# PAKISTAN

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Since its nuclear tests in May 1998, Pakistan has been rapidly developing and expanding its nuclear arsenal. It is producing highly enriched uranium (HEU) and plutonium—the key ingredients for nuclear weapons—and is increasing its capacity to produce plutonium by building new production reactors. It is also testing and deploying a diverse array of nuclear-capable ballistic and cruise missiles, with ranges from 60 km to 2000 km.

Even though Pakistan is still developing its nuclear arsenal, there is some modernization taking place. Pakistan is moving from an arsenal of weapons based wholly on HEU to greater reliance on lighter and more compact plutonium-based weapons. The shift to plutonium based weapons is being made possible by a rapid expansion in plutonium production capacity, with two production reactors under construction to add to the two reactors that are currently operating. Pakistan is also moving from aircraft-delivered nuclear bombs to nuclear-armed ballistic and cruise missiles, and from liquid-fueled to solid-fueled medium range missiles. Pakistan has received direct assistance from China for both its nuclear weapons and missile programmes, and from North Korea for its missile programme.

There is almost no information about the funding of Pakistan's nuclear weapons programme and little useful information about Pakistan's overall military spending. It is clear, however, that a significant fraction of Pakistan's financial resources go to its nuclear weapons programme, but that this cost is not a large share of its overall military spending. Pakistan's military spending is subsidized by large amounts of military aid from the United States and subsidized arms sales from China. Pakistan also receives large amounts of international aid to help it meet basic social and economic development needs.

## STATUS OF PAKISTAN'S NUCLEAR FORCES

Estimates of Pakistan's nuclear weapons stockpile have grown as it continues to produce fissile material for nuclear weapons and to expand its fissile material production capacity, especially for plutonium. According to a secret US cable published by Wikileaks, US officials suggested in 2008 that Pakistan was "producing nuclear weapons at [a] faster rate than any other country in the world."[1]

As of 2011, the US government estimates Pakistan's stockpile to range from 90 to over 110 weapons.[2] This compares to early 2008 US estimates of a Pakistani arsenal of 70 to 80 weapons, but possibly ranging from 60 to 90 weapons. These government estimates are similar to those made by independent analysts (see Table 1).[3]

There is little information on the yields of Pakistan's nuclear weapons. The yields of the six nuclear weapon tests carried out on 28 and 30 May 1998 are disputed, with Pakistan claiming explosive yields of tens of kilotons, while independent seismologists estimate the total yields were about 10 kt and 5 kt for the tests on 28 May and 30 May respectively.[4]

There is also little known about Pakistan's weapon designs, although Pakistan is believed to have received in the early 1980s a first generation Chinese weapon design that used HEU.[5] The nuclear tests in 1998 may all have used HEU for the solid or hollow shell (known as a 'pit') of fissile material that undergoes the explosive nuclear chain reaction. Today, Pakistan could use HEU or plutonium pits, or a combination of both in 'composite' pits. The use of plutonium allows for the production of lighter and more compact nuclear warheads, more suitable for use in ballistic and cruise missile warheads. Pakistan may also have developed more advanced 'boosted' weapons, which inject tritium gas into the pit just before it explodes to increase the fraction of the fissile material that undergoes fission and so

**Table 1: Growth of Pakistan's nuclear arsenal, 1998–2011**

| Year | 1998 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Estimated no. of weapons | 2 | 8 | 14 | 20 | 26 | 32 | 38 | 44 | 50 | 60 | 70 | 80 | 90 | 100 |

*Source: Adapted and updated from Robert S. Norris and Hans Kristensen, "Global Nuclear Weapons Inventories, 1945–2010,"* Bulletin of the Atomic Scientists*, July/August 2010, Vol. 66, No. 4, pp. 77–83.*

significantly increase the explosive yield of the nuclear weapon. Pakistan is not believed to have developed thermonuclear weapons (hydrogen bombs).

### Delivery systems

Pakistan is still in the process of developing a range of delivery systems for its nuclear weapons. Pakistan has a number of short-range, medium, and longer-range road-mobile ballistic surface-to-surface missiles (SSMs) in various stages of development. It also is moving from liquid-fueled missiles to solid-fueled missiles. Pakistan has received assistance from North Korea and China with its missile programme.

Pakistan Army's Strategic Force Command has tested both short- and long-range missiles. The *Abdali* missile, with a range less than 200 km, is a simple solid-fueled missile that Pakistan began testing in 2002. A March 2011 test was described as "part of the process of validation and technical improvements" for the missile, which Pakistan's Chairman of the Joint Chiefs of Staff Committee described as providing "an operational level capability, additional to the strategic level capability, which Pakistan already possess."[6]

In January 2003, the liquid-fueled *Ghauri* missile (sometimes called *Hatf V*) was inducted into the army. It is believed to be derived from the Democratic People's Republic of Korea (DPRK)'s *No-Dong* missile. Work on the *Ghauri* missile started in the early 1990s and the first test was carried out in 1998. Pakistan may have received assistance from DPRK in developing this missile.

The 750 km-range solid-fueled *Shaheen-I* was handed over to the military in March 2003.[7] It is believed to be derived from the Chinese M-11 missile and US officials have suggested China may have provided Pakistan with M-11 missile components, 34 intact M-11 missiles, and "blueprints and equipment … to build a plant for making missiles," as well as technical assistance with further development of this missile.[8]

Pakistan has developed a second generation of ballistic missile systems over the past five years. *Shaheen-II* is a 2000 km-range solid-fueled missile, first tested in 2004. In April 2008, the Pakistan Army's Strategic Force Command carried out a training launch of *Shaheen-II* that was reported to have "validated the operational readiness of a strategic missile group equipped with the *Shaheen II* missile."[9] This suggests that missile may have entered service.

In 2011, Pakistan carried out the first test of a possible battlefield nuclear missile, the 60 km-range *Nasr* missile, described in an official statement as able to carry "nuclear warheads of appropriate yield" and as "consolidating Pakistan's deterrence capability at all levels of the threat spectrum."[10]

Pakistan is also developing a nuclear-capable ground-launched cruise missile (*Babur*) and an air-launched cruise missile (*Ra'ad*) with ranges of about 600 km and 350 km respectively. Pakistan began testing these missiles in 2005 and 2007 respectively, with the most recent tests being conducted in 2011.[11] The 2005 India-Pakistan Agreement on Pre-Notification of Flight Testing of Ballistic Missiles commits the two states to give 72 hours notice before a ballistic missile flight test and to not test missiles close to their borders. It does not cover cruise missiles.

Despite frequent media reports, the capabilities of Pakistan's nuclear weapon delivery systems, and the current status of their technical development and operational readiness is unclear. Table 2 presents one estimate by independent analysts.

There is little public information about the storage and deployment of Pakistan's nuclear weapons. It is believed that "missiles are not mated with warheads and the physics packages (the fissile cores) are not inserted into the warheads themselves."[12] Reports suggest that while warheads are kept in component form, possibly by "isolating the fissile 'core' or trigger from the weapon and storing it elsewhere… all the components are stored at military bases."[13]

**Table 2: Pakistan's nuclear weapon delivery systems, 2011**

| Delivery System | Range | Deployment |
|---|---|---|
| **Aircraft** | | |
| Aircraft F-16A/B | 1,600 | 1998 |
| Mirage V | 2,100 | 1998 |
| **Ballistic missiles** | | |
| Abdali (Hatf-2) | 180 | (2012) |
| Ghaznavi (Hatf-3) | 400 | 2004 |
| Shaheen-1 (Hatf-4) | >450 | 2003 |
| Ghauri (Hatf-5) | 1200 | 2003 |
| Shaheen-2 (Hatf-6) | 2000 | (2011) |
| Nasr (Hatf-9) | 60 | (2014) |
| **Cruise missiles** | | |
| Babur (Hatf-7) | 600 | (2011) |
| Ra'ad (Hatf-8) | 350 | (2013) |

*Source: Hans Kristensen and Robert S. Norris, "Pakistan Nuclear Forces 2011,"* Bulletin of the Atomic Scientists*, Volume 67, No. 4, pp. 91-99.*

The locations of Pakistan's nuclear weapons storage and deployment are not known with great confidence. Eight possible sites have been suggested (Table 3).

### Fissile materials

There is no official information on Pakistan's fissile material production sites—although Pakistan and India each year exchange lists of nuclear facilities as part of their 1988 Agreement on the Prohibition of Attack against Nuclear Installations and Facilities.[14] These lists are not made public, however. They may include both military and civilian nuclear facilities.

| Table 3: Pakistan's nuclear weapon storage and deployment sites | | | |
|---|---|---|---|
| **Facility name/location** | **Province** | **Weapons** | **Function** |
| Fatejhang National Defense Complex | Punjab | SSM | Missile development and potential warhead storage capability |
| Masroor Weapons Depot | Sindh | Various | Potential storage of bombs for Mirage Vs at Masroor Air Base, and/or warheads for SSMs |
| Sargodha Weapons Depot | Punjab | Various | Potential storage site for bombs for F-16s at nearby Sargodha Air Base, and warheads for SSMs |
| Shanka Dara Missile Complex | Punjab | SSM | Missile development and potential warhead storage capability |
| Near Quetta Air Base | Balochistan | Bombs | Potential storage site with underground facilities in high-security weapons storage area |
| Wah Ordnance Facility | Punjab | Various | Possible warhead production, disassembly and dismantlement facility |
| Unknown air force facility | ? | Bombs | Central air force storage facility with bombs for F-16s at F-16s at Sargodha Air Base, and Mirage Vs at Kamra Air Base |
| Unknown army facility | ? | SSM/GLCM | Central army storage facility with warheads for SSMs and Babur cruise missiles |

*Source: Robert S. Norris and Hans Kristensen, "Worldwide Deployments of Nuclear Weapons, 2009,"* Bulletin of the Atomic Scientists*, November/December 2009.*

Pakistan has developed an extensive nuclear infrastructure that allows it to produce both HEU and plutonium for weapons. This includes capacity for uranium mining, uranium enrichment, nuclear reactor fuel fabrication, nuclear reactor construction, and spent fuel reprocessing for plutonium recovery. Table 4 presents one list of Pakistan's fissile material production-related sites compiled from open sources. While the histories and operating capacities of these facilities are not clear, it is well known that Pakistan has been producing HEU for nuclear weapons since the early 1980s and producing plutonium for weapons since the late 1990s.

Accurate estimates about Pakistan's production of HEU for its nuclear weapon programme are limited by uncertainty about Pakistan's enrichment capacity and the operating history of its centrifuge plants at Kahuta and Gadwal.[15] It is estimated that, as of 2011, Pakistan could have a stockpile of about 2750 kg of weapon-grade (90%-enriched) HEU and may be producing about 150 kg of HEU per year.[16] Assuming that about 20 kg of HEU is required per warhead, Pakistan's current stockpile would be sufficient for about 140 weapons. An additional 100 kg may have been consumed in Pakistan's six nuclear weapon tests in 1998.

As of the beginning of 2012, Pakistan continues to expand its capacity to produce weapons plutonium. The *Khushab-I* plutonium production reactor, a heavy-water-moderated, light-water-cooled, natural-uranium-fueled reactor with a capacity of about 40–50 MWt, has been operating since 1997-1998. The *Khushab-II* reactor started operation in late 2009 or early 2010. Work on a third production reactor at the site started in 2005 and is nearing completion. Construction started in early 2011 on a fourth reactor. All these reactors are believed to be of similar power and to be able to produce about 6–12 kg per year of weapons plutonium depending on how efficiently they are operated. As of the start of 2012, Pakistan is estimated to have produced a total of about 140 kg of plutonium.[17] Assuming 5 kg per warhead, this would be sufficient for almost 30 warheads.

Pakistan reprocesses the spent fuel from the *Khushab* reactors at the Rawalpindi New Labs facility, which has two reprocessing plants, each with an estimated capacity of 10–20 tons per year of spent fuel.[18]

### Infrastructure and organization

Pakistan has a growing nuclear weapons research, development, and production infrastructure. It is managed by the military-run Strategic Plans Division and overseen by a National Command Authority (NCA) set up in February 2000 by General Pervez Musharraf. The NCA has responsibility for policy concerning the development and use of Pakistan's nuclear weapons. The NCA is chaired by the Prime Minister, and includes the ministers of foreign affairs, defence, and interior, the chairman of the Joint Chiefs of Staff committee, the military service chiefs, the director-general of Strategic Plans Division, and technical advisers.

The Strategic Plans Division (SPD) has responsibility for strategic weapons development and nuclear weapons planning and operations, as well as security of the nuclear complex. It also has an arms control group. The total number of staff of the SPD and the various programmes it is responsible for is uncertain. A 2011 report suggested a total of about 70,000 professional staff in the entire strategic weapons complex.[19] A February 2010 US diplomatic cable released by Wikileaks cites a Russian Foreign Ministry official's claim that "there are 120,000–130,000 people directly involved in Pakistan's nuclear and missile programmes, working in these facilities and protecting them."[20] A former SPD official has indicated that the organization has a division of 9000–10,000 people responsible just for the security of the nuclear weapons complex.[21]

The nuclear weapons development and production infrastructure managed by SPD has three broad divisions: the A.Q. Khan Research Laboratory (Kahuta) produces enriched uranium; the Pakistan Atomic Energy Commission is responsible for uranium mining, fuel fabrication, reactor construction and operation, and spent fuel reprocessing to produce plutonium; and the National Development Complex is responsible for weapons and delivery system research and production.[22] These three bodies are managed by the National Engineering and Scientific Commission.

Pakistan's nuclear weapons are assigned to its Army Strategic Force Command, which has responsibility for ballistic and cruise missiles, and the Air Force Strategic Command, which deals with nuclear armed aircraft. Pakistan has a Naval Strategic Force Command, charged with exercising "technical, training, and administrative control over the strategic delivery systems," but it is not known if this command has yet been issued any nuclear weapons.[23] Pakistan may seek to put nuclear-armed cruise missiles on some of its submarines, or modify existing naval missiles to be nuclear capable.[24]

**Table 4: Pakistan's fissile material related facilities**

| Location | Facility Type | Material |
|---|---|---|
| Dera Ghazi Khan | Uranium mine, ore concentration plant, conversion plant | Uranium |
| Kahuta | Enrichment (Khan Research Laboratories) | HEU |
| Gadwal (Wah) | Enrichment (secondary plant) | HEU |
| Chaklala | Enrichment (pilot plant) | HEU |
| Sihala | Enrichment (pilot plant) | HEU |
| Golra | Enrichment (pilot plant) | HEU |
| Khushab–I | Heavy-water reactor 40–50MWt | Plutonium |
| Khushab–II | Heavy-water reactor 40–50MWt | Plutonium |
| Khushab–III | Heavy-water reactor 40–50MWt (under construction) | Plutonium |
| Khushab–IV | Heavy-water reactor 40–50MWt (under construction) | Plutonium |
| Chashma (Khushab) | Reprocessing facility (under construction) | Plutonium |
| Rawalpindi | Reprocessing facility–I (New Laboratories) | Plutonium |
| Rawalpindi | Reprocessing facility–II (New Laboratories)) | Plutonium |
| Khushab–I and II | Tritium production | Tritium |
| Chashma (Kundian) | Reactor fuel-fabrication plant | |
| Multan | Heavy-water production facility | |
| Khushab | Heavy-water production facility | |

*Source: Adapted and updated from* Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks, *International Institute of Strategic Studies, London, 2007.*

## ECONOMICS

Pakistan releases no information on its nuclear weapon budget. Historically, the government has not even provided a breakdown of its overall military spending plans to parliament as part of the annual national budget. The annual military budget was debated in parliament in 2008 for the first time since 1965.[25]

The secrecy about the history and scale of the nuclear weapon and missile programmes, the extent of external technical and material support, and the effect of indirect support through military and economic aid means the full cost of Pakistan nuclear weapons programme cannot be estimated with any reliability. Pakistan's nuclear weapons programme is a state programme. Private companies are involved to the extent that they serve as agents to procure materials and technologies from the international market, including the black market, which would not otherwise be available for sale to Pakistan because of export controls that seek to prevent nuclear proliferation.

In 2001, retired Major-General Mahmud Ali Durrani suggested that Pakistan's annual expenditure on "nuclear weapons and allied programs" was about $300–400 million (USD) and that Pakistan "will now need to spend enormous amounts of money for the following activities: a) a second strike capability; b) a reliable early warning system; c) refinement and development of delivery systems; d) command and control systems."[26] Citing an earlier estimate by Rammanohar Reddy for the cost of nuclear weapons development by India, General Durrani also suggested that Pakistan might need to spend about 0.5% of gross domestic product (GDP) for a period of at least ten years on such nuclear weapons activities.[27]

A significant increase in nuclear weapon spending after 2000 (when SPD had been established) was affirmed by Pervez Musharraf, who held the positions of Chief of Army Staff and President. In 2004, in a speech at an army garrison, General Musharraf claimed that during the previous three to four years the government had spent more on the nuclear weapons programme than in the previous 30 years. [28] This would be consistent with the large expansion in fissile material production capabilities and new missile system development after 2000. Musharraf indicated that the spending increase was part of a 15 year plan.

A more recent estimate suggests Pakistan's nuclear spending could be about $800 million per year as of 2011, and possibly as much as $2 billion per year if health and environmental costs are included—and projected to rise significantly because of Pakistan's expanding nuclear programme.[29] This estimate relies on an unsubstantiated 2009 Pakistani newspaper report that annual spending on "core classified development programs" was not more than Rs. 10 billion and that overall the "strategic organisations of the country... got less than 0.5 per cent of the GDP."[30]

Assuming that Pakistan spends on the order of 0.5% of GDP on its nuclear weapons, and using purchasing power parity rather than market exchange rates to convert Pakistani rupees to US dollar equivalents, suggests that in 2009 nuclear weapon programme spending amounted to about $2.2 billion a year (the GDP was about $441 billion in purchasing power parity, and $162 billion in nominal terms).[31] For 2011, the nominal GDP was $211 billion, about $484 billion in purchasing power parity terms. This would suggest that in 2011 Pakistan spent about $2.4 billion on its nuclear weapons programme.

For Pakistan to spend about $2.5 billion per year on its nuclear weapons is feasible. The annual official military spending for 2011–2012 was budgeted at Rs. 444.2 billion, a 30% increase from the previous year.[32] Reports suggest this military budget does not include military pensions and various other direct and indirect costs associated with the armed forces and that including these costs would increase Pakistan's total military budget for 2011 to around Rs. 675 billion (about $21 billion, using current purchasing power parity exchange rates).[33] This would suggest that, in purchasing power terms, as of 2011, Pakistan spent the equivalent of about 10% of its conventional military budget on nuclear weapons.

THE SECRECY ABOUT THE HISTORY AND SCALE OF THE NUCLEAR WEAPON AND MISSILE PROGRAMMES, THE EXTENT OF EXTERNAL TECHNICAL AND MATERIAL SUPPORT, AND THE EFFECT OF INDIRECT SUPPORT THROUGH MILITARY AND ECONOMIC AID MEANS THE FULL COST OF PAKISTAN NUCLEAR WEAPONS PROGRAMME CANNOT BE ESTIMATED WITH ANY RELIABILITY.

Pakistan is not reliant only on its own resources to support its military spending, including on nuclear weapons, or to meet its development needs. Since 2001, Pakistan has received an estimated $22 billion in military and economic assistance from the United States, of which over $14 billion was military assistance and over $7 billion was economic aid of various kinds.[34] The Congressional Research Service reported that in 2006, the United States signed arms deals with Pakistan for over $3.5 billion, including for 36 new F-16 jet fighters ($1.4 billion) and associated missiles and bombs (over $640 million) and upgrades for Pakistan's existing, older F-16 fighters ($890 million).[35]

Reflecting its concerns after September 2001 about the vulnerability of Pakistan's nuclear weapon and

fissile materials to seizure by Islamist militants, the United States has provided Pakistan on the order of $100 million worth of assistance to secure its nuclear weapons, facilities, and materials.[36] This has included "training of Pakistani personnel in the United States and the construction of a nuclear security training center... [and] a raft of equipment from helicopters to night-vision goggles to ... fencing and surveillance systems, and equipment for tracking nuclear material if it left secure areas."[37]

Pakistan has also received extensive military assistance from China for its nuclear weapons, missile, and conventional weapons programmes.[38] According to A.Q. Khan, in the early years of Pakistan's uranium enrichment programme, China supplied 15 tons of uranium hexafluoride (the gas used in centrifuges), 50 kg of weapon-grade HEU (enough for two weapons), the design details for a nuclear weapon, and technical help with the nuclear weapons programme.[39] Khan claims he provided China with the details of the European uranium enrichment gas centrifuges that Khan had acquired and provided training for Chinese technicians.[40]

China's conventional military assistance to Pakistan is beginning to rival the scale of support provided by the United States. In 2011, China agreed to fully fund the sale of 50 JF-17 jet fighters with advanced avionics to Pakistan.[41] According to Pakistan's Defence Minister Ahmad Mukhtar, these jets cost about $20–25 million each, which suggests that the total cost of the 50 JF-17 deal with China is about $1 billion or more.[42] Pakistan is also seeking to buy six new submarines from China.[43] Pakistan dependence on military assistance from China is likely to grow as Pakistan's poor relations with the United States worsen.

Despite extensive foreign military assistance, Pakistan's effort to sustain its conventional and nuclear military programmes has come at increasingly great cost to the effort to meet basic human needs and improve living standards. Pakistan's economic and social development expenditure in 2010–2011 was Rs. 617 billion, i.e. about 10% less than the spending on conventional military forces.[44] The 2011 budget increased military spending by over Rs. 50 billion, but cut social and economic development spending by Rs. 100 billion.

Given its high levels of military spending and poor government finances because of governance failures, Pakistan is dependent on economic aid to meet even basic development needs. In December 2011, the World Bank announced a $5.5 billion aid package to support "poverty reduction and development" in Pakistan for the three-year period 2012–2014.[45] For comparison, between 1952 and 2003, the World Bank committed $18.2 billion of aid to Pakistan.[46] A comparison of a different sort is offered by the estimated damage of $10 billion caused by the 2010 floods in Pakistan that displaced some 20 million people and flooded over 50,000 square km area of land, and is described by the government of Pakistan as an "unprecedented calamity".[47] This amount is the equivalent of about four to five years of Pakistan's estimated nuclear weapons spending.

## INTERNATIONAL LAW

Pakistan is not a signatory to the nuclear Non-Proliferation Treaty (NPT), nor has it signed the Comprehensive Test Ban Treaty (CTBT), and it appears to recognize no international legal obligation to restrain or end its nuclear weapons and missile programme.[48] Pakistan has said, however, that it supports "negotiation of a nuclear weapons convention along with a phased programme for the complete elimination of nuclear weapons within a specified time frame."[49]

Pakistan has sought to block talks at the United Nations Conference on Disarmament on a possible international treaty banning the production of fissile materials for nuclear weapons (commonly known as a Fissile Material Cut-off Treaty or FMCT). Pakistan has argued that:

> A cut-off in the manufacturing of fissile material must be accompanied by a *mandatory programme for the elimination of asymmetries* in the possession of fissile material stockpiles by various states. Such transfer of fissile material to safeguards should be made first by states with huge stockpiles, both in the global and regional context.[50]

This position is driven by Pakistan's long-running search for strategic parity with India. India is seen as having a larger stockpile of fissile materials and a potentially greater capacity to produce such material.[51] Pakistan now cites in particular the nuclear deal between the United States and India, approved in 2008, ending the ban on the sale of nuclear materials and technology to India that had been in place since 1974, and the subsequent exemption granted to India from similar restrictions by the 46-nation Nuclear Suppliers Group (NSG). NSG guidelines had forbidden members from selling uranium, nuclear reactors, and fuel cycle technologies to countries that were outside the NPT because such sales could allow the target countries to expand their nuclear weapons programme.

In late 2011, Zamir Akram, Pakistan's ambassador to the UN Conference on Disarmament, proposed that if Pakistan received a waiver from the NSG similar to the one granted to India, Pakistan would be willing to join talks on an FMCT.[52]

While Pakistan has not accepted any legal restraint on its nuclear weapon, ballistic missile, or fissile material programmes, it is the subject, along with India, of a unanimous UN Security Council resolution calling for such restraint—Resolution 1172 (June 1998):

> Calls upon India and Pakistan immediately to stop their nuclear weapon development programmes, to refrain from weaponization or from the deployment of nuclear weapons, to cease development of ballis-

tic missiles capable of delivering nuclear weapons and any further production of fissile material for nuclear weapons, to confirm their policies not to export equipment, materials or technology that could contribute to weapons of mass destruction or missiles capable of delivering them and to undertake appropriate commitments in that regard.[53]

As of 2012, Pakistan is clearly in violation of this Security Council resolution, as is India.

## PUBLIC DISCOURSE

Nuclear weapons have played a major role in Pakistan's domestic political discourse for over 30 years. Prime Minister Zulfikar Ali Bhutto, who launched the nuclear weapons programme in 1972, famously declared that Pakistan would get the bomb even if its people had to eat grass. Since then, Pakistani governments have sought to create a positive image of the nuclear weapons programme, often by linking it to national pride and national identity.

The official effort to build public support for the nuclear weapons programme was clearly evident on the first anniversary of the 1998 nuclear tests, which the government had declared to be the 'Day of Deliverance." The government ordered ten days of national celebrations.[54] The state media was deployed with national television and radio networks all carrying programmes on the nuclear tests. Cities and towns were decorated with banners and posters of leading nuclear weapons scientists and the Prime Minister against a backdrop of mushroom clouds. Replicas of Pakistan's ballistic missiles and giant models of the mountain where the test were carried out were put up in several cities. Public events included competitions to find the ten best patriotic songs, fairs, marches, sports events, and special prayers. Such events have continued, albeit on a smaller scale, and without state sponsorship, largely organized by right-wing Islamist and nationalist political parties and groups.[55]

Pakistan's major political parties publicly support the nuclear weapons programme. Zulfikar Ali Bhutto's Pakistan People's Party (PPP), including under its leader Benazir Bhutto, claims credit for the nuclear programme. The PPP has been the governing party in Pakistan since the 2008 elections. Pakistan's other major political party, the Pakistan Muslim League (PML), also claims credit for the bomb, pointing out that it was a PML government led by Prime Minister Nawaz Sharif that ordered the 1998 nuclear tests. The party in government claims credit for new developments such as new production facilities and missiles, and Prime Ministers make a point of inaugurating new nuclear facilities and are photographed at nuclear missile tests.

Military leaders also publicly emphasize the importance of the nuclear weapons programme. In the wake of the September 2001 attacks on the United States, General Pervez Musharraf, who had seized power in a coup in 1999, addressed the Pakistani nation and explained that Pakistan faced a critical choice: support the United States in the imminent war against Al-Qaeda and the Taliban in Afghanistan or suffer the consequences. He explained, "We have to save our interests. Pakistan comes first, everything else is secondary."[56] Musharraf said that "our critical concerns are our sovereignty, second our economy, third our strategic assets (nuclear and missiles), and forth our Kashmir cause." To defend these interests, Pakistan gave its support to the United States and abandoned its Taliban allies.

The central thrust of most public debate about Pakistan's nuclear weapons is the struggle with India that has shaped Pakistan's history and politics since the two countries were formed by the partition of British India into independent states. Pakistan's nuclear weapons are widely seen as a response to India's nuclear weapons and its larger conventional military forces, and the experience of wars in 1947, 1965, 1971, and 1999. Pakistani fears of Indian hegemony have increased in recent years as India's economy has started to grow at a much faster rate than Pakistan's and as India has increased its already much larger military budget at a much faster rate. A longer-term concern now driving Pakistan's nuclear programme is the United States' policy of countering the rise of China as a potential great power competitor by cultivating a much stronger US strategic relationship with India. This latter concern may tie the future of Pakistan's nuclear weapons, and those of India, to the emerging contest between the United States and China.

## NOTES

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12. *Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks*, International Institute of Strategic Studies,

London, 2007, p. 33.
13. Joby Warrick, "Lack of Knowledge about Arsenal may Limit U.S. Options," *Washington Post*, 11 November 2007.
14. Agreement on the Prohibition of Attack against Nuclear Installations and Facilities, 31 December 19881. Under this agreement, India and Pakistan are to "refrain from undertaking, encouraging or participating in, directly or indirectly, any action aimed at causing the destruction of, or damage to, any nuclear installation or facility in the other country." The term "nuclear installation or facility" includes "nuclear power and research reactors, fuel fabrication, uranium enrichment, isotopes separation and reprocessing facilities as well as any other installations with fresh or irradiated nuclear fuel and materials in any form and establishments storing significant quantities of radio-active materials." Each year on 1 January the two countries exchange a list giving the latitude and longitude of its nuclear installations and facilities and changes. For the full text, see http://www.stimson.org/research-pages/agreement-on-the-prohibition-of-attack-against-nuclear-installations-and-facilities-/.
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16. *Global Fissile Material Report 2011: Nuclear Weapon and Fissile Material Stockpiles and Production*, International Panel on Fissile Materials, January 2012.
17. Ibid.
18. *Global Fissile Material Report 2010: Balancing the Books, op. cit.*
19. Syed Irfan Raza, "Staff of Strategic Organisations Lack Forum for Grievances' Redressal," *Dawn*, 9 March 2011. The staff are listed as scientists, engineers, doctors, law officers, human resource officers and other technical personnel working for the Pakistan Atomic Energy Commission, National Engineering and Scientific Commission, Pakistan Space and Upper Atmosphere Research Commission, Maritime Technologies Complex, Khan Research Laboratories, Air Weapons Complex, Project Management Organisation, National Development Complex, and Defence Science and Technology Organisation.
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