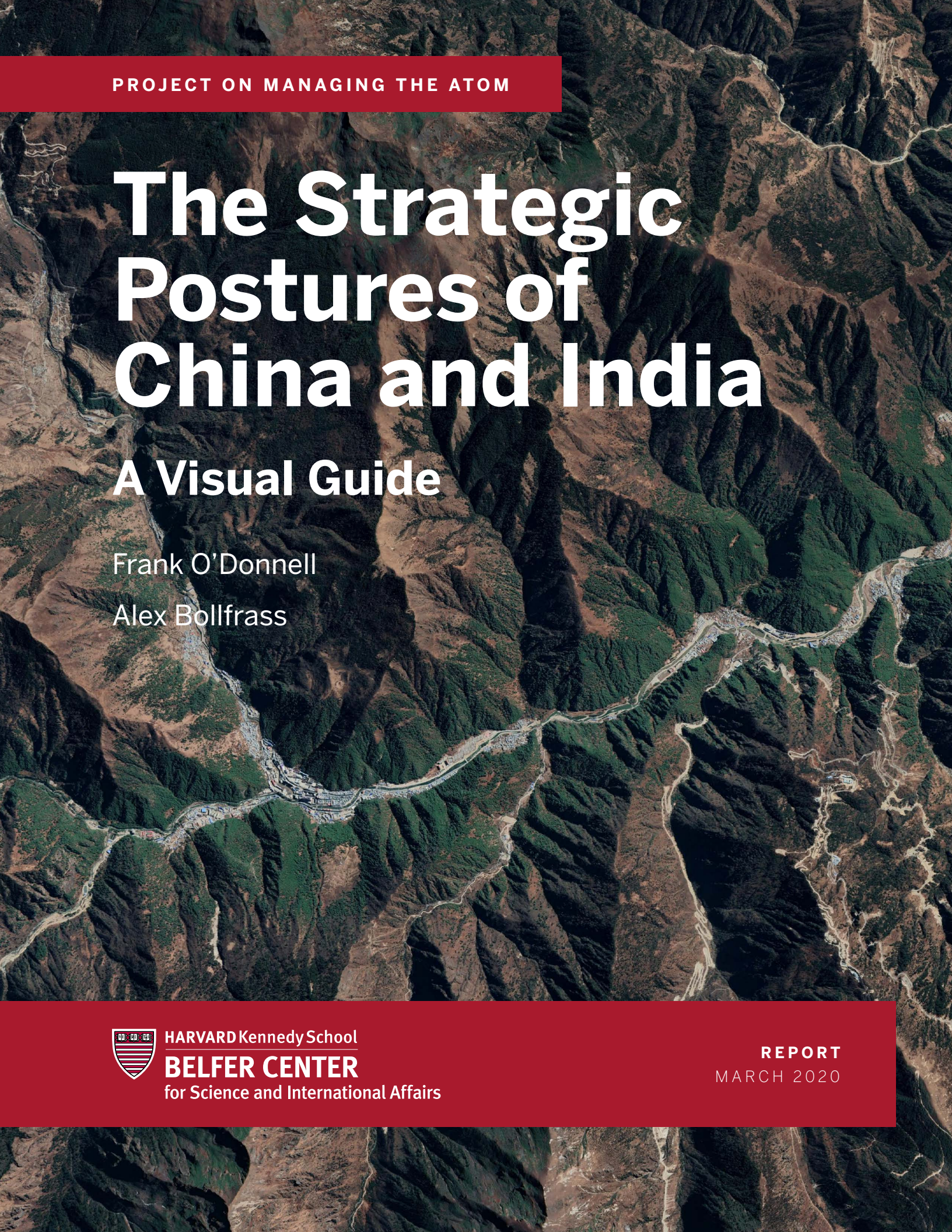

PROJECT ON MANAGING THE ATOM

The Strategic Postures of China and India

A Visual Guide

Frank O'Donnell

Alex Bollfrass

HARVARD Kennedy School
BELFER CENTER
for Science and International Affairs

REPORT
MARCH 2020

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O'Donnell's views expressed here are his alone, and do not necessarily represent the views of the US Department of Defense or its components. In addition, this report solely utilizes data O'Donnell collated and analyzed from open sources, before he joined the US Naval War College.

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A satellite view of Shigatse, Tibet, home to the PLA's 6th Border Defense Regiment, near the China-India border.

Maxar Technologies / CNES Airbus via Google, used with permission.

Background

Fueled by aggressive rhetoric from both capitals, Indian and Chinese ground forces engaged in a standoff between June and August 2017. The Doklam crisis, as it became known, stimulated introspection among officials and experts in both states about the future of their relationship. Politically, both strategic communities largely concluded that the peaceful resolution of border disputes is now less likely, forecasting more rivalry than cooperation. Militarily, Indian discussions on the strength of its military position against China in their disputed ground frontier areas have converged on the view that China holds the conventional and nuclear edge over India in this domain.[1]

Based on our analysis of data on the location and capabilities of Indian and Chinese strategic forces and related military units, we conclude that this assessment of the balance of forces may be mistaken and a poor guide for Indian security and procurement policies. We recommend that instead of investing in new nuclear weapons platforms that our analysis suggests are not likely to be required to deter China, New Delhi should improve the survivability of its existing forces and fill the gap in global arms control leadership with an initiative on restraint and transparency.

China and India's deliberately opaque strategic postures make objective assessments difficult. To overcome that problem, this brief introduces a new data compilation, consisting of a variety of published intelligence documents, private documents sourced from regional states, and interviews with experts based in China, India, and the United States. This data is combined with open-source force estimates to provide the most comprehensive public assessment of the location and capabilities of Chinese and Indian strategic forces. The appendix provides a link to an interactive map of Chinese and Indian nuclear and conventional air and ground forces, including descriptions of some simplifications and estimates necessary to display the forces on a map. Our analysis focuses on strategic military strike concentrations as they are postured against one other, excluding border patrol forces,

as of January 2018. This makes it possible to examine the strengths and weaknesses of each side's forces.

What does this data tell us? We assess that India has key under-appreciated conventional advantages that reduce its vulnerability to Chinese threats and attacks. India appears to have cause for greater confidence in its military position against China than is typically acknowledged in Indian debates, providing the country an opportunity for leadership in international efforts toward nuclear transparency and restraint.

Indian strategists have not focused on this opportunity, in part because they draw pessimistic conclusions regarding China. For example, one Indian expert has observed that "India's ground force posture and strength is not really comparable to that of China in their border regions. China has better military infrastructure, capabilities, and logistics."[2] A former commander of the Indian Army Northern and Central commands, which are tasked with defense against China, wrote during the Doklam standoff that he expected the episode to end in a barrage of Chinese missile strikes to expel Indian forces from the area and settle the dispute on Chinese terms.[3]

Even India's comparative optimists, a minority, do not sound hopeful. A retired Indian Army brigadier close to internal discussions on China policy has observed that "even as conventional asymmetry prevails, it is being largely undermined by Indian strides in infrastructural build up, force modernisation and new raisings."[4]

The next sections assess the nuclear forces India and China have arrayed against each other, followed by conventional forces relevant to a potential conflict.

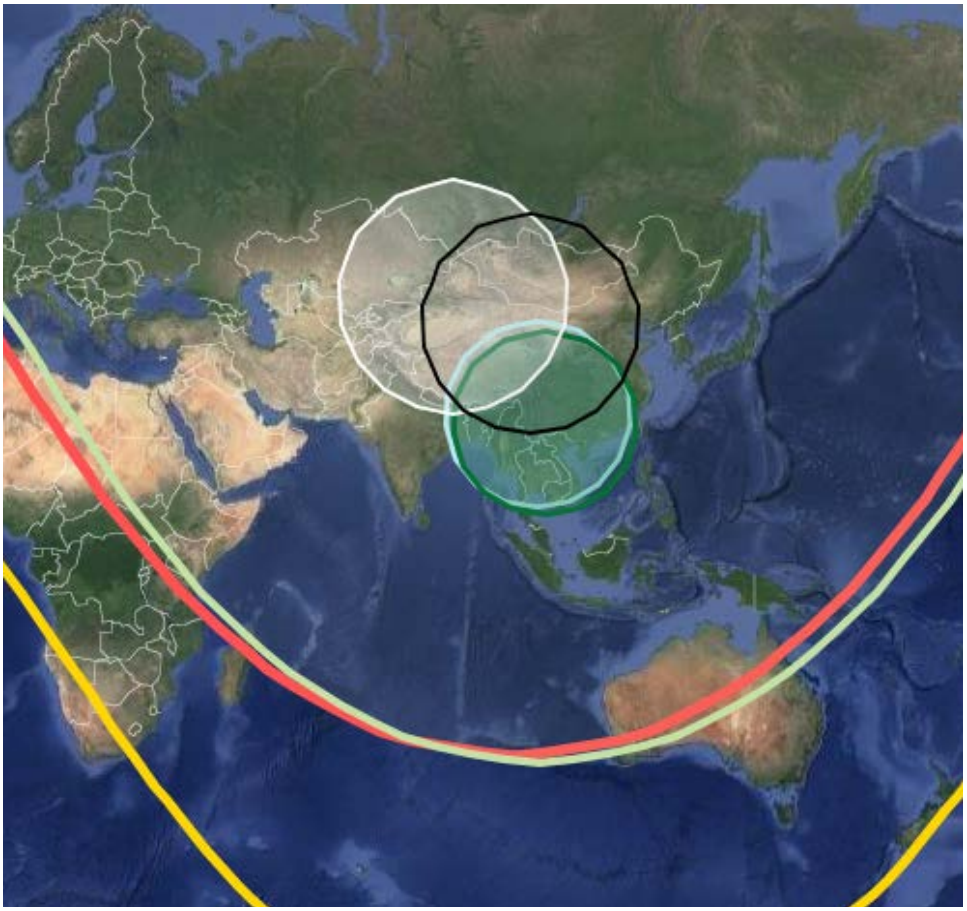
China's Nuclear Strike Forces and Ranges

Chinese nuclear forces comprise land- and sea-based ballistic missiles and aircraft that may emerge as nuclear bombers.[5] The land- and sea-based elements are operated by the People's Liberation Army (PLA) Rocket Force, which executes nuclear strike orders issued by the Central Military Commission under Xi Jinping's chairmanship.

Sea-based missiles do not have a fixed location. However, China's land-based missile bases can be geo-located. Including only the nuclear forces and locations most relevant to targeting India, the map below shows that the bases are concentrated in the far north, with three DF-21 bases in the country's south.[6]

In all, an estimated 104 Chinese missiles could strike all or parts of India. These include about a dozen DF-31A and six to twelve DF-31 missiles capable of reaching all Indian mainland targets. Another dozen DF-21s hold New Delhi at risk. The remaining missiles can target sections of India's northeast and east coast.[7] Moreover, as China deploys more road-mobile missiles over time, it will become easier to move further missiles from China's interior to new survivable positions within range of India.

Figure 1: Map of China's Nuclear Strike Range



Map Legend

Missile Type	Rocket Force Base and Location[8]	Color (of circle)	Approx. Missile Range (miles)
DF-31A	Base 56: Beidao/ Tawanli, Gansu Province	Yellow	6,830
DF-21, DF-31	Base 56: Xining, Qinghai Province	Bright Green	1,335 (DF-21) 4,350 (DF-31)
DF-21, DF-31	Base 56: Delingha, Qinghai Province	Red	1,335 (DF-21) 4,350 (DF-31)
DF-21	Base 56: Liuqingkou, Qinghai Province	Black	1,335
DF-21	Base 56: Korla, Xinjiang Uyghur Autonomous Region	White	1,335
DF-21	Base 53: Jianshui, Yunnan Province	Blue	1,335
DF-21	Base 53: Chuxiong, Yunnan Province	Dark Green	1,335

India's Nuclear Strike Forces and Ranges

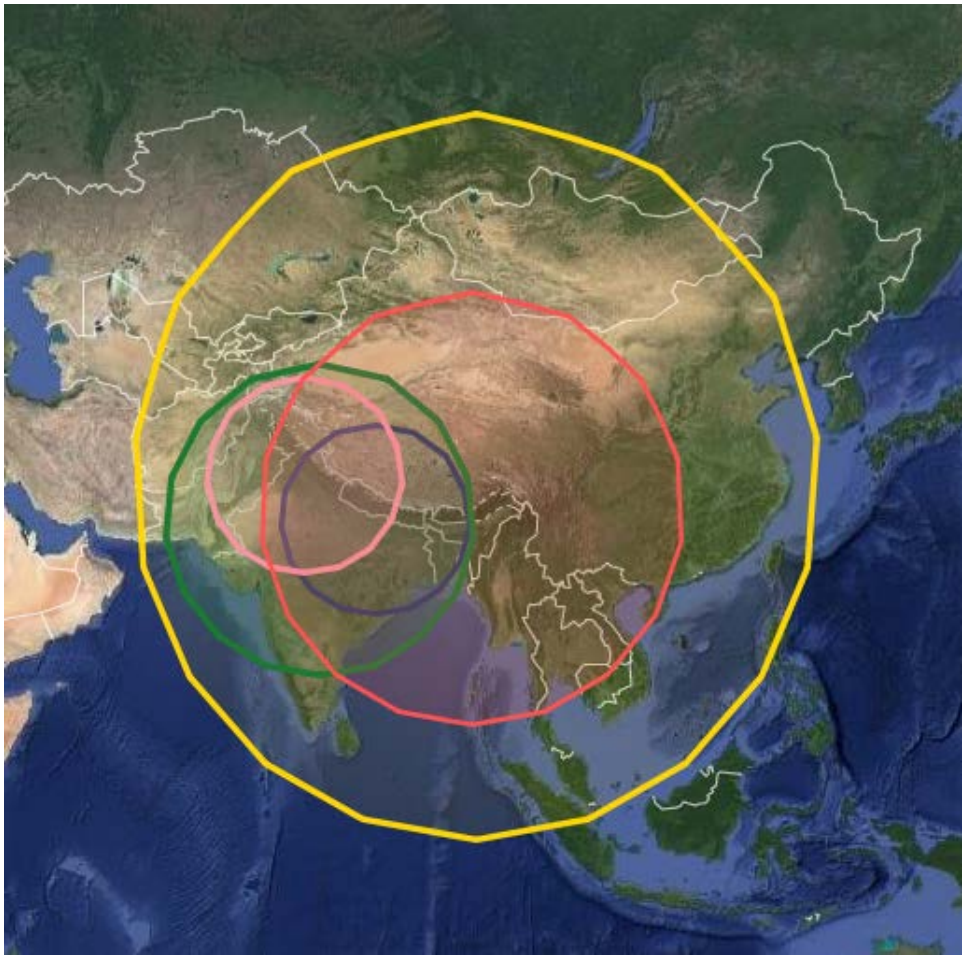
Indian nuclear weapons stand ready for delivery by bombers and land-based missiles.[9] As in China, nuclear warheads are held at separate locations from delivery vehicles in peacetime, although there are reports of pre-mating of some Indian missiles to warheads through canisterization.[10] A nuclear strike order would be issued by the Political Council of the Nuclear Command Authority (NCA) and executed through the NCA Executive Council and military Strategic Forces Command.[11]

India's professed goal has always been to field a credible second-strike capability. This assured retaliation doctrine depends on the creation of sufficient doubt in the adversary's calculus that a disarming first strike would succeed.

India seeks to ensure the survivability of its forces through adequate force dispersal, distributing its forces across several bases and along several vectors (air, land, and sea), while seeking to ensure the secrecy of their locations.[12] This existing approach probably does create doubt in Chinese strategic planning that it could militarily entirely erase India's ability to reach Chinese targets.

Unsurprisingly, the bulk of India's missile forces are located closer to Pakistan than China.[13] We estimate that around ten Agni-III launchers can reach the entire Chinese mainland. Another eight Agni-II launchers could reach central Chinese targets. An estimated two squadrons of Jaguar IS and one squadron of Mirage 2000H fighters, totaling around 51 aircraft, are assessed to be tasked with nuclear missions.[14] These aircraft could most likely reach Tibetan airspace equipped with nuclear gravity bombs. However, it is near certain that they would be identified and tracked by air defenses before proceeding deeper into China from Tibet. The potential early surprise achievable in Tibet-centric missions would no longer be possible for missions elsewhere in China, as Chinese air defenses would be alerted in the additional time necessary for Indian aircraft to transit Tibet.

Figure 2: Map of India's Nuclear Strike Range



Map Legend[15]

Nuclear Delivery Vehicle Type	Location	Color (of circle)	Approx. Range (miles)
Agni-III	Assam State	Yellow	1,990
Agni-II	Assam State	Red	1,240
Mirage 2000H fighters, with nuclear gravity bombs	Gwalior AFS, Madhya Pradesh State	Green	920
Jaguar IS fighters, with nuclear gravity bombs	Ambala AFS, Haryana State	Pink	560
Jaguar IS fighters, with nuclear gravity bombs	Gorakhpur AFS, Uttar Pradesh State	Blue	560

The Sino-Indian Conventional Balance

We now turn to the effect of conventional forces on this overall strategic balance. Our analysis suggests that India's defense position is more secure than is sometimes argued.

Indian conventional forces

The Indian Army (IA) divides its ground and air strike forces facing China into Northern, Central and Eastern Commands. The Air Force is organized into Western, Central and Eastern Air Commands. [16] The total available Army strike forces near China's border areas are assessed to be around 225,000 personnel. This incorporates the roughly 3,000 personnel attached to a T-72 tank brigade stationed in Ladakh and the estimated 1,000 personnel attached to a Brahmos cruise missile regiment in Arunachal Pradesh. For the Army, this total near China's border areas is divided into about 34,000 troops in the Northern Command; 15,500 troops in the Central Command; and 175,500 troops in the Eastern Command.[17]

The Indian Air Force (IAF) has an estimated 270 fighters and 68 ground attack aircraft across its three China-facing commands.[18] It is also expanding its network of Advanced Landing Grounds (ALGs), which constitute small air bases in forward locations to provide staging grounds and logistics hubs for aircraft strike missions.[19] In the Western Air Command, the IAF possesses around 75 fighters and 34 ground attack aircraft, besides 5 ALGs close to Chinese Tibetan areas. The Central Air Command features around 94 fighters, 34 ground attack aircraft, and one ALG. The Eastern Air Command hosts around 101 fighters and 9 ALGs. Crucially, the IA and IAF forces described above are all permanently close to China's border, shortening their mobilization time and limiting the prospects of a successful Chinese cross-border advance.

Chinese conventional forces

We estimate a total of 200,00-230,000 Chinese ground forces under the Western Theater Command, and Tibet and Xinjiang Military Districts. [20] However, this apparent numerical near-equivalence with that of Indian regional ground forces is misleading. Even in a war with India, a significant proportion of these forces will be unavailable, reserved either for Russian taskings or for countering insurrection in Xinjiang and Tibet. The majority of forces are located further from the Indian border, posing a striking contrast with the majority of forward-deployed Indian forces with a single China defense mission.

The new joint Western Theater Command is estimated to hold around 90,000-120,000 troops, principally divided into the 76th and 77th Group Armies. These Group Armies are headquartered toward the interior of Western China, in Chongqing and Baoji respectively.[21] Because of ongoing unrest in Tibet and Xinjiang, the Western Theater Command's ground operational authority does not extend to these regions. Instead, a special PLA Army-directed Military District (MD) has been created for each of these regions.[22] In Tibet, the region closest to Indian border areas, the PLA presence is judged to number just 40,000 troops. More numerous forces are located in the Xinjiang region north of Tibet, totaling around 70,000.[23] This means that China is regularly operating with a permanent Indian conventional force advantage along its border areas. In the event of a major standoff or conflict with India, it would have to rely upon mobilization primarily from Xinjiang and secondarily from the Western Theater Command forces deeper in China's interior. By contrast, Indian forces are already largely in position.

The PLA Air Force (PLAAF) also suffers from a numerical disparity to the IAF in the border region. Unlike the tripartite organizational division of Chinese ground forces facing India, the Western Theater Command has assumed control of all regional strike aircraft.[24] In total, this amounts to around 157 fighters and a varied drone armory. This includes an estimated 20 GJ-1/WD-1K precision strike UAVs, 12 WD-1 ground attack and reconnaissance UAVs, 12 WD-1 precision strike UAVs, and 8 EA-03 reconnaissance and electronic warfare UAVs.[25] A proportion of these are

reserved for Russia-centric missions. By comparison, as noted earlier, the Indian Eastern Air Command can field around 101 fighters against China alone. China also uses eight airbases and airfields relevant to India strike missions, although a majority are civilian airports that can be commandeered in wartime.[26]

Other comparative weaknesses permeate the PLAAF's posture against India. On a strict comparison of available 4th generation fighters, authoritative assessments hold that China's J-10 fighter is technically comparable to India's Mirage-2000, and that the Indian Su-30MKI is superior to all theater Chinese fighters, including the additional J-11 and Su-27 models.[27] China hosts a total of around 101 4th-generation fighters in the theater, of which a proportion must be retained for Russian defense, while India has around 122 of its comparable models, solely directed at China.

The high altitude of Chinese air bases in Tibet and Xinjiang, plus the generally difficult geographic and weather conditions of the region, means that Chinese fighters are limited to carrying around half their design payload and fuel. In-flight refueling would be required for PLAAF forces to maximize their strike capacity.[28] China had only inducted 15 such tanker aircraft nationally as of 2017, meaning only a handful of its forces will benefit from this solution.[29] Against these underpowered fighters, IAF forces will launch from bases and airfields unaffected by these geographic conditions, with maximum payload and fuel capabilities.[30]

The most significant PLAAF forward air bases and airfields near Indian border areas—which will be pivotal in combat operations—are located at Hotan, Lhasa/Gonggar, Ngari-Gunsa, and Xigaze. Each hosts regular PLAAF detachments, and these are the nearest facilities to Indian targets in Kashmir, northern India, and northeast India.[31] They are vulnerable to a dedicated Indian offensive. Ngari-Gunsa and Xigaze reportedly have no hardened shelters or blast pens for their aircraft, which sit in the open.[32] Lhasa/Gonggar has recently developed hardened shelters able to protect up to 36 aircraft, while Hotan reportedly hosts "two aircraft shelters" of unknown capacity.[33] An Indian early initiative to destroy or incapacitate these four bases—and achieve air superiority over them—would compel China to rely more upon aircraft from its rear-area bases, exacerbating its

limited fuel and payload problems. Moreover, China lacks the redundancy and related force survivability compared to India in their comparative numbers of regional air bases. In sum, India has a stronger regional air position, with "a large number of airfields in the east and west, so even if some airfields are down, operations can continue from other locations."[34]

PLAAF training and experience shortcomings that are not shared by the IAF amplify China's air disadvantage.[35] Recent PLAAF exercises with unscripted scenarios have found that pilots are excessively reliant upon ground control for tactical direction. In unanticipated combat scenarios, this dependence on explicit control tower guidance becomes extreme, while "ground commands" are simultaneously often unable "to keep up with the complex and changeable air situation."[36] This suggests that PLAAF combat proficiency may be significantly weaker than often estimated.

A comprehensive study found that scenarios with combat conditions where "some of the key first-line airfields were destroyed" would be especially concerning for Chinese strategists.[37] Progressive base hardening in the eastern US-facing PLAAF facilities has reduced this risk in that area.[38] A lack of similar measures in the India-facing west suggests that Indian destruction or temporary incapacitation of some of the four above air bases would further exacerbate these PLAAF operational inflexibilities and weaknesses. By contrast, recent conflicts with Pakistan give the current IAF a level of institutional experience in actual networked combat.

Recognizing this dilemma, instead of a regional aircraft offensive, Chinese strategic planners envision early long-range missile strikes against Indian air bases in the event of conflict. However, India benefits from the greater number and redundancy of regional air bases, and the daunting number of Chinese missiles that would be required to truly incapacitate relevant IAF forces. A former IAF official, referring to the high number of disparate targets per air base, the requirement for at least two missiles per target, and the ability of base officials to repave the blast crater with quick-drying concrete within six hours, has articulated the operational problem:

> "To keep one airfield shut for 24 hours, the PLAAF will require 220 ballistic missiles. This will not make any difference to IAF

> operations in the east or in the west since the IAF has a large number of other operational airfields to operate from. If the PLAAF attacks just three airfields, it will require 660 ballistic missiles per day for attacking the runway and taxi track alone. China's stock of 1,000-1,200 MRBMs/SRBMs will be over in less than two days when attacking just three airfields, with no other major target systems like C2 centres or air defence units being addressed."[39]

This analysis was authored before India began its process of integrating runway replacement fiberglass mats into its base defense systems, meaning it was likely calculated upon a previous "labour-intensive," civilian-heavy method of runway repaving, as described by a former Indian Air Marshal.[40] However, India is presently inducting these fiberglass mats and associated paving equipment, which will further reduce its runway reconstitution timeframe.[41] It is therefore unlikely that the numerous PLAAF disadvantages detailed above can be overcome by China's superior missile forces. This is critical beyond the air competition itself: "In any India-China conflict, the PLA cannot launch an attack without the support of the PLAAF."[42]

To address its force shortfalls in the event of war, China could surge air and ground forces from its interior toward the border. However, what our analysis suggests is that the IAF's superiority would mean that critical logistical routes—such as air bases and military road and rail links—could be cut by bombing or standoff missile strikes, limiting the extent to which China's position could be reinforced.[43] Such a Chinese surge would also attract attention from the United States, which would alert India and enable it to counter-mobilize its own additional forces from its interior.

Ammunition shortfalls have been a limiting factor for Indian conventional force operations in the past, especially for the Indian Army. India's official audit agency assessed in 2016 that India lacked sufficient reserves in around 85 out of 170 critical ammunition categories for a scenario of an intense 10-day war.[44] Since then, New Delhi has bolstered its stockpiles, and continues to reduce this operational constraint.[45]

China could permanently station forces similar to or larger than India's nearer to the border. An Indian counter-buildup would surely follow. In total, India is in a stronger conventional position vis-à-vis China than much of the analysis on this topic concludes.

[LINK] Zoomable Google Map of force positions and details[46]

Note: Due to the available data, some of these force locations are rough estimates, placed at the level of the town or city in which they are reportedly based, rather than exact coordinates. This is most common for Chinese and some Indian ground force locations, and Indian nuclear missile locations. In addition, some Chinese ground locations have been slightly spaced apart to prevent their signposts being stacked entirely on top of each other.

This map focuses on principal strike forces. As such, local border patrol and armed police forces, and air force bases and squadrons containing only helicopters, have been excluded (with the exception of Tawang Advanced Landing Ground, which could be expanded in the future).

Ground Forces: China

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	52nd Mountain Infantry Brigade HQ	Tibet Military District (MD)	Infantry Brigade	~ 4,600 (total)	Link
	Unit 77675, 52nd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	Unit 77678, Artillery Regiment, 52nd Mountain Infantry Brigade	Tibet MD	Artillery Regiment	~ 1,100	Link
	1st Battalion, 52nd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	2nd Battalion, 52nd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	3rd Battalion, 52nd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	4th Battalion, 52nd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	53rd Mountain Infantry Brigade HQ	Tibet MD	Infantry Brigade	~ 4,600 (total)	Link
	Unit 77680, 53rd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	Artillery Regiment, Unit 77683, 53rd Mountain Infantry Brigade	Tibet MD	Artillery Regiment	~ 1,100	Link
	1st Battalion, 53rd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	2nd Battalion, 53rd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	3rd Battalion, 53rd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	4th Battalion, 53rd Mountain Infantry Brigade	Tibet MD	Infantry Battalion	~ 700	Link
	54th Mechanized Infantry Brigade	Tibet MD	Infantry Brigade	~ 3,000	Link
	308th Artillery Brigade	Tibet MD	Artillery Brigade	~ 3,000	Link

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	Gyantse County 1st Independent Battalion, Unit 77655 (India and Bhutan Borders)	Tibet MD	Infantry Battalion	~ 700	Link
	Gangba County 2nd Independent Battalion, Unit 77656 (India Border)	Tibet MD	Infantry Battalion	~ 700	Link
	Medog County 3rd Independent Battalion	Tibet MD	Infantry Battalion	~ 700	Link
	Milin 4th Independent Battalion	Tibet MD	Infantry Battalion	~ 700	Link
	Luoza County 5th Independent Battalion (Bhutan Border)	Tibet MD	Infantry Battalion	~ 700	Link
	1st Border Defense Regiment, Unit 77629 (India and Bhutan Borders)	Tibet MD	Infantry Regiment	~ 2,800	Link
	2nd Border Defense Regiment, Unit 77635 (India and Bhutan Borders)	Tibet MD	Infantry Regiment	~ 2,800	Link
	3rd Border Defense Regiment, Unit 77639 (India and Nepal Borders)	Tibet MD	Infantry Regiment	~ 2,800	Link
	4th Border Defense Regiment, Unit-77643 (India Border)	Tibet MD	Infantry Regiment	~ 2,800	Link
	5th Border Defense Regiment, Unit 77646 (Nepal Border)	Tibet MD	Infantry Regiment	~ 2,800	Link
	6th Border Defense Regiment, Unit-77649 (India and Bhutan Borders)	Tibet MD	Infantry Regiment	~ 2,800	Link
	Nathu La Outpost, 6th Border Defense Regiment	Tibet MD	N/A	?	Link
	9th Border Defense Regiment	Tibet MD	Infantry Regiment	~ 2,800	Link
Total Ground Forces: Tibet Military District				**~ 40,000**	

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	6th Mechanized Infantry Division	Xinjiang MD	Infantry Division	~ 13,000 total	Link
	6th Armor Regiment	Xinjiang MD	Armor Regiment	~ 1,200	Link
	17th Infantry Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
	18th Infantry Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
	Artillery Regiment	Xinjiang MD	Artillery Regiment	~1,100	Link
	Air Defense Regiment	Xinjiang MD	Air Defense Regiment	~ 1,000	Link
	4th Motorized Infantry Division	Xinjiang MD	Infantry Division	~ 13,000	Link
	8th Motorized Infantry Division	Xinjiang MD	Infantry Division	~ 13,000	Link
	2nd Artillery Brigade	Xinjiang MD	Artillery Brigade	~ 3,000	Link
	11th Motorized Infantry Division	Xinjiang MD	Infantry Division	~ 13,000	Link
	High-Powered Artillery Brigade	Xinjiang MD	Artillery Brigade	~ 3,000	Link
	Special Operations Force Brigade	Xinjiang MD	Special Operations Force Brigade	~ 500	Link
	1st Independent Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
	2nd Independent Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
	12th Border Defense Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
	13th Border Defense Regiment	Xinjiang MD	Infantry Regiment	~ 2,800	Link
Total Ground Forces: Xinjiang Military District				**~ 70,000**	

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	76th Group Army	Western Theater Command	Group Army	~ 45,000-60,000 total, including 17th, 56th, 62nd, 149th, and 182nd Combined Arms Brigades, 77th Special Operations Forces Brigade, Engineer Brigade, Army Aviation Brigade, and Support Service Brigade.	Link
	Artillery Brigade, 76th Group Army	Western Theater Command	Artillery Brigade	~ 3,000	Link
	Air Defense Brigade, 76th Group Army	Western Theater Command	Air Defense Brigade	~ 2,500	Link
	12th Armor Brigade, 76th Group Army	Western Theater Command	Armor Brigade	~ 5,000	Link
	77th Group Army	Western Theater Command	Group Army	~ 45,000-60,000 total, including 39th, 40th, 55th, 139th, 150th, and 181st Combined Arms Brigades, Army Aviation Brigade, Engineer Brigade, and Service Support Brigade.	Link
	Artillery Brigade, 77th Group Army	Western Theater Command	Artillery Brigade	~ 3,000	Link
	Air Defense Brigade, 77th Group Army	Western Theater Command	Air Defense Brigade	~ 2,500	Link
	Special Operations Forces Brigade, 77th Group Army	Western Theater Command	Special Operations Forces Brigade	~ 500	Link
Total Ground Forces: Western Theater Command				**~ 90,000–120,000**	

Total Ground Forces: Western Theater Command and Tibet and Xinjiang Military Districts	**~ 200,000–230,000**

Ground Forces: India

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	T-72 Tank Brigade	Army Northern Command	Tank Formation	Up to 150 tanks,~ 3,000 personnel	Link
	8th Mountain Division	Army Northern Command	Infantry Division	~ 15,500	Link
	3rd Infantry Division	Army Northern Command	Infantry Division	~ 15,500	Link
Total Ground Forces: Army Northern Command				~ **34,000** including independent tank formation	

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	6th Mountain Division	Army Central Command	Infantry Division	~ 15,500	Link
Total Ground Forces: Army Central Command				**~ 15,500**	

Icon	Name	Parent Command	Force Type	Force Numbers	Location
	17th Mountain Strike Corps	Army Eastern Command	Mechanized Infantry Corps	~ 35,000	Link
	17th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
	27th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
	20th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
	5th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
	2nd Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link

Icon	Name	Parent Command	Force Type	Force Numbers	Location
7	71st Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
8	21st Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
9	56th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
10	57th Mountain Division	Army Eastern Command	Infantry Division	~ 15,500	Link
	Brahmos Missile Regiment	Army Eastern Command	Brahmos Missile Regiment	~ 100 Brahmos Missiles	Link
Total Ground Forces: Army Eastern Command			**~175,500** including Brahmos missile regiment		

Total Ground Forces: Army Northern, Central and Eastern Commands	**~ 225,000** including independent T-72 tank brigade and Brahmos missile regiment

Ground Forces: Comparison Table

	China	India
Total Ground Forces	**~204,000–234,000**	**~225,000** including independent T-72 tank brigade and Brahmos missile regiment

Air Forces: China[47]

Icon	Name	Parent Command	Force Numbers	Location
	109th Air Brigade	Western Theater Command	~ 16 x J-8F Fighters, ~16 J-8H Fighters	Link
	110th Air Brigade	Western Theater Command	~ 24 x JH-7A Fighters	Link
	111th Air Brigade	Western Theater Command	~ 16 x J-11A Fighters, ~ 16 x J-11BS Fighters, ~ 2 Su-27UBK Fighters	Link
	112th Air Brigade	Western Theater Command	~ 32 x J-7IIM Fighters	Link
	16th Air Brigade	Western Theater Command	~ 16 J-11 Fighters, ~ 16 x J-11BS Fighters, ~ 3 Su-27UBK Fighters	Link
	178th UAV Brigade	Western Theater Command	~ 20 x GJ-1/WD-1K precision strike UAVs, 12 x WD-1 ground attack and reconnaissance UAVs, 12 x WD-1 precision strike UAVs, ~ 8 EA-03 reconnaisance and EW UAVs	Link
	Xigaze Airfield	Western Theater Command	Used for forward detachments of J-10, J-11 fighters EA-03 (UAV)s.	Link
	Lhasa/Gonggar Airfield	Western Theater Command	Used for forward detachments for J-10, J-11, Su-27UBK, Su-27SK fighters and BZK-05 UAVs	Link
	Lingzhi Airfield	Western Theater Command	N/A	Link
	Dangxiong Airfield	Western Theater Command	N/A	Link
	Qamdo/Pangta/ Bangda Airfield	Western Theater Command	N/A	Link
	Nagqu Airfield	Western Theater Command	N/A	Link
	Ngari Gunsa Airfield	Western Theater Command	Used for forward detachments of J-11, Su-27UBK, Su-27SK	Link
	Hotan Airfield	Western Theater Command	Used for forward detachments of J-10 and J-11 fighters.	Link
Total Air Forces			~ 157 fighters, ~ 20 x GJ-1/WD-1K precision strike UAVs, 12 x WD-1 ground attack and reconnaissance UAVs, 12 x WD-1 precision strike UAVs, ~ 8 EA-03 reconnaissance and electronic warfare	

Air Forces: India

Note: Bases labelled in black—e.g. 

—are those which have been assessed by analysts to be the most likely to contain specific aircraft squadrons that have been certified for nuclear strike missions by India's Strategic Forces Command (SFC). These bases and squadrons are controlled by their parent Air Force Command and hold conventional assignments in peacetime. A nuclear strike order will entail certified aircraft being armed with nuclear weapons and flown by Air Force pilots.

Icon	Name	Parent Command	Force Numbers	Location
	Srinagar Air Force Station (AFS)	Western Air Command	~ 17 fighters #51 Sq. MiG-21 Bison	Link
	Leh AFS	Western Air Command	~ 8 fighters #28 Sq. Detachment MiG-29/29UB	Link
	Pathankot AFS	Western Air Command	~ 17 fighters #26 Sq. MiG-21	Link
	Adampur AFS	Western Air Command	~ 34 fighters #47 Sq. & #223 Sq. MiG-29	Link
	Ambala AFS	Western Air Command	~ 34 nuclear-certified ground attack aircraft, ~ 17 fighters #5 Sq. & #14 Sq. Jaguar IS, #3 Sq. MiG-21 Bison	Link
	Daulet Beg Oldi Advanced Landing Ground (ALG)	Western Air Command	N/A	Link
	Thoise ALG	Western Air Command	N/A	Link
	Parma Valley ALG	Western Air Command	N/A	Link
	Nyoma ALG	Western Air Command	N/A	Link
	Fukche ALG	Western Air Command	N/A	Link
Total Air Forces: Western Air Command			**~ 75 fighters, ~ 34 ground attack aircraft**	

Icon	Name	Parent Command	Force Numbers	Location
	Bareilly AFS	Central Air Command	~ 34 fighters #8 Sq. Su-30MKI/MKI-3, #24 Sq. Su-30MKI-3	Link
	Gwalior/ Maharajpur AFS	Central Air Command	~ 17 nuclear-certified (Mirage) fighters, ~9 fighters #1 Sq., #7 Sq., & #9 Sq. Mirage 2000H/TH. Half squadron (TACDE) of MiG-21Bisons, MiG-27MUs, & SU-30MKIs	Link
	Gorakhpur AFS	Central Air Command	~ 34 nuclear-certified ground attack aircraft #16 Sq. & #27 Sq. Jaguar IS	Link
	Dharasu ALG	Central Air Command	N/A	Link
Total Air Forces: Central Air Command			**~ 94 fighters, ~ 34 ground attack aircraft**	

Icon	Name	Parent Command	Force Numbers	Location
	Tezpur AFS	Eastern Air Command	~ 34 fighters #2 Sq. SU-30MKI/MKI3, #106 Sq. Su-30MKI-3	Link
	Chabua AFS	Eastern Air Command	~ 17 fighters #102 Sq. Su-30MKI-3	Link
	Jalpaguiri/ Hashimara AFS	Eastern Air Command	~ 34 fighters #22 Sq. & #222 Sq. MiG-27M	Link
	Tuting ALG	Eastern Air Command	N/A	Link
	Mechuka ALG	Eastern Air Command	N/A	Link
	Along ALG	Eastern Air Command	N/A	Link
	Tawang ALG (Helipad)	Eastern Air Command	N/A	Link
	Dirang ALG	Eastern Air Command	N/A	Link

Icon	Name	Parent Command	Force Numbers	Location
	Ziro ALG	Eastern Air Command	N/A	Link
	Pasighat ALG	Eastern Air Command	N/A	Link
	Walong ALG	Eastern Air Command	N/A	Link
	Vijaynagar ALG	Eastern Air Command	N/A	Link
Total Air Forces: Eastern Air Command			**~ 101 fighters**	

Total Air Forces	**~ 270 fighters, ~ 68 ground attack aircraft**

Air Forces: Comparison Table

	China	India
Total Air Forces	~ 157 fighters ~ 20 x GJ-1/WD-1K precision strike UAVs 12 x WD-1 ground attack and reconnaissance UAVs 12 x WD-1 precision strike UAVs ~ 8 EA-03 reconnaissance and electronic warfare	~ 270 fighters ~ 68 ground attack aircraft

Nuclear Forces: China

Note: Not all Chinese nuclear bases have been allocated a circle indicating strike range, due to several bases having highly similar locations and ranges and a desire to maximize map clarity. In base clusters where this occurs, one base has been allocated the indicative range circle.

Chinese nuclear forces are operated by the Rocket Force Command, which executes nuclear strike orders made by the Central Military Commission.

[LINK] Full Strike Range Map—China[48]

Icon	Name	Nuclear and Nuclear-Capable Missile Numbers	Location (URLs)
	Chuxiong Brigade, 53rd Base	~ 12 x DF-21 (2,150km range)	With Strike Range Filter No Filter
	Kunming Brigade, 53rd Base	~ 12 x DF-21 (2,150 km range)	With Strike Range Filter No Filter
	Tianshui Brigade, 53rd Base	~ 12 x DF-21 (2,150 km range)	With Strike Range Filter No Filter
	Beidao/Tawanli Brigade, 56th Base	~ 12 x DF-31A (11,000 km range)	With Strike Range Filter No Filter
	Xining Brigade, 56th Base	~ 12 x DF-21 (2,150 km range) / DF-31 (7,000 km range)	With Strike Range Filter No Filter *(Unable to determine exact missile locations, so location of 56th Base HQ utilized)*
	Datong Brigade, 56th Base	~ 12 x DF-21 (2,150 km range)	With Strike Range Filter No Filter
	Liuqingkou Brigade, 56th Base	~ 12 x DF-21 (2,150 km range)	With Strike Range Filter No Filter
	Delingha Brigade, 56th Base	~ 12 x DF-21 (2,150 km range) / DF-31 (7,000 km range). DF-21C (2,150km range) conventional missiles.	With Strike Range Filter No Filter

Icon	Name	Nuclear and Nuclear-Capable Missile Numbers	Location (URLs)
	Da Qaidam Brigade, 56th Base	DF-21C (2,150km range) conventional missiles. Unknown nuclear missile deployments. (Previously DF-4 Brigade, but only DF-4 Brigade still in operation is close to Lingbao in Henan Province).	With Strike Range Filter No Filter
	Mahai Brigade, 56th Base	Unknown	With Strike Range Filter No Filter
	Korla Brigade, 56th Base	~ 12 x DF-21 (2,150 km range) missiles. DF-21C (2,150km range) conventional missiles	With Strike Range Filter No Filter
Total Nuclear and Nuclear-Capable Forces		> 104 missiles that can strike all or elements of India, including: ~ 12 x DF-31A (11,000 km range),~ 6-12 DF-31 (7,000 km range) that can reach all Indian mainland targets. ~ 12 x DF-21 (2,150 km range) that can reach New Delhi. The remaining missiles can target sections of India's northeast and east coast.	

Nuclear Forces: India

Notes: India may possess more missiles than launchers for each missile type. India has also reportedly deployed a small number of 3,200 km range Agni-III missiles, but their locations and progress toward the targeted force strength are currently unknown. As the authors have information indicating the potential presence of a 2,000 km range Agni-II missile brigade near Nagaon in Assam in northeast India, the Agni-III missiles are estimated by the authors to be based in the same general area. As illustrated on the map, this location is optimal for Agni-III missiles to reach all significant mainland targets in China and Pakistan. Missile base locations represent general estimations, as opposed to exact locations.

Not all Indian nuclear bases have been allocated a circle indicating strike range, due to several bases (e.g. 1-4) being unable to reach Chinese targets, and some having highly similar locations and ranges in light of a desire to maximize map clarity. In base clusters featuring at least one base able to reach Chinese targets, one base has been allocated the indicative range circle.

While the Chinese nuclear forces and locations included in this analysis are only those assessed to be most geographically relevant to India targeting missions, the Indian nuclear forces and bases detailed here—with the exception of the nascent Arihant-class SSBN fleet being formed at Visakhapatnam and Rambilli—represent the entirety of India's identifiable operational nuclear forces. The necessity to retain a significant proportion of these forces for Pakistan targeting missions provides analytical context to this data.

As with China, nuclear warheads are held at separate locations from delivery vehicles in peacetime. A nuclear strike order is issued by the Political Council of the Nuclear Command Authority (NCA), and executed through the NCA Executive Council and military Strategic Forces Command.

[LINK] **Full Strike Range Map—India**

Icon	Name	Nuclear and Nuclear-Certified Delivery Vehicles	Location
	Ambala AFS	~ 17 nuclear-certified ground attack aircraft to carry gravity bombs, #5 Sq. & #14 Sq. Jaguar IS	With Strike Range Filter
	Gwalior/ Maharajpur AFS	~ 17 nuclear-certified fighters to carry gravity bombs, #1 Sq., #7 Sq., & #9 Sq. Mirage 2000H/TH.	With Strike Range Filter (Dark Blue Circle)
	Gorakhpur AFS	~ 17 nuclear-certified ground attack aircraft to carry gravity bombs, #16 Sq. & #27 Sq. Jaguar IS	With Strike Range Filter
	444 Missile Group Brigade	(Possible General Brigade Sites) ~ 8 Prithvi-II (250 km range) missile launchers total	On Strike Range Map (No Strike Range Circle)
	444 Missile Group Brigade		On Strike Range Map (No Strike Range Circle)
	444 Missile Group Brigade		On Strike Range Map (No Strike Range Circle)
	444 Missile Group Brigade		On Strike Range Map (No Strike Range Circle)
	334 Missile Group, 3341 Brigade	~ 8 Agni-III (3,200 km range) missile launchers,~ 8 Agni-II (2,000 km range) missile launchers	With Strike Range Filter (Green Circle)
	333 Missile Group, 3332 Brigade	~ 8 Prithvi-II (250 km range) missile launchers	On Strike Range Map (No Circle)
	332 Missile Group Brigade	~ 8 Agni-II (2,000 km range) missile launchers	With Strike Range Filter (Purple Circle)
	334 Missile Group, 3341 Brigade	~ 10 Agni-I (1,000km range) missile launchers	On Strike Range Map (No Circle)

Icon	Name	Nuclear and Nuclear-Certified Delivery Vehicles	Location
	333 Missile Group, 3331 and 3332 Brigades. 334 Missile Group Brigade.	~ 16 Prithvi-II (250 km range) missile launchers ~ 10 Agni-I (1,000km range) missile launchers	On Strike Range Map (No Circle)
Total Estimated Nuclear and Nuclear-Certified Forces	~8 Agni-III launchers able to reach all Chinese mainland targets and ~8 Agni-II launchers able to reach central Chinese targets (e.g. Xi'an, Chongqing). ~51 nuclear-certified aircraft with gravity bombs and ~8 Agni-II launchers able to reach Tibet.		

Nuclear Forces: Comparison Table

	China	India
Total Estimated Nuclear, Nuclear-Capable and Nuclear-Certified Forces	> 104 missiles that can strike all or elements of India. ~ 12 x DF-31A (11,000 km range), ~ 6-12 DF-31 (7,000 km range) that can reach all Indian mainland targets. ~ 12 x DF-21 (2,150 km range) that can reach New Delhi. The remaining missiles can target sections of India's northeast and east coast.	~10 Agni-III launchers able to reach all Chinese mainland targets, and ~8 Agni-II launchers able to reach central Chinese targets (e.g. Xi'an, Chongqing). ~ 51 nuclear-certified aircraft with gravity bombs and ~8 Agni-II launchers able to reach Tibet.

Endnotes

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