

**COMMENTARY**

ASIAN WAR MACHINES

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ABSTRACT: The South Asian security landscape is increasingly dominated by a complex four-way dynamic between India, Pakistan, China, and the United States. The stresses and strains of the relationships between these states directly affect the prospects for peace and prosperity for almost half of humanity. This article describes some of the military contours of this landscape, with a focus on strategic postures, weapon acquisitions, and the role of nuclear weapons. It maps the India–Pakistan arms race over the past decade, the economic constraints on the two states, the role of China and the United States as weapons suppliers, and the risk and consequences for nuclear war. The authors then look at India’s relationship with China, which is marked by both cooperation and competition, and the rise of China as a close military, political, and economic ally of Pakistan. While the United States has had long-standing cooperative relationships with both India and Pakistan, these relationships have been undergoing major shifts over the last two decades. U.S. concerns about China’s increasing military and economic power have also intensified over this period as well. Of particular significance has been the effort to create a U.S.–India strategic partnership to balance and contain a rising China, which may become a central feature of the emerging global order. This article also offers a brief overview of what is publicly known about the nuclear arsenals of the four countries, ongoing production of weapons-usable fissile materials in Pakistan and India, as well as the race to build longer-range missiles.

Listen to the leaders of Pakistan, India, China, and the United States talk when the whole world is watching and you might think that we can be hopeful about a peaceful future, one where the well-being of almost 3 billion people, close to half of humanity, will take priority over the military power and war preparations of these states.

Talking of Pakistan and India in a speech at the United Nations General Assembly in New York in September 2013, Pakistan’s prime minister, Nawaz

Sharif, said, “Our two countries have wasted massive resources in an arms race. We could have used those resources for the economic well-being of our people.”¹ Manmohan Singh, India’s prime minister, replied, “Prime Minister Nawaz Sharif of Pakistan spoke of making a new beginning. I reciprocate his sentiments and am looking forward to meeting him tomorrow. India is committed sincerely to resolving all issues with Pakistan.”²

China’s foreign minister, Wang Yi, assured the United Nations that the past was no longer relevant: “China’s rapid development over the years has given rise to worries that China might follow the old pattern of wealth breeding arrogance and strength leading to hegemony; and various versions of the China threat theory have surfaced. However, what happened in the past should not be applied to today’s China. The outdated cold war mentality has no place in the new era of globalization. The Chinese nation loves peace.”³

For his part, President Barak Obama was all too modest when he observed, “The United States has a hard-earned humility when it comes to our ability to determine events inside other countries,” and, he added, he looked forward to a different future “where nations do not covet the land or resources of other nations.... A world in which the rules established out of the horrors of war can help us resolve conflicts peacefully, and prevent the kinds of wars that our forefathers fought.”⁴

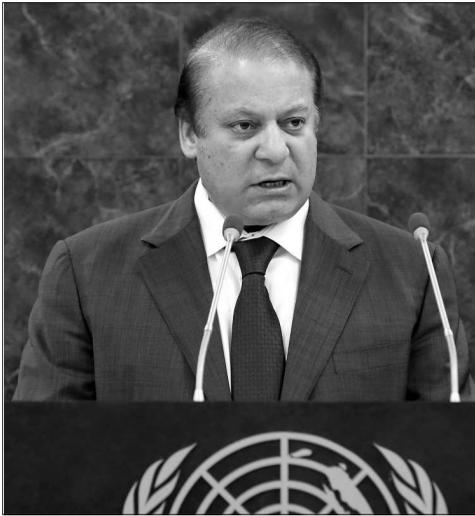
We should be so lucky. Over the past two decades a new security dynamic has emerged that is proving to be profoundly destructive and will darken the future of South Asia and, if there is war, may threaten a large fraction of humanity and the planet. It involves a complex and contradictory set of Pakistan–India–China–United States relations, in which each is both friend and foe to the others. While economies, mutual investment, and trade grows, unevenly and fitfully, generating ever more glaring domestic inequities and polarization, imperiling people and local ecosystems and the planet, all four states are committed to expanding reliance on military competition. Power, for them, still grows from the barrels of guns, the rocket’s fierce fire, and only in the nuclear shadow.

Pakistan and India

The Pakistan–India story is the most familiar and wretched in South Asia, a seemingly endless saga of fear, animosity, belligerence, crisis, and war. The coming of nuclear weapons, especially the nuclear weapon tests of 1998, which were ordered by Nawaz Sharif no less (albeit following India’s tests), changed military planning, but not the underlying dynamic.

For decades, Pakistan’s efforts have been aimed at parity with India, getting help where possible to do this, trying to hold back Indian development of new military capabilities, and trying to force a resolution of the Kashmir dispute in its

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1. Sharif 2013.
 2. Singh 2013.
 3. Wang 2013.
 4. Obama 2013.



Muhammad Nawaz Sharif (pictured here), prime minister of Pakistan, addresses the general debate of the sixty-eighth session of the United Nations General Assembly. 27 September 2013. (UN Photos)

favor. The wars in 1947, 1965, 1971, and 1999 and the military alliances with, and arms purchases from, the United States and China all attest to this.

For the past decade Pakistan has been furiously building up its own conventional forces, paid for in

large part with U.S. military aid, with arms sales agreements worth almost US\$7 billion⁵ since 2001 (with an additional more than \$10 billion in other military support).⁶ This includes purchase of an additional 32 F-16 fighter aircraft, which is about the size of its previous fleet, and seven surveillance planes from the United States.⁷ Pakistan has agreed with China to purchase four early warning planes and to jointly produce Chinese designed jet fighters.⁸ Pakistan is also expanding its naval forces with U.S. and Chinese supplied frigates.

Pakistan has limited capacity in terms of domestic financial resources and scientific and industrial infrastructure to maintain its conventional and nuclear arms race with India, to say nothing of keeping up in the larger economic and political rivalry.⁹ Pakistan in 2012 spent almost \$6 billion on its military forces. In 2013–2014, military spending was expected to be over 28 percent of the country's total budget.¹⁰ It is not clear if this includes spending on the nuclear weapons program, which has been estimated at \$2.5 billion per year.¹¹

India's economy and military spending grew at a significantly higher rate than Pakistan's for most of the past decade. In 2012, India's military spending was over \$38 billion.¹² India has become a major market for U.S. arms sales, and U.S. weapons makers, including Lockheed Martin, Boeing, and Raytheon, are keen to sell to India, now ranked among the world's largest arms importers.¹³ The International Institute of Strategic Studies observes that "the United States seems poised to be the main foreign supplier under India's new arms acquisi-

5. Presume U.S. dollars unless indicated otherwise.

6. Congressional Research Service 2013. For equipment purchased and on order, see Epstein and Kronstadt 2013.

7. Iqbal 2010.

8. Klasra 2008; *Dawn* 2009.

9. Hoodbhoy, ed., 2013.

10. Yousaf 2013.

11. Mian 2012.

12. International Institute for Strategic Studies 2013, 543–56.

13. Shalal-Esa 2013.

tion program.”¹⁴

Nonetheless, Indian military planners have struggled to come to terms with Pakistan’s use of covert proxy forces and insurgents and its threats to escalate military conflicts to the nuclear level. An important landmark was the Kargil war in 1999, which brought these two together. For Indian military planners, Kargil meant that they would have to find ways of waging limited war that would not lead to the eventual use of nuclear weapons. The experience of the 2001–2002 crisis following the attack on the Indian parliament also led planners to conclude that any limited war would have to be prosecuted very expeditiously without allowing time for diplomatic intervention by other powers, especially the United States.

In 2004 the Indian Army adopted a new and dangerous war doctrine called “Cold Start,” which aims to give India the ability to launch a quick, potentially decisive attack across the border into Pakistan with, some analysts argue, “a favorite scenario being to cut Pakistan into two at its midriff.”¹⁵ The strike is meant to be so swift and decisive that it would “preempt a nuclear retaliation.”¹⁶ Pakistan has threatened to use nuclear weapons on the battlefield if India ever tried to carry out the kind of conventional attack it has been rehearsing.

Relationships with China

China and India exhibit an awkward combination of competition and co-evolution in their relationship. China became an independent republic in 1949, two years after India gained freedom from British rule, and initially the two countries had very friendly ties—characterized by the famous slogan “Hindi–Chini bhai-bhai” (Indians and Chinese are brothers). This period ended abruptly with the 1962 China–India war and the loss of Indian territory then has served as a consistent rationale in India for strengthening military power. Likewise, China’s acquisition of nuclear weapons in 1964 has provided a standing argument for an Indian nuclear weapons program in the eyes of pro-nuclear elements.

To address the friction caused by the border dispute, in 1993 India and China concluded an “Agreement on the Maintenance of Peace and Tranquility along the Line of Actual Control in the India-China Border Areas.” This was followed in 1996 by agreement on military confidence-building measures, which included reductions in the numbers of troops, tanks and combat vehicles, heavy artillery, and missiles deployed by both states along the border.

The dramatic growth in the Indian and Chinese economies over the past two decades has introduced a new dimension to the cooperation and competition. While Chinese–Indian trade has soared, there is also increasing concern in each country about where to get the raw materials and fuels to power their growth. Both envision growing competition for increasingly scarce resources.¹⁷ Strategists and military planners, in turn, interpret this as a sign of an emerging great

14. International Institute of Strategic Studies 2009, 334.

15. Ahmed 2004.

16. Aroor 2006.

17. See, for instance, Klare 2008.

power competition, which will need to be backed by military power.

Typical of this strain of thinking in India were these comments from the 10 August 2009 speech of the outgoing chief of the Indian Navy:

[C]oping with China will certainly be one of our primary challenges in the years ahead. China is in the process of “consolidating” its comprehensive national power and creating formidable military capabilities. Once that is done, China is likely to be more assertive on its claims, especially in its immediate neighborhood. Our “trust deficit” with China can never be liquidated unless our boundary problems are resolved. China’s known propensity for “intervention in space” and “cyber-warfare” would also be major planning considerations in our strategic and operational thinking... On the military front, our strategy to deal with China must include reducing the military gap and countering the growing Chinese footprint in the Indian Ocean Region. The traditional or “attritionist” approach of matching “Division for Division” must give way to harnessing modern technology for developing high situational awareness and creating a reliable stand-off deterrent.¹⁸

Similarly, in December 2009, General Deepak Kapoor, India’s army chief and chair of its chiefs of staff, revealed that the military has been working on a new doctrine and seeks major new capabilities.¹⁹ India’s armed forces are to be able to mobilize and deploy for war very quickly and to be able to fight a two-front war (against Pakistan and China). India also wants to be able to project military power from the Persian Gulf to the Malacca Strait (which connects the Indian Ocean to the Pacific).

One area of Indian official concern has been the help China has offered to Pakistan in developing its missile, nuclear weapons, and nuclear energy capacities. This was particularly clear in the letter that Indian Prime Minister Atal Bihari Vajpayee wrote to President Bill Clinton justifying India’s May 1998 nuclear tests, citing the “overt nuclear weapon state on our borders, a state which committed armed aggression against India” and claiming that “an atmosphere of distrust persists” and that “to add to the distrust that country has materially helped another neighbour of ours to become a covert nuclear weapons state.”²⁰ Most recently, Indian officials have expressed their concern over China’s proposed sale of two nuclear power reactors to Pakistan, to add to the two already provided.²¹

Chinese officials, for their part, have repeatedly maintained that China poses no threat to India. For example, in 1982, Chinese leader Deng Xiaoping declared, “There does not exist a threat to India from China, nor one to China from India.”²² In the nuclear arena, China has repeatedly reiterated that it has a policy of no-first-use of nuclear weapons and has argued that this should put Indian

18. Mehta 2009.

19. *The Times of India* 2009.

20. *New York Times* 1998.

21. *Deccan Herald* 2014.

22. Ma 2000, 375–81.



Pakistan Army's Al-Khalid tank on display at the International Defence Exhibition and Seminar (IDEAS) held at Expo Center, Karachi, Pakistan, in November 2012. (Guy Martin/Wikipedia, November 2012).

fears to rest. China's assurances do not seem to suffice for some Indian policy-makers.

There is no doubt, however, about China's military support for Pakistan. Weapons supply began during the 1965 India–Pakistan war, i.e., soon after the China–India war, when Pakistan was subject to an arms embargo by its major supplier, the United States. China expanded this relationship in the early 1970s to provide assistance to Pakistan's nuclear weapons and missile programs. A.Q. Khan has revealed that, as part of an agreement in 1976 between Mao Zedong and Prime Minister Zulfikar Ali Bhutto, China in 1982 supplied Pakistan with fifty kilograms of highly enriched uranium, enough for two nuclear weapons, along with the design drawings for a nuclear weapon that China had already tested.²³

As noted earlier, China is now a major arms supplier to Pakistan and is engaging with Pakistan in joint production of Chinese-designed jet fighters. The two air forces have held joint air exercises, in Pakistan in 2011 and in China in 2013 to develop coordination and interoperability, i.e., training for joint combat operations.²⁴ The latter exercise was reported to be the first joint air force exercise in Chinese air space.

Naval cooperation between Pakistan and China has also grown dramatically. China began supplying Pakistan with ships in the 1970s and over the past decade has helped Pakistan build Chinese-designed ships. In 2011, Pakistan's defense minister declared, "We would be...grateful to the Chinese government if a naval base is...constructed at the site of Gwadar for Pakistan."²⁵ China has

23. Smith and Warrick 2009.

24. *The News* 2013.

25. Haider 2011.

already built a major port on the Arabian Sea for Pakistan at Gwadar, in Balochistan. In 2013 China took management control of the port.²⁶ There are plans to build rail and road links from Gwadar across the length of Pakistan to Western China.²⁷ The port and transport links could offer China a path to the oil and gas fields of the Middle East that would be less vulnerable to interdiction than the U.S.–dominated sea-lanes that cross the Indian Ocean and skirt the Pacific Ocean.

The United States in Asia

The United States has been part of the larger context of the Pakistan–India–China relationship for sixty years. Starting in the late 1940s, the U.S. goal was to have India join the U.S. side in the cold war against the Soviet Union and, in time, China. The CIA and the State Department argued that India was the only potential regional power that could “compete with Communist China for establishing itself as the dominant influence in south-eastern Asia.”²⁸ Indian leaders from that period did not embrace this vision.

Pakistan, on the other hand, was happy to accept a role in U.S. plans for South Asia. It built an enduring relationship with the United States, starting in 1954. The United States provided economic and military aid and Pakistan provided military bases, prepared to be the frontline in a possible war with the Soviet Union, and supported America in international fora.

The United States tried again with India during the early 1960s under President John F. Kennedy. Even before becoming president, Kennedy had argued that the United States and its Western allies put together a package of aid and support “designed to enable India to overtake the challenge of Communist China.”²⁹ But these efforts to enlist India in support of U.S. policies, in particular the effort to get India to counter China, were frustrated. When Kennedy and Nehru met in 1961, they apparently clashed over Vietnam and nuclear disarmament among other things, and it is suggested that “particularly frustrating to US officials was Nehru’s refusal to accept the mantle of leadership in south-east Asia.”³⁰

Despite the setback to Kennedy’s ideas, the United States continued to think about India as a counter to China. George Perkovich has documented how, in 1964, amid American concerns about China’s first nuclear weapons test, senior officials in the U.S. State Department and the Pentagon went so far as to consider “the possibilities of providing nuclear weapons under US custody” to India.³¹ Perkovich reveals that the plan envisaged helping India modify aircraft to drop nuclear weapons, training crews, providing dummy weapons for practice runs, and furnishing information on the effects of nuclear weapons for use in deciding targets. At the same time, the U.S. Atomic Energy Commission was

26. Raza 2013.

27. *Dawn* 2013.

28. McMahon 1994.

29. *Ibid.*, 273.

30. *Ibid.*, 281.

31. Perkovich 1999.

considering helping India with “peaceful nuclear explosions,” which would involve the use of U.S. nuclear devices under U.S. control being exploded in India.

It was not just the Americans who thought this way. Homi Bhabha, the founder and head of India’s Department of Atomic Energy, in 1965 urged the United States to give India a nuclear device or just the blueprints for one to help it catch up with China’s nuclear development. But no plans about supplying U.S. nuclear weapons to India ever came to fruition.³²

Increasingly bogged down in Vietnam and worried that its future wars in the third world would be even more difficult if nuclear weapons continued to spread, the United States shifted its focus to stemming the spread of nuclear weapons. It joined with the Soviet Union, which had similar worries, in crafting a nuclear nonproliferation treaty. The treaty was negotiated in 1968 and came into force in 1970. Around the same time, the United States began to improve its relations with China. India’s 1974 nuclear test further eroded hopes of a U.S.–India nuclear relationship as a new regime of nonproliferation restrictions took shape.

As the cold war ended, the United States determined that no other power would be allowed to emerge as a potential rival. The now infamous 1992 draft Defense Planning Guidance that Paul Wolfowitz, then undersecretary of defense for policy, prepared for defense secretary Dick Cheney declared,

Our first objective is to prevent the re-emergence of a new rival. This is a dominant consideration underlying the new regional defense strategy and requires that we endeavor to prevent any hostile power from dominating a region whose resources would, under consolidated control, be sufficient to generate global power.³³

In particular, the document noted, “we must maintain the mechanisms for deterring potential competitors from even aspiring to a larger regional or global role.”³⁴ In other words, the geopolitical order must be stabilized and the United States maintain its relative superiority not just globally, but even in the different regions of the world.

China again became the focus of attention as it increasingly became a major economic and political force in international affairs. This time, however, the story was to be different. India had new leaders. Prime Minister Vajpayee and the Hindu right-wing Bharatiya Janata Party had long believed that Nehru was mistaken to pursue nonalignment in the cold war and had argued that India should have made common cause with the United States against communism and against China.

The new direction in U.S.–India relations became clear in March 2000, when President Clinton visited India. The joint statement that he issued with Prime Minister Vajpayee declared, “In the new century, India and the United States will be partners in peace, with a common interest in and complementary responsi-

32. Ibid., 94–96.

33. *New York Times* 1992. The Wolfowitz document was leaked to the press.

34. Ibid.

bility for ensuring regional and international security. We will engage in regular consultations on, and work together for, strategic stability in Asia and beyond.”³⁵ The shared goal of “strategic stability in Asia” can be read as India finally accepting U.S. ideas about what should be the relative balance of power in Asia, and, in particular, U.S. concerns that a rising China could in time constrain the exercise of U.S. power.

The “new direction” identified in Clinton’s March 2000 visit was taken up concretely in the “Next Steps in Strategic Partnership” agreement of January 2004. This announced that the United States and India would “expand cooperation” in civilian nuclear activities, civilian space programs, and high-technology trade, as well as on missile defense.³⁶ It is worth pointing out the obvious, namely, that cooperation in this context is a euphemism for the United States providing India access to aid, information, and technology in these areas.

The purpose of the agreement, according to a senior U.S. official, was “to help India become a major world power in the 21st century.” The official went on to specify, “We understand fully the implications, including military implications, of that statement.”³⁷ The U.S. deputy State Department spokesman explained further that the United States was ready to “help India” with command and control, early warning systems, and missile defense.

Almost a decade later, this is still the agenda, despite the transition from President George W. Bush to President Obama. The September 2013 *U.S.–India Joint Declaration on Defense Cooperation* says, “India–United States defense cooperation and engagement has increased significantly over the past decade, in step with the overall deepening of India–U.S. relations. We continue to work toward achieving the full vision of expanded defense cooperation set forth in the 2005 New Framework Agreement.”³⁸ The Declaration broke new ground by asserting that “The United States and India share common security interests and place each other at the same level as their closest partners. This principle will apply with respect to defense technology transfer, trade, research, co-development and co-production for defense articles and services, including the most advanced and sophisticated technology.” This lays the basis for the sale to India and joint production in India of advanced U.S. conventional weapon systems.

In 2013, India also committed to join a major U.S.–led military exercise focused on the Pacific Ocean, a role it had previously refused. The U.S.–India Joint Statement issued by the White House after the visit by Prime Minister Manmohan Singh in September 2013 highlighted that President Obama “welcomed India’s decision to participate in the Rim of the Pacific (Rimpac) naval exercise hosted by U.S. Pacific Command in 2014.”³⁹ Held every two years in the Pacific Ocean around Hawaii, Rimpac is described as the world’s largest naval exercise,

35. Joint Statement 2000.

36. *United States–India Joint Statement on Next Steps in Strategic Partnership*, 17 September 2004. Available at 2001-2009.state.gov/r/pa/prs/ps/2004/36290.htm (accessed 24 February 2014).

37. *AFP* 2005.

38. The White House 2013 (Declaration).

39. The White House 2013 (Statement).

involving over twenty countries (China has never been a participant).⁴⁰

Increased naval cooperation between the United States and India comes in the wake of the 2012 Obama administration decision that U.S. military planning and deployments should “rebalance toward the Asia–Pacific region” and that the United States should “expand our networks of cooperation with emerging partners throughout the Asia-Pacific to ensure collective capability and capacity for securing common interests...[because] China’s emergence as a regional power will have the potential to affect the U.S. economy and our security in a variety of ways.”⁴¹ The 2012 U.S. Defense Department planning document, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, explains that as part of this effort “the United States is also investing in a long-term strategic partnership with India to support its ability to serve as a regional economic anchor and provider of security in the broader Indian Ocean region.”⁴²

The Nuclear Arms Race in Asia

One aspect of the arms race between Pakistan, India, China, and the United States involves making material for new nuclear weapons: highly enriched uranium (HEU) and plutonium. The race is confined to India and Pakistan, who are believed to be making as much as they can within their technical limits and resource limits and expanding production capacity. At the end of the cold war, the United States announced an end to production of these materials for weapons, and China is believed to have ended production at about the same time, but has made no official declaration to this effect.

As of 2013, it is estimated that the United States has about 7,700 operational nuclear warheads and another 3,000 awaiting dismantlement, which is what remains of the over 66,500 warheads that the United States has produced since 1945.⁴³ The United States has stockpiles of almost 600 tons of HEU and almost 90 tons of plutonium.⁴⁴ The vast size of these stocks is evident by noting that a simple nuclear weapon can be made with less than twenty kilograms of HEU or with about five kilograms of plutonium.

While, on the one hand, the United States is reducing the number of weapons and the stocks of HEU and plutonium, it is also engaged in a large-scale modernization program of nuclear warheads and delivery systems. The Obama Administration has announced plans for spending “well over \$100 billion” over the coming decade on modernizing its nuclear weapons delivery systems, including new missiles, new submarines, and new bombers and another \$80 billion on modernizing the nuclear weapons research development and production complex.⁴⁵ The United States is also developing conventionally armed long-range ballistic missile systems to be able to strike almost anywhere in the world within thirty minutes and also missile defenses to blunt the attack from

40. U.S. Navy 2012.

41. U.S. Department of Defense 2012.

42. *Ibid.*, 2.

43. Kristensen and Norris 2013, 75–81.

44. International Panel on Fissile Materials 2013.

45. The White House 2010.

possible enemies. The United States recognizes that these programs may drive an arms race with China, which sees the United States seeking the ability both to attack China with conventional weapons, including destroying or damaging China's nuclear weapons, and to intercept in flight possible Chinese nuclear missiles that may survive such an attack.⁴⁶

The Chinese nuclear arsenal is estimated to contain 250 warheads.⁴⁷ According to public reports, China's production of fissile material for weapons stopped in the early 1990s. China is estimated today to have less than two tons of plutonium for weapons in its stockpile (including the material in weapons), and about sixteen tons of HEU.⁴⁸ If these estimates are at all accurate, China may not be able to produce more than perhaps 1,500 nuclear weapons.

While not increasing the size of its arsenal, China is engaged in a program of modernizing it in an effort to reduce the apparent vulnerability of its nuclear forces. China is moving from liquid-fueled, land-based mobile missiles such as the DF-3A to the solid-fueled DF-31A missiles, and increasing its reliance on ballistic missile submarines by building additional submarines.⁴⁹

India's nuclear arsenal is estimated to be about 110 warheads as of 2013.⁵⁰ This estimate is based on plutonium that is believed to have come primarily from two nuclear reactors located at the Bhabha Atomic Research Centre near Mumbai, one of which (Cirus) was shut down after fifty years of operation at the end of 2010. Together, these reactors could have produced over half a ton (500+ kilograms) of plutonium, sufficient for over one hundred simple nuclear weapons. (The plutonium produced in these reactors is called weapon-grade and is preferred by nuclear weapons designers because it contains only a low proportion of the radioactive isotope plutonium-240.) India also has a rapidly expanding uranium enrichment program, but this is believed to be used to produce fuel for nuclear submarines.

India has also accumulated an estimated five tons of reactor-grade plutonium, as of 2013.⁵¹ Reactor-grade plutonium can also be used to make nuclear weapons but since it contains higher proportions of the radioactive isotope plutonium-240 than weapon-grade plutonium weapon designers consider it to be less desirable. An estimated eight kilograms of such plutonium is needed to make a simple nuclear weapon. India has enough plutonium from this source alone for an arsenal of over 600 weapons. Whether it intends to use this stockpile to make weapons is not clear, but this "surge potential" will likely be a factor in the strategic calculations of Pakistan and China.

For its part, Pakistan is believed to have about 120 nuclear warheads, as of 2013.⁵² Its stockpile contains an estimated three tons of HEU and 150 kilograms

46. U.S. Department of Defense 2010.

47. Kristensen and Norris 2013, 75–81.

48. International Panel on Fissile Materials 2013.

49. Kristensen and Norris 2013.

50. Ibid.

51. International Panel on Fissile Materials 2013.

52. Kristensen and Norris 2013, 75–81.

of plutonium (including the material in weapons).⁵³ Yet, Pakistan has been building new production facilities that will allow it to significantly increase the size of its nuclear arsenal. In particular, Pakistan has been building two additional nuclear reactors at the site where there are already two operating nuclear reactors to make plutonium for weapons. It has also been constructing and expanding facilities to make fuel for these new reactors and to separate the plutonium that will be produced in them. Pakistan is believed to have the fastest growing nuclear arsenal in the world.

The other arms race is in the arena of delivery vehicles. India started sea trials for its first nuclear-powered submarine in 2013.⁵⁴ There are plans to deploy several of these.⁵⁵ India joins the United States, Russia, the United Kingdom, France, and China in the club of those owning such nuclear-armed, nuclear-powered submarines. In 2008, India carried out its first successful underwater launch of a 700-kilometer-range ballistic missile, *Sagarika*, intended for the submarine⁵⁶ and India is considering building a nuclear-powered aircraft carrier.⁵⁷

India is also developing an array of land-based missiles with frequent tests of a variety of missile systems. India's newest missile, the 5,000-kilometer-range *Agni-V*, had its second successful test in September 2013.⁵⁸ Reports indicate that each missile will carry three warheads.⁵⁹ The *Agni-VI*, planned to begin testing in 2014, is said to be designed for a range of over 8,000 kilometers and to carry up to ten warheads.⁶⁰ Development is underway to make both these missiles capable of being launched from land or from submarines. The stated purpose of having such long-range missiles is to be able to attack Chinese cities.

India has been testing components of a ballistic missile defense system aimed at intercepting Pakistani ballistic missiles. In 2009, it carried out the third test of a missile interceptor.⁶¹

Responding to India's pursuit of missile defenses, the director of Arms Control and Disarmament Affairs at Pakistan's Strategic Plans Division, which is responsible for managing the nuclear-weapons complex and policies, warned a decade ago that possible responses could be for Pakistan to build more missiles, including cruise missiles (which cannot be easily intercepted by a ballistic missile defense system), and build more warheads, develop decoys and multiple warhead missiles, and move to an alert deployment posture.⁶² This seems to have come to pass.

In addition to an array of nuclear capable ballistic missiles, with ranges over 2,000 kilometers, Pakistan has in recent years increasingly emphasized shorter

53. International Panel on Fissile Materials 2013.

54. Nuclear Threat Initiative (NTI) 2013.

55. *BBC News* 2009.

56. Subramanian 2008.

57. Pandit 2013.

58. Mallikarjun 2013 (Nuclear).

59. Mallikarjun 2013 (Agni).

60. Rout 2012.

61. *AFP* 2009.

62. Banuri 2004.

range missiles that could penetrate a possible Indian missile defense; in particular it has been testing air-launched, ground-launched, and sea-launched cruise missiles.⁶³ After a flight test in 2012, the 700-kilometer *Babur* ground-launched cruise missile was described as a “low flying, terrain hugging missile with high maneuverability, pin point accuracy and radar avoidance features...[that] can carry both nuclear and conventional warheads and has stealth capabilities... [and is] launched from a state of the art multi tube Missile Launch Vehicle.”⁶⁴ The 350-kilometer, air-launched *Raad* cruise missile was also tested in 2012.⁶⁵ Pakistan also has been testing *Nasr*, a 60-kilometer-range, nuclear-capable missile intended for use on the battlefield against conventional ground forces.⁶⁶

Pakistan is reportedly seeking to build its own nuclear submarines.⁶⁷ Pakistan already has a naval strategic forces command charged to “exercise technical, training, and administrative control over the strategic delivery systems,” but it is not yet known if this command has been issued nuclear warheads like the air force and the army strategic force commands.⁶⁸

Conclusion

The physicist Albert Einstein once observed, “You cannot simultaneously prevent and prepare for war.” While indulging in much talk about their desire for peace, what the leaders of the countries we have been describing are really involved in is preparing for war. The preparations of war are both at the level of building and acquiring weapons as well as conducting war games and practice drills to ensure that what is envisioned at the planning level is actually carried out.

War, even if at a scale much smaller than what is the maximum possible, would lead to catastrophic consequences. A decade ago, along with A.H. Nayyar and Matthew McKinzie, we estimated that the use of just Hiroshima-sized nuclear weapons on the five largest cities in Pakistan and India each would lead to a total of 2.9 million deaths with an additional 1.5 million severely injured.⁶⁹ A larger-scale nuclear war between India and Pakistan, with each country using fifty Hiroshima-sized atom bombs on urban areas, would produce so much smoke from the resulting fires that it would plunge the Earth to temperatures colder than those of the Little Ice Age of the fourteenth to nineteenth centuries, result in massive ozone depletion, shorten the growing season around the world, and threaten the global food supply.⁷⁰ Naturally the impact on the other countries in the region, Nepal, Sri Lanka, Bhutan, and Bangladesh, would be drastic. These are but the impacts of a war that involves only Pakistan and India. If the much larger arsenals—with far more powerful weapons—of China and

63. *Defense News* 2012.

64. *Express Tribune* 2012 (c).

65. *Express Tribune* 2012 (b).

66. *Express Tribune* 2012 (a).

67. Ansari 2012.

68. Luongo and Salik 2007.

69. McKinzie et al. 2001. 185–96.

70. Robock and Toon 2012.

the United States were to be used, the extent of destruction would be unimaginably large.

Even if such a war never takes place, preparing for such war imposes a tremendous human cost by diverting scarce resources from other purposes such as education, medical care, sanitation, and the provision of clean energy. There is no need here to compare budgetary allocations for war with allocations for any number of development-related programs in any of these countries to point out the obvious: all of these governments spend a great deal more on their militaries than on the needs their populations are truly faced with. All the talk about desiring the economic well-being of the people in these countries means little in the face of the stupendous effort put into building this enormously destructive military machinery. These leaders would do well to remember the apocryphal Irish saying to the lost traveler: "If that's where you want to go, sir, I wouldn't start from here."

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