



India's Nuclear Challenges

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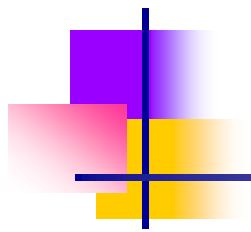
New Delhi

CSIS, Washington DC, 24 Jan 2014



Dimensions of the Challenges

- **In the strategic sphere**
 - **Complexities of nuclear deterrence**
- **In the energy sphere**
 - **Obstacles to nuclear energy expansion**
- **In the non-proliferation sphere**
 - **Stranglehold of old shibboleths**



CHALLENGES OF NUCLEAR DETERRENCE



India's Nuclear Reality

- **Two geographically contiguous nuclear powers**
- **Territorial disputes and a history of wars**
- **With different nuc doctrines and capabilities**
- **Both in a robust mutual nuclear and missile proliferation relationship**
- **Both use proxies to complicate security**
- **Two nuclear dyads + one nuclear triangle**
- **Existential risks of nuclear war**
- **Threat from NSAs – with/without state complicity**



Visible NW Trends

- **Inventory build-up**
 - China has biggest arsenal after US & Russia
 - Pakistan likely to be the fifth largest
- **Improvements in range, accuracy, reliability**
 - From liquid to solid fuel mobile missiles
 - Dispersal of missiles over triad
 - Improvements in penetrability (esp in China)
 - Missiles equipped with countermeasures
 - MIRVed and MARVed missiles
- **Cruise missile proliferation**



India – China Strategic Stability

- **General sense of nuclear stability**
 - ‘Similar’ nuclear doctrines
 - Focus of both on eco growth & social devp
 - High bilateral economic trade
 - Many levels of political engagement
 - Mutual vulnerability to ‘unacceptable damage’



India – China Strategic Stability

■ Worrisome trends

- China's growing military capabilities
- Lack of clarity on intentions
- Low interest in settling territorial issues
 - Nettlesome behaviour on Arunachal Pradesh
- ASAT & BMD tests – Jan 2007 & Jan 2010
- Large deployment of conventional missiles
- Relationship with Pakistan



Pakistan's Nuclear Strategy

- **Role of Pak NW**

- To deter war with conventionally superior military
- Continue sub-conventional 'cuts'

- **Modus operandi**

- Deliberate projection of uncertain behaviour to heighten nuclear danger
- Uncontrollable escalatory spiral against conv attack
 - Reduces risk of retaliation against proxy war
 - "Risk maximising approach" – plays on enemy's fear
 - Brinkmanship rests on uncertainty & cultivated irrationality



India- Pak Strategic Stability

- **Brinksmanship aimed at India & international audience**
- **Move towards TNWs – greater instability**
- **Derives deterrence from instability**
- **Unsatisfactory experience of CBMs**



CHALLENGES IN NUCLEAR ENERGY EXPANSION



Present Status of Nuc Energy

- **21 operational nuclear power plants**
 - **2 BWRs + 18 PHWRs (220 & 540 MWe)**
 - **First LWR at KK went critical in 2013**
- **3% of total electricity gen – 4780 MWe**
- **350 reactor years of experience**
- **Full fuel cycle capability**
- **Trained manpower**
- **Mature nuclear industry**



Future Ambitions

- **20,000 MWe by 2020**
- **63,000 MWe by 2032**
 - **20 imported LWRs – 8 new nuclear parks**
 - **Indigenous 700 MW PHWRs**
 - **4 X 700 MW under construction**
 - **7 more planned in 2012-17**
 - **2 x 500 MW FBRs**



Ability to Achieve Goals

- **Handicapped in the past by international sanctions and isolation**
- **Entry into international nuclear commerce in 2008**
 - **Series of steps – multilateral and bilateral**



Opening of Opportunities

- **CNAs with 10 countries in 3 years**
- **Spurt in nuclear fuel availability**
 - **Immediate benefit**
 - **Restore lost installed capacities (60 to 90%)**
 - **Bring on line new indigenous planned plants**
- **Import of larger reactors**
 - **1000 to 1650 MWe**
 - **In principle approval to 30,000 MW capacity**



Present Bottlenecks

- **Restoring Public Confidence**
 - **Proactive engagement to**
 - **Explain strategic reqmt of nuclear energy**
 - **Inclusive approach at tactical level**

- **Addressing Nuclear Liability Issues**
 - **Concerns of investors – international & domestic**



CHALLENGES FROM NON-PROLIFERATION SHIBBOLETHS



Angst over Indo-US Nuclear Deal

- **Still smarting over the exceptionalisation of India**
 - **Blame USA for not extracting enough**
 - **Blame India for Sino-Pak nuclear cooperation**
- **Little appreciation of Indian efforts to be part of non-proliferation regime**



Indo-US Nuclear Deal – Some Facts

- **2005 to 2008 -- negotns bet both democracies**
- **Due legislative processes to create legal conditions**
- **Not just bilateral arrangement**
- **Compliance with IAEA & NSG processes**
- **Exceptionalisation earned**
 - **Consistent responsible nuclear behaviour**
 - **Non-proliferation commitments**



Non-proliferation commitments

- **Sustained moratorium on nuclear testing**
- **Support for FMCT**
- **Signed additional protocol**
- **Implementation of Separation Plan**
 - **CIRUS shutdown; safeguards on facilities**
- **Participation in NSS – GCNEP on track**
- **Harmonisation of XCs**
- **NSG membership yet not in sight**



Sino-Pak Nuclear Cooperation

- **Onus of responsibility on Indo-US nuclear deal ?**
- **Pre dates the deal**
- **Civilian nuclear energy agreement in 1986**
- **China joined NPT in 1992 & NSG in 2004**
- **Grandfather argument in 2009 for two NPPs**
- **Two more now on offer – energy logic**
- **NSG silence – no procedures, no processes, de facto exemption**
- **Who is undermining NSG credibility?**