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CFR Backgrounders

Southern Asia's Nuclear Powers

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Introduction

Southern Asia is home to three nuclear powers—China, India, and Pakistan—that continue to expand and modernize their arms programs. Motivated by the need to address perceived security threats, each is seeking to expand ballistic missile and cruise missile-based nuclear delivery systems. Such nuclear competition is dangerous given mounting mistrust and a dearth of diplomatic measures in place to reduce risk of confrontation. Pakistan's chronic political instability, spotty nonproliferation record, and ongoing threats posed by militant forces have focused special concern on the safety of its nuclear materials.

What are China's nuclear capabilities?

China is seeking to soon achieve a nuclear triad (land, air, and sea-based nuclear delivery capabilities). Analysts **estimate** that China's inventory is close to two hundred and fifty warheads. This includes short, intermediate, and long-range ballistic missiles. Some experts say China has as many as **sixty** long-range missiles with ranges between 4,350-9,320 miles. **China's Central Military Commission** oversees the country's nuclear weapons under the **management (PDF)** of the **Second Artillery Force** of the People's Liberation Army.

Beijing first pursued atomic weapons after the Korean War (1950–1953) and conducted its first nuclear test in 1964. The U.S. **nuclear threat** during the 1950s Taiwan Crisis incentivized China's strategic nuclear program. Since China's economic boom, Beijing has sought to modernize its nuclear forces to improve survivable second-strike capabilities, which would prevent the destruction of its entire arsenal in the event of a first-strike attack, securing the means for nuclear retaliation. Though historically driven by both U.S. and Soviet capabilities, the recent modernization of China's nuclear forces is primarily **motivated (PDF)** by existing and developing U.S. capabilities.

Southern Asia Nuclear Forces, January 2014

COUNTRY	YEAR OF FIRST NUCLEAR TEST	TOTAL ARSENAL ESTIMATES
CHINA	1964	250
INDIA	1974	90–110
PAKISTAN	1998	100–120

*All estimates are approximate because the three countries do not provide information about the size of their nuclear arsenals.

Source: SIPRI, FAS, Arms Control Association Credits: Eleanor Albert, Julia Ro

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In addition to **increasing** the size of its arsenal, China is also **altering the composition** of its nuclear forces to build up more mobile systems. The U.S.-China Economic and Security Review Commission's **2014 annual report (PDF)** said that China's nuclear forces would grow considerably over the next five years, with the introduction of road-mobile nuclear missiles, ballistic missile submarines, and multiple independently targetable reentry vehicles. Meanwhile, some experts stress that the pace of growth is slow. Chinese missile accuracy has also **significantly improved (PDF)**, according to a U.S. Department of Defense report.

China is investing in **space and counter-space programs** ($11 billion in 2013), in part to counter advanced U.S. missile defense systems. Beijing's 2007 anti-satellite missile test sparked concern among officials and analysts in Washington; those worries resurfaced in 2014 when President Xi Jinping's **called** on China's air force "to speed up air and space integration", and when Beijing launched its third **anti-missile test** in July 2014.

What is China's nuclear doctrine?

Beijing says its national defense policy is **purely defensive** in nature. Since its first nuclear test, China declared a no first use (NFU) nuclear doctrine, meaning that in the event of a conflict or crisis, it will not resort to the first use of nuclear weapons. In a 2010 national defense white paper, China's leadership said it adheres to a "**self-defensive nuclear strategy**, and will never enter into a nuclear arms race with any other country."

Yet some experts believe that Beijing's nuclear doctrine may be shifting. After the release of China's 2013 defense white paper, James Acton of the Carnegie Endowment for International Peace, a Washington-based think tank, **voiced alarm** about the omission of Beijing's NFU pledge. However, others say that China's modernizing nuclear forces do not necessarily indicate a policy change, but rather a "**broadening**" of nuclear options. In April 2013, major general Yao Yunzhu, director of the Center on China-America Defense Relations at the Beijing-based Chinese Academy of Military Science, dismissed allegations of a possible change in Beijing's nuclear policy, saying "there is no sign that China is going to change a policy it has **wisely adopted** and persistently upheld for half a century."

Although originally a strong critic of the international nuclear order, Beijing has since joined international bodies as a nonproliferation advocate. China joined the **International Atomic Energy Agency (IAEA)** in 1998, acceded to the **Nuclear Nonproliferation Treaty (NPT)** in 1992, and joined the **Nuclear Suppliers Group (NSG)** in 2004. Beijing signed the **Comprehensive Nuclear Test Ban Treaty (CTBT)** in 1996 but has not yet ratified it.

"In the foreseeable future, the Asian reliance on nuclear weapons will increase."—Ashley J. Tellis, Carnegie Endowment for International Peace

What are India's nuclear capabilities?

India possesses a developed strategic nuclear program and currently fields nuclear-capable aircraft and ballistic missiles controlled by a civilian command structure, the **Nuclear Command Authority**. Delhi has an **estimated stockpile** of 90 to 110 warheads and is expanding its military nuclear capabilities. In 2011, Delhi spent approximately **$4.9 billion (PDF)** on nuclear weapons, up from $4.1 billion the previous year, according to Global Zero, a nongovernmental disarmament movement. Delhi has invested in a **ballistic missile defense system**, longer-range ballistic missiles, **nuclear submarines**, **MIRVs (PDF)**, and ground-, air-, and sea-launched **cruise missiles**, among other systems.

Experts point to China's 1964 explosion as the impetus for the launch of India's strategic nuclear program. Delhi's first nuclear fission device was tested in 1974 and was termed by the government a "peaceful nuclear explosion." India's test drew protest internationally and was condemned as a violation of the NPT, which had entered into force in 1970. The test spurred the creation of the NSG to prevent the misuse of technology from civilian nuclear energy cooperation for the development of weapons. Delhi then waited until May 1998 to conduct five nuclear explosions.

The United States and India negotiated a landmark **civil nuclear deal** beginning in 2005, which was later signed into U.S. law in 2008. Washington saw the deal as a practical way to overcome barriers to cooperation and also because it believed "it would be better to have India inside the international nonproliferation tent than outside," says CFR's **Alyssa Ayres**. Other nuclear energy powers also boost India's civilian program: Tokyo **pledged** to negotiate a nuclear energy pact, a deal with Australia allows the **export of uranium** to India, and Russia has assisted India for years on the construction of reactors, with new deals in the works between the two countries.

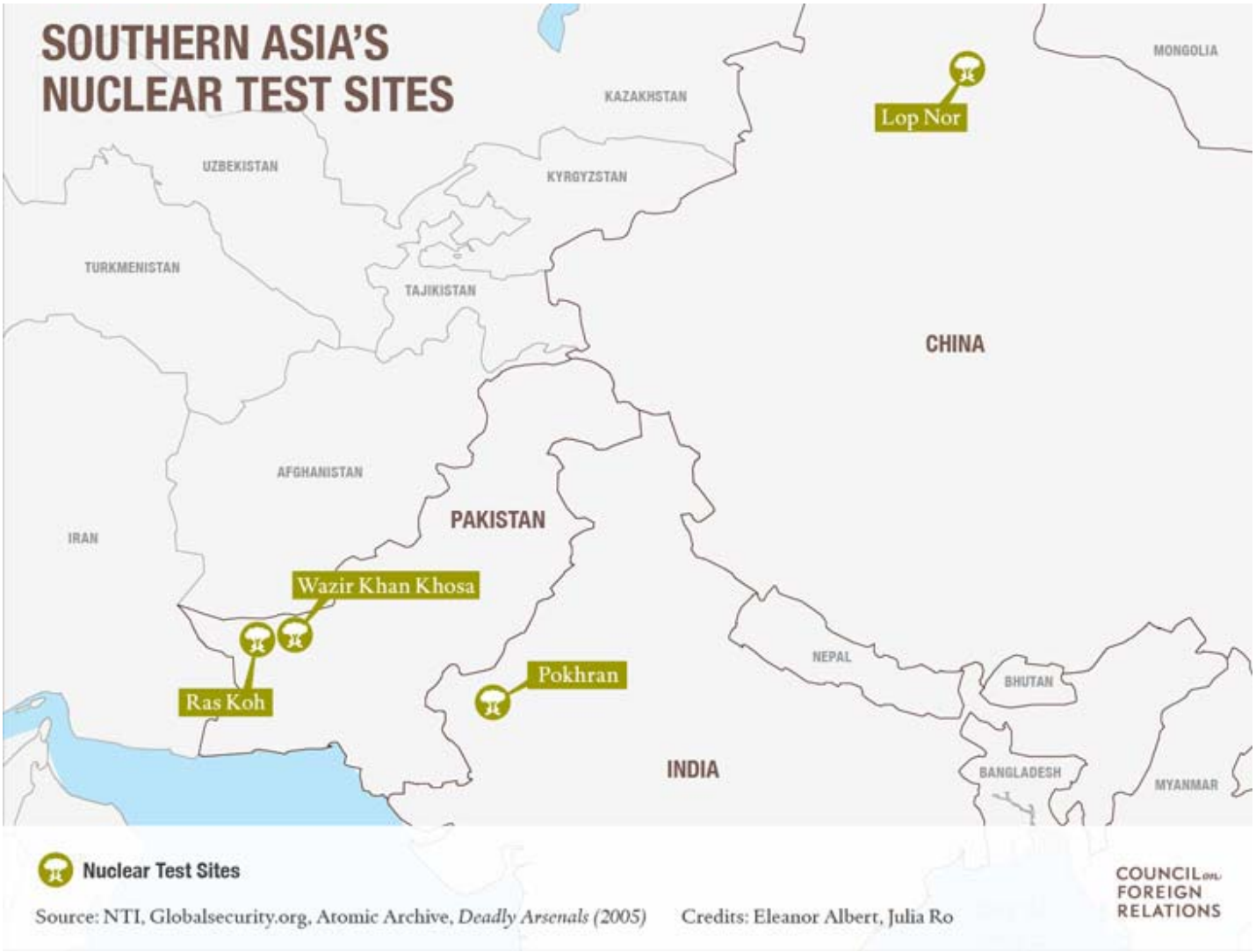
While India remains outside the NPT and the CTBT, its civilian nuclear facilities are now under IAEA safeguards and India has signed and ratified the **IAEA Additional Protocol**. The U.S.-India deal has provided India with incentive to harmonize its export control regimes to meet the standards of various international **nonproliferation guidelines**, including the NSG, the Australia Group, the Missile Technology Control Regime, and the Wassenaar Arrangement.

What is India's nuclear doctrine?

Delhi, like Beijing, pledges a NFU policy, as articulated in India's 2003 **nuclear doctrine**. The doctrine emphasizes that its nuclear program is intended to establish a robust but credible minimum deterrent. Moreover, the doctrine explicitly states that India's response to an external nuclear attack on its territory or armed forces anywhere would be "massive and **designed to inflict** unacceptable damage."

Security and political objectives motivate India's strategic nuclear program. Delhi places considerable political value in its program as a means to improve its status: "India's civilian leaders have seen the bomb as a political rather than military instrument," says Michael Krepon, co-founder of the Washington-based Stimson Center. Historical tensions and high levels of distrust among its neighbors also pushed India to develop nuclear weapons to strengthen national security.

India views Chinese nuclear expansion as a **security threat**, experts say, and as a result Delhi seeks capabilities to counter Beijing, including in the arena of **space exploration**. India's reading of Chinese nuclear activity is **further colored** by China's role in providing Pakistan with nuclear material and technology. Since coming to power in May 2014, Indian Prime Minister Narendra Modi has upheld his **pledge** that his ruling party will adhere to India's NFU arms policy.



What are Pakistan's nuclear capabilities?

Experts **estimate** that Pakistan has 100 to 120 warheads and two types of **delivery vehicles (PDF)**: aircraft and surface-to-surface missiles. The **Strategic Plans Division (SPD)**, a secretariat of the National Command Authority, is the primary overseer of Pakistan's nuclear policy and arsenal, and its head is a three-star general from the Pakistan Army, which experts say suggests that the body is a **de facto military** structure. Despite Pakistan's economic struggles, obtaining and modernizing nuclear weapons has long been a political and strategic tool to deter India's conventional power, especially after the 1971 Indo-Pakistani War. Today, Pakistan has, by some measures, the fastest growing nuclear program in the world, according to a 2014 **Council Special Report** by George Mason University's Gregory Koblentz. Pakistan has nearly **tripled** the number of warheads it had a decade ago. In the next five to ten years, Pakistan's nuclear arsenal could be twice the size of India's and also exceed the arsenals of China, France, and the UK. That would give it the third-largest number of warheads behind the United States and Russia, according to an **August 2015 report (PDF)** by Toby Dalton and Michael Krepon of the Carnegie Endowment for International Peace and the Stimson Center.

Analysts say Pakistan is now **bolstering its arsenal** with tactical, short-range missiles with the ability to carry nuclear warheads. Islamabad first tested the Haft, a short-range ballistic missile, in April 2011 and the Ra'ad, a short-range air launched cruise missile, in August 2007. Pakistani officials and regional experts cite what they call India's **limited war doctrine (PDF)** (also known as the Cold Start doctrine) as the driving force behind Pakistan's **tactical battlefield missiles**. The doctrine, whose existence Delhi **denies**, purportedly speeds up India's ability to mobilize conventional forces.

In 1965, Pakistani Prime Minister Zulfiqar Ali Bhutto famously said that if India acquired a bomb, then "we will eat grass, even go hungry, but we will get one of our own." The end of the 1971 Indo-Pakistani War and

the creation of Bangladesh precipitated the launch of Islamabad's nuclear bomb program; India's 1974 nuclear test only added more urgency.

In 1976, Bhutto put **Abdul Qadeer Khan**, a scientist who had worked at a nuclear research lab in the Netherlands, in **control** of Pakistan's uranium enrichment programs. Under Khan's direction, Pakistan expedited the militarization of its nuclear program with technology transfers from China and purchases of individual components and material from international suppliers. Following India's May 1998 nuclear tests, Pakistan responded with six explosions of its own a few weeks later. Experts cite the nuclear tests as one of the driving forces behind the 1999 Kargil War, an armed conflict between India and Pakistan in the Kargil district of Kashmir that some say cast doubts about the effectiveness of strategic deterrence.

Khan **confessed** in 2004 that **the multinational network** he had developed to boost Pakistan's program also sold sophisticated nuclear technology and material on the black market. Buyers included Iran, Libya, and North Korea. Pakistan's leadership fiercely rejects any knowledge of Khan's operations, but there is debate over the extent of Khan's autonomy as well as reservations about whether his network has been disbanded.

Though detained and placed under virtual house arrest for five years, Khan was **freed** in 2009 when a high court ruled that he had not been involved in the sale of nuclear secrets. Khan is an international pariah but remains a national hero at home. Doubts in Washington about Pakistan's willingness or ability to curb proliferation contributed to the U.S.-India civil nuclear deal. Questions remain over whether Islamabad will play a role in the transfer nuclear capabilities to other countries, like **Saudi Arabia**.

> *"Nuclear competition in Southern Asia represents a classic conundrum of international relations: enormously high stakes, conflicting and entrenched interests, and at least in the near term, few realistic avenues for mitigating threats."—CFR's Daniel S. Markey*

What is Pakistan's nuclear doctrine?

Pakistan is without an official nuclear doctrine, though national security authorities cite "restraint" and "responsibility" as **pillars (PDF)** of Islamabad's nuclear program. A **report (PDF)** by the U.S.-funded non-partisan Congressional Research Service says the Pakistani nuclear program's objectives include deterring "external aggression, counterforce strategies by securing strategic assets and threatening nuclear retaliation, and stabilizing strategic deterrence in South Asia." The Stimson Center's Krepon adds, "Pakistan is a disadvantaged state that tries to compensate for weaknesses with a serious reliance on nuclear weapons." Pakistan's security establishment steadfastly backs its strategic nuclear program.

The adversarial nature of the Indo-Pakistani relationship is a central driver for Pakistani nuclear development. As the smaller state, Pakistan sees nuclear weapons as a means to offset India's military and economic advantages. In a collection of papers published by the California-based Naval Postgraduate College in June 2014, retired Brigadier General Naeem Salik, former director of arms control and disarmament affairs in Pakistan's Strategic Plans Division, wrote that "Pakistan's security managers sought to achieve **twin objectives (PDF)**of deterring the threat of actual use of nuclear weapons by India while at the same time using its nuclear capability as an equalizer against India's conventional military." Despite disparities in other measures of national power, Pakistan has succeeded in competing with India in the nuclear arena, "in some respects **outcompeting (PDF)**" its rival, write Dalton and Krepon. As regional nuclear competition continues, "the world the world must understand that nuclear weapons are part of Pakistan's **belief system**," says Islamabad-based nuclear expert Mansoor Ahmed

What is the future of Southern Asia's nuclear competition?

Southern Asia's nuclear competition is seen by experts as **fundamentally unstable (PDF)**. Koblentz has **identified the region** as the "most at risk of a breakdown in strategic stability due to an explosive mixture

of unresolved territorial disputes, cross-border terrorism, and growing nuclear arsenals."

Domestic pressures add to the growing list of concerns about the region, especially in Pakistan, a country whose stability is challenged by militant groups. **Despite repeated claims (PDF)** by Pakistan that its nuclear facilities are secure, fears persist that a regional terrorist attack will escalate violence, prompting nuclear exchange, or that Pakistani-based or affiliated militants will **acquire nuclear weapons**. Experts warn of intensified nuclear risks, especially in an age in which non-state actors can develop **cybersecurity (PDF)** capabilities to exploit nuclear security.

There is no sign of nuclear modernization abating in China, India, or Pakistan. Expert Ashley J. Tellis writes that "in the foreseeable future, the **Asian reliance (PDF)** on nuclear weapons will increase." Meanwhile, nuclear powers have limited tools at their disposal to influence nuclear expansion in Asia, particularly since India and Pakistan are outside the NPT. Nuclear risk reduction measures are few and far between across the region.

"Nuclear competition in Southern Asia represents a classic conundrum of international relations: enormously high stakes, conflicting and entrenched interests, and at least in the near term, few realistic avenues for mitigating threats, much less addressing them in a more permanent way," says CFR's **Daniel S. Markey**.

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Additional Resources

This May 2015 **Carnegie Endowment for International Peace event** provides a breakdown of China's narrative on nuclear weapons.

Expert Ashley J. Tellis explores the **nuclear capabilities** in China, India, and Pakistan in his February 2015 testimony before the U.S. Senate Armed Services Subcommittee on Strategic Forces.

The *Bulletin of Atomic Scientists'* Nuclear Notebook presents an **interactive guide** to the size of the world's nuclear arsenals over time.

This Stimson Center book **investigates (PDF)** the brewing dynamics and challenges to deterrence stability and escalation control in Southern Asia.

George Perkovich's 2001 book ***India's Nuclear Bomb: The Impact on Global Proliferation*** provides a comprehensive overview of India's pursuit of nuclear weapons.

Feroz Khan's 2012 book ***Eating Grass: The Making of the Pakistani Bomb*** chronicles the history of Pakistan's integrated strategic nuclear program.

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