Control or for Cutoff) the treaty was placed for negotiations at the Conference on Disarmament in Geneva, mandated by a UN General Assembly resolution passed in December 1993. The resolution called for negotiations on a "non-discriminatory multilateral and internationally effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices". Attempts to negotiate such a Treaty had been going on in Geneva since 1998 without arriving at a consensus and spluttered to a halt after Pakistan pulled out of the negotiations.

There was some commonality to these instruments. While they all shared the worthy aim of lowering nuclear dangers, they were also biased and unjust. Just as NPT came into being only after the P5 countries had developed nuclear weapons, similarly by the time CTBT was ready for signature in 1996, the P5 nations had conducted altogether over 2000 nuclear tests and built up technical data about their performance. Of these, over 1000 tests were conducted by the US, about 700 by the USSR, 200 more by France and about 45 each by UK and China. [5] In the same way, it was only after the superpowers had produced and stored all the plutonium and highly enriched uranium they are likely to need, that efforts were intensified to negotiate a treaty controlling production of fissile materials.

At the top of the list of hitherto non-nuclear weapon nations that would have been most likely to conduct nuclear tests forbidden by CTBT was India. It would therefore not be entirely paranoid if analysts and diplomats in India (and Pakistan) felt that these treaties were initiated and supported by the nuclear powers not just by their desire to reduce nuclear dangers, but also to prevent the leading South Asian powers from developing nuclear assets for their security needs. Needless to state, that would also help maintain the supremacy of the P5 in the global power structure.

Negotiated Arms reduction and Strategic Cooperation

Thus, the non-proliferation component of what constituted nuclear Order was not entirely benevolent or just. However, international non –proliferation Treaties like NPT, CTBT, etc., were only one part of what was viewed as nuclear Order. There were other, more wholesome examples of cooperative and statesmanlike behaviour aimed at reducing nuclear dangers. These were mostly bilateral agreements between the two superpowers, viz., the former USSR, and now Russia, and the US.

Arms Control Treaties

By the mid 'eighties the world had about 60,000 nuclear weapons, more than enough to wipe out mankind several times over. More than 90% of these weapons were in the hands of the two superpowers. Fortunately, even as their arsenal were rapidly expanding, some wiser heads in the US and the USSR set in motion informal discussions towards some negotiated Arms reduction. This led to a sequence of arms reduction treaties between them.

1. The Strategic Arms Limitation Treaties (SALT I and II) in 1972 and 1979 respectively
2. The Intermediate-Range Nuclear Forces Treaty (INF) in 1987
3. Strategic Arms Reduction Treaty (START I) in 1991, which further lowered the number of warheads by about half, *in a verifiable manner*, and
4. The Strategic Offensive Reductions Treaty (SORT) in 2002
5. The New START treaty of 2010 negotiated by President Obama and his Russian Counterpart President Medvedev which reduced the strategic arsenals of both sides further, to 700 deployed delivery vehicles (missiles + bombers) and 1550 warheads, each.

We will not present here the details of these arms reduction treaties. Suffice it to say that as a result of the treaties over 45,000 weapons (> 70% of the peak cold war figure) had been consigned for dismantlement by 2010.

Cleary this a was an important step in reducing global nuclear dangers. Even though the remaining 16,000 warheads in the world are still enough to destroy human civilization, getting rid of 45,000 weapons certainly lowered the probability of erroneous launches and nuclear accidents. It brought us that much closer to total nuclear disarmament. It was also a major achievement to negotiate and execute such massive arms reduction in a verifiable manner, by countries which still viewed one other as their biggest security threats and had thousands of nuclear weapons aimed at each other. It was a remarkable exercise of maintaining trust and cooperation on some specific matters even among nuclear adversaries

Collapse of the Soviet Union

The Soviet Union collapsed on 25th December 1991, leaving the newly born Russian Federation in a precarious financial state. Russia did not have the funds needed to maintain its closed "nuclear cities" or pay full salaries to the weapons scientists and technicians.

Needless to say, having large numbers of people with expert knowledge and experience in nuclear weaponry sitting around without salaries was an extremely dangerous situation. If it went on for long, there may be sufficient disgruntlement even among normally loyal employees for some of them to become ripe for being lured away. Some slackness may also enter in security procedures which could be exploited to purloin fissile material or weapon technology, if not the weapons themselves. In addition to being short of funds to maintain their nuclear weapon establishment, the newly born Russian Republic had to face the arduous tasks of consolidating the nuclear weapons and missiles scattered in the other republics of the former USSR and dismantling some of the weapons and infrastructure as agreed in the START treaty.

During this difficult period for Russia, US government and Congress wisely took several statesmanlike measures to financially and technologically assist Russia in completing all these tasks. The US Congress passed the Nunn-Lugar Act and created the Cooperative Threat Reduction Program[6], which was designed "to secure and dismantle weapons of mass destruction and their associated infrastructure in former Soviet Union states". Helped by such assistance, every Soviet weapon was accounted for and brought back to be stored within Russia.

The technical assistance and the funds from the US also enabled Russia to dismantle the agreed number of weapons as per the START treaty. Such dismantlement carries with it the serious danger of the nuclear fuel extracted from the weapons could be pilfered by non-state actors. To overcome this danger, some of the HEU removed from the dismantled weapons was downgraded to LEU and shipped to the US, where it was used to fuel civilian American reactors. This arrangement, aptly nicknamed the Megatons to Megawatts Program, helped convert 500 tons of Russian HEU (roughly 20,000 weapons worth) into LEU to be transferred out of Russia.[7]

These bilaterally negotiated arms reduction steps illustrate the spirit of nuclear cooperation that had gradually been built between the two Cold War superpowers. While these are, strictly speaking, examples of nuclear cooperation rather than "order", we are including them here since they are among the developments whose slow demise is being bemoaned when people talk now of the emerging nuclear disorder. Besides, such cooperation between the Superpowers induced a sense of orderliness in the nuclear affairs of the world.

There are two examples one can give to illustrate how the spirit of nuclear cooperation led to better nuclear order. One was the set of four biennial Nuclear Security Summits initiated by Obama to address the security of fissile materials. The first Summit,

in 2010, hosted by Obama himself at Washington DC, was a great success, with 47 world leaders taking part, including Dr. Manmohan Singh. Succeeding Summits (at Seoul in 2012, at The Hague 2014 and in Washington 2016) were all cordial and non-contentious (a rarity in the past for nuclear meetings). Countries, including India, offered "Gift Baskets" (voluntary steps to enhance Fissile Materials security) -- commitments which, though non-binding, were respected. Several nations which had earlier been given some fissile materials on loan by nuclear weapon states for peaceful applications now returned them back. This has led to a reduction in the number of nations holding significant quantities of fissile materials.

Another example of such cooperation was the Joint Comprehensive Plan of Action or JCPOA negotiated with Iran by Obama, in partnership with P5 and Germany 2015, to resolve the crisis caused by Iran's nuclear program. Iran had been secretly developing a battery of nuclear centrifuges in apparent violation of its obligations under NPT. They had also started to produce 20% enriched Uranium, although the reactor fuel for which they were ostensibly producing the uranium need not have been enriched to that level. At most 4-5 % would have sufficed. This raised the suspicion that perhaps they were getting ready to build a nuclear weapon. Faced with this prospect the US and the UN imposed severe economic and trade sanctions against Iran in the hope of dissuading them from proceeding further on that path. Although Iran was definitely hurting from the effects of the sanctions it nevertheless continued with its enrichment program, even as the US kept increasing the sanctions. Tensions were steadily rising, until the US, jointly with the rest of the P5 nations and Germany decided to start negotiations with Iran to work out mutually acceptable compromise. After very difficult but responsible negotiations by both sides a Plan was agreed upon, calling for lifting of economic sanctions by the US and the UN against Iran in return for Iran reducing its enriched uranium stocks and its battery of centrifuges under IAEA safeguards. The Plan was working well and tensions in the Middle-East began to abate. Cooperative action by the major nuclear powers had restored some nuclear order which had been disturbed by Iran's actions. Unfortunately, this happy resolution was not to continue as we will discuss below.

The period 2008- 2012, when Mr. Obama was in his first term as the US President, happened to be the most promising time for nuclear arms control and global disarmament. Obama had declared in his Presidential campaign that he wanted to rid the world of all nuclear weapons and "walked the talk" after assuming office. In an inspired speech at Prague in April 2009 he became the first sitting president of the US to publicly call for total disarmament. Responding to his call, many other world leaders echoed the same sentiments. Meanwhile, Mr. Vladimir Putin, who had stepped down as Russia's President after his term was over in 2008, installed Mr. Medvedev in his place. Medvedev too supported Obama's

call for total disarmament. Together they issued a joint statement in London in 2009 announcing that since START Treaty was set to expire in December, they will begin bilateral intergovernmental negotiations to work out a new arms reduction treaty. This resulted in the New START Treaty of 2010 that we had mentioned earlier.

In summary, to give a flavour of the different elements, with examples, that together contributed to a sense of harmony and order in the nuclear affairs of the community of nations. It fell far short of the ideal of getting rid of all nuclear weapons, but there was a sense that the world was moving away, however slowly, towards a more rational approach towards nuclear weapons. There was growing realisation that these weapons were not suitable as instruments of war fighting. In consequence, although both superpowers continued to possess about 6000 nuclear warheads each, their security strategies became less reliant on their nuclear arsenal

Unravelling of the Nuclear Order

Unfortunately, the last few years have witnessed a gradual erosion of this Order. No one individual leader or country can be held solely responsible for this. But overall it would be fair to say the same two superpowers who had instituted the world Order were also ones that started to gradually break it. Having set up the elaborate architecture of nuclear order in the first place, US and Russia now started violating its spirit in a variety of situations. Their behavior was also in keeping with a growing trend in world affairs towards a renewed sense of national self-interest, disenchantment with globalization and disregard for international agreements and treaties. The world was no longer viewed as "one big village".

On the US side, things started going downhill around the end of President Obama's second term in office. His successor President Donald Trump, even as a candidate campaigning for Presidency in 2015, had made criticism of Mr. Obama's actions and policies a primary plank in his election platform. Prominent among Trump's targets was the JCPOA agreement signed with Iran, which he claimed, was a terrible deal from the US point of view. He also threatened the traditional US alliances with western Europe by suggesting that the latter should contribute more towards the security umbrella that the US had been providing them. Trump's unilateral and unpredictable style of functioning, where he announced policy through a sequence of "tweets" and disregarded the advice of the experienced diplomatic community in the US, was sowing confusion in the perception of other nations about the direction of America's foreign policy and the reliability of its commitments.

Meanwhile, Medvedev passed the baton of Russian presidency back to Putin in 2012, as seems to have been tacitly arranged between the two leaders. Putin's new innings

as President was characterized by a revival of Russian nationalism and a more aggressive foreign policy. First there was the annexation of Crimea, which was a part of Ukraine but with a large Russian speaking population. On 27 February 2014, Russian special forces invaded Crimea. Then through a sequence of steps leading to a referendum, Russia formally incorporated Crimea as part of the Russian Federation on 18 March 2014. This was an example of the disregard for signed treaties in force that has been characterizing superpower attitudes in recent years. Annexation of Crimea was in violation of both international law and Russian-signed agreements safeguarding the territorial integrity of Ukraine. Much of the world condemned the annexation and the UN General Assembly approved a resolution condemning Russia's occupation of Crimea and the city of Sevastopol.

Annexation of Crimea was not the only example of big power muscle flexing and interference in sovereign states. Russia was unhappy with the Ukrainian government moving increasingly close to both NATO and the European Union. Ukraine was after all a neighbour of Russia and a fellow founding member of USSR. For it to go deep into the western sphere of influence was, understandably, worrisome for Russia which set up and supported separatist rebels in eastern Ukraine. This has led to a five-year war that has killed 14,000 people. Inevitably the US supported the Ukrainian government. With pro-West and pro-Russian groups working to dislodge one another, Ukraine has become a theatre of proxy conflict between Russia and the Western powers and represents a return to the old cold war hostilities. The G8 have suspended Russia and the US has imposed sanctions on it.

Abandonment of the INF Treaty

The Intermediate-Range Nuclear Forces (INF) Treaty was signed in 1987 by Reagan and Gorbachev, banning all ground-launched missiles between 500 and 5,500 km range. It had been contributing greatly to stability in Europe. In 2019 both the US and Russia pulled out of this Treaty. The origin of this development can be traced to an earlier treaty banning anti-ballistic missiles (the ABM Treaty) between the US and the USSR back in 1972. The US, however, decided in 2002 to withdraw from the ABM treaty because of concerns over missiles being built by the N Koreans, which could potentially target not only Japan and US bases in Okinawa, but eventually continental US itself. The US wanted to be freed from the ABM treaty in order to build effective anti-Ballistic missile systems in Alaska to intercept incoming N Korean missiles. Later the US concerns extended also to missiles being developed by Iran, and to counter them it also began to set up an ABM system in Poland.

This in turn evoked concerns in Russia that the American ABM systems in nearby Poland could just as easily be turned around to jeopardise its own offensive capability. So

Russia felt the need to deploy Intermediate Range missiles ---a cruise missile SSC-8 with range 2,000 km and a smaller one SSC-7--- targeting U.S. ABM sites. These were in violation of the INF Treaty. In response, On Feb. 1, 2019, Trump and Pompeo announced that the US would suspend its obligations under the INF Treaty and would withdraw from it in 6 months. In turn, Putin announced Russia too will suspend its INF treaty obligations. The potential death of INF, a further move towards disorder, foreshadows a new competition to deploy long banned weapons

Weakening the Nuclear Umbrella

Both in his election campaign and later as President, Trump has propounded an "America First" policy, which included reducing the US involvement as a "global policeman" in world affairs. Any country has the right to do this if its perceived national interests demand it. But a nation which has for long claimed "leadership of the free world" can pull back from its commitments only gradually. Among the several erratic foreign policy decisions that Trump tweeted was a warning to long standing US allies, that they shouldn't expect the US to continue to spend a major share of the funds needed for maintaining a defence shield to protect them. He demanded that they too should contribute a more appropriate share of the costs. [8]This announcement was made without prior consultations with the allies, or for that matter with his own State Department's senior officials. The Allies did not quite know what to make of this statement or its operational consequences. Trump's posture also threatened to weaken the NPT. It may be recalled that an integral part of the commitments sustaining the Western Alliance includes the US providing a nuclear umbrella to cover the allies, an arrangement which enabled the latter to desist from building their own individual nuclear arsenals.

A country that was particularly disturbed by the possibility of withdrawal of the US nuclear umbrella was Japan. As the only nation to have suffered a nuclear attack, Japan had understandably a deep aversion to possessing nuclear weapons. But realism demanded that, as Premier Eisaku Saku re-iterated in 1967, "....[although] Japan would not manufacture, possess, or permit nuclear weapons on Japanese soil.... [there would be] reliance and dependence on US extended deterrence"[9]. Although it did not directly imply it, this statement did keep open the possibility that if American assurance was ever removed or seemed unreliable, Japan might have no choice but to go nuclear. In fact, a policy planning study for Japan's Foreign Ministry concluded in 1969 that Japan should, even if it signed the NPT, maintain the economic and technical ability to develop nuclear weapons, should it ever become necessary. [10]

Japanese Premier Shinzo Abe was the first foreign dignitary to visit Trump at his Mar–a-Lago Resort after his election. He sought reassurance on the US commitment of providing a nuclear cover over Japan and indeed reassurance on such extended deterrence came in the Nuclear Policy Review released by the US Department of Defence in February 2018 [11] . Despite such reassurances to allies, Trump has dented reliability of the nuclear cover the US has been providing to its allies. This is a major blow to the stability of nuclear order and non-proliferation.

Eroding the Nuclear Taboo

In past decades, the accepted view, even in the military, was that nuclear weapons are not war-fighting instruments and will hopefully never be used in a conflict. A tacit universal taboo on their use had developed after Hiroshima and Nagasaki. But the Trump-Putin era has seen this view changing. This is clearly reflected in the latest US Nuclear Posture Review where it reads "....US will expand the range of U.S. options ....to include **low-yield options**....The US would only **conside**r the employment of nuclear weapons in extreme circumstances **including** significant **non-nuclear strategic attacks**". From his side, President Putin described in his 2019 Federal Assembly address Russia's own extensive nuclear modernization programme.

The weapon-modernisation programmes of the US and Russia imply more than just bigger nuclear arsenals. They also reveal, perhaps unintentionally, the Trump and Putin administrations' disdain for the prospects of further disarmament in the near future. As Steve Fetter, Richard L. Garwin, and Frank von Hippel point out[12]: "because the new weapons systems are designed to have service lives of more than 40 years, (i.e. up to 2065), the modernization program can be read as a signal .... that the US does not expect significant nuclear reductions in the foreseeable future"

The new weapons systems being proposed include hypersonic boost-glide vehicle (HGV) and the hypersonic cruise missiles (HCM). These advances will destabilise the existing deterrence strategies of the major nuclear powers, which had thus far prevented any hasty nuclear exchanges between them. Deterrence and second strike capability rely on the ability of nations to detect incoming missiles in time to be able to take action in response if they are found to be part of a genuine attack, and more importantly, prevent hasty retaliation if they are not. Such detection is currently done by a combination of space based assets (spy satellites) whose infra-red sensors can detect missile launches through the intense heat generated and ground based radars which can then pick up and follow the ballistic trajectories of the launched missiles. But in the case of the HGVs and HCMs, while their launches may still be detectable by satellites, their subsequent journey cannot be tracked

by existing ground based radars since they will be flying at lower altitudes than ballistic missiles. In addition, they are expected to be equipped with a small propulsion system (so called RCS thrusters) for orientation and directional control which can also enable them to change their trajectories while in transit, making it more difficult to intercept them. This will greatly diminish the target country's confidence in their deterrence capabilities and tempt them into engage in a pre-emptive first strike.

In short, as was summarized in the "Doomsday Clock" Announcement of 2019: *"Reliance on nuclear weapons appears to be growing, and military doctrines are evolving in ways that increase the focus on actually using nuclear weapons".*

Other violators

The preceding sections described with examples how the recent actions of the two erstwhile superpowers have systematically eroded global nuclear order. They had between them a dominant share of nuclear weapons and the biggest influence on international affairs. But they were not the only countries to have violated the order.

China has been a serial violator of international norms, even before Donald Trump, George W. Bush and Vladimir Putin started tampering with it. Although sworn to nuclear non-proliferation as a privileged member of NPT, China reportedly provided Pakistan with 50kg of HEU in 1982, enough to make two nuclear bombs, and in 1983, the complete design for a 25 kt nuclear bomb. More recently China, although a member of Nuclear Supply Group (NSG), built Pakistan's two Chashma reactors, claiming they were not in violation of NSG guidelines as they were "grandfathered", i.e., pre-existing commitments made before China was inducted into the NSG in 2004. Pakistan could counter that accusation by pointing out that Russia too had started building two VVER reactors for India at Kudankulam while international sanctions against India were still on. But, the Russian agreement to build reactors for India is clearly documented in an inter-governmental agreement between the erstwhile Soviet Union and India, signed way back in 1988 by the then Indian Prime Minister Rajiv Gandhi and Soviet leader Mikhail Gorbachev. By contrast actual text of the so-called 1986 commitments made to Pakistan by China remain un-released and shrouded in mystery. China has since then entered into further agreements in 2009 (in continuing violations of NPT obligations) for the construction of two new 340 MW power plants (Chashma-3 and Chashma-4). China has also been assisting N Korea in evading UN sanctions through illicit trade and banking

N Korea defied the nuclear Order when it withdrew from (NPT) in 2003 and pursued its weapon and missile programmes. That led to massive sanctions imposed by the US, the

UN and EU resulting in a great deal of suffering for the North Korean people. But Mr. Kim Jong Un persisted with his programme. By 2006 N Korea had exploded its first nuclear weapon and kept improving on it until by Nov 2017 it had a 120 kt thermonuclear bomb. In parallel, its missile technology was also rapidly advancing. By June 2017 it had tested the missile Hwasong-14 which could reach California and beyond.

The capacity to send a nuclear loaded ICBM to the US mainland forced Trump to stop ridiculing Kim and stoop to negotiating with him, face to face. The US wanted N Korea to de-nuclearise fully, while the latter wanted the lifting of all sanctions, an official end to the Korean War and a peace treaty. But their two Summits at Singapore and Hanoi, and the recent meeting across the Demilitarised zone failed to produce much beyond photo-ops. With Mr. Trump professing to have fallen in love with Kim, this is an ongoing soap-opera. Apart from building its own nuclear and missile arsenals, N. Korea had, again in violation of the global order, shared missile designs with Pakistan in return for centrifuge design and material.

Iran 's violation of NPT was more serious than N Korea's in the sense that, unlike the latter which withdrew from NPT, the former was still a signatory of NPT when it started its clandestine Uranium enrichment activities.

India and the Nuclear Order

A few remarks about the Indian experience *vis a vis* the nuclear order. Because of the Peaceful Nuclear Explosion at Pokhran in 1974 India was treated by the international nuclear community as an outcast for nearly 3 decades. This label was reinforced by our 1998 nuclear tests. But such condemnation was totally uncalled for. India is not a signatory to either NPT or CTBT. So it did not violate any treaty or international law in conducting these nuclear tests. And as a sovereign state India was well within its rights to develop a nuclear force if it felt that its national security demanded it[13].

As far as the nuclear order goes, although it was very beneficial to the world at large in reducing nuclear dangers, it was quite harmful to India. For decades the tenets of the nuclear order denied India access to many technologies, materials and instruments which it needed for its development, by terming them as capable of "dual use". When the Indo-US nuclear Deal was being negotiated to remove the sanctions against India the orthodoxy of the nuclear order---termed the "nuclear ayatollahs" by their critics-- opposed the Deal as being a disruptor of the nuclear order. They felt that by lifting the sanctions against India the US was itself breaking down nuclear order. Fortunately, these extreme views did not

prevail, the sanctions were lifted and India is now accepted as a responsible member of the world nuclear community.

Although the "nuclear order" did more harm than good to India, its breakdown is a cause for concern for us as well. India certainly does not want a nuclear conflagration in any part of the globe and the old nuclear order, although biased against India, did help in avoiding such a disaster.

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13. The present author holds the view that India should not have exercised that option to go nuclear. But that is just our personal view and does not alter the fact that India had every right to do so.