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Pre-suasion: How the PRC Controls the Message on a Sino-US Trade War

By Matt Schrader

During the past fortnight, a long-simmering trade dispute between the United States and China has burst into open recrimination, with the two sides threatening each other with \$250 billion worth of reciprocal tariffs ([China Daily](#), April 7). As of this writing, the situation remains fluid and fast moving.

One argument frequently advanced in the US holds that Donald Trump's administration is in a weaker political position than the PRC leadership in the event of a prolonged trade war, in part because of the ability of the Chinese Communist Party (CCP) to shape domestic debate through censorship ([New York Times](#), April 5). While the outcome of any potential trade war is difficult to predict, it is true that in its ability to set the agenda domestically the CCP has at its disposal a political weapon that other governments can only envy.

Many in the US view PRC censorship as a blunt tool, but it is actually a sophisticated system that relies heavily on what we might term 'pre-suasion' [1]. In the event of any trade war, the CCP will seek to use this technique to shore up domestic support not only by suppressing criticisms of its policy, but by advancing a positive narrative. In the CCP version of events, China will be slow to anger. But once

provoked, it will reluctantly respond—in a calm, stern fashion—to undeserved, irrational foreign bullying, as it seeks to protect the rules-based international trade regime from an erratic American president.

What Is Pre-suasion?

The CCP has a formidable range of coercive tools—from algorithmic censorship, to the instructions on “public opinion guidance” it provides newspaper editors on sensitive subjects—that it deploys to selectively advance or suppress certain facts or interpretations ([China Brief](#), February 23, 2016). Through these techniques, as well as imposing significant costs on prominent individuals who advance heterodox views, the CCP seeks to limit the range of available facts and interpretations present in China’s boisterous public discourse. The ultimate goal is to limit the range of conclusions at which a reasonable person could reasonably arrive.

This is the essence of pre-suasion. Chinese citizens are not empty, unthinking vessels for the information their government presents them; they evaluate and respond to it as critically as individuals anywhere. But it is difficult for someone to hold an opinion to which they have not been exposed, or critically evaluate an argument when important facts are not ready to hand.

Pre-suasion in Practice

Coverage of international disputes in PRC media reliably uses several important framing techniques. Together, these techniques constitute the pre-suasive framework the CCP uses to guide coverage and commentary on Sino-US trade frictions, as well as other issues such as the South China Sea ([The China Story](#), September 20, 2016). The boundaries between these techniques are not sharp; they are meant to complement and reinforce one another.

- *Never explain the other side’s argument*

The grievance most frequently expressed by US business executives about China relate to market access, forced technology transfers, and government subsidies; these grievances were the focus of the United States Trade Representative’s recently-completed Section 301 investigation. Coverage of the 301 report in Chinese media does not repeat the substance of the USTR’s allegations; one searches in vain for quotes, anecdotes, or data from the American businesses affected. The top results of a Baidu search for “US 301 investigation” are articles from state media organs with titles like “The US 301 Investigation Doesn’t Have a Leg to Stand On” ([people.cn](#), April 6) or “Legal Facts Underlying US 301 Investigation Called into Question” ([Xinhua](#), April 7).

- *Never directly criticize central government policy*

It would be absurd to expect that everyone in China’s commentariat believes that the US has no grounds for complaint. But if such critics of CCP policy exist, they are not given a platform. Baidu searches using terms like “Sino-US trade war America is right” or “US 301 investigation is correct” yield no articles critical of Made in China 2025, or other aspects of PRC industrial policy. Articles arguing that China could lose a trade war are almost as scarce, although there is ample support for the idea that a trade war is a lose-lose proposition [2].

- *China is calm, rational, rule-abiding; the other side is irrational and self-defeating*

The lose-lose framing is common in PRC media, with the caveat that a potential trade war would be more damaging to the US [3]. This framing is an elegant way to accomplish several objectives as once: portray the US as irrational for taking a step that would damage itself (Donald Trump's unpredictability is another frequent analytical theme); demonstrate that China is being forced into battle reluctantly; steel the Chinese public for adverse economic consequences; and show China's preference for resolving trade disputes through existing WTO mechanisms. This preference for WTO resolution is not because of any particular love for a rules-based order, but because the PRC is increasingly able to shape WTO outcomes in its favor [4].

Conclusion

Pre-suasion as practiced by the CCP is a powerful tool for building consensus, particularly where foreign policy is concerned. It allows the Party to privilege supportive voices, and channel debate away from a direct examination of the wisdom of central government decisions. It is a powerful weapon in any international dispute, and one of the biggest reasons that a genuine trade war with China could develop into a prolonged battle of attrition.

Matt Schrader is the editor of China Brief. Follow him on Twitter @tombschrader.

Notes

[1] The term "pre-suasion" was coined by Robert Cialdini, a professor emeritus of Psychology and Marketing at Arizona State University. He defines pre-suasion as "the practice of getting people sympathetic to your message before they experience it. It's the ability to cause people to have something at the top of their consciousness that makes them receptive to your message that's yet to come." (PBS Newshour, September 22, 2016). The term as it used in this article expands somewhat on Cialdini's definition, see above.

[2] This author was able to find one article in a major PRC media outlet that clearly explained the idea that trade surplus nations such as China are at a natural disadvantage in trade wars (Caixin, March 26). The author is an economist who did his postdoctoral work at MIT. The argument was not made in any of the other coverage reviewed for this article.

[3] Among numerous examples, see "A Sino-US Trade War Would Be an Asymmetric Lose-Lose, China Can Take More Pain" (China Securities Journal, March 2), "PKU National Development Institute Vice-President: China Can Counter the US by Limiting Trade in Services" (China News, April 6), "Vice-Minister of Finance Zhu Guangyao: We Aren't Hoping for a Trade War: The Result Can Only Be a Lose-Lose" (China Youth Daily, April 4).

[4] See "China's Rise: How It Took on the US at the WTO" by Gregory Shaffer, Henry Gao, University of Illinois Law Review, 2018 (1), 115-184. Accessed at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2937965, April 7, 2018.

Blinding the Enemy: How the PRC Prepares for Radar Countermeasures

By Zi Yang

Information warfare and information operations constitute the foundation of the People's Liberation Army's (PLA) doctrine of winning what it calls "informationized wars (信息化战争)." [1] Electronic warfare (EW), one of five pillars of information warfare, has found its way to the forefront of the PLA's war preparation agenda. All PLA major exercises now feature significant EW components.

These developments have real-world implications: In late January, PRC media unveiled a new type of airborne jamming system mounted on Xi'an H-6G long-range heavy bombers, trumpeting its role in reinforcing PRC electromagnetic spectrum dominance in the South China Sea ([Huanqiu Net](#), January 24). The muscle flexing shows growing PRC confidence in EW technology and widening EW capability gap between the PRC and its neighbors.

Despite all this, the PLA's EW capacity has been a neglected topic, primarily because of the lack of quality information. However, new sources, examined here for the first time in English-language PLA analysis, allow us a unique look at previously unexamined subjects. For the purposes of simplicity, this paper leaves aside issues such as sensors, communications equipment, and weapons systems to focus on one facet of EW, namely, how the PRC conceptualizes and prepares for radar countermeasure (RCM; 雷达对抗) [2]. Indispensable to modern wars, the "blinding" of enemy radars with EW complexes provides friendly forces a critical edge in combat. Therefore, the PLA thinking illuminated by the main text of analysis, including simulations of strikes against enemy carrier battle groups, deserves in-depth examination and assessment.

The Text to Be Analyzed

The bulk of this paper's analysis draws from the *Principles of Radar Countermeasure* (雷达对抗原理), hereafter called *Principles*. Funded by the Central Military Commission's Project 2110 and published by the PRC's National Defense Industry Press, the book was last updated and reprinted in November 2016. The text is a collective effort of the PRC's top radar and EW experts from the National University of Defense Technology's Electronic Countermeasure Institute and all five PLA branches.

Based on the Electronic Countermeasure Institute's internal textbooks, *Principles* reveals how RCM is taught in leading PRC EW schools and how PRC thinkers conceptualize RCM. Thus, we can say with confidence that *Principles* is an authoritative text with reliable information on the subject, one that allows us to treat the subject in much greater depth than has previously been the case in authoritative, open-source English-language publications. [3]

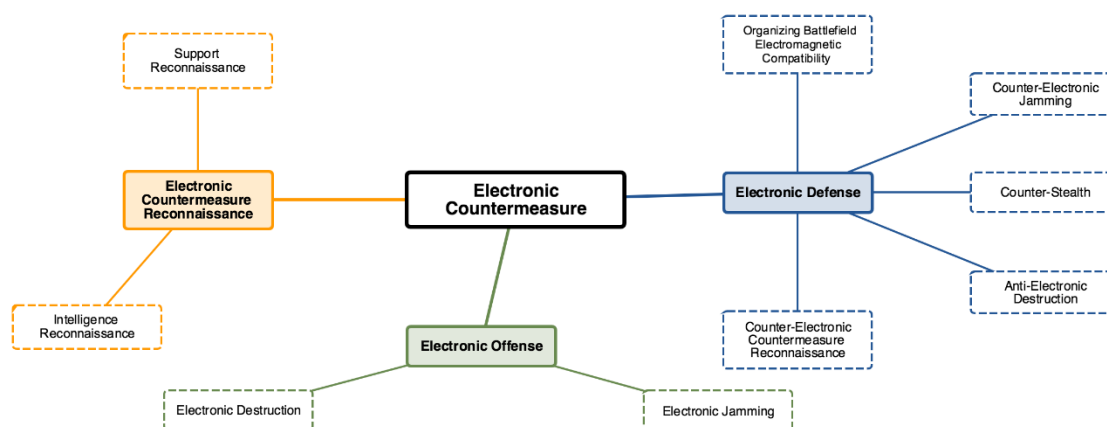
Differences in PRC and US Perceptions of EW

It is important to note that the PRC is learning quickly from the US in EW matters. PRC thinkers keep a very close watch for new ideas coming out of its number one competitor—the US. At a recent Qian Xuesen Forum that saw the gathering of leading PLA-affiliated scientists and engineers, an expert with the PLA's Strategic Support Force delivered a speech on artificial intelligence and electromagnetic spectrum warfare, an expansion of current EW concepts first publicized in 2015 that has yet to be fully embraced by the Pentagon ([81IT Net](#), February 22).

Perhaps because of this, while PRC and American thinkers use different terminology to describe various aspects of EW, their concepts largely overlap. US experts subdivide EW into three areas: electronic support, electronic attack, and electronic protection. In Chinese jargon, these three are respectively called electronic countermeasure reconnaissance (电子对抗侦察), electronic offense (电子进攻), and electronic defense (电子防御) (*Principles*, pp. 2–3).

There are two key differences to note: Firstly, the Chinese jargon “target electronic protection (目标电子防护)” refers specifically to target protection, while the American term “electronic protection” covers a much broader area. Secondly, Americans view jamming and deception as two distinct concepts, while PRC experts see them as an integrated whole (*Principles*, p. 3–4).

The Chinese term for EW is “electronic countermeasure (电子对抗).” RCM is further defined as “a form of electronic countermeasure aimed at protecting friendly radars and undermining/damaging the effectiveness of enemy radars (including radar countermeasure equipment) (*Principles*, p. 4).”



Chinese Conceptualization of Electronic Countermeasure

Translated and reproduced by Zi Yang

Source:

Ping He, ed., 雷达对抗原理 [*Principles of Radar Countermeasure*] (Beijing: National Defense Industry Press, 2016), p. 3.

PRC Views on RCM “Hard Kills”

Hard-kill refers to the substantive destruction of enemy assets. PRC thinkers view anti-radiation missiles, drones, bombs, and high-power microwave weapons as the main tools of trade in the substantive destruction of enemy radar systems. *Principles* describe in some detail the pros and cons of each of these methods, as well as how they are to be used in combat.

Anti-radiation missiles (ARMs) normally employ passive radar homing. The blast radius of an ARM is generally 20 to 60 meters. ARMs are typically highly stealthy and intelligent, but some are limited in their capabilities by their passive radar seekers. The PRC has four types of ARMs—the CM-103, YJ-91, LD-10, and FT-2000 (*National Interest*, November 30, 2017). Of these the FT-2000 is perhaps the most noteworthy. It is a unique surface-to-air ARM made to target airborne early warning and control aircrafts and EW aircrafts. Cold launched, the FT-2000 utilizes active radar homing to strike targets 12 to 100 kilometers away, at altitudes of between three and 20 kilometers (*China Net*, August 21, 2015).

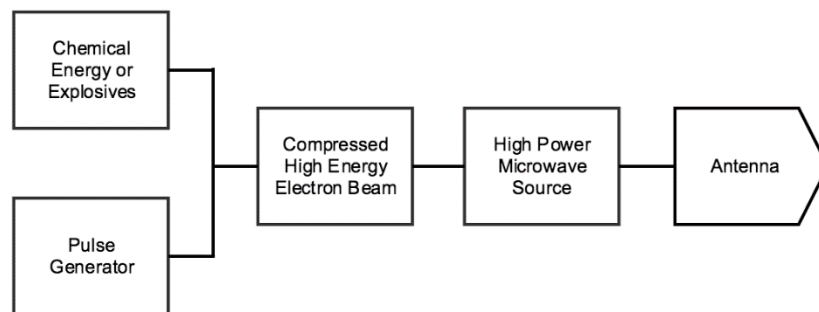
Usually weighing 200 kilograms or under, anti-radiation drones (ARD) conduct kamikaze attacks on its intended target. The blast radius of an ARD is larger than an ARM at 50 to 100 meters. The ARD's greatest advantage is that it can be used as a loitering munition (*Principles*, pp. 241–243). In a military parade in August 2017 at Zhurihe Combined Tactics Training Base (朱日和合同战术训练基地), one of the PLA's main training bases, the PLA demonstrated its ASN-301 ARDs. Bearing striking resemblance to the Israeli Harpy, the ASN-301 has a range of 288 kilometers, a destructive range of 20 meters, and four hours of endurance (*Israel Defense*, March 1, 2017).

Although anti-radiation bombs (ARBs) are discussed in *Principles*, the authors admitted that it is rarely used in combat because to do so requires air superiority.

High-power microwave (HPM) weapons, although not yet fielded, are in the view of PRC experts a critical future EW weapon. HPM pulses enter electronic equipment through the “front” (antennas) and “back” channels (any openings on the target) (*Principles*, p. 244). Depending on radiation intensity, HPMs can disable or completely destroy enemy electronic equipment.

HPMs can also harm human radar operators. At low intensity (3–13 milliwatt/cm²), HPMs can cause confusion, memory loss, altered behavior, blindness, deafness, loss of consciousness, and even heart failure. At the highest level of intensity (80 watt/cm²), a HPM attack would be a “death ray”, killing enemy combatants within a second (*Principles*, p. 245–246).

The authors of *Principles* seem to have more information on miniaturized HPM bombs—deliverable via artillery shells, rockets, aerial bombs, and missiles—than they do on HPM weapon complexes—which could indicate Chinese technological maturity in the former, or an attempt to conceal advancements in the latter. [4]



Chinese Illustration of an HPM Bomb

Translated and reproduced by Zi Yang

Source:

Ping He, ed., 雷达对抗原理 [*Principles of Radar Countermeasure*] (Beijing: National Defense Industry Press, 2016), p. 243.

PRC Views on RCM “Soft Kills”

Soft-kill refers to the use of EW countermeasures to disrupt and confuse the enemy. *Principles* outlines two types of radar jamming: suppressive and deceptive. Each topic has an active and passive side, as well as further subdivisions that yield a dozen or more distinct jamming techniques.

Active suppressive jamming uses noise or pulses to overwhelm and interfere with the operation of enemy radar receivers. One example among dozens of jamming techniques is random pulse jamming, which employs pulses with irregular parameters to cover the radar echoes bouncing off a target (*Principles*, p. 167). Passive suppressive jamming refers to the use of chaff and corner reflectors on the physical battlefield.

Deceptive jamming uses false signals to mislead enemy radars. So-called “active deceptive jamming (有源欺骗性干扰)” also has a range of techniques. Ground bounce jamming, for example, is most effective against active or semi-active homing missiles. In this scenario, an airborne EW system projects a powerful simulated radar echo at the ground, in such a way that it is reflected towards the incoming missile. If successful, the missile will instead home in on the simulated echo (*Principles*, p. 198). Passive deceptive jamming refers to decoys such as drones and rocket-propelled decoys. The radar cross-section of decoys must be more reflective than that of the real target, but not overly strong, or else it would increase the risk of the decoy getting exposed.

PRC Views of RCM's Defensive Aspects

According to *Principles*, the most important ways to guard friendly assets against enemy radars are disguise and stealth. It also divides these techniques into ‘natural’ and ‘man-made’.

For example, the *Principles* point out, the earth's curvature creates radar blind spots that allow friendly assets to position themselves out of sight of enemy radar. Rough terrain such as forests, mountains, hills, and valleys can also hide friendly assets, while rain can degrade radar echoes (*Principles*, pp. 219–221). However, natural disguises are not the best option since they are not always readily available.

Multi-spectral camouflage is a convenient tool for protecting friendly assets from radar detection. But if this is unavailable, *Principles* suggested that tree branches, reeds, and hay could be utilized, although they must be sufficiently thick to deflect electromagnetic waves (*Principles*, pp. 222–223).

Stealth technology, on the other hand, focuses on reducing radar cross-sections through smooth exterior design that minimizes corners and edges.

In addition to passive measures, the *Principles* suggest a self-screening jammer can mask the target through jamming the main beam of enemy radar.

To defend against anti-radiation weapons, *Principles* suggests the use of decoys and deceptive jamming to confuse the incoming weapons or trigger a premature detonation (*Principles*, p. 255). Specific to HPM weapons, *Principles* advocates adding a filter system for incoming microwaves, the use of burn-resistant materials for electronics, adding an automatic shutdown mechanism that anticipates an HPM attack, and sealing or lining all openings on equipment with HPM-absorbing materials (*Principles*, pp. 257–259).

Putting It All Together

Towards the end of the book, *Principles* features a series of RCM simulations that reveal PRC thinking about how the various RCM tools and techniques illustrated above could be integrated on the tactical level. However, it is necessary to note that these examples are based on PLA observations of foreign military exercises and simulations.

One case with considerable relevance to a future conflict in the Asia-Pacific is a simulated airstrike on a carrier battle group.

The attacker consists of over 20 aircraft enhanced with EW countermeasures—16 bombers, one early warning and control aircraft, one RCM support aircraft, three airborne standoff jammers, and two EW aircrafts loaded with ARMs.

The attack begins with the RCM jet identifying and locating enemy radar. This information is then passed on to the entire attacking formation. Three standoff jammers begin to disrupt the carrier battle group's radar. Two EW jets then attack enemy radars with ARMs, while lead bombers lay down chaff corridors to shield friendly bombers as they approach the target. The self-screening jammer on each bomber is simultaneously activated.

As the bombers approach the target, the chaff dispensers make a sharp turn. Bombers begin attacking the enemy with precision-guided munitions. Friendly standoff jammers then shift their focus to jamming enemy fire control radars, missile guidance receivers, surveillance radars, and command guidance links, until the attack is over (*Principles*, pp. 282–283).

The simulation projects the entire attack to last between 10 to 15 minutes.

Conclusion

Compared to emerging EW powers like Russia (*ICDS*, September 2017), we know far too little about China's actual EW/RCM capabilities. Against the backdrop of China's strict information control regime, what we can extrapolate from *Principles* gives us a much-needed glimpse into how China conceptualizes RCM and how it educates its EW specialists. This brief overview and analysis has not covered *Principles* in its entirety; interested readers would do well to consult it for a comprehensive, authoritative look at how the PLA conceptualizes RCM as part of its overall EW doctrine.

Zi Yang is a Senior Analyst at the China Programme, S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore. Follow him on Twitter [@ZiYangResearch](#).

Notes

[1] According to Heritage Foundation's Dean Cheng, "The PLA's 2011 volume on terminology describes 'informationized warfare' as warfare where there are networked information systems and widespread use of informationized weapons and equipment, all employed together in joint operations in the land, sea, air, outer space, and electromagnetic domains, as well as the cognitive arena. In informationized warfare, the main form of conflict is between systems of systems. As part of this sys-

tems-of-systems construct, informationized warfare is envisioned as informationized militaries, operating through networked combat systems, command-and-control systems and logistics and support systems.” See: Dean Cheng, *Cyber Dragon: Inside China’s Information Warfare and Cyber Operations* (Santa Barbara, California: Praeger, 2016), p. 39.

[2] Radar countermeasure (雷达对抗), communications countermeasure (通信对抗), electro-optical countermeasure (光电对抗), and underwater acoustics countermeasure (水声对抗) constitute the four subsets of Chinese EW or dianzi duikang (电子对抗).

[3] Even the Pentagon’s annual reports on the PRC military capacity, typically one of the most authoritative, in-depth sources available, have had relatively little to say on this subject. For the interested reader, the annual report’s most extensive treatment of PRC EW to date can be found on page 66 of the 2014 annual report.

[4] For the latest developments on Chinese HPM weapons, see: [The Diplomat](#), March 11, 2017.

Can China Realize Africa’s Dream of an East-West Transport Link?

By Cobus van Staden

African development hinges on a maddening paradox: its greatest asset—the sheer size and diversity of its landscape—is also the greatest barrier to its development. Landlocked countries are cut off from ports, and the difficulty of moving goods from country to country weighs down intra-continental trade (only 15% of African trade is within Africa. ([African Development Bank](#), 2017) African consumers bear the brunt of these difficulties. [1]. Costs are driven up by a host of factors: tariffs, border delays, corruption. But the biggest challenge is that no streamlined transport route exists between West and East Africa – only a decaying and underdeveloped road and rail system which pushes up costs and drags down efficiency.

Several ambitious schemes have been proposed to link Africa’s east and west coasts, some of which are closer to full realization than others. Most notable in this respect is a plan to expand the existing Trans-African Highway 5 (TAH5) into a true cross-continental road and rail link, the early stages of which China has helped bring to fruition where Western consortiums failed. Likewise, Chinese investment in African infrastructure through Beijing’s ambitious Belt and Road Initiative (BRI) may help create expanded sub-regional linkages, particularly in East Africa, that could help facilitate the emergence of an eventual, true East-West link in the long term. However, in the short-to-mid-term, the obstacles to a truly robust set of East-West transport links are formidable, and it is unlikely that China’s involvement will be a panacea.

Long March to the Red Sea

Portions of the proposed East-West link already exist, in the form of the Trans-Africa Highway 5. The most credible proposal for a full continental connection builds on these, and plans to link them.

TAH5 is the most significant precursor to a full transcontinental African transport corridor. It is part of a proposed nine-highway network originally put forth by the United Nations Economic Commission for Africa (UNECA) in 1971 ([We Build Value](#), November 8, 2017,) and currently undertaken by the agency in conjunction with the African Union, and the African Development Bank, and external stakeholders. The highway connects Dakar, in Senegal, to the Chadian capital of N'djamena, about 4,500 kilometers, or a little further than the distance from New York to San Francisco. It runs through seven countries, Senegal, Mali, Burkina Faso, Niger, Nigeria, Cameroon, and Chad.

The TAH5 is the only one of all the Trans-African highways to be fully completed and it represents a major development victory for that reason. However, sections of the road are dilapidated, and upkeep across national borders remains a challenge. The proposed East-West link, supported by the African Union, but still in the process of finding financing, would connect Senegal on the Atlantic to Djibouti by on the Red Sea by building new roads and upgrading degraded sections to extend the existing TAH5, with matching rail links. The finished project would add Sudan, Ethiopia, and Djibouti to the countries already connected by TAH5, and would span 8,715 kilometers, or a little less than the distance between New York City and Midway Atoll.

The rail component is even more challenging than the road component, since most of the preexisting rail connections would have to be upgraded from narrow to standard gauge, and massive gaps—in some cases as large as 4,000 kilometers—in the proposed route would need to be bridged.

The first phase of the project will be an estimated \$2.2 billion upgrade to 1,228 kilometers of existing rail between Dakar, the capital of Senegal, and Bamako, the capital of neighboring Mali. This section will be directly implemented by the African Development Bank's Program for Infrastructure Development in Africa (PIDA) and enjoys the support of the West African Economic and Monetary Union, which bankrolled feasibility studies. Construction is expected to begin later this year ([How We Made It in Africa](#), May 29, 2014.)

China has been crucial to getting the rail portion of the project off the ground. After more than a decade of disagreements with a Franco-Canadian consortium, the governments of Senegal and Mali signed separate agreements with China Railway Construction Corporation in 2015. Senegal's deal comes to \$1.24 billion, and will be funded by a Chinese loan, payable over 30 years at 2% interest ([Economist Intelligence Unit](#), January 6, 2016.) Mali signed a \$1.5 billion deal with the company ([Reuters](#), December 26, 2015.) The latter deal formed part of a larger set of railway deals signed the year before with China, including an \$8 billion deal for a railway link between landlocked Mali and the Guinean port of Conakry ([Centre for Chinese Studies](#), November 24, 2014.)

The current estimated delivery date for the Dakar-Bamako section of the project is 2022 ([PIDA](#), November 24, 2017.) If completed, the project will improve goods transport speeds fourfold, and provide a vital new link to the sea for Mali, improving the prospects of its gold mining sector. However, the difficulties facing even this relatively short stretch underscore how challenging the full Dakar-Djibouti multimodal transport corridor will be. Full completion will be hampered by security concerns in Chad and Sudan, and rocky terrain in Ethiopia. Another issue is the pressure cash-strapped individual governments face to focus their limited resources on projects that would secure them immediate direct connections to ports; this could make it difficult to convince them to work together on trans-frontier developments whose benefits for intra-continental trade lie in the relatively distant future. Transfrontier

infrastructure, such as the Standard Gauge Railway, has the potential to mitigate some of these pressures, especially in tandem with Belt and Road-related developments like new ports. However, concerns are being raised about how sustainable the resultant debt would be for some of these lowest income countries.

That being said, UNECA's proposal for a Trans-African Highway Network, which sounded like science fiction when it was first announced in 1971, has now begun to move towards reality. The completion of TAH5 and a growing network of railway lines in East Africa have made African mega-projects feel more feasible now than in the past. This is partially thanks to the impact of Chinese infrastructure investment in general, and the Belt and Road Initiative specifically.

Changing Narratives, Building Connections

The Belt and Road Initiative is a sprawling transnational infrastructure expansion project that has rapidly become the centerpiece of Chinese outward investment. It essentially uses infrastructure provision to connect China to Europe via two routes: the Silk Road Economic Belt runs overland from China to Germany via interlinked rail connections through Central Asia, and Central Europe. More pertinent to Africa, the 21st Century Maritime Silk Road is a sea route from China to Greece. It travels via the India Ocean to Mombasa, Kenya, and then through the Suez Canal to the Mediterranean. On paper, BRI only grazes Sub-Sahara Africa before moving north to Egypt. However, Mombasa also becomes the node where the Belt and Road Initiative meets East Africa's Standard Gauge Railway. This connection enables a host of development opportunities that in turn could help to fund some of these trans-continental rail networks.

The clearest case in point is Ethiopia. The railway line between Addis Ababa and Djibouti was funded by Chinese lenders and constructed by Chinese contractors. But China's involvement didn't end here. Ethiopia has eagerly embraced a Chinese model of centralized economic planning focused on manufacturing and assembly in special economic zones. Several such zones were funded by China, and initially populated by Chinese apparel and shoe manufacturers ([Brookings](#), January 30, 2018.) These have since been joined by European counterparts like H&M, setting Ethiopia up as a low-cost assembly hub exporting to Europe ([H&M Group](#), May 26, 2016.) While Ethiopia isn't formally on the Belt and Road route, cross-frontier rail infrastructure still enabled it to become an exporter along BRI arteries.

In addition, BRI-related projects in East Africa have also proven that it is possible to build this kind of infrastructure, and in the process has arguably improved investor confidence. For example, Tanzania recently put out tenders for its own section of the standard gauge railway, and struck a deal with a Turkish contractor at a significant saving per meter of track compared to Kenya's Chinese-built section ([Daily Standard](#), November 8, 2017.) While one can fault the Kenyan deal, I would argue that the success of these early developments broke down entrenched biases against funding African infrastructure among a wider range of funders. This could potentially also speed up the completion of a connection between East and West Africa.

Conclusion

The dream of a connection between East and West Africa, and a resultant increase in Africa-fueled trade and development has long haunted the continent. The evolution of unified development goals such as the African Union's Agenda 2063, shared regional and continental institutions enabling

measures such as the recently decided continental free trade agreement, and the presence of new sources of development funding make this dream seem more possible. However, Africa will have to ask hard questions about debt, sovereignty, and foreign power influence. The recent case of Sri Lanka losing control of a Chinese-financed port is already raising worried discussion in Africa (*Daily Standard*, February 26, 2017). Achieving the dream of unifying the continent is going to demand complex choices. Any East-West connection across the width of Africa would function as a de facto extension of the Belt and Road Initiative to the Atlantic Ocean. Such a connection would significantly increase Chinese presence on the continent, especially if Djibouti is its eastern anchor, because also houses China's first overseas military base. While this might worry Western powers, Africa would arguably see it as a small price for a long-cherished dream.

Cobus van Staden is a senior researcher with the South African Institute for International Affairs, and the co-host of the weekly China in Africa Podcast and co-moderator of the China Africa Project's popular Facebook community. You can follow him on Twitter @stadenesque

Notes

[1] For example, the World Bank famously calculated that it is less expensive to get a car from Japan to Addis Ababa than it is to transport that same car overland from Addis Ababa to Abidjan. See: UN Economic Commission for Africa, African Union and African Development Bank. 2010. *Assessing Regional Integration in Africa IV: Enhancing Intra-African Trade*. Addis Ababa: UN Economic Commission for Africa. <http://www.uneca.org/aria4/ARIA4Full.pdf>

Civil-Military Fusion and the PLA's Pursuit of Dominance in Emerging Technologies

By Lorand Laskai

China is intensifying its nearly two-decade push to meld together the civil and defense economies through what officials term “civil-military fusion” (军民融合). On March 2, 2018, CCP General Secretary Xi Jinping chaired the third meeting of the recently formed Central Commission for Integrated Military and Civilian Development (CCIMCD), where he emphasized the strategic importance of ‘unifying’ (体化) national power through reducing barriers between the commercial economy and defense industrial base (CCTV, 03/02). Days later, speaking to a delegation from the People's Liberation Army (PLA) and armed police at the 13th National People's Congress, Xi called civil-military fusion (CMF) a “prerequisite” for realizing the goal of building a strong military (Xinhua, 03/12) [1].

China's efforts to become a dominant ‘science and tech superpower’ (科技强国) in technologies like artificial intelligence, quantum communications, robotics and smart manufacturing are well documented (*China Brief*, August 17, 2017). Less is known about how China plans to use CMF to convert its technological push into a long-term military advantage, in ways that, to a significant degree, are partly modeled on the US. Originally elevated to a national strategy in 2014, CMF has since gained importance as a pillar of China's military modernization, becoming one of Xi's signature issues as he

attempts to turn the PLA into a 21st century fighting force. China's leadership evidently sees the opportunity to translate the significant progress that has been made in China's private hi-tech sector into military gains, through the strategic application of industrial policy. [2] Although the push is, in some ways, similar to previous efforts to leverage the private sector, there are signs that this iteration is both more serious and better resourced than past attempts.

A Blueprint for Dual-Use Superiority

In June 2017, the Chinese Academy of Engineering (CAE) and Tsinghua University held a conference on CMF and the dual-use applications of AI. In front of an audience of prominent AI experts, industry leaders, and military personnel that included Zhang Yulin, the assistant director of CMC Equipment Development Division, the Dean of CAE Zhou Ji declared that, "AI will be the most important dual-use technology for the next ten years" (Science Net, June 26, 2017)

Rather than waiting for emerging technologies like AI to mature before encouraging collaboration with the defense industrial base, China's leadership is determined to bake CMF into the overall design of emerging sectors through top-level planning. CMF is a prominent component of a number of key government initiatives, including the Next Generation Artificial Intelligence Development Plan (2017), Made in China 2025 (2015), and Promotion of a National IC Industry Development Guidelines (2014). The Next-Generation AI Development Plan, released last June, for instance, named CMF as one of the "six main duties" (六大任务) for AI development and called for establishing an "all-element, multi-domain, highly efficient (全要素、多领域、高效益) new pattern of civil-military integrated development." The goal is not only to ensure military application develop in tandem with civilian applications, but that the combination of the two domains produces 'leapfrog development' (跨越发展).

In practice, this means funding pilots and promoting 'backbone enterprises' (骨干企业) that will ensure that emerging industries grow with CMF at its core. The approval process for national-level Made in China 2025 demonstration zones, approved by Ministry of Industry and Information Technology (MIIT), includes support for enterprises involved in CMF (Economic Daily, 03/09). What CMF initiatives the Next Generation AI Development Plan will support is less clear, since the plan is still in its initial phase. In November 2017, Major General and Deputy Chairman of the CMC's Sci & Tech Committee, Lu Yueguang, was appointed to the Next Generation AI Strategy Advisory Committee, ensuring that the PLA will have a voice in the plan's implementation.

Follow the Leader

The drive to integrate military and commercial decision-making springs, in part, from the PRC's close study of the US's experience cultivating commercial-military ties. State-media often cites data showing that in the United States 85% of the military's core technology comes from the private sector and 80% of firms that supply the US military also sell commercially (Reference Times, 08/01/2017). In January 2018, a study group tasked with researching CMF legislation at the State Council's Development Research Center published a document outlining the role of legislation like the Federal Technology Transfer Act of 1986 and Federal Acquisition Reform Act in the development of dual-use industries in the US (State Council, January 9).

The US's example helps to explain why the PLA views the combination of commercial and military resources in emerging technologies—a majority of which are currently being developed in the private

sector—as an imperative, with the PRC private sector’s development of commercial technologies with potential military applications, such as AI, drone swarms, cyber weapons, as key to undercutting the US military’s advantage (Reference Times, 12/20). Assimilating private sector innovation into the defense industrial base, according to several military experts, will result in a “spectacular feast” (饕餮盛宴). (Z-Park Civil-Military Integration Industry Park, 12/05/17).

Recent writing has also highlighted the role of the private sector in the Pentagon’s Third Offset Strategy (PLA Daily, 10/11/2017). Days after Space X successfully launched its newest rocket, the Falcon Heavy, several experts from the China Aerospace Academy of Systems Science and Engineering (CAASSE) wrote, “the lack of utilization of social resources has also become an important issue that restricts the better and faster development of China’s space industry” (ICT Civ-Mil Fusion Magazine, 2/13). Increasing commercial sector involvement through CMF, the authors said, would aid China’s rise as an ‘aerospace superpower’ (航天强国).

PLA Out in Front on Implementation

Partially in imitation of the US’s example, the PLA plays a large direct role in incubating emerging technology and developing ties with private enterprises and research institutes. In order to find new private sector partners and increase the PLA’s profile in the China’s tech communities like Beijing’s Zhongguancun, the Central Military Commission’s Equipment Development Department has held and participated in a number of “innovation challenges” and dual-use technology competitions (Science Net, 09/16/2017). These events are not unlike the competitions DARPA or the Pentagon’s Defense Innovation Unit Experimental (DIUx) hold in the US, albeit less sophisticated overall.

Because of its scale and institutional background, the PLA has traditionally dealt with large, state-owned enterprises for procurement and R&D needs. It’s clear that the PLA is trying to change that. In October 2017, the PLA Air Force (PLAAF) Logistics Department signed strategic cooperation agreements with JD.com and SF Express—one of China’s largest e-commerce outlets and logistic companies, respectively—to create an intelligent logistics system, including the use of transportation UAVs to maintain supply chains. After a successful trial run, which included drills with delivery drones in rural areas of Shaanxi and Yunnan, state-media hailed the JD.com-PLAAF partnership as an “innovative specimen of civil-military fusion” (军民融合创新样本) (Caixin, 01/16).

In further demonstration of the PLA’s genuine desire to engage the private sector, in April 2017, the Central Military Commission’s Equipment Development Department opened tenders on more than 2,000 projects to private companies (SCMP, April 20 2017). A month prior, the CMC’s National Defense Intellectual Property Office of the Equipment Development Department announced it would declassify over 3,000 defense patents for private sector use, marking the first time the PLA declassified patents in the thirty years since the PRC military patent system was created [3].

The Strategic Support Force (SSF), the branch of the PLA with primary responsibility for space, electronic, and cyber warfare, has been particularly forward-leaning, especially in R&D. In July 2017, the SSF signed talent and research cooperation agreements with nine research institutions and laboratories, including the Harbin Institute of Technology and Shanghai Jiaotong University, two of the country’s leading research universities (Xinhua, July 2017). The SSF also has informal, largely unreported ties with private enterprises. Last March, the PLA Daily reported that a branch of the SSF responsible for

testing software related to combat capabilities had spent time inside an unnamed software company, inspecting the company's software code and reviewing internal R&D processes (PLA Daily, 03/13/2017).

Same Old Song or Something New?

Analysts evaluating these efforts should keep in mind the fact that China's previous attempts to invigorate its sclerotic state-owned defense industrial base through market forces met with only limited success. China's leaders have been trying to implement some iteration of civil-military fusion since Deng Xiaoping. But there are reasons to believe this time is different.

First, Xi Jinping has consolidated control over the CMC, placing loyalists in key positions to push forward reform of the defense industrial base. Xi has also centralized control over the implementation of CMF through the recently established CCIMCD. In a sign of the commission's significance, last year Xi appointed then member of the Central Politburo and Vice Premier Zhang Gaoli (张高丽) to run the commission's daily affairs, a role usually reserved for a lower ranking official (SCMP, 06/21/2017). [4] The combination of these two developments means President Xi will have more power to push through reforms of the defense industrial base than any past Chinese leader

Second, the inclusion of CMF in major strategic initiatives like Made in China 2025 and the Next Generation AI Development Plan all but guarantees high-visibility and financial support for enterprises working on dual-use technology of interest to the PLA. Analysts need only look to successful Chinese 'national champions' to appreciate the powerful nexus between commercial technology and government power. Companies like Huawei and ZTE stand out in the telecommunication space, as do with Hikvision and a handful of rising AI companies like iFlytek in the surveillance space. In both cases, these enterprises succeeded in large part because they offered a private sector solution to a Chinese government need and in exchange received lucrative government contracts and valuable non-financial contributions like data or technology and patents.

Xi's drive to fuse technological and military development means more enterprises of this mold will likely emerge in the near future, though this time to support the PLA's pursuit of dominance in emerging technologies. Whether Xi can open private emerging technology sectors to the PLA remains to be seen, though the effort has the potential to energize Xi's attempt to turn the PLA into a hi-tech, modern fighting force.

Lorand Laskai is a Research Associate at the Council on Foreign Relations. Follow him on Twitter [@lorandlaskai](https://twitter.com/lorandlaskai)

Notes

[1] 军民融合 is often translated as 'civil-military integration.' 'Civil-military fusion' is preferable, however, since *ronghe* 融合 is more accurately translated as 'fusion' or 'amalgamation,' rather than 'integration' which translates as 一体化

[2] For more on structural reforms and overall developments in civil-military fusion under Xi, see Greg Levesque and Mark Stokes, "Blurred Lines: Military-Civil Fusion and the "Going Out" of China's Defense Industry," Pointe Bello, December 2016:

[3] Meia Nouwens and Helena Legarda, “China’s Declassification of Defense Patents: novel, but not (yet) a game changer,” The International Institute for Strategic Studies, January 2018.

[4] It is unclear who will replace Zhang Gaoli as the director of general affairs office for the CCIMDC now that he has retired from his party and government posts.

Sino-Nepali Relations: Scaling New Heights

By Sudha Ramachandran

In his very first interview after taking office in February 2018, new Nepali Prime Minister Khadga Prasad Oli said his government would seek to revive a US\$2.5 billion Sino-Nepali hydropower project on the Budhi Gandaki River ([South China Morning Post](#), February 19). The project’s fate has become tied with the country’s rapid turnover of governing coalitions, as well as a bellwether for the struggle for supremacy between pro-PRC and pro-Indian factions in Nepali politics. In May 2017, a government led by the Communist Party of Nepal (Maoist Centre) (CPN-MC)—now a junior partner in the governing coalition led by Oli’s Communist Party of Nepal (United Marxist Leninist) (CPN-UML)—awarded the contract for the 1,200 MW hydropower project to the China Gezhouba Group, to be built as part of China’s Belt and Road Initiative (BRI).

In November 2017, however the contract was cancelled by a new ‘pro-India’ Nepali Congress government ([Indian Express](#), November 20, 2017). Oli’s proposed revival of the Budhi Gandaki project is both a setback to India, and an indication that the Sino-Indian tug-of-war for influence in Nepal continues to swing increasingly in the PRC’s favor. This is much to the concern of policymakers in New Delhi, who have traditionally enjoyed a great deal of sway over their smaller neighbor.

The Elephant in the Room

India wields vast influence over landlocked Nepal. It surrounds the mountainous country on three sides and provides it with the shortest and most convenient routes to the sea. India is Nepal’s largest trade partner. It accounts for two-thirds of Nepal’s merchandise trade and meets all of its fuel requirements. Almost all of Nepal’s trade with other countries passes through India ([Ministry of External Affairs, India](#), November 2017). If its geography makes Nepal dependent on India, the Treaty of Peace and Friendship signed by the two countries in 1950 cements the unequal relationship. For instance, under the treaty, Nepal can only purchase military hardware from India or through India’s territory, with the Indian government’s “assistance and agreement.” [1]

Despite this, the PRC, Nepal’s neighbor to the north, has steadily chipped away at Indian influence in Nepal since the 1960s. While geography has historically limited China’s role in Nepal, Beijing is now seeking to raise its traditionally low profile in Katmandu.

Nepal’s Importance to China

Nepal shares a 1,236-km-long border with the PRC, dominated by the Himalayan mountain range. In the past, interaction between the two was minimal given the difficult terrain separating them. For centuries, it was with Tibet rather than successive Chinese dynasties that Nepal engaged.

Nepal took on much greater significance to the PRC in the 1950s after Beijing's annexation of Tibet made Nepal an immediate neighbor. Tibetans fleeing PRC repression took sanctuary in Nepal and India. There are around 20,000 Tibetans living in Nepal; controlling Tibetan activism there is a priority for Beijing. To this end it seeks close ties with the Nepali government to secure its co-operation in stamping out anti-PRC activism ([The Hindu](#), March 10, 2014).

To both India and the PRC, Nepal is a valuable buffer. India's dominating presence in Nepal irks the PRC, as it complicates the latter's control of Tibet—India is home to over 300,000 Tibetans, including the Dalai Lama and the Tibetan government-in-exile. After Sino-Indian relations deteriorated in the wake of the 1962 border war, Beijing became increasingly apprehensive that India would use Tibetan exiles living in India and Nepal to foment trouble inside the PRC.

The PRC is also interested in Nepal's vast and still largely unexploited water resources. Hydropower is among the priorities on its Nepal agenda ([Times of India](#), April 23, 2013). Additionally, it is keen on boosting trade with Nepal, with one eye towards the "bigger opportunities" that the giant Indian market offers ([The National](#), March 29, 2016).

Building Bridges

Recognizing that building influence in Nepal would be possible only by reducing Nepal's dependence on India for trade, since the 1960s the PRC has invested in road and railway projects to improve Sino-Nepali connectivity. For example, in 1963, China began construction of a 67-km-long highway linking Kathmandu to Kodari, on Nepal's side of the Sino-Nepal border. The PRC later built a friendship bridge linking Kodari with Khasa/Zhangmu, a trading town across the border in Tibet. [2] Later on, Khasa was tied into the PRC's national road network after it was made the western terminus of China National Highway 318, which runs all the way to Shanghai, passing through Lhasa and Chengdu along the way.

The PRC is also developing railway lines in the region. Its Golmud-Lhasa railway line, which is being extended through Xigaze up to Gyirong on the Nepal border, is expected to be completed by 2020. The Nepali government is in talks with Beijing to extend the line to Kathmandu, Pokhara and Lumbini in Nepal. The three lines, which would be part of CCP General Secretary Xi Jinping's signature Belt and Road Initiative, are estimated to cost around \$4 billion. They would boost Nepal's overland connectivity with the PRC as well as with Eurasia, which would correspondingly reduce Nepal's dependence on India for trade and transit, and its vulnerability to Indian pressure. Not surprisingly, Nepali politicians and its people view BRI with much optimism ([The Wire](#), July 11, 2017).

Also much to India's chagrin, Sino-Nepali military co-operation is growing. Beijing has skillfully exploited India's political tensions with Nepal to supply the latter with weaponry. In 2005, India halted military supplies to Nepal in the wake of King Gyanendra's power grab ([The Hindu](#), March 2, 2005). The PRC stepped in to provide his government with weapons, and in 2008 announced a \$2.6 billion package meant to aid Nepal's military modernization. Beijing has also expanded military-to-military co-operation with Nepal; joint military exercises were held for the first time ever in April 2017, and the PRC has increased the number of seats for Nepali soldiers in its military academies. Such co-operation has enabled Beijing to build a pro-PRC constituency within the Nepali armed forces ([Institute for Defense Studies and Analyses](#), March 31, 2017).

Indian Influence on the Wane

The cumulative effect of the PRC's efforts to build connections with Nepal has been an erosion of Indian clout in Katmandu. Although New Delhi has played a decisive role in Nepali politics in the past, it was unable to stop the CPN-UML and the CPN-MC from contesting the November 2017 general elections together under the banner of the Left Alliance. Nor could it prevent the Alliance's victory in that election or its formation of a new government (Hindustan Times, March 8). The failure was all the more painful to Delhi as the Alliance's victory was also the PRC's: Beijing is believed to have played a behind-the-scenes *role* in convincing the CPN-MC and the CPN-UML to cooperate (The Tribune, Jan 12).

China is also eroding India's economic dominance, overtaking India as Nepal's largest source of foreign direct investment in 2013 (Global Times, August 21, 2013). A soft Indian economic blockade of Nepal in 2015 exacerbated this, as it forced the Oli government to turn to Beijing for help. This in turn allowed the PRC to break India's long-standing monopoly over fuel supply to Nepal (China Brief, November 16, 2015), and paved the way for Beijing and Kathmandu to sign 36 agreements, including a transit trade deal under which China agreed to provide its Tianjin seaport for transit of Nepali goods imported from third countries (Himalayan Times, March 21, 2016).

India is increasingly concerned that the cumulative effect of these and other PRC policies add up to the use of economic projects to further China's *strategic* goals in the region. Indian analysts have pointed out that growing indebtedness to China has made many of India's neighbors vulnerable to Beijing's pressures. Unable to repay loans these countries are having to hand over control over strategic assets to China, as in the case of Sri Lanka's Hambantota Port. The concern is that this could culminate in China's military use of these assets, leading to increased Chinese military presence in India's periphery (Nikkei Asian Review, February 20). Were this to happen in Nepal, it would place Chinese forces on the far side of the Himalayan barrier, and leave the Indian heartland vulnerable to a Chinese attack. In the event of conflict, a PRC foothold in Nepal would also place at risk the Siliguri Corridor, a narrow sliver of land that links the Indian mainland to its insurgency-racked Northeast. If China were to attempt to take control of the corridor, it could do so through Nepal.

To some extent, India has itself to blame for its difficult situation: Its 2015 blockade turned the Nepali people against it. The blockade resulted in severe shortage of fuel, food and medicines and caused enormous hardship for the Nepalis. Anger with India snowballed during the crisis (The Hindu, December 27, 2015). The Nepalis have not forgotten that experience, and see China as a benign power that comes to Nepal's help in times of crisis (Business Line, January 17, 2016). The extent of anti-India sentiment in Nepal today can be gauged from the fact that the Left Alliance campaigned on an anti-India platform last year and won a landslide victory (Spotlight, Dec 8, 2017).

While expectations in Nepal are high that its integration into the BRI will reduce the country's dependence on India for transit trade, the treacherous terrain to Nepal's north will make trade through the PRC expensive, and India still retains important geographic advantages: India's Haldia port, which Nepal currently uses is just 1,000 km away, while Tianjin is 3,000 km from Nepal. Robust road and rail links to Tianjin are still not in place and it will be several years before this transit route becomes functional. The Tianjin option may prove useful in the event of a blockade of routes through India. However, it may not be an economically viable option for Nepal or the PRC, as building infrastructure and transporting cargo across the mountains is enormously expensive (The Hindu, March 28, 2016). And because of its position on the periphery of the BRI, Nepal may stand to gain relatively little from its involvement in the initiative.

No Easy Road Back

Despite this, the PRC's efforts to weaken India's grip in Nepal have paid off. India has only itself to blame for its loss of position. Its high-handed treatment of Nepal, especially its insensitivity to Nepali sovereignty, stoked deep resentment that bubbled over during the 2015 blockade. In contrast, the PRC has projected itself as a friend of Nepal, one that is mindful of Nepal's status as a sovereign country and interested in its economic development.

But there may be limits to how far Nepal is willing to take realignment. While Nepali Prime Minister Oli is keen to explore ways to build leverage in his dealings with India (South China Morning Post, February 19), in his recent interview he said his government does not "want to depend on one country or have one option." This could indicate a willingness to turn to third countries such as Japan or Singapore. In any event, the Sino-Indian contest for influence inside of Nepal remains far from over.

Dr. Sudha Ramachandran is an independent researcher and journalist based in Bengaluru, India. She has written extensively on South Asian peace and conflict, political and security issues for The Diplomat, Asia Times and Geopolitics. She is a Fellow at the Takshashila Institution in Bengaluru

Notes

[1] "Treaty Of Peace And Friendship Between The Government Of India And The Government Of Nepal," July 31, 1950. Indian Ministry of External Affairs (MEA). <http://mea.gov.in/bilateral-documents.htm?dtl/6295/Treaty+of+Peace+and+Friendship>.

[2] Sangeeta Thapliyal, "Nepal's Trans-Himalayan Linkages with China", *Scholar Warrior* (New Delhi: Centre for Land Warfare Studies), Spring 2017' available at http://www.claws.in/images/journals/doc/945177134_06_chap.pdf

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For comments and questions about China Brief, please contact us at cbeditor@jamestown.org

The Jamestown Foundation
1111 16th St. NW, Suite 320
Washington, DC 20036
Tel: 202.483.8888
Fax: 202.483.8337