

**Will DPRK give up its nuclear weapons?**

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**Center for International Security and Cooperation  
Stanford University**

**Seoul Peace Conference  
Dec. 4, 2019**

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Hanoi – Feb. 28, 2019

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**But, he has decided to explore  
giving them up.**



Hanoi – Feb. 28, 2019



January 1, 2018

**2018 New Year's speech:**

Kim stated that the State nuclear force was now complete and will **turn his attention to economy**. Kim accepted Moon Jae-in's PyeongChang Winter Olympics invitation.



January 1, 2019



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- Not use or proliferate them.
- With President Moon, turn the Korean Peninsula into a land of peace free of nuclear weapons and nuclear threats.

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But he warned the U.S. not to test his country's patience. Or we'll have to find another way to guarantee peace on the peninsula.

# Requisites for nuclear weapons

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Governs size of  
arsenal

Governs sophistication  
of arsenal

Governs threat  
arsenal poses

**Bomb-grade  
Pu or HEU**

**Weaponization**

**Delivery system**

- Most difficult part
- Reactors (**Pu**) or enrichment (**HEU**)

Hydrogen bombs

- **Tritium**
- **Deuterium**
- **Li-6D**

- Physics, computers
- High explosives
- Detonators
- Initiators
- Machining
- Assembly
- Explosives tests
- Arming, fuzing, firing
- Nuclear testing

- Plane
- Boat
- Van
- Missile**

## Let's look at nuclear history around the world

- **195 countries**
- **~ 35 have the technical and industrial capacity**

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# Countries that have considered the bomb

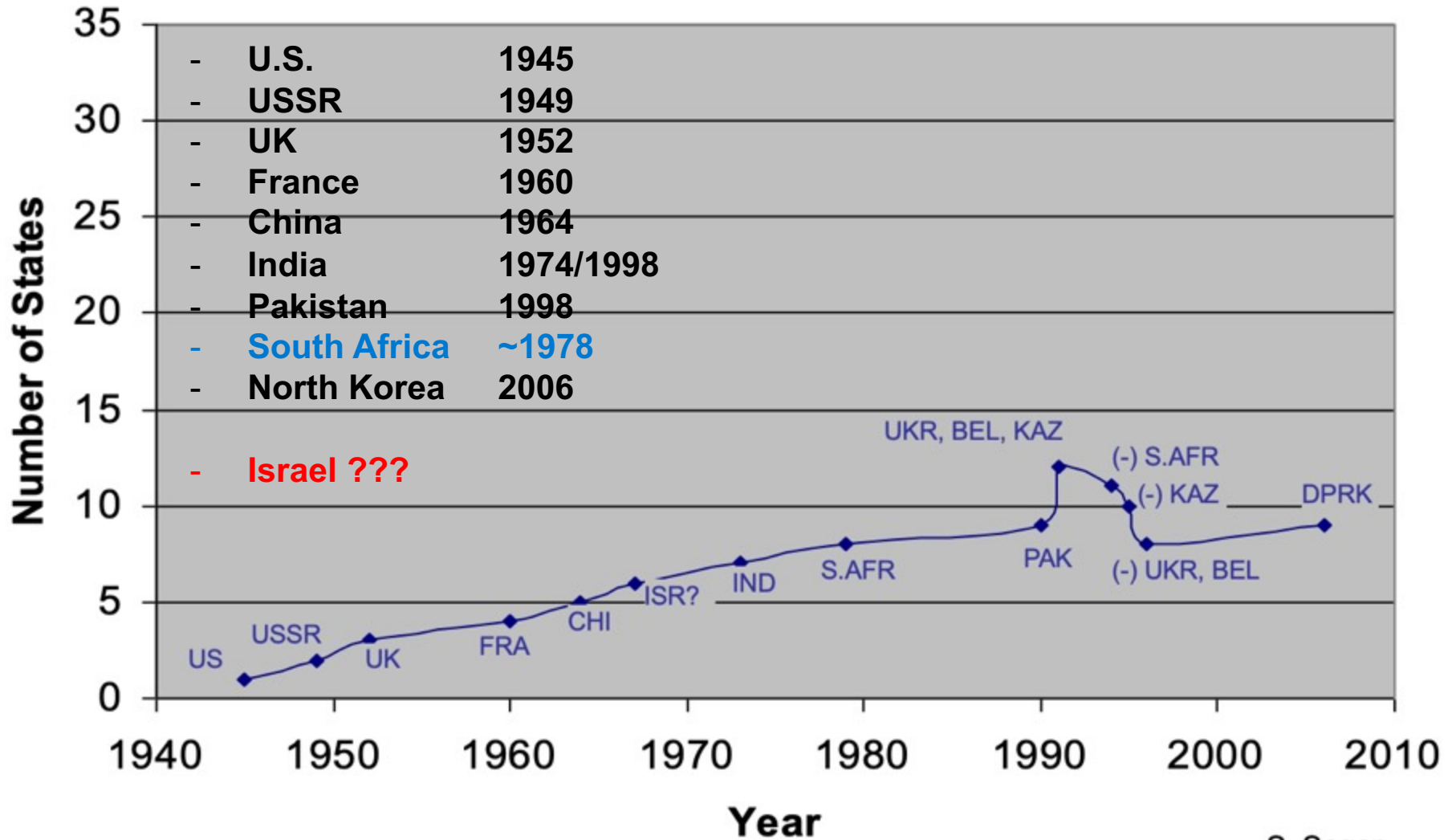
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- Sweden
  - Switzerland
  - Israel ???
  - Yugoslavia
  - India
  - Pakistan
  - South Korea
  - North Korea
  - Taiwan
  - Argentina
  - Brazil
  - South Africa
  - Iraq
  - Libya
  - Iran
  - Syria
- P-5 of UN Security Council**
- U.S. 1945
  - USSR 1949
  - UK 1952
  - France 1960
  - China 1964
- Inherited the bomb – gave up**
- Ukraine 1991 – 96
  - Kazakhstan 1991 – 96
  - Belarus 1991 – 96

## Let's look at nuclear history around the world

- 195 countries
- ~ 35 have the technical and industrial capacity
- ~ 25 have explored a nuclear weapons program
- **10 or less have developed nuclear weapons**

# States with nuclear weapons





## Let's look at what happened to the rest

- **Switzerland and Sweden**
- **South Korea and Taiwan**
- **Argentina and Brazil**
- **Ukraine, Kazakhstan and Belarus**

# South Korea and Taiwan – economy over bombs



ROK



*Computex Taipei, the second-largest technology trade show in the world*

## Let's look at what happened to the rest

- Switzerland and Sweden
- South Korea and Taiwan
- **Argentina and Brazil**
  - Both discontinued weapons program after military rule
  - They created a novel joint verification system
- Ukraine, Kazakhstan and Belarus

# 1991: Collapse of Soviet Union resulted in four states with nuclear weapons



By 1996, Ukraine, Kazakhstan and Belarus transferred nuclear weapons to Russia

## Let's look at what happened

- **Iraq**
- **Libya**
- **Syria**
- **Iran (Shah) and Iran (Islamic Republic)**

# Let's look at what happened



Osirak bombed in 1981

Iraq:



Libya:



Syria:



Al Kibar bombed in 2007



# Iran's nuclear program 50 years on



The Shah – 1970s



The Ayathollas – 1985 to present



JCPOA



Nuclear Archive



# Let's look at what happened

- India
- Pakistan



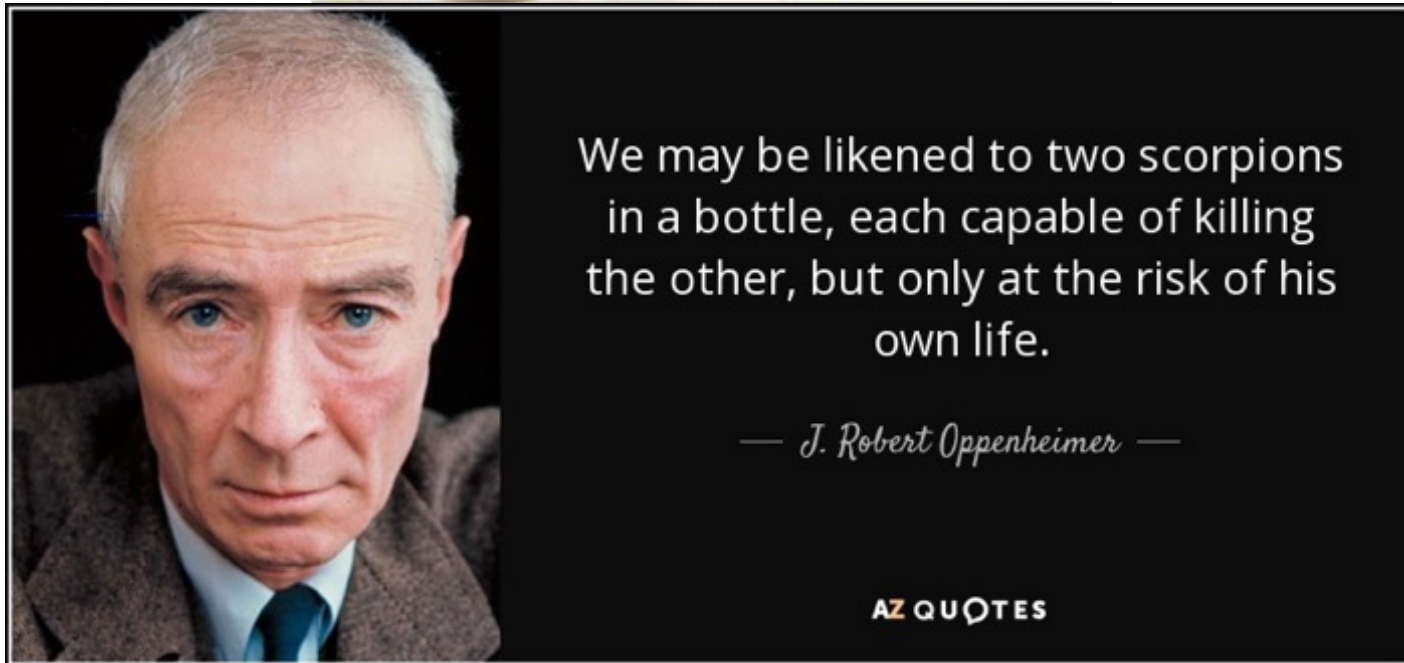
రాకముందే అణ్వాయుధాలపై పరిశోధన జరిగిందా?

www.v6news.tv



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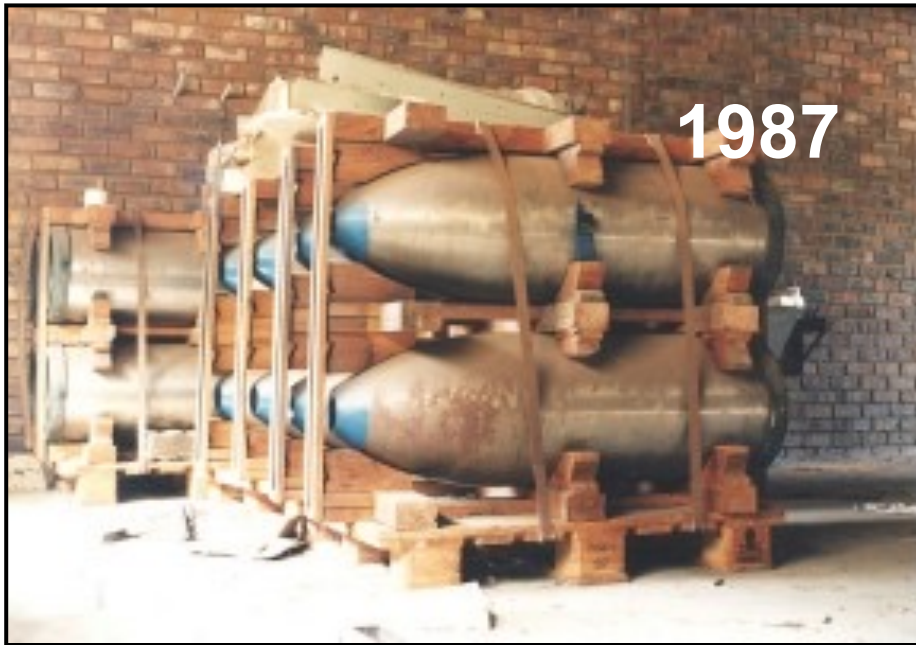
- **South Africa**



1991: “a nuclear deterrent had become not only superfluous but, in fact, an obstacle to the development of South Africa’s international relations”

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**1993: Verification of denuclearization through cooperation**

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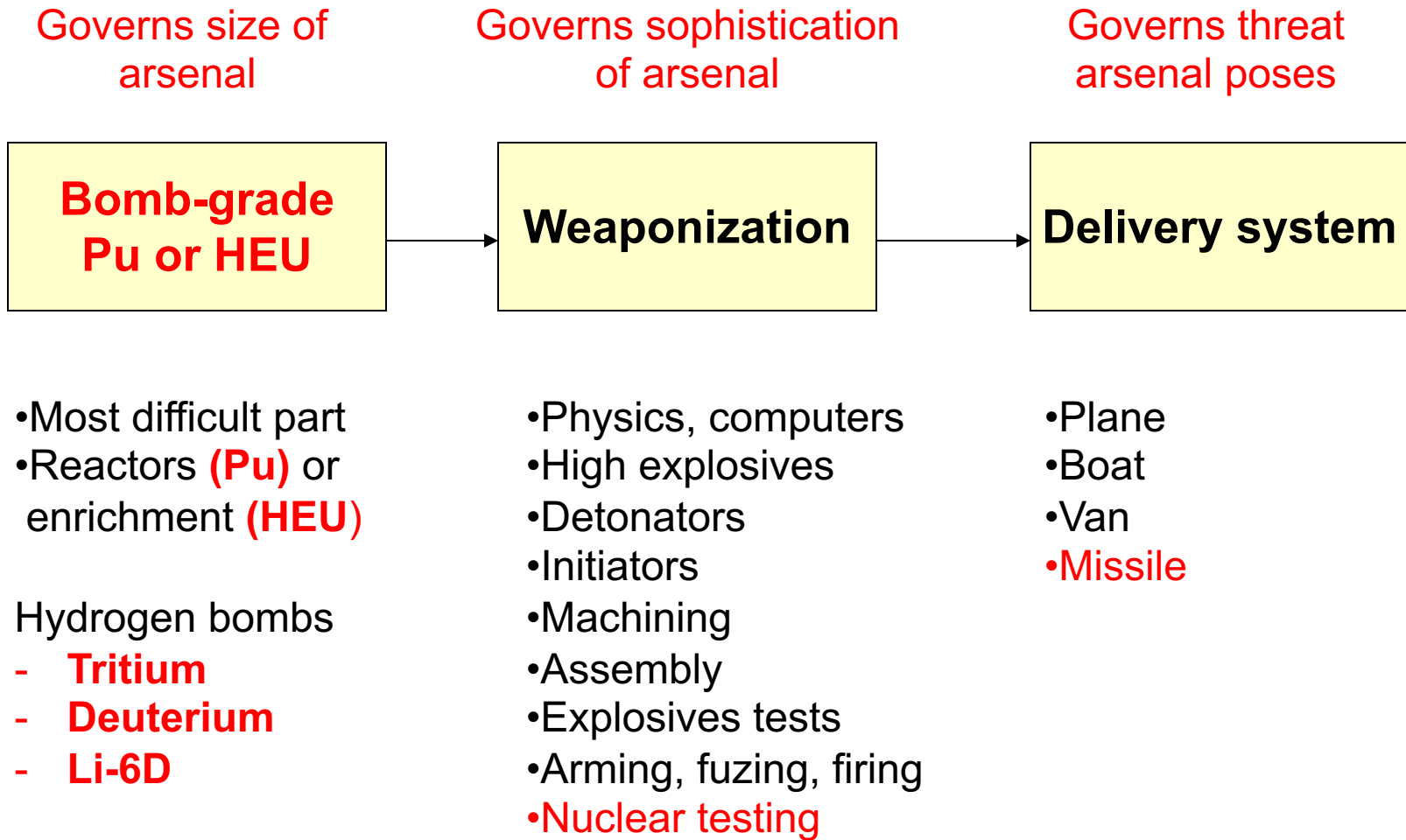
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# What will the DPRK have to give up?

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**But, how do we know? What is confidence level?**

Source: DigitalGlobe

4 NOV 2010

# Commercial overhead imagery

28 MAY 2011

Source: GeoEye

26 JAN 2012

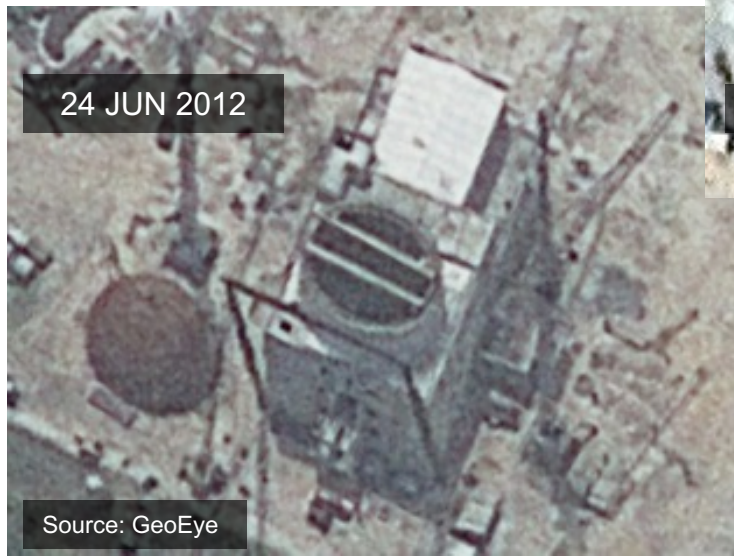
Source: DigitalGlobe

24 JUN 2012

Source: GeoEye

12 DEC 2013

Source: DigitalGlobe/ Google Earth



Looking from the inside



Hecker

KCNA Publicity – what they show us





Nuclear Capability	December 2019 (Rough estimates)
Plutonium	25 - 48 kg
HEU (highly uncertain)	~500 - 750 kg
Tritium	Very limited
Nuclear devices (sufficient material)	~38 (20 to 60)
Nuclear device deliverable by SCUD & Nodong missiles Progress on solid-fueled missiles (KN-23, KN-24 and PK-3)	Yes Likely can reach all of ROK and most of Japan
Nuclear device deliverable by IRBMs & ICBMs	Hwasong-12, 14, 15 Not yet military useful. Need more tests

## What will it take?

**We need to understand why they have nuclear weapons**

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- **Security (regime and nation)**



**Jan. 1, 2018, Kim Jong-un:**

“Our country’s nuclear forces constitute a powerful **deterrent** ... In no way would the United States dare to ignite a war against me and our country... The nuclear button is always on my desk.”

# What will it take?

**We need to understand why they have nuclear weapons**

- Security (regime and nation)
- **International prestige and bargaining power**



One of very few countries that have ICBMs and one of less than 10 with nuclear weapons

# What will it take?

**We need to understand why they have nuclear weapons**

- Security (regime and nation)
- International
- **Domestic power and legitimacy**



# June 12, 2018 Singapore Summit



**Normalization and denuclearization**  
**A huge step in the right direction**

ELEPHANTS IN THE ROOM

# Trump Was Right to Walk Away

In resisting the temptation to make a bad deal, he avoided failure at the Hanoi summit.

BY PETER FEAVER | FEBRUARY 28, 2019, 6:46 PM



U.S. President Donald Trump departs his summit with North Korean leader Kim Jong Un in Hanoi on Feb. 28. (Saul Loeb/AFP/Getty Images)

**But was he, really? We think not.  
Kim felt humiliated. Gave U.S. Jan. 1, 2020 deadline.**

# Yet, in spite of Hanoi failure, time is right to take reciprocal steps toward denuclearization and normalization



Moon's and Trump's outreach have demonstrated that their countries' policies need not be irreconcilably hostile



# China and Russia support a phased approach



The time to take irreversible steps toward the elimination of nuclear weapons and normalization is better than any time since 2000

# Trump administration is prepared



Special Representative Stephen Biegun  
Sept. 6, 2019 at University of Michigan

## Key points:

- **The route to denuclearization is through normalization and peace**
- **DPRK must be willing to fulfill its commitment to achieve complete denuclearization**
- **President Trump remains committed to fulfill U.S. commitments**
- **DPRK and U.S. must overcome their demonstrations of hostility and sustain a rhythm of negotiations**
- **They must quickly agree to significant actions so that U.S.-DPRK relations take an irreversible turn away from conflict**

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**But DPRK appears unwilling to engage**

## Lessons from nuclear history

- **Iraq**
- **North Korea**
- **Iran**
- **Ukraine**
- **South Africa**

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AFTER 70 YEARS OF HARDSHIP HIS PEOPLE DESERVE NO LESS.

# What's next for Kim's North Korea



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**Let's hope Kim makes the right decision.  
Look for Jan. 1, 2020 speech**