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China: Commission of Science, Technology, and Industry for National Defense (COSTIND) and Defense Industries

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Shirley A. Kan
Analyst in Foreign Affairs
Foreign Affairs and National Defense Division

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Summary

Congressional interest in the Chinese military, or People's Liberation Army (PLA), has increased as a result of the March 1996 tensions in the Taiwan Strait, continuing allegations of Chinese proliferation of technology useful in weapons of mass destruction, and reports that some Chinese defense-related corporations have circumvented U.S. export controls to acquire dual-use technology. The Commission of Science, Technology, and Industry for National Defense (COSTIND), an important, high-level PLA organization, plays a role in China's weapon programs, sales of civilian goods, acquisition of military technology, and arms sales and export controls. The purpose of this CRS Report is to examine the origins and command, roles, and influence of COSTIND.

COSTIND was founded in July 1982 through the consolidation of multiple organizations concerned with weapon programs. COSTIND answers to two superior organizations: the State Council (the highest governmental organ) and the Central Military Commission (CMC) of the Chinese Communist Party (the highest command of the military). However, COSTIND belongs to the People's Liberation Army (PLA) organizational system commanded by the CMC. COSTIND's new director is Lieutenant General Cao Gangchuan, who has the bureaucratic rank of a minister.

Under COSTIND's centralized coordination, China's military facilities and defense industries were to be made more efficient and effective. COSTIND is in charge of military research and development, testing, and production in the military and in the defense industries. China's defense industries comprise six state-owned sectors: electronics, nuclear, aviation, space/missiles, ordnance, and shipbuilding. There are now large state-owned corporations in these defense-industrial sectors, and they engage in both military and civilian business.

Over time, COSTIND has acquired further — perhaps, competing — roles as China's interests evolved. In addition to overseeing weapon development and production, COSTIND has also facilitated civilian commercial deals, increased weapon and technology acquisition from foreign countries, promoted foreign arms sales, and taken on export control and nonproliferation roles.

COSTIND has exercised considerable influence. Such influence includes political influence through personal access to top leaders, foreign policy influence through some control over foreign arms sales, military influence over weapon modernization, and economic influence through responsibility for the defense industries, which are part of the debilitated state-owned sector. Recently, however, there has been a debate about whether CONSTIND's influence has weakened since the 1980s. China's economic reforms, leadership changes in COSTIND, and continuing systemic problems in the defense sector may have eroded COSTIND's influence. The future of COSTIND will be tied to whether the current director can resolve the problems in equipping the PLA with modern weapons and continuing to restructure China's immense defense-industrial complex.

NOTE

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Introduction

Congressional interest in the Chinese military, or People's Liberation Army (PLA),[1] has increased as a result of the March 1996 tensions in the Taiwan Strait, continuing allegations of Chinese proliferation of technology useful in weapons of mass destruction, and reports that some Chinese defense-related corporations have circumvented U.S. export controls to acquire dual-use technology. The Commission of Science, Technology, and Industry for National Defense (COSTIND), an important, high-level PLA organization, plays a role in China's weapon programs, sales of civilian goods, acquisition of military technology, and arms sales and export controls. This report describes the origins and command, roles, and influence of COSTIND in the PLA and the defense industries. In addition, two subordinate organizations of COSTIND will be discussed: the China Association for Peaceful Use of Military Industrial Technology (CAPUMIT) and the China Defense Science and Technology Information Center (CDSTIC).

Origins and Command

COSTIND was founded in July 1982 through the consolidation of multiple organizations concerned with defense research and development, and production. The National Defense Industry Office, the National Defense Science and Technology Commission, and the Office of the Science, Technology, and Equipment Committee of the Central Military Commission (CMC) were merged to form COSTIND.[2]

COSTIND answers to two superior organizations: the State Council (the highest government organ) and the CMC of the Chinese Communist Party (the highest command of the military).[3] However, COSTIND belongs to the PLA organizational

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[1] The People's Liberation Army is a name which encompasses all of China's military.

[2] Lewis, John Wilson and Xue Litai. China's Strategic Seapower. Stanford, Stanford University Press, 1994. P. 87.

[3] Blasko, Dennis J., Raymond F. Lawlor, John F. Corbett, Mark Stokes, and Christopher Kapellas. China's Defense-Industrial Trading Organizations: Reference Aid.

(continued...)

system commanded by the CMC.[4] COSTIND's director has the rank of a minister. Almost all high-level COSTIND officials have military rank. The current director is Lieutenant General Cao Gangchuan, who was appointed in December 1996. Four of the five deputy directors are Lieutenant Generals: Shen Rongjun, Xie Guang, Huai Guomo, and Shen Chunnian.

Defense-related Roles

COSTIND plays important roles in China's defense modernization. Those roles involve: implementation of China's defense policy concerning weapon research and development, and production; diversification of defense industries to integrate military and civilian production; technology acquisition and intelligence collection; and arms export and export control.

Defense Policy Implementation

COSTIND has been called one of the "four large general headquarters" of the PLA.[5] COSTIND is an influential player in carrying out Chinese defense policy, including weapon programs and resource allocations. This policy is said to be formulated in piecemeal fashion by the PLA's General Staff Department (for military operations and plans), the National Defense University (for background and doctrinal analysis), and COSTIND (for research and planning on weapons technology and systems). In addition, COSTIND controls a vast amount of personnel, units, and bases.[6] For example, COSTIND Director, General Ding Henggao, wrote that to further the implementation of the "863 Plan" (a high-technology research and development plan), COSTIND, over ten years, organized 5,600 scientists and technicians from nine departments in 16 provinces and cities to concentrate their research in the aerospace and laser technology fields.[7] Also, many local-level offices concerned with defense industries throughout China are part of COSTIND's system or network.

One study of the defense complex finds that COSTIND controls a large budget to fund defense research, development, and production. While there is a range of different estimates, this study speculates that China's defense-industrial complex may

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[3](...continued)
Washington, Defense Intelligence Agency, October 1995.

[4] China Today: Defense Science and Technology. Beijing, National Defense Industry Press, 1993. P. 121.

[5] The first three are the General Staff Department, General Political Department, and General Logistics Department.

[6] Lewis, John W., Hua Di, and Xue Litai. Beijing's Defense Establishment. International Security, Spring 1991. P. 88-90.

[7] Ding Henggao. Advancing Toward the World's Advanced Ranks — Speech Delivered at a Discussion Held by People's Daily on March 28, 1996, to Review the "863 Plan" Over the Past Ten Years. People's Daily, April 3, 1996. Translated in FBIS-CHI.

include as many as 50,000 factories, research academies, and other facilities, with possibly five million personnel. Whole towns, some secret, are part of this immense complex.[8] Another study found that COSTIND has its own authority to carry out coordination among weapons-related organizations. It exercises both direct and indirect influence. COSTIND controls satellite launch sites and all aspects of nuclear weapons development. It also derives influence from allocating funds for weapons procurement and development, and setting priorities.[9] A Rand study concludes that COSTIND is the PLA's fourth most influential organizational player in devising and supervising defense policy.[10]

According to a Chinese study on the defense industries published by a COSTIND-affiliated press, COSTIND "is the leading body by which the CMC conducts centralized control of the defense science and technology of the whole PLA. It is also the leading organization under the State Council to conduct unified management of defense science, technology, and industry. . ."[11] Under the State Council, China's defense-industrial complex has consisted of six sectors: electronics, nuclear, aviation, space/missiles, ordnance, and shipbuilding. Five of the six sectors were restructured from ministries to state corporations: China National Nuclear Corporation, Aviation Industries Corporation of China, China Aerospace Corporation, China North Industries Group (NORINCO), and China State Shipbuilding Corporation. Meanwhile, the Ministry of Electronics Industry is also known as the China Electronics Industry Corporation.[12]

Thus, COSTIND sets policy and planning for weapons-related research and development in military facilities as well as in defense-industrial facilities. For example, after the Persian Gulf War, COSTIND Deputy Director Shen Rongjun called for China's weapon development programs to focus on high-technology, especially electronics and military applications of satellites.[13]

The Chinese study on the defense industries also described the following tasks assigned to COSTIND:

- study trends in development of weapon systems and equipment;

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[8] Cheung, Tai Ming. China's Defense-Industrial Complex in the 1990s: The Long March to Modernization and Commercialization. 1993.

[9] Ostrov, Benjamin C. Conquering Resources: The Growth and Decline of the PLA's Science and Technology Commission for National Defense. New York, M.E. Sharpe, Inc., 1991. P. 66-68.

[10] The most important, in order, are the General Staff Department, PLA Navy, PLA Air Force, and COSTIND. Swaine, Michael D. The Role of the Chinese Military in National Security Policymaking. Santa Monica, Rand Corporation, 1996. P. 46.

[11] China Today. P. 121-122.

[12] Blasko, et al.

[13] Wu Shuangjing and Wang Daitong. National Defense Science, Technology, and Industry Commission Vice Chairman Shen Rongjun Says Use High Technology to Spur Weapons Development. Science and Technology Daily, April 9, 1991. Translated in JPRS-CST, October 21, 1991.

- organize efforts to modify weapons and to conduct tactical and technical evaluations, research, design, trial production, testing, certification, and serial production of new types of weapon systems and equipment;
- direct the work of its subordinate test bases and directly affiliated colleges and institutions;
- guide testing and construction at air force and naval bases;
- control the technical and professional work in science and technology of various services and arms, the General Staff Department, the Second Artillery Force, and the offices of defense science, technology, and industry in the provinces, municipalities and autonomous regions.[14]

The Second Artillery is the PLA's strategic missile force. COSTIND's control and coordination over the nuclear and space industries appear to give COSTIND a close relationship with the Second Artillery. COSTIND and the CMC direct the Chinese Academy of Engineering Physics, which runs China's nuclear weapon laboratories.[15] According to an expert on China's defense industries, COSTIND runs China's space/missile program and operates front companies, such as the China Satellite Launch Agents, Ltd.[16] Another organization, China Satellite Launching and Tracking Control, is also subordinate to COSTIND.[17]

In short, COSTIND carries out its part of defense policy by coordinating and controlling research and development, production, and acquisition of advanced technology and weapons by the many organizations involved. Organizations may be military services or commands, bases, ministries, factories, research academies, universities, or corporations. Centralized coordination is also needed because the various organizations are in two hierarchical systems: the military and the state-owned, defense industries.

Diversification of Defense Industries: Integrating Military and Civilian Production

A study on the rise and fall of the National Defense Science and Technology Commission (one of COSTIND's predecessors) explained that the creation of COSTIND was intended to eliminate the past conflicts between the military research and development sector and the production sector by combining them in one organization. COSTIND was initially formed to improve efficiency and effectiveness of military research and development, and production efforts. COSTIND's role,

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[14] China Today. P. 121-122.

[15] Norris, Robert S., Andrew S. Burrows, and Richard W. Fieldhouse. Nuclear Weapons Databook: British, French, and Chinese Nuclear Weapons. Boulder, Westview Press, 1994. P. 342.

[16] Cheung, Tai Ming. PLA, Inc. Far Eastern Economic Review, October, 14, 1993.

[17] Chen, Kathy. Soldiers of Fortune: Chinese Army Fashions Major Role for Itself as a Business Empire. Wall Street Journal, May 24, 1994, p. 1.

however, has been broadened to closely integrate the civilian and military sectors of research and development, and production.[18]

Deng Xiaoping, the architect of China's reforms, laid down the overall policy under which COSTIND carries out its mission of developing defense and civilian production. In January 1982, Deng articulated a 16-character policy: "combine military with civilian, peace with wartime, military take priority, nurture military with civilian." This policy is referred to as the "Military-Civilian Combination Policy."[19]

In practice, although Deng intended military modernization to continue to be treated with priority, a decline in military procurement and budgets and a drive toward commercialization in China have made civilian profit-making a competing goal. PLA and defense-industrial enterprises have been exhorted to diversify production to include profitable civilian or dual-use (civilian or military) goods.[20] An official estimate says that civilian products now account for roughly 80% of the total output *value* in the defense industries.[21] Most likely, much of this commercial value has been added by the few successful defense-related industries: electronics, aerospace (including satellite launches for Chinese organizations and foreign businesses), aviation, and shipbuilding.

Even with the policy of combining military and civilian production, many of China's defense industries are in financial trouble. According to an OECD study, only about 40% of defense-industrial enterprises earn regular profits. Another 40% make occasional profits, but are not necessarily profitable. The remaining 20% have not developed civilian operations and are a drain on government revenues.[22]

Nonetheless, the diversification drive toward civilian production is intended to serve the defense industries as well as the national economy. At a national conference on defense science, technology, and industry into the 21st century, attendees agreed on three recommendations: (1) concentrate on the development of high- and new-technology industries; (2) develop technologies that serve both military and civilian objectives; and (3) actively apply civilian technology (especially electronic, information, and manufacturing technology) to military research and production.[23]

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[18] Ostrov. P. 66.

[19] China Today. P. 159.

[20] China's defense-industrial restructuring is sometimes referred to as "defense conversion," although the production lines for military products may not be converted.

[21] Yin Tan. China Quickens Pace of Defense Production Conversion into Civilian Production. Wen Wei Po (a Chinese-controlled newspaper in Hong Kong), April 16, 1996. Translated in FBIS-TAC.

[22] Berthelemy, Jean-Claude and Saadet Deger. Conversion of Military Industries in China. Paris, Development Center of the Organization for Economic Cooperation and Development (OECD), 1995. P. 53.

[23] Liu Cheng and Wang Yufang. Drawing a Blueprint for Development in Defense

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General Chi Haotian, a vice chairman of the CMC and China's Minister of Defense, wrote in April 1996 that "the military enterprises transferred to the production of goods for civilian use must pay attention to retaining the capabilities of producing military supplies." General Chi also urged increased application of military technology to civilian use as well as application of civilian technology to military fields and the development of dual-use technology.[24]

Through the China Association for Peaceful Use of Military Industrial Technology, or CAPUMIT, COSTIND promotes domestically and internationally its public relations concerning civilian production. CAPUMIT also facilitates business deals for China's defense-related factories, research institutes, and other enterprises, especially with foreign companies. In July 1993, CAPUMIT (together with a United Nations organization) held a large exhibition in Hong Kong called the "1993 Hong Kong Conference and Exhibition on International Cooperation To Promote Conversion From Military to Civilian Industry." Many Chinese defense enterprises — including those in the ordnance, aerospace, electronics, shipbuilding, weapons, and nuclear industries, as well as PLA corporations such as China Xinxing Group (under the General Logistics Department) — promoted projects seeking foreign investments.[25]

CAPUMIT's publicity materials tout it as a civilian organization founded in 1986 to promote the peaceful use of military industrial technology. It operates under the guidance of COSTIND, the State Planning Commission, and the State Science and Technology Commission. Its members include enterprises and institutes in China's defense industry. Lieutenant General Huai Guomo, one of COSTIND's deputy directors, is an honorary chairman of CAPUMIT. The organization of CAPUMIT, according to the materials, consists of a General Assembly at the top, with a Council subordinate to the Assembly. Subordinate to the Council are four organizations: General Office, Development and Exchange Department, Science and Technology Development Department, and International Liaison Department.

Technology Acquisition and Intelligence Collection

Since the early 1980s, acquisition of advanced foreign technology to apply to weapons production appears to have been an increasingly important objective of COSTIND in carrying out defense policy. To further technology acquisition,

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[23](...continued)
Science and Technology — Sidelights on a National Conference for Directors of Offices for Defense Science, Technology, and Industry. Liberation Army Daily, January 15, 1996. Translated in FBIS-CHI.

[24] Chi Haotian. Taking the Road of National Defense Modernization Which Conforms to China's National Conditions and Reflects the Characteristics of the Times — My Understanding Acquired from the Study of Comrade Jiang Zemin's Expositions on the Relationship Between the Building of National Defense and Economic Development. Seeking Truth, April 16, 1996. Translated in FBIS-CHI.

[25] CAPUMIT. Projects for International Joint Ventures and Cooperation. 1993 Hong Kong International Exhibition on Peaceful Use of Military Industrial Technology, July 5-11, 1993.

beginning in 1980, the State Council and the CMC set up state corporations under various defense-related offices, commissions, and ministries. COSTIND's New Era Corporation, for example, was established at this time. The corporations were allowed to conduct import and export of civilian and military goods. The compendium on China's defense industries states that "on the basis of adhering to self reliance, the defense industrial departments actively carried out international technical exchanges and cooperation to import some advanced technology from a few countries to provide better platforms for launching independent designs and upgrade the modernization of military equipment."[26]

The U.S. Defense Intelligence Agency (DIA) apprises that China's defense industrial organizations are "key to supporting the uniformed services and China's industrial base and to acquiring military and dual-use technology." In addition to New Era (Xinshidai) Corporation, other important defense trading corporations directly under COSTIND's control are Yuanwang (Group) Corporation and Galaxy New Technology Corporation. Besides these corporations, two key supporting organizations are CAPUMIT (already discussed) and CDSTIC.[27] Yuanwang Corporation reportedly created a company in California, called Technology Selection Inc., to transfer U.S. technology to China.[28] Galaxy New Technology Corporation set up a Sino-U.S. joint venture called Hua Mei Telecommunications to acquire advanced telecommunications technology useful for China's military.[29]

As part of its function in acquiring advanced technology with military applications, COSTIND collects intelligence, both overtly and covertly. According to a study of Chinese intelligence operations, COSTIND is one of China's secondary intelligence organizations; members of COSTIND have attempted to steal foreign, especially American, technology for military applications. COSTIND technical experts, principally posing as businesspeople working for the New Era Corporation, travel overseas to collect information and identify what technology or weapons systems are needed. They have reportedly tried to clandestinely acquire U.S. technology which has not been approved for export. Another cover for COSTIND personnel has been the Poly Technologies Corporation (also known as Baoli), which is a corporation under the General Staff Department's Equipment and Technology Department.[30]

In addition, within COSTIND is an Intelligence Research Institute, established on March 14, 1959 — before COSTIND's genesis. The Intelligence Research Institute sends its personnel to foreign countries as students or visiting fellows and encourages them to participate in professional associations and academic activities.

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[26] China Today. P. 158.

[27] Blasko, et al.

[28] Greenberger, Robert S. Let's Make a Deal: Chinese Find Bargains in Defense Equipment as Firms Unload Assets. Wall Street Journal, October 21, 1996. P. 1.

[29] Gilley, Bruce. Peace Dividend. Far Eastern Economic Review, January 11, 1996. P. 14-16.

[30] Eftimiades, Nicholas. Chinese Intelligence Operations. Annapolis, Naval Institute Press, 1994. P. 104-107.

This Intelligence Research Institute is also known in open and international fora as the China Defense Science and Technology Information Center, or CDSTIC.[31]

CDSTIC conducts defense-related research, and domestic and foreign exchanges. For example, on October 26, 1995, CDSTIC held a seminar in China on "military technical revolution" with participants from the Academy of Military Sciences, National Defense University, armed services, and defense industries.[32] CDSTIC also houses a Department of Arms Control and Disarmament Studies whose experts are allowed to travel abroad, hold discussions with foreigners about arms control and military issues, and publish articles.[33] CDSTIC publishes a journal in Hong Kong, called "Conmilit," or "Contemporary Military Affairs" in Chinese.

Its promotional information says that CDSTIC was founded on March 14, 1959 and is an institute directly subordinate to COSTIND. CDSTIC specializes in research on defense science and technology, and is staffed by hundreds of researchers and technical experts covering a wide range of specialties. CDSTIC takes pride in having China's most advanced information processing facilities, including a computer system backed by comprehensive databases. CDSTIC also houses a library with two million technical papers and scientific journals.[34]

Arms Export and Export Control

Through supervision of its subordinate corporations and coordination of other defense-related corporations, COSTIND plays a role in China's foreign arms sales and export control. For example, it was COSTIND which, on December 5, 1984, approved the aerospace ministry's plan to develop, produce, and export M-9 short-range ballistic missiles.[35] In theory, arms sales may be coordinated by COSTIND, the PLA's General Staff Department, the Ministry of Foreign Affairs, and other departments. In reality, the General Staff Department and COSTIND are believed to have the final authority. Corporations might consult with the Foreign Ministry over sensitive sales.[36]

COSTIND also participates in a formal structure for export controls, as China has become sensitive to foreign concerns over proliferation of weapons of mass

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[31] Yuan Yaojun. Review and Prospects of the National Science and Technology Intelligence Enterprise. (In Chinese) Forty Years of Defense Technology and Industry of New China. Beijing, National Defense Industry Press, 1989. P. 514-516.

[32] Cited in: Gill, Bates. China and the Revolution in Military Affairs: Assessing Economic and Socio-Cultural Factors. U.S. Army War College, May 20, 1996.

[33] For example: Liu Huaqiu. Evaluation and Analysis of China's Nuclear Arms Control Policy. Conmilit, November 11, 1995. Translated in FBIS-TAC, January 26, 1996.

[34] China Defense: Research and Development. Beijing and Hong Kong, China Defense Science and Technology Information Center and China Promotion Ltd., 1988.

[35] Lewis, John Wilson and Hua Di. China's Ballistic Missile Programs. International Security, Fall 1992. P. 34-35.

[36] Lewis, et al. Beijing's Defense Establishment. P. 89, 95.

destruction and has increased participation in arms control and nonproliferation efforts. In November 1995, the State Council issued the first Chinese defense white paper, which shed some light on China's enigmatic export controls. In the section on exercising "strict control" over military weapons and technology transfers, the white paper stated that the State Council and the CMC set up the State Administrative Committee on Military Products Trade (SACMPT) to exercise "centralized control" over military exports. The primary members of this committee are representatives of the Ministry of Foreign Affairs, General Staff Department, COSTIND, the Ministry of Foreign Trade and Economic Cooperation, and other departments.[37]

In September 1997, China issued new regulations to control nuclear exports (in part to ameliorate U.S. concerns in considering the implementation of the 1985 U.S.-China agreement on nuclear cooperation). The China Atomic Energy Agency (CAEA)[38], COSTIND, and the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) are primarily responsible for implementation of the regulations.

COSTIND's important role in strategic arms control policy partly derives from its supervision of the Chinese Academy of Engineering Physics (which runs China's nuclear weapons laboratories)[39] and the China National Nuclear Corporation (which produces, stores, and controls all fissile materials).[40]

Influence

As can seen in the previous discussion, COSTIND has exercised considerable influence. COSTIND has derived political influence from its director who is a high-level military officer. Through the previous director, General Ding Henggao, COSTIND also enjoyed access to the top leaders through his family connections. Ding, director from 1985 to 1996, is the son-in-law of the late Marshal Nie Rongzhen, who was an important leader of China's defense industrial efforts. Ding's wife, Nie Li, was a Lieutenant General and a vice chairman of the Science and Technology Committee of COSTIND until her retirement in 1994. Such nepotism at COSTIND exemplified a widespread effort, beginning in the 1980s, by children of top leaders (also referred to as "princelings") to acquire lucrative and high-level

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[37] Information Office of the State Council of the People's Republic of China. China: Arms Control and Disarmament. November 1995.

[38] CAEA is a part of the China National Nuclear Corporation (CNNC), which represents China's nuclear industry. Jiang Xinxiong is the president of CNNC and the head of CAEA.

[39] CAEP (and its subordinate institutes), the Institute of Applied Physics and Computational Mathematics, and the High Power Laser Laboratory in China are included in the "Entity List" used by the Bureau of Export Administration of the U.S. Department of Commerce. Entities on the list are foreign end users involved in weapon proliferation activities, and exports to them require a license from the Bureau of Export Administration.

[40] Frieman, Wendy. Chinese Arms Control Organizations: A Basic Primer. Washington, SAIC Corporation, February 27, 1995. P. 7-8.

positions. Ding's connections provided COSTIND access to top leaders and important political influence. In addition, the commission has economic influence through its responsibility for the financial health of the immense defense-industrial complex and role in facilitating civilian business. COSTIND has played in role in defense policy as a ministry-level organization overseeing weapon modernization programs and foreign technology acquisition. It even has some influence in China's foreign policy through its authority over arms sales and its increasing role in export control.

However, there has been a recent debate about whether COSTIND's influence, while still considerable, is in decline. There are several factors that point to a decrease in COSTIND's authority since the early 1980s.

First, as part of the overall trends of commercialization and decentralization in China, COSTIND's control over the defense industries has weakened. DIA notes that "a few of the larger defense production facilities and complexes have formed their own corporations in recent years and apparently are seeking to operate somewhat independently of national-level organizations."[41]

Moreover, some analysts believe that the state corporations retain their profits from civilian sales and are not required to submit such revenues to COSTIND. It is uncertain what share of profits from military sales are returned to COSTIND for defense research and development, and production. In any case, Chinese foreign arms sales have dropped since the 1980s. It can also be assumed that enterprises tend to under-report revenues to retain more of the profits and that different deals have different profit-sharing arrangements. According to one study, the PLA is allowed to keep part of the profits from arms sales, while COSTIND and the General Staff Department are supposed to direct how those funds will be spent. The Ministry of Finance is also supposed to receive part of the revenue to add to China's foreign exchange reserves. Then there are, of course, individual "sales commissions" for China's movers and shakers.[42] In short, increasingly profitable and independent defense-industrial corporations have recently relied less on COSTIND's allocations.

Economic reforms have also initiated responsibility or contract systems in China. COSTIND's logistics system has likewise implemented a contract system in research and development projects. The contract system aims to ensure that timeliness and quality goals are met, while competition reduces the costs.[43] A contract system has likely reduced COSTIND's control over weapon programs.

Second, economic reforms and a drop in military procurement have resulted in a decline in defense-industrial output as a share of the total industrial output of China. One report estimates that state-owned enterprises now account for perhaps

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[41] Blasko, et al.

[42] Lewis, et al. Beijing Defense Establishment. P. 103.

[43] Fan Juwei and Su Kuoshan. Commission of Science, Technology, and Industry for National Defense Provides Effective Support for Scientific Research in National Defense. Liberation Army Daily, May 22, 1996. Translated in FBIS-CHI.

half of China's total industrial output. Among them, the defense-industrial sector now accounts for about 12% of the gross output of all state-owned enterprises.[44]

Third, leadership changes have also affected COSTIND's influence. Nie Rongzhen died, and Nie Li has retired. General Ding Henggao was replaced in December 1996 by Lieutenant General Cao Gangchuan. Ding's retirement removed a long-time power-holder whose patrons were leaders of the revolutionary generation. COSTIND, however, may find a powerful patron in General Chi Haotian, who is considered to have an important relationship to COSTIND.[45] In October 1995, China's president and CMC chairman, Jiang Zemin, promoted Chi (along with Zhang Wannian) to CMC vice chairman in preparation for the retirements of the more senior vice chairmen, Generals Liu Huaqing and Zhang Zhen.

Lieutenant General Cao's appointment surprised those who expected the promotion of a deputy director from within COSTIND. Instead, the top leaders transferred Cao from his position in the General Staff Department as a Deputy Chief of General Staff of the PLA. Cao's reassignment likely reflects the top leadership's new priority on meeting the PLA's requirements for modern equipment, especially from Russian, Israeli, and other foreign sources. Cao can be expected to advocate the immediate needs of the PLA for modern weapons, perhaps over the needs of the defense industries to continue research and development of indigenous designs.

Another indicator of Cao's priorities and China's turn to greater use of foreign military technology is the decision, announced in July 1997, to open the defense industries to foreign investors. COSTIND and the Equipment Department of the PLA's General Staff Department made the decision, reported the *China Daily*. COSTIND, the Equipment Department, and the Ministry of Electronics Industry plan to hold in 1998 the first China International Defense Electronics Exhibition to attract U.S. and other foreign defense manufacturers to market in China.

Last but not least, COSTIND's prestige may have declined over the last decade as China's defense industries continue to suffer systemic problems despite the creation of COSTIND. Acquisitions of foreign weapon systems, such as the Russian Su-27 fighter, indicate that indigenous defense programs are not satisfying the PLA's immediate needs. According to experts, Chinese military research and development, production, and deployment still suffer a lack of central oversight and "interconnectedness." The defense industries are still fragmented and said to be "almost feudal."[46]

Conclusion

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[44] Berthelemy and Deger. P. 44.

[45] Swaine, Michael D. The Military and Political Succession in China. Rand Corporation, 1992. P. 71-72.

[46] Bitzinger, Richard A. and Bates Gill. Gearing Up for High-Tech Warfare? Washington, Center for Strategic and Budgetary Assessments, February 1996.

Deng Xiaoping and other Chinese leaders formed COSTIND in 1982 with ambitious aims. Under COSTIND's centralized coordination, China's defense industries were to be made more efficient and effective. Over time, however, COSTIND has taken on additional — sometimes, competing — roles as China's interests evolved. In addition to overseeing weapon development and production, COSTIND has also facilitated civilian commercial deals, increased weapon and technology acquisition from foreign countries, promoted foreign arms sales, and taken on export control and nonproliferation roles. Due to the status and connections of its leaders, vast resources, and the importance of its roles, COSTIND has exercised considerable influence. At the same time, China's economic reforms, changes in the leadership, and continuing systemic problems in the defense sector may have weakened COSTIND's influence. The future of COSTIND will be tied to whether the current director can resolve the problems in equipping the PLA with modern weapons and continuing to restructure China's immense defense-industrial complex. This restructuring will also affect the fate of China's entire, debilitated state-owned sector.