

North Korea: Playing a weak hand to perfection

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North Korea's nuclear program

- Capabilities - how do we know?
- Intent - a brief review of history
- What are the threats?
- How to proceed?

What is the DPRK nuclear program?

Yongbyon nuclear complex

- Fuel fabrication facility - uranium metal fuel
- 5 MWe reactor - Magnox (gas - graphite)
- Reprocessing facility - plutonium extraction
- 50 MWe and 200 MWe reactors - not salvageable
- IRT-2000 research reactor - very little fuel left

Other facilities outside Yongbyon

What is the DPRK nuclear program?

Yongbyon nuclear complex

- Fuel fabrication facility - **uranium metal fuel**
 - Gets within one step of centrifuge feed
- 5 MWe reactor - **Magnox (gas - graphite)**
 - 6 kg plutonium/year
- Reprocessing facility - **plutonium extraction**
 - Large scale capability, small plutonium laboratory
- 50 MWe and 200 MWe reactors - **not salvageable**
 - Would represent major threat (~ 300 kg Pu/year)
- IRT-2000 research reactor - **very little fuel left**
 - Good for medical isotope production

Other facilities outside Yongbyon

- Uranium and weaponization facilities

How do we know they have the bomb?



Jan. 2004 Yongbyon



Aug. 2005 Pyongyang



Nov. 2006 Pyongyang



August 9, 2007, Yongbyon



Feb. 14, 2008, Yongbyon

They invited us in

What does North Korea have?

- **Weapons-grade plutonium**
 - Estimated at 26 to 50 kg (4 to 8 bomb's worth)
- **Nuclear weapons**
 - Two nuclear tests - increased confidence
 - **Most likely have a few simple bombs**
 - Unlikely to have miniaturized for missiles
- **Uranium enrichment**
 - Likely to have R&D, but not industrial scale
- **Nuclear technology export**
 - Syria - yes, a plutonium production reactor
 - Iran and others - possible

DPRK is playing a weak hand

- One third of its people fed from outside
- Can't provide basic services consistently
- Failing economy: North - South asymmetry
- Frightened by its own economic reforms
- No capacity to deal with disasters
- Has only limited commercial exports
- Fighting to control influx of info and goods
- Atrocious human rights record

But they are playing it well. New threats:

- Reprocess spent fuel rods (~ 8 kg of Pu)
- Restart all nuclear facilities
- Conduct more nuclear test
- Build a light-water reactor, including fuel
- Test an ICBM
- Turn South Korea into a nuclear inferno

What are they capable of doing?

- Reprocess spent fuel rods (~ 8 kg of Pu)
 - Finish in less than 6 months
- Restart all nuclear facilities
 - Start in about six months
- Conduct more nuclear test
 - In weeks to months
- Build a light-water reactor, including fuel
 - Not for many years to come
- Test an ICBM
 - Not successfully for many years

What are the greatest threats?

- Use the 8 kg for nuclear tests
 - More sophisticated bombs
- 5 MWe reactor - only 6 kg Pu/year
 - Restart of 50 MWe a threat
- Conduct another nuclear test
 - Have Iranians present
- Build a light-water reactor, including fuel
 - Get centrifuges from Iran
- Test an ICBM
 - Work more closely with Iran

Greatest concern - nuclear exports

- Syria reactor - destroyed by Israel, Sept. 6, 2007
 - Gas-graphite reactor - highly likely from DPRK
 - DPRK connection - including personnel, highly likely
 - Reactor not built for electricity, heat or research
- Sophisticated cover-up
- Questions remain
 - How much did DPRK do? Others involved?
 - Where did the fuel come from?
 - No reprocessing facility found so far
 - Who was the customer?
- What about Iran?

Kim Jong Il still in power
Confidence is increasing
Slow-down is working



DPRK grievances during our meetings

- South Korea
- U.S. - ROK military exercises this week
- Obama Administration early signs
- U.S. complaints about space launch
- Six-party members not meeting Oct. 3 obligations

We plan to launch and
we will suspend disablement of Yongbyon

Developments since April 5, 2009 rocket launch

- April 14
 - Denounced and rejected UNSC actions
 - Expelled IAEA and U.S. technical team
 - Walked away from Six-Party talks and agreements
 - Threatened to strengthen its deterrent
 - Restore normal operations of Yongbyon
 - Reprocess spent fuel rods
- April 29
 - Restarted reprocessing facility
 - Threatened to conduct more nuclear tests
 - Test fire intercontinental missiles
 - Decide to build a light-water reactor
 - Technological development for fuel production

The North Korean crisis in perspective

- Soviet "Atoms for Peace" - 1950s & 1960s
- Going solo, but under civilian cover - 1970s to 1992
- Breakout I - 1993-94
- Return, freeze, but push the envelope - through 2003
- Breakout II - Jan. 2003 - Sept. 2005
- Return - Sept. 19, 2005 denuclearization statement
- Breakout III - Oct. 9, 2006 nuclear test
- Return - Phased approach to denuclearization (2007)
- Breakout IV - April 2009
- What's next?

North Korean bomb - 50 years in the making
North Korea has played a weak hand masterfully

Strategy to denuclearize DPRK

- Make it more attractive to give up the bombs and more costly to keep them
- U.S. holds the key to the benefits
- China and ROK hold the key to the costs

- U.S. must develop risk-based policy and speak with one clear voice
- U.S. must understand what China and ROK want, and develop a common strategy

Possible threat matrix for four of the parties

U.S.	DPRK	ROK	China
Fissile materials in hands of terrorists	U.S. military attack (<i>existential</i>)	U.S. intervention and instability	U.S. intervention, instability, war
Use of nukes in act of desperation or miscalculation	Regime change (<i>existential</i>)	Regime change, instability, and derail economy	Regime change and rise of U.S. influence
Accidental detonation of nuclear device	Increased sanctions and consequences	Collapse of U.S. - ROK alliance	Derail China's economic rise
Instability and regional arms race	Limit exports and cash flow	Blackmail/coercion	Further fuel Japan's militarism
Threaten or blackmail U.S. and neighbors	Promote social unrest & instability	Nuclear accident	Undermine int'l nonproliferation regime (Japan, Taiwan, ROK)
Undermine the int'l nonproliferation regime	Impede relations with neighbors and access to int'l financial assistance	Undermine int'l nonproliferation regime (Japan)	Nuclear accident
Long-term missile plus nuke threat to U.S.			

The Yongbyon plutonium labs - small and primitive



August 9, 2007

Syrian reactor site at Al Kibar bombed by Israel on Sept. 6, 2007



Before bombing

After bombing



Satellite Photos Show Cleansing of Syrian Site

By [WILLIAM J. BROAD](#) and MARK MAZZETTI

Published: October 26, 2007, New York Times



Suspected reactor site in Dayr az Zawr region bombed by Israel on September 6, 2007

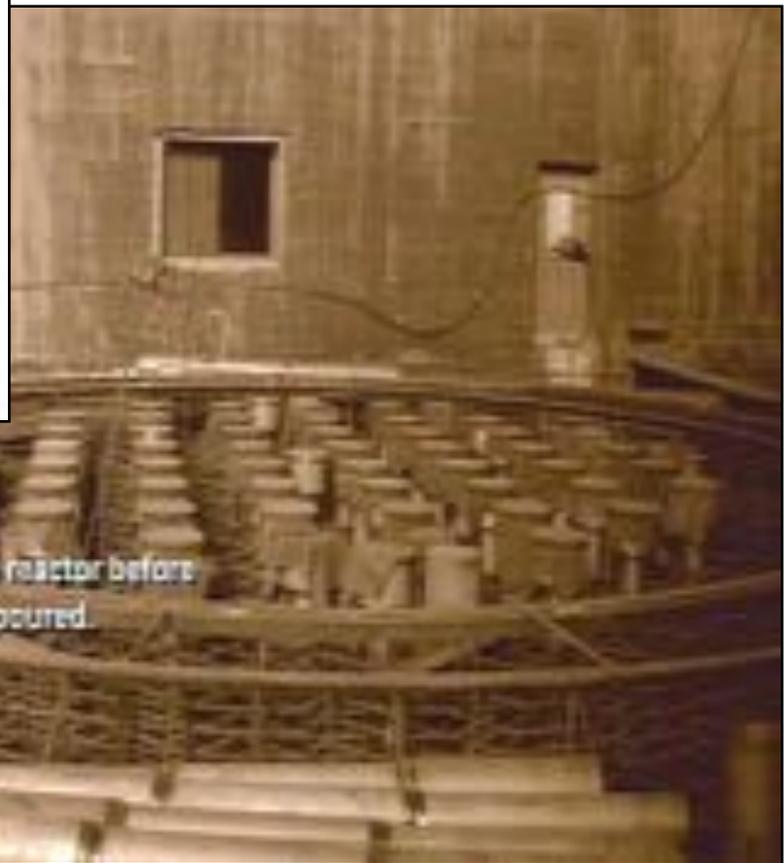
Same site in Dayr az Zawr region in October after Syrian cleanup

Syrian gas-graphite reactor at Al Kibar



Image Courtesy of IAEA

Yongbyon 5 MWe reactor



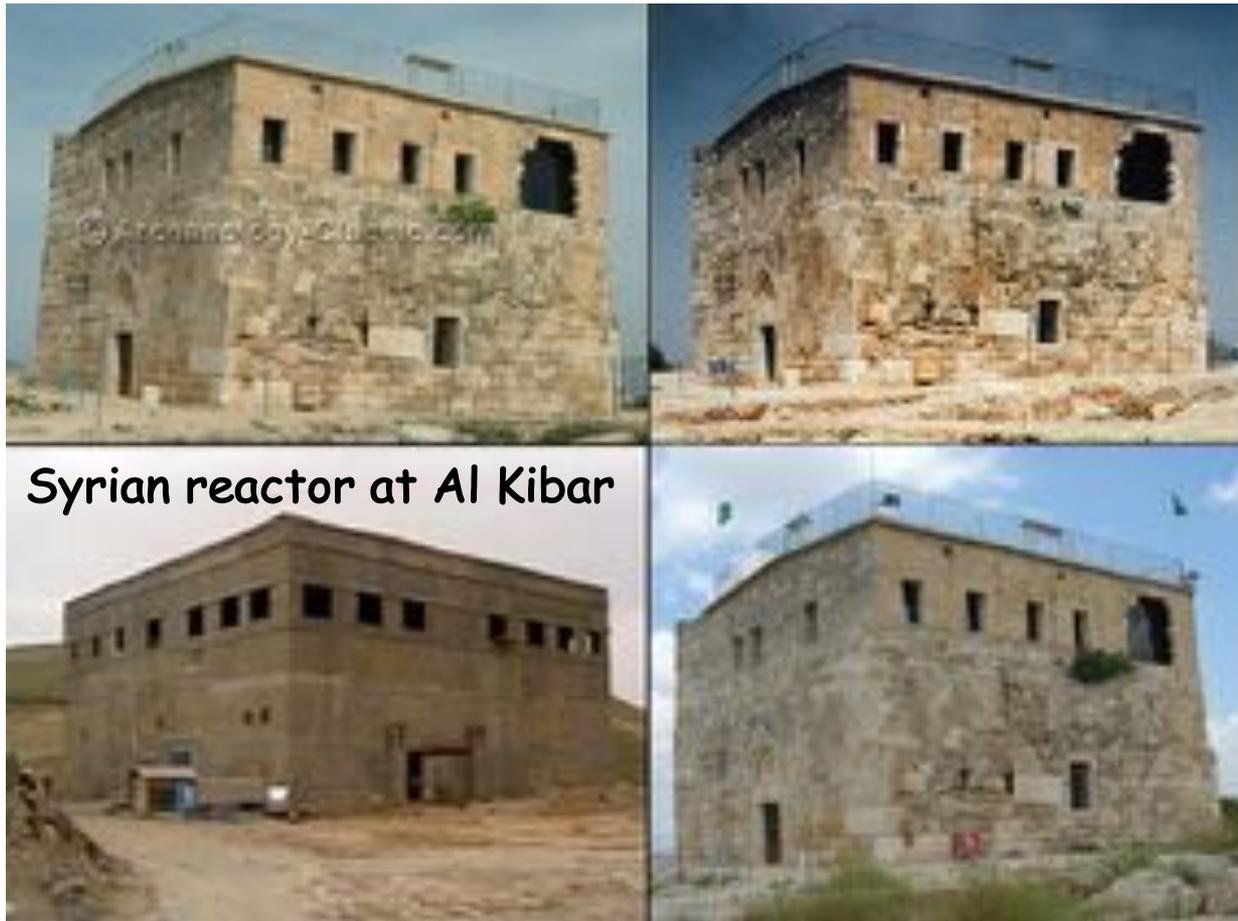
Top of the Syrian reactor before
concrete poured.

Syrian gas-graphite reactor at Al Kibar



A masterful job of deception in Syria

Byzantine fortress in Zippori (Sepphoris) National Park, Israel



Syrian reactor at Al Kibar

There are also Byzantine/Crusader-age fortress ruins in the immediate vicinity on the Euphrates River, at Halabiya and Zennobia

Lots of action at the food kiosks



Kiosks everywhere



Lots of cranes



Dressed quite well and warm





Busy at the phone booths (cell phones emerging slowly)



Lots of tractors and trucks - outside Pyongyang

