Hot Spots of the World from North Korea to Iran

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Rotary Club International Dinner

Frankfurt Country Club

April 26, 2018

The nuclear age began in July 1945, with the first test of a nuclear weapon, referred to as the Trinity Test. This test led to the design of the weapon with which Nagasaki, Japan was attacked on August 9th. The first attack, on Hiroshima on August 6th, used a weapon with the so-called "gun assembly" design, which was so simple that the consensus was it didn't need to be tested. In those early days, there was great ambivalence in the U.S. government over the issue of using the bomb against Japan. A few weeks after the death of President Roosevelt, Secretary of War Henry L. Stimson assembled, with the approval of President Truman, a prestigious committee called the Interim Committee, to advise the President on the use of the atomic bomb. Secretary of State James Byrnes, a strong proponent of using the bomb, was a member, Stimson was the Chairman. In the end, Stimson supported the use of the bomb but with great reluctance and was adamant that it not be used against Kyoto, the cultural, artistic and spiritual center of the country. Stimson consulted General Dwight Eisenhower shortly after Trinity and he told Stimson that he was against using the bomb on two grounds. First, the Japanese were ready to surrender and second, that he didn't want the United States to be the first country to use this weapon. Nevertheless, President Truman and Chairman of the Joint Chiefs George C. Marshall supported the use of the bomb on the grounds that it would shorten the war and save American lives. This view, of course, prevailed.

On the subject of the proliferation of nuclear weapons the government was not divided, although some senior officials thought it unlikely to spread to a potential enemy such as the Soviet Union. But the Soviet Union had a proficient spy ring in Los Alamos, the center of the weapon program, as well as other places. This led to Soviet acquisition of nuclear weapons and their first test in 1949. This development led almost immediately to a vast nuclear arms race with the United States being determined to stay ahead. The U.S. constructed more than 70,000 nuclear weapons and at the peak had 32,500 nuclear weapons in its arsenal. The Soviet Union, although well behind for a long time, ended up with 45,000 nuclear weapons deployed for many years, and building in the range of 55,000 weapons. Both sides also developed hydrogen—thermonuclear—weapons thousands of times more destructive than the bomb used against Hiroshima.

In addition, nuclear weapon proliferation began to look as though it would sweep all over the world. Great Britain acquired the nuclear weapon in the early 1950s and France in 1960. There were active programs in China, Israel, and Sweden while Switzerland twice voted by national referenda to keep open the option of building nuclear weapons. All this looked overwhelmingly dangerous to President John F. Kennedy, who stated before the United Nations in a speech in 1961 that, "Every man, woman and child lives under a nuclear sword of Damocles, hanging by the slenderest of threads, capable of being cut at any moment by accident, miscalculation or madness. The weapons of war must be abolished before they abolish us." And in a press conference in March of 1963, "…personally, I am haunted by the feeling that by 1970…there may be 10 nuclear powers instead of four, and by 1975, 15 or 20…I regard that as the greatest possible danger and hazard."

The international community responded as well. In 1961, the so-called "Irish" resolution called for an international non-proliferation treaty and was passed by the United Nations General Assembly unanimously. In 1965, the General Assembly passed the Swedish-India resolution which laid out the broad contours of such a treaty. Negotiations began in 1966, the United States and the Soviet Union, co-chairman of the negotiations, tabled at Geneva a nuclear weapon non-proliferation treaty which prohibited proliferation beyond the countries that already had the weapons in 1967, which corresponded to the five permanent members of the United Nations Security Council, the United States, Great Britain, the Soviet Union, France and China. The non-nuclear weapon states in the negotiation countered with their price for giving up the world's most powerful weapon: a treaty article establishing the inherent right of all parties to the treaty to the peaceful use of nuclear energy and the obligation on all parties to cooperate in this field, which became Article IV of the Treaty and an obligation placed on the nuclear weapon state parties (the five existing nuclear weapon states) to negotiate to achieve the ultimate abolition of their nuclear weapon stockpiles.

The importance of nuclear disarmament in a non-proliferation treaty is obvious but an additional word could be said about peaceful uses. A number of important states made the protection and enhancement of peaceful uses of nuclear energy a condition of their joining the Treaty. They saw and many other states still do see the technology as essential to their economic well-being. As the Belgium UN delegate said at the time of the consideration of the NPT, the treaty cannot survive a double discrimination: weapons and peaceful uses. Peaceful nuclear power has now emerged as the indispensable technology to combat climate change. My company, Lightbridge Corporation, has been committed to non-proliferation since its founding. It has developed new types of nuclear power fuel based on high power density metallic

technology which improves the economics of existing and new nuclear power plants while enhancing safety characteristics and proliferation resistance as well as reducing waste.

The non-nuclear states of course knew that nuclear disarmament—thereby making the Treaty one of equal obligations—could not be achieved during the Cold War and probably a long time thereafter, hence the use of the word "ultimate." But they thought if the nuclear weapon states couldn't eliminate their weapons in the then foreseeable future at least they could stop testing them. Therefore, the achievement of a comprehensive test ban Treaty became by far the most important of the interim steps in the direction of disarmament that the nuclear weapon states wanted built in to the Treaty. The Test Ban was seen by many states as the political cover for them to give up the acquisition of nuclear weapons. The co-chairman refused to include any of the interim steps into the Treaty except a reference in the Preamble that the Test Ban was a laudable goal. They said that the interim steps could be worked on in the Review Conferences of the Treaty which would take place every five years after the Treaty became effective.

So after a little over two years of negotiations the Nuclear Non-Proliferation Treaty (NPT) was signed in 1968 and entered into force in 1970. But unlike other such treaties, the NPT was given only a 25-year life because of lingering suspicions among some of the important negotiating states, most significantly, Sweden, Germany, and Italy, that the NPT would be a failure. However, the parties were given a one-time opportunity to extend the NPT to whatever length the parties decided upon—by majority vote of the parties—25 years after entry into force, that is in 1995. This decision was built into the treaty and did not require referral to national legislatures.

The Review Conference process in the disarmament area was a complete failure leading up to 1995; the nuclear weapon states never delivered on any of the interim steps, most

conspicuously the Test Ban, much to the chagrin of the non-nuclear weapon state parties. In the peaceful uses area, the Review Conferences have done well and there has been widespread cooperation among states in advancing nuclear energy. In nuclear weapon proliferation the NPT has been a resounding success, far from President Kennedy's nightmare. There are only nine states currently possessing nuclear weapons: the original five, the United States, Great Britain, the Soviet Union/Russia, France and China; Israel, India and Pakistan which never signed the NPT, and North Korea which left the Treaty in 2002 having been a party for 16 years. Thus, the NPT has become the central international security instrument of our time. Its loss would bring us worldwide chaos and JFK's nightmare.

After a major struggle the NPT was permanently extended in 1995 on more or less the same basis as 1968 however with a difference. The Test Ban was to be completed within one year and a new issue became part of the political price for permanent extension: the negotiation of a zone free of weapons of mass destruction in the Middle East given the large Israeli nuclear weapon stockpile. In 1995 the NPT was at the zenith of its influence and strength, but its subsequent history has been less than encouraging. In 1998 India and Pakistan each conducted a short series of nuclear weapon tests and declared themselves nuclear weapon states and North Korea withdrew from the NPT in 2002. Between 2006 and 2017 the DPRK conducted six nuclear weapon tests amassing a stockpile of such weapons of between 20 and 100 weapons and also announced that it was a nuclear weapons state. The Test Ban Treaty, referred to as the Comprehensive Nuclear Test Ban Treaty or CTBT was in fact negotiated in one year and in 1996 at the United Nations, a large number of states signed, led by the United States and President Clinton, the first to sign. However, in 1999 the Republican Party majority in the U.S. Senate defeated the resolution authorizing U.S. ratification of the CTBT. The Treaty still sits in the

Senate with no further attempt to date to achieve ratification. Much of the world has ratified the Treaty as well as almost all of the states required for ratification. A few have not, essentially waiting for the United States. For the past 20 years, only one state has been doing nuclear weapon tests and now they have declared they will do no more. But the CTBT still has not entered into force, now almost entirely blocked by the United States thereby significantly undercutting the viability of the NPT with no possibility for U.S. ratification in the foreseeable future. Likewise, since 1995 there has been no progress even in discussing of the possibility of a weapon of mass destruction free zone in the Middle East because of Israeli objections. A reckoning will come at some point, perhaps as early as 2020. Because of U.S. and Israeli intransigence, the world community may lose the NPT, thereby creating a completely unmanageable international security situation.

And as climate change advances, reducing arable land and water sources for countries, among other terrible things such as a large reduction of the world's oxygen supply, small states with some arable land and water sources still viable and large, armed, hungry and thirsty neighbors may opt for nuclear weapons as the only way to protect what they have. So the NPT could fall no matter what happens with CTBT and the Middle East.

The number of nuclear weapons in the world have fallen dramatically from their post-World War II heights. There are perhaps 20,000 nuclear weapons in the world with 7,000 each for Russia and the United States. But the United States has announced a new nuclear weapon modernizations program for nuclear weapons which would entail spending a trillion dollars over the next 30 years. Russia and China are likely to follow suit. As a result of the United States having spent three trillion dollars on the disastrous Iraq War, assuming one trillion new debt for the new tax cut and one trillion for nuclear weapon modernization, the government annual

budget deficit will exceed one trillion dollars a year by 2020 and the national debt will rise to near GDP by 2028—a place economies are not supposed to go. And we think we won the Cold War, we certainly didn't emerge unscathed. The Cold War destroyed the Soviet Union which broke apart into its constituent parts, a huge socioeconomic disaster. The United States sustained enormous seemingly irreparable damage to its national infrastructure with perhaps a permanent turn for the worse in our national life. Nuclear weapons and weapons-related programs during the Cold War cost the United States at least $5.5 trillion in 2004 dollars ($8.5 trillion in 2014 dollars) and other costs may have raised the total Cold War costs to in the range of $10 trillion (perhaps $15 trillion in 2014 dollars). What the United States bought for a waste of national treasure unprecedented in human history was not peace or even safety but rather a general decline in the capacity and clemency of our national life and our national infrastructure became one more nearly appropriate for a third world country. Here are the Corps of Engineer judgments on the status of our infrastructure in 2001 and 2017.

2001 – overall D+
Aviation – D
Bridges – C
Dams – D
Drinking Water – D
National Power Grid – D+
Hazardous Waste – D+
Navigable Waterways – D+
Roads – D+
Schools – D-
Solid Waste – C+
Transit – C-
Wastewater – D

And 2017 – D+ overall

Aviation – D

Bridges – C+

Dams – D-

Drinking Water – D-

Energy – D+

Hazardous Waste – D+

Inland Waterways – D-

Levees – D

Public Parks – D+

Rail – B

Roads – D

Schools – D+

Solid Waste – C+

Transit – D-

Waste Water – D+

And then there was the almost incredible danger of it all. The United States and the Soviet Union developed nuclear weapon systems capable of destroying the world many times over and kept them on hair trigger alert for most of the 45 years of the Cold War. The following is a brief description of some of the crises that took places.

The Cuban Missile Crisis of 1962 is well known of course. The Soviets surreptitiously deployed medium range and short range nuclear weapon systems in Cuba attempting to alter the strategic balance at a time when the U.S. was far ahead in nuclear weapons. The Joint Chiefs of Staff and the leadership of the Congress pressed President Kennedy heavily to invade Cuba and destroy the nuclear weapons before they became operational. It was asserted that as yet, late October 1962, the Soviets had no operational nuclear weapons in Cuba by the Chiefs. Yet the

President chose, amid enormous tension, to settle the Crisis with a diplomatic deal and a blockade. The United States government discovered over 30 years later that in fact a significant number of medium-range and short-range systems were operational and for the only time in the Cold War operational control had been passed to the Soviet commander in Cuba. If the U.S. had chosen to invade, quite possible eastern U.S. cities could have disappeared and nuclear war ensued.

One night in the fall of 1979, Zbigniew Brzezinski, President Carter's National Security Advisor was awakened in the middle of the night and informed by his military advisory that several hundred Soviet nuclear armed missiles had been detected on the way to strike the United States. Hurried consultations among senior national security officials followed with all aware that the flight time of international missiles after detection was just 20 minutes until impact. Thus the President had to be awakened with about 10 minutes to go to give him six or seven minutes to decide whether to launch all of the U.S. nuclear strike force at the Soviet Union before it might be destroyed by the Soviet missiles (two or three minutes were required to execute the order). Moments after the first notice, the Strategic Air Command informed the White House that the actual number was 2,000 Soviet missiles. But a minute or two before it was time to wake up President Carter, SAC reported again that a computer error had been discovered and that it was all a false alarm. So there was no nuclear war that night.

On the Soviet side, in September 1983 with the Soviet government—completely unbeknownst to the United States—convinced that the United States was preparing a first strike against them and therefore prepared to launch their own nuclear forces preemptively on the slightest evidence that a real attack was either underway or soon to be underway; a Soviet early warning station detected the launch of U.S. nuclear missile from the area where the U.S.

Minuteman strategic missiles were deployed. This information was transmitted to the station and automatically relayed to the office of the Chief of the Soviet General Staff. The Soviet officer in charge of the station, Colonel Stanislav Petrov, carefully checked other systems and found no activity. He then contrary to his orders—he was under orders to simply transmit information to the military leadership, not comment on it—he called the assistant to the Chief of Staff and said, "that was a false alarm" and the officer replied, "Got it!" But just as he said that, the console on the wall lit up announcing the launch of five more missiles. What to do, he had to decide immediately on no information. Colonel Petrov simply repeated "false alarm" and thereby saved the world. The early warning system had in fact detected sunlight not missiles. Months later that fall, in response to other perceived provocations, the Kremlin decided to bring their nuclear forces to a state near full alert. The NATO general, Leonard Perroots, in charge of the then ongoing NATO military exercise, saw this and was worried by it but chose not to respond in kind. And the Soviets later stood down their forces. Thus, the overwhelmingly dangerous crisis of 1983 passed peacefully.

Lastly, in 1996 a Russian missile warning station, after the end of the Cold War, misread the launch of a U.S.-Norwegian scientific rocket being used to observe the Aurora Borealis as a Trident II submarine launched nuclear missile aimed at Moscow. An emergency conference call followed in Moscow involving President Boris Yeltsin and his senior military advisors. Russian nuclear weapon carrying submarines at sea were told to prepare for a launch order in 10 minutes. The briefcase containing the nuclear codes was brought to Yeltsin in his office and for the only time in the nuclear era he activated the nuclear keys. With two minutes to go, Yeltsin simply decided that he knew U.S. President Bill Clinton and didn't believe he would start a nuclear war this way. He chose to let the 10 minutes pass and soon thereafter the station saw the missile fall

into the sea. The lesson here is that as long as nuclear weapons exist they will be a threat to humanity. Colonel Petrov and General Perroots were the right officers in the right place at the right time, calm, steady and reliable. We can't always count on that.

As said earlier, the number of nuclear weapons in the world is far lower than in past decades, entirely due to the strategic arms limitation process of negotiated treaties and associated policies. It should be noted that India, Pakistan, North Korea and perhaps Israel and likely China are increasing the number of their nuclear weapons. The Strategic Arms Limitation Talks (SALT I) conducted in 1972 produced the Antiballistic Ballistic Missile Treaty designed to regulate the superpower nuclear confrontation in the Cold War making a first strike less likely. It was abrogated by President George W. Bush some ten years after the end of the Cold War. SALT I also included the Interim Agreement on Strategic Offensive Arms which froze the strategic nuclear forces of the United States and the Soviet Union more or less at their existing level of capability. The following seven-year negotiation which led to the SALT II Treaty ended in 1979 and featured the first numerical reduction and the first technology limitations on the two superpowers.

The Strategic Arms Reduction Treaty (START) process began in 1981. It resulted first in the Intermediate Range Nuclear Forces Treaty which completely eliminated the medium-range nuclear forces of the United States and the Soviet Union on a worldwide basis. After ten years of negotiation, the START Treaty was signed by the United States and the Soviet Union in 1991. It was drafted to last for 15 years, limits each side to 6,000 deployed strategic nuclear warheads (on missiles and bombers), has a host of technical limitations, and a vast, highly intrusive verification system (which includes on-site inspection and the exchange of intelligence information about each other's force capability). Because it entered into force in 1994 after the

collapse of the Soviet Union it had five parties—in addition to the United States—Russia, Ukraine, Belarus and Kazakhstan. These are the nuclear weapon successor states of the Soviet Union but only Russia was allowed to remain a nuclear weapon state and all joined the NPT. A letter agreement between Presidents Bush and Putin in 2002 reduced deployed forces to 2,500 strategic warheads and the 2010 New START Treaty (entered into force in 2011) reduced this number to 1,550 for each party. New START has a 10-year term, extendable for five years.

A treaty associated with this process, the Conventional Armed Forces in Europe Treaty, which served as the vehicle to end the Cold War, was signed in 1990 and entered into force in 1992. It strictly limits the principal equipment of a blitzkrieg type World War II ground assault which was the basis of the original confrontation of the Cold War in central Europe: main battle tanks, armored combat vehicles, artillery, combat aircraft and attack helicopters. Its limitations apply in Europe from the Atlantic to the Urals as defined in the treaty. The negotiation originally was between the 16 NATO states and the seven states of the Warsaw Pact. But the negotiation continued during the collapse of the Warsaw Pact, the merging of East Germany into West Germany, the splitting of Czechoslovakia and the disintegration of the Soviet Union. It required considerable diplomatic skill to deal with all of this but it was done successfully and the treaty entered into force in 1992 with 30 parties instead of the original 23. The treaty also contains many associated stabilizing provisions.

So now let us turn to the nuclear crises of the moment, beginning with the most dangerous one, South Asia and in particular Pakistan.

India and Pakistan are vastly less secure since the introduction of nuclear weapons and associated delivery systems into the region. India and Pakistan are fully integrated nuclear weapon states. Both countries have short and long-range ballistic missile systems as well as

cruise missiles with associated nuclear weapon types to be carried by the various missiles. Each country possesses a number of nuclear weapons in the range of 130 with Pakistan having perhaps a few more than India. The nuclear warheads, while perhaps of less yield than some of the weapons in the West, are undoubtedly capable of wreaking incalculable damage. Both sides also have highly capable bomber aircraft and associated bomber systems. India has a submarine based nuclear deterrent and Pakistan is working on one.

Both sides are quite hostile toward one another—with religious and ethnic inflamed passions at the core of the two states view of one another—and they live next to each other so there would be little warning of a missile attack. Nuclear war between these two adversaries would be the greatest human tragedy in history. Nearly 1.5 billion people live in South Asia; in the case of nuclear war many millions would die and many cities would be destroyed. The huge amount of debris and soot ejected into the atmosphere would sweep around the world, creating the so-called nuclear winter effect, causing plants and animals to die from the lack of sunlight and precipitous temperature drops. This would result in a calamitous worldwide famine that would affect millions outside of South Asia.

As a result of past terrorist attacks emanating from Pakistan and limits on the speed with which the Indian army can respond the Indian army has developed a policy called Cold Start which would involve a special force in the Indian army which could respond quickly. The idea is that this force would—if a terrorist attack linked to Pakistan takes place in India—immediately invade Pakistan—but only for a short distance, say 30 to 40 miles theoretically, not far enough to provoke a nuclear response. The problem with this calculation, not surprisingly, is that Pakistan has developed a tactical nuclear weapon system of short range specifically designed to obliterate Indian forces that undertake such a mission thereby initiating a nuclear war. And on

top of all this, Pakistan is home to major sophisticated international terrorist organizations and therefore terrorist acquisition of nuclear weapons either through theft or through clandestine help from a rogue element within the armed forces cannot be ruled out. If a major terrorist organization with international reach should ever acquire such a weapon, the risk of its attempted use against a Western city would have to be judged high. If ever there was a major nuclear weapon catastrophe waiting to happen in today's world one would have to look first to South Asia.

Turning to the situation in Syria for a moment. While this crisis does not presently involve nuclear weapons, it is properly regarded as one of the two greatest human tragedies since World War II with more than 500,000 people killed and millions homeless in seven years of civil war. President Trump has announced that he wants to pull U.S. forces out of Syria—some 2,000 military on the ground and many war planes—and leave it to others. This would be a huge mistake. It would result in turning over the northern Middle East to Russia and Iran who would exclude U.S. influence and commercial presence in this region greatly to American disadvantage. Also, it would open the door to direct military conflict on the territory of Syria between Israel which has many nuclear weapons, and Iran which wants them.

Now Iran.

The first question might be why would Iran want a nuclear weapon? There are perhaps four reasons. First, the Islamic Republic shares with the government of the Shah a sense of national prestige. The Shah had in the 1970s a program to build perhaps 20 nuclear power reactors but with an option to construct nuclear weapons should circumstances require it. The United States had no objection to this program. Second, at least among major states the possession of nuclear weapons is what distinguishes great powers from lesser states. Iran may

believe that having nuclear weapons will give them more influence in their region. Third, Iran is surrounded by nuclear weapons with Pakistan to the east, Russia to the north, Israel to the east, and U.S. aircraft carriers to the south in the Persian Gulf. Fourth, Pakistan to its east is a Sunni state and Iran is the principal Shia state. If the Pakistani Taliban ever took power in Islamabad, Iran might reasonably fear nuclear attack. One has only to recall the violence between Sunni and Shia in Iraq and Syria to believe in the plausibility of such an attack. Then Iranian President Rafsanjani implicitly expressed this concern at the time of the nuclear weapon tests by Pakistan in 1998.

In 2015, Iran could have built a nuclear weapon in a few weeks given its scientific expertise and the amount of low-enriched uranium that it possessed. But it chose to negotiate because the worldwide sanctions organized by the United States had destroyed its economy. The agreement with Iran, the Joint Comprehensive Plan of Action (JCPOA), is an agreement between Iran and the United Nations Security Council on the terms under which Iran could return as a full-fledged member of the international community. It is not an agreement between the United States and Iran. It was negotiated by the coalition known as the P-5 plus one, the permanent five members of the United Nations Security Council, the U.S., Great Britain, Russia, France and China plus Germany. The agreement was approved by a unanimous vote by the Council, with the United States voting in the affirmative, shortly after its signature in July 2015 and by its terms came into full force on October 18th, 2015. The U.S. Congress held extensive hearings on the agreement prior to entry into force but voted not to prevent the U.S. from carrying out its obligations under the agreement which is the gradual lifting of sanction as provided by the agreement.

On August 6th, 2015 the Deputy Ambassadors in Washington of the other P-5 plus one states met with 25 Democrat members of the U.S. Senate. The five diplomats said if the President is prevented by Congress from lifting sanctions as provided for by the JCPOA thereby rejecting the agreement, the following would take place:

1. International sanctions on Iran would immediately collapse.
2. Iran would ramp up its nuclear program probably to the 190,000 centrifuges referred to by the Supreme Leader.
3. There would be no possibility of getting Iran back to the negotiating table. Iran might promptly become a nuclear weapon state or a near nuclear weapon state – capable of constructing a large number of nuclear weapons in a short time. Saudi Arabia has stated that if Iran actually builds a nuclear weapon stockpile, it will not be far behind. It is widely believed that Pakistan will supply nuclear weapons to Saudi Arabia if asked as Saudi financed its program. Thus, Iran may be content with being a very robust near nuclear weapon state. Former President Rafsanjani told a friend of mine some years back that Iran wanted to be like Japan. Iran also may have a connection with North Korea like Saudi Arabia has with Pakistan.
4. China, Europe and Russia see rich trading profits in Iran and they will continue, likely enhancing their trade relations with Iran whether or not the U.S. remains party to the JCPOA. The 1996 attempt by the United States to impose third-party sanctions—meaning that any third party that trades with Iran cannot trade with the United States—failed because the European Union adopted legislation prohibiting any European company from cooperating with the U.S. legislation and threatened to file a complaint with the World Trade Organization.

Military action is no solution. The American people do not want such a war— one far larger than the Iraq War. Robert Gates, the former U.S. Secretary of Defense, has said that a military attack on Iran by the United States would unite a divided nation so that it is determined to get the bomb and cause the Iran nuclear program to become more covert. And Iran would in fact get the bomb.

The JCPOA is an impressive collection of restrictions, restraints, and monitoring provisions applicable to the Iranian nuclear program. Under this deal, Iran's path to a nuclear weapon using declared facilities is effectively closed for 10 years, for 15 years with respect to some important provisions and for 25 years for others. There would be a constant, pervasive presence of the International Atomic Energy Agency. There is no way any attempt to use the declared program to advance toward the bomb would not be instantly detected. Also, there are tight restrictions on imports of material and equipment and constant nationwide surveillance by the IAEA making a secret program a virtual impossibility. In short, the JCPOA is overwhelmingly in the interest of the United States. According to the IAEA, Iran remains firmly in compliance. There is absolutely no reason to decertify or withdraw from the JCPOA except for narrow, unjustified, selfish political reasons or someone is confused enough to really want a war.

Lastly, the issue of the day, North Korea or the Democratic People's Republic of Korea (DPRK).

The nuclear weapon program in North Korea began many years ago. In 1964 the Soviet-installed first dictator of North Korea, Kim Il-sung, traveled to China in search of nuclear weapon technology. His country had been totally devastated by three years of aerial bombardment by the United States during the Korean War. China, having recently

conducted its first nuclear weapon test, was in no mood to make its next step as a proliferator. Kim was politely rebuffed. In 1974, when South Korea was actively considering the nuclear option, Kim tried again and was turned down. Kim then ordered the commencement of an independent program for the DPRK. In the early 1980s, North Korea sited a research reactor—five megawatts electric—at the town of Yongbyon. It was capable of producing enough spent fuel from which plutonium could be obtained to fuel one of two bombs a year. In 1986, the Soviets successfully pressured the DPRK into becoming a party to the NPT and to sign an IAEA Safeguards Agreement in 1992. When IAEA inspectors came to North Korea they discovered what looked like a plutonium reprocessing facility—denied by the DPRK—and indications of possible separation activity three years previous, which could have produced sufficient material for one to two bombs. The inspectors wanted to look at two waste disposal sites and were prevented by the DPRK from doing so. In February 1993, the IAEA demanded an inspection of the two waste sites and in reply, the next day the DPRK gave its notice of withdrawal from the NPT. Much tumult followed and on the 89th day of the 90-day withdrawal notice required by the NPT, the DPRK "suspended" its withdrawal notice and agreed to negotiate with the U.S. There followed continued tumult coupled with an on again, off again negotiation. At one point, the DPRK withdrew the spent fuel from the reactor without IAEA inspectors being present and put it in the spent fuel pond nearby. The U.S. formally notified the DPRK that if the DPRK moved that spent fuel into their reprocessing facility not far away the U.S. would take it out with cruise missiles. North Korea responded that if the U.S. did that they would turn Seoul, South Korea into a "sea of fire," Seoul is in range of the thousands of artillery pieces and rocket launchers the DPRK has lined up on the border.

In any case, an agreement called the Agreed Statement was finally negotiated and signed toward the end of 1994, which shut down the Yongbyon reactor. There was supposed to be power reactors built by the West for the DPRK and diplomatic relations with the U.S. established, neither of which actually happened. The DPRK missile tests continued. As this was not satisfactory, President Clinton tried again in late 2000 toward the end of his presidency. In October, he signed a "No Hostile Intent" (neither party is hostile toward the other) communique with the North Korean number two, Vice Marshal Jo Myong-rok, who was visiting Washington—very important to the DPRK—and Clinton was invited to Pyongyang to reach real agreements. Instead he sent Secretary of State Albright. She met with Kim Jong-Il, the son of Kim Il-Sung who had died during the negotiations leading to the Agreed Framework. He said that if the U.S. will give security guarantees and diplomatic relations to the DPRK and help introduce North Korea to the international community, North Korea would give up everything: missile program, nuclear program and so forth. The DPRK would no longer need them. The DPRK had always made clear they were interested in survival, money, and security assurances and diplomatic relations with the United States.

Clinton's time unfortunately ran out and President Bush wanted to throw out all things Clinton. He refused to renew the "No Hostile Intent" communique which the DPRK could only see as something close to a declaration of war. The Bush administration accused the DPRK of violating the Agreed Framework on no evidence and included the DPRK in the "Axis of Evil" club in his State of the Union message in 2002. In retaliation in early 2003, the DPRK completed its "suspended" withdrawal from the NPT and harvested plutonium in 2003 and 2005 from the reopened Yongbyon reactor sufficient for 10 to 12 bombs. Further, they withdrew centrifuges from warehouses where they had been kept after having been

secretly and duplicitously acquired from the Pakistani rogue proliferator AQ Khan—who sold Iran its program—during the terms of the Agreed Statement. The so-called six power negotiations among North and South Korea, Japan, China, and the U.S. began in 2004 but while experiencing a few positive moments ultimately went nowhere.

The first nuclear weapon test by the DPRK was in 2006 and over the next ten years there were conducted five more until the DPRK finally achieved a large yield explosion, likely over 100 kilotons. The Obama administration essentially exercised "strategic patience". Missile tests continued, the DPRK improved its excellent medium-range missile, the Nodong, which now is also the mainstay of Iranian and Pakistani missile forces as well and an international ballistic missile capable of reaching anywhere in the U.S., although its accuracy is uncertain.

Kim Jong-Il died in 2011 and was succeeded by his son, Kim Jong-un. He is an aggressive and ruthless young dictator. He pressed ahead on the missile and nuclear programs. It is estimated that the DPRK now has between 20 and 100 nuclear weapons—a large force. One of his main objectives is for North Korea to be recognized as a nuclear weapon state—a country that matters. So maybe the mantra now is survival, lots of money, security guarantees and diplomatic relations with the U.S. and recognition of the DPRK as a nuclear weapon state—something the U.S. should never do.

The year 2017 was marked by bellicose rhetoric back and forth between President Trump and Kim Jong-un, sometimes bordering on the infantile.

Suddenly, Kim Jong-un announced that he was willing to meet with Trump and Trump quickly accepted. A summit was already scheduled with President Moon of South Korea, so it would be after that. Kim traveled to China to seek the support of President Xi, which he

received. The two leaders agreed that North Korea should denuclearize in a "phased and synchronous" way. This is an old DPRK formulation which means the DPRK will give up its nuclear weapon program after U.S. sanctions are lifted as well as U.S. withdrawal from northeast Asia so it is no longer a threat. To heighten the pressure, Kim shut down his nuclear program and closed his test site—two steps easy to reverse—which had in fact happened before in 2007. Kim also said that contrary to the previous DPRK position, the DPRK would not insist on the removal of U.S. forces in South Korea as a condition for an agreement. He also said, contrary to earlier DPRK, not require the U.S. to remove its forces from South Korea.

Kim has announced he would like to negotiate a formal end to the Korean War by means of a peace treaty. The DPRK has always wanted this on their terms and while President Trump says, "they've agreed to denuke", they have not, and although denuclearizing sounds like reducing or eliminating the weapons, that is not clear either. Even if the U.S. withdrew from northeast Asia and the DPRK "denuclearized" that likely means ending the program but not destroying what exists.

Thus far Kim has not advanced far beyond traditional DPRK positions, although no more tests is a good thing. Thus what Pyongyang appears to want is:

- Diplomatic recognition
- A formal end to the Korean War through a peace treaty with the U.S.
- Legitimization of its nuclear status (not denuclearization—they don't believe the U.S. would ever accept their price)
- Economic assistance

Sounds familiar. It is not clear what they are willing to give beyond where they are.

It is important in all this the U.S. must allow no daylight between itself and its South Korean and Japanese allies. And whatever is negotiated must be rigorously verified.

Former Secretary of Defense William J. Perry has many years of experience negotiating with the DPRK. He says a ban on further nuclear and missile tests and on the export of nuclear technology is all that can be verifiably achieved. With the DPRK it is impossible to verify even a freeze in the number of existing warheads, much less cuts.

Well, there is the happy story, and I didn't say much about the tremendous threat that is climate change. But take heart. If we can come through the Cold War and the accompanying thermonuclear confrontation without destroying ourselves, we can do anything.