Ambassador Gallucci began by noting that his talk would cover nuclear policy issues very broadly. To set the stage he described the highlights of his State Department career:

- In 1974 his first assignment involved making sure that Pakistan never got nuclear weapons
- Following that he worked as the Deputy Director for the UN Sinai Peacekeeping force designed to keep the peace in that region
- Then a period of time at the National War College
- Followed by work with the Special Commission charged with seeing that Iraq did not ever get nuclear weapons
- Then he worked on the problem of ensuring that Russian nuclear scientists might be tempted to work for other countries
- He was then assigned to negotiate with the North Koreans to make sure they never got nuclear weapons
- Then he worked on the Dayton Accords to help maintain the multi-cultural civilization in the former Yugoslavia
- He left the State Department for Georgetown University
- Asked to return to the State Department with the major assignment of ensuring that Russia did not leak nuclear weapons

The Ambassador noted that after each of these “successful” assignments he was always promoted.

To look at the history of nuclear weapons in the world, Ambassador Gallucci proposed looking back at three images from 30 years ago and how those images have changed today.

Image One from 30 years ago: A proliferated world
- According George Quester in the 1960s in a few years there could have been 10-15 countries with nuclear weapons
  - By the year 2000 that number could be 50
  - Idea was that many countries would have nuclear weapons in the future
  - It was already startling that India, an underdeveloped country in the terms of the time, had managed to test a nuclear device
    - This was frightening because it was not one of the major countries or even China
    - If India could do it, then any country could
- State Department was then organized to handle problems like this

Image Two from 30 years ago: A Dirty Dozen of countries to worry about
- Asia: South Korean and Taiwan
- South Asia: India and Pakistan
- Africa: South Africa
- South America: Argentina and Brazil
Middle East region: Iran, Iraq, Egypt, Israel, Libya
The capabilities were not really there but the intentions were known
Considered an intentions driven problem
These were the threshold countries

Image Three from 30 years ago: Nuclear energy driven future related to capabilities
- In the 1970s during the energy crisis this became important
  - Before Three-Mile Island and Chernobyl incidents
  - Related to the theology of the Atomic Energy Commission (precursor of DOE)
- Concept was that we would enjoy the benefits of nuclear energy
- The nuclear energy cycle involved reprocessing of spent fuel
  - Some would be recycled into fuel again
  - Some could become the material needed for a nuclear weapon

Ambassador Gallucci provided an excellent description of the nuclear energy reprocessing system which cannot be completely captured in these notes. See the video or audio version.
- What is needed to develop fissile material for a nuclear weapon comes from only part of the reprocessing cycle
- The entire cycle is not needed to support energy production
- An understanding of the elements of the cycle can provide investigators with a good idea of how much fissile material could be developed by the system
  - Allows for predictions about numbers and size of nuclear weapons that a country could produce
  - A totally peaceful cycle can be achieved – Iran is NOT doing that now

The Ambassador went on to review those three images of thirty years ago to see what had really happened.

Image one today: There are only 9 countries with nuclear weapons programs, not 50
- The original five countries have them: US, UK, France, Russia, China
- Four others have at least nuclear devices: India, Pakistan, Israel, and North Korea
- Realists would say
  - Non-proliferation Treaty did help slow down further development
  - International Atomic Energy Commission helped
  - Established a norm (no nuclear weapons) for other countries to meet
- Alliances also helped
  - Because NATO was there with an umbrella, European countries did not need to own nuclear weapons

Image two today: Total of 8 wins (prevented proliferation), 4 losses (proliferations continued), and 1 tie
- Iran is the tie since we can’t be sure yet which way it is going
- India, Pakistan, Israel, and North Korea are in the loss column
  - Must remember that nothing is forever – others have reversed their programs
    - Some have said that the Clinton Administration lost Pakistan
    - But did get some agreements then that may have slowed things down
    - No way to get a permanent solution
  - Hard to dis-invest in this technology
    - When US went into Iraq, no nuclear scientists were killed
    - Lots of nuclear (and biological and chemical) expertise is still there
- To stop the 8 in the win column, their capabilities were targeted
  - The nuclear Suppliers’ Group became aware of the sensitivity of each situation
  - Concentrated on not allowing the “Dirty Dozen” to develop their capabilities
    - Would have been too hard to monitor all
- There was some success in restricting the amount of fissile material available in the world
• Alliances also helped here: because US promised to be there for S. Korea and Taiwan they did not need to build nuclear weapons
• 1991 Iraq War did help stop the Iraqi program which might have had nuclear weapons by 1993 without the intervention

Image three today: Nuclear power for energy is not as wide spread so less opportunity for reprocessing fuel for weapons purposes
• Technology, economics, and world events have had effect
• Not as much need for reprocessing of fuels with current technology
  o More fuel is actually made than destroyed in the process
  o Also there are no uranium shortages – as it becomes more desirable then price goes up and more exploration can be afforded
  o Drastic drop in the number of plants being built also cuts back on the amount of fuel needed
    ▪ More special technology was needed so less economically viable
  o Fast breeders were supposed to create more energy than they consume
    ▪ Not really true – very hard to do (only France, Russia, and Israel have done it)
    ▪ There may not be any working anywhere now
• Events such as 3-Mile Island for the US and Chernobyl for the rest of the world had impact
  o President Jimmy Carter had much influence because so set against it during energy crisis
  o A market in enriched fuel already exists so there is no reason for countries to build their own system – which is what Iran is trying to do now

How things look now involves three other images
• The India – Pakistan relationship
• The current version of the threshold countries – Iran and North Korea
• The Russia – Pakistan / leaking fissile material to terrorists situation

Current image one: India-Pakistan
• Most strategists would say nuclear weapons are mostly likely to be used in India or Pakistan
  o Now rather than worrying about proliferation of weapons, must worry about actual use
• Both sides have a history of nuclear weapon acquisitions
  o Both known to have fissile material
  o Both have missiles and aircraft that could provide delivery systems
• Share a long history of tensions between them
  o Also have a good source of potential sparks to violence – Kashmir
• Some technical aspects
  o Number of weapons is not large (40-80)
    ▪ Small number of delivery systems
    ▪ Very vulnerable to attacks
  o Taken together aspects promote instability in crises
    ▪ Both sides believe they have use or lose situation
    ▪ Not like US/Soviet relationship
      ▪ No secure second strike capabilities
      ▪ Neither has figured out what the other side really values
  o Very short flight times – not enough time to figure things out
    ▪ India and Pakistan are next to each other – again not like US/Soviet situation
    ▪ Buffering areas between US and Soviets held little vital interests
    ▪ When Soviet missiles put into Cuba showed that vital interest threatened
  o Not clear where Pakistan’s “red line” is
    ▪ Certainly, India does not know
    ▪ And vice versa
  o Each has real fear of having the country dismantled – has happened to them before

Current image two: North Korea and Iran as the current threshold countries
• North Korea started to build an indigenous nuclear weapons program in the late 1980s
Some help from the Soviets
Program was always for nuclear weapons, not just power
- Built a series of small nuclear plants not connected to the electrical power grid
- Could produce material for about 30 nuclear weapons per year
  - 5 Megawatt reactor could produce 5 Kg of plutonium/year
  - 50 Megawatt reactor could produce 40 Kg of plutonium/year
  - 200 Megawatt reactor could produce 100 Kg of plutonium/year
- This would have been the probable outcome when the Clinton administration started to talk to North Korea
  - Russia started to press North Korea to sign non-proliferation treaty even though it had supported the program
  - North-South Korea agreement obligated them on paper
1992 – North Korea wanted a better relationship with US
- US insisted must accept nuclear safeguards
- North Korea agreed – this was a surprise
- UN eventually discovered that North Korea was cheating
  - What they declared on paper could not be supported in inspections – UN termed “anomalies”
  - US offered imagery of areas that looked like Soviet radioactive waste storage facilities
- UN said that they want to see these sites not identified by North Korea
  - Wanted to do a special inspection since not on list
  - UN admitted it had never done such an inspection
  - Started the first North Korean nuclear program crisis
When Clinton confronted the North Koreans, assumed they had about 8KG of plutonium – enough for 1-2 weapons
  - Ambassador Gallucci participated in these talks
  - Negotiations went on for 18 months
  - Involved daily consultations with Japan and South Korea
June 1994 – seemed to be on the road to war
  - Jimmy Carter went to North Korea and provided way to step down
  - “Agreed Framework”
    - North Korea froze all the programs where they were
    - North Korea started to dismantle the program
    - 30 KG of material were recanned to be shipped out of North Korea
    - North Korea would get heavy fuel oil in return – to compensate for the “energy” they lost
    - North Korea would also get two light water reactors
      - Paid for by South Korea and Japan
      - Would take a long time to build
    - Framework required things of both sides
  - North Korea started the crisis to build up its deterrence capability
    - No longer had protection from the Soviet Union
    - South Korea wanted a good alliance with the only remaining superpower
    - Feared regime change more than anything else
  - North Korea really wanted to get Korea back to a single nation under their control
    - Figured that the US would not trade Seoul for Los Angeles against a stronger North-South Korea opponent
    - Nuclear weapons would provide deterrence
Late 1990s found that North Korea was secretly acquiring nuclear equipment to build plants used for developing nuclear weapons material
  - Clinton wanted to use this as basis of another Framework agreement
- Also wanted to include North Korea’s missile program and human rights issues
  - In 2000 everything began to change
    - Decisions got delayed by problems with settling the elections in the US
    - New Bush administration wanted everything frozen
      - Did not want to tell North Korea that we knew what they had been doing
  - In 2002 saw more activity in North Korea and raised the issue
    - North Koreans had only two possible answers:
      - OK, you caught us
      - We are allowed to do this
    - North Korea stopped any of its Framework actions
      - Pulled out of the Non-Proliferation Treaty
      - Uncanned the nuclear products that had been secured
  - The Six-Party Talks – US believed that there would be less chance that North Korea would cheat on all its neighbors
    - US considered this a regional problem
    - North Korea only wants a US security promise
    - Some progress started to be made about a year ago then…
      - US Treasury decided to try to stop the counterfeiting that the North Koreans were doing
      - North Korea said they would not stop its nuclear program while under sanctions
  - Result: In 2006 N Korea conducted missile test on July 4th and nuclear blast test last month
  - Some differences with the Iran nuclear issue
    - Iranian program not as far along
    - Got most of their technology from the A. Q. Khan Pakistani connection
    - Still some years away from the cascade process needed to build a weapon
    - North Korea is desperate to negotiate with the US – Iran doesn’t care now
      - That could change with a change in governments
    - Iran’s case turns on decisions made in Russia
    - North Korea’s case turns on what happens in US
    - US/UK/France/other allies have drawn red lines for Iran’s behavior
    - Sanctions do not matter to North Korea – already so isolated
      - Sanctions do matter to Iran
  - A recent Tom Friedman op-ed piece discussed the difference between changing behavior versus changing regimes
    - Is the US prepared to tell the North Koreans that
      - If you give up your nuclear program, we’ll leave you alone despite how you treat your own people
    - No deal would be perfect
    - North Korea could easily cheat
    - US afraid of being fooled once again

Current image three: Russia/Pakistan/loose fissile material/terrorism
  - Proposition: Nuclear terrorism is the greatest threat to national security for the next 20-30 years
  - Questions about a nuclear detonation in a US city (low probability but high consequence incident)
    - But is the probability so low that it is not possible in some future year?
    - Can a terrorist organization get nuclear weapons to detonate?
    - Can a terrorist organization get the fissile material need for a weapon?
    - Would a terrorist organization be willing to do such a thing
Might be done without testing
Could kill as many as 250,000 at once and 500,000 in a couple of weeks

Ambassador Gallucci’s answer to all these questions: Yes
- Al Qaeda could get their hands on a weapon or materials
- Al Qaeda could not fabricate a weapon
- Could still get a big bang out of what they can acquire

Materials could come from Russia or Pakistan
- Russia is years away from securing all of its fissile material
- In Pakistan scientists and military officers may be sympathetic to radicals
  - But designs found in cave hideouts were not very good

Weapons or materials could be smuggled into the US easily
- Need only a very small amounts which could be hidden in any one of thousands of containers arriving daily
- Could easily be brought into civilian marinas – no controls at all

Today’s terrorist would not hesitate to explode a device in a city
- Different outlook – may not have political ambitions that can be settled

The US has not been this vulnerable since the War of 1812
- During the Cold War realized that they could not stop incoming missiles so moved to deterrence arrangements
- But now, no deterrence seems possible

QUESTIONS AND ANSWERS

Why do a deal with North Korea if you know that they will cheat?
- At least you would have more opportunities to catch them at it, if there are rules and regulations in place
- Compare that with what might happen if you do not do a deal with them
  - After the 1994 agreement, the N Korean program was frozen for many years
  - North Korea could have had 90 weapons by now without the previous deal
- Ambassador Gallucci had task of selling the agreement to Congress
  - Heard lots of negative reactions to it
  - Only got one answer to: If we don’t do this, what should we do?
    - It was to use force against North Korea
    - Then think about the consequences: probably 1 million dead and $1 Trillion cost

What could be done about nuclear terrorism?
- A future Director of National Intelligence might tell a future president: North Korea now has enough nuclear weapons for deterrence
  - But the people are starving
  - North Korea has nothing to export except fissile material and related equipment
  - There is no way to catch them
  - So what should that future president do? Trust Kim Jong Il?
    - North Korea is currently the only country exporting missile technology
    - If negotiations is tried and fails, consider preventative war – not preemption
    - Alternatively, could try to recapture deterrence
      - At least aim to deter
    - “Expanded deterrence” would require using a robust attribution effort
      - Must be able to do pre- and post-incident attributions
      - Already have ways to check debris to see where it came from
        - Basic materials probably would be from Russia or Pakistan
        - May not be able to stop Al Qaeda but go further back on supply chain
          - Force Russia/Pakistan to be more responsible
      - US people will demand that its government do something
There are limits to what we can do to Russia because of its nuclear force.

In Pakistan, if current government goes, who would take over?
- Probably no one we would want
- Nuclear materials are now more likely to leak out of government control rather than being directly exported by a government
- Iran and North Korea present slightly different problems
- No good solutions exist

There has been a resurgence in interest in nuclear power as an energy source
- Comes from the need for renewable resources and global warming concerns
  - The mix of power sources will have to include nuclear energy
  - US must get over the Three-Mile Island fears
  - If the US can start using nuclear energy, might be able to bring back the third image from 30 years ago which involves energy
  - Also want other countries to use the nuclear power systems that allow materials to go through the nuclear energy cycle
    - Need to prove that nuclear energy is relatively safe
    - Handling nuclear waste is more of a political problem
    - Could use co-processing where a single stream process that never separates out weapons grade plutonium
      - Really only a chemical process
      - Problem might be that the economics would not be adequate to sustain such a program
      - Might need to adjust regulations to permit changes in policy

What would tempt the North Koreans to use their nuclear weapons?
- Desperation
- Belief that they could not be caught
- When all diplomatic avenues have been tried, might go to military options
  - Analysts might be able to tell the president the length of time available before launch once the weapons started to disperse

North Korea is not Canada
- US has adjusted its political-military strategy in the past
  - US deployed missile batteries early
  - US moved up trade-outs without pulling out old ones so more missiles in place
  - All were signs that were visible to North Korea indicating that the US was getting ready
- SecDef Perry offered three options – two were extremes
  - North Koreans were told that the President would not allow them to have a fully operational nuclear program
    - This made them angry but knew it was true
    - North Korea figured they might as well get the kudos for negotiating
- Another example of the “You may not like the best answer you can have” in a diplomatic situation

Currently, the North Korean and Iranian deals are on the table
- The carrot has been energy assistance
- US has never given North Korea the security pledge they crave
- Sticks (versus carrots) are only good for driving sides back to a negotiating table
  - China and South Korea do not want North Korean beaten to their knees
  - Even people who were willing to negotiate, did not want the North to have light water nuclear reactors – can still make plutonium
    - If run properly, such plants won’t make high enough quality plutonium for weapons
    - Would still need reprocessing plants
Iran was also given a framework
  - Also involved light water reactors plus security and economic issues
    - No details worked out
  - Bush administration has a fundamental problem with changing government policies
    - That is, the US will not negotiate with rogue states
    - However, the security threat is such that we need to make a deal now