

38 NORTH

SPECIAL REPORT

North Korean Defense Conversion

New Opportunities for Inter-Korean Cooperation?



Richard Sokolsky and Yuri Lee
April 2019

STIMSON

About the Authors

Richard Sokolsky, currently a nonresident senior fellow at the Carnegie Endowment for International Peace, worked in the State Department for six different administrations. During his tenure at State he was the director of the arms control office in the Bureau of Political-Military Affairs from 1990-1997 and a member of the Secretary of State's Office of Policy Planning from 2005-2015. He has also been a senior fellow at Carnegie, RAND Corporation and the Institute for National Strategic Studies at the National Defense University. His writings have been published in numerous outlets, including the Washington Post, the New York Times, Foreign Affairs, Foreign Policy, Politico, The National Interest, The Atlantic, CNN, and USA Today.

Yuri Lee is a research freelancer supporting 38 North Director Joel Wit. Prior to her freelance work, she was a Program and Research Intern at the US-Korea Institute at the Johns Hopkins School of Advanced International Studies. She currently works at Asian Americans Advancing Justice, a legal advocacy nonprofit dedicated to protecting the rights of immigrant communities and communities of color. She holds a B.A. in History from Dartmouth College.

38 North is a project of the Stimson Center providing high-quality research, analysis and commentary on a broad range of topics related to North Korea.

The Stimson Center is a nonpartisan policy research center working to protect people, preserve the planet, and promote security & prosperity. Stimson's award-winning research serves as a roadmap to address borderless threats through concerted action.

The Stimson Center is celebrating three decades of security and prosperity.



More at www.Stimson.org/

Cover credit: © iStock.com/NatanaelGinting 2019, all rights reserved.

North Korean Defense Conversion: New Opportunities for Inter-Korean Cooperation?

Richard Sokolsky and Yuri Lee
April 2019

Introduction

Kim Jong Un is committed to North Korea's economic development and has prioritized this goal over military modernization. In the event a peace and security regime for the Korean Peninsula leads to North Korean agreement to reduce its conventional weapons and equipment, Kim may want to convert portions of the North's defense industries to production of civilian goods. Re-purposing these facilities for civilian uses could give a boost to North-South normalization and reconciliation as well as present opportunities for closer North-South economic cooperation and possibly multinational participation in the conversion program. To date, Pyongyang and Seoul have not given much thought to cooperative North Korean defense conversion. But if inter-Korean relations move forward this subject could assume greater importance on their agenda for normalization and reconciliation.

The Guns vs. Butter Debate in North Korea

The prospects for successful defense conversion in North Korea will hinge to some degree on strategic decisions Kim makes about the future direction of the economy. There has been a long-running debate inside North Korea over whether national resources at the command of the central government should be invested more heavily in defense and heavy industry or in light industry for the production of consumer goods. Until Kim came to power in 2011, the advocates of guns over butter prevailed in this contest. Beginning in 2012, however, it looked like Kim might be tilting toward the champions of butter. He launched a number of modest agricultural and industrial reforms that created more space for markets and decentralized decision-making. In 2013, he unveiled his new "*byungjin*" policy calling for giving equal priority to economic and nuclear weapons development. At a party plenum in April 2018 he rolled out his "new strategic line" of everything for the economy, and a month later he told the Central Military Commission that they would have to follow his new marching orders. He has also made it abundantly clear in several factory visits that managers and workers needed to raise their game. As a result of Kim's modest reforms and directives, North Korea is moving closer toward a mixed economy—one part command based on rationing and the other part driven by markets and money.

Nonetheless, there is no clear-cut evidence that this debate has been definitively settled in favor of the new line. In fact, it has met with some resistance based not only on economic grounds but also on ideology—specifically, how North Korea defines itself, its relations with more powerful neighbors and its place in the world. North Korea’s entrenched elites, members of the old guard, hardliners in the military and security establishments and bureaucrats in the military industrial complex could lose many of their privileges if Kim accelerates economic modernization and North Korea’s demilitarization.

Under most conceivable circumstances, however, Kim will likely proceed cautiously with demilitarization to ensure that reducing the size of the military sector does not threaten regime control, engender political and social instability, or undermine his legitimacy in the eyes of the North Korean public as he pursues policies that his father and grandfather rejected. At the same time, however, the central government faces growing budget and debt problems and is reportedly running out of money to pay its million-man army. Demilitarization could be seen as a partial solution to this problem to the degree that production is transferred from the public to the private sector. How this debate is ultimately resolved will influence how far and how fast North Korea will want to go down the path of demilitarization. In the final analysis, there is no way of knowing whether Kim will see demilitarization—and the economic reforms it will require—as essential for or a threat to regime survival.

Why Assist DPRK Defense Conversion?

Nobody should underestimate the difficulty of North Korean defense conversion. The obstacles include: 1) securing adequate resources; 2) harmonizing conversion with the plans, programs and priorities for inter-Korean economic cooperation, the promotion of market reforms and better business practices in North Korea as well as DPRK priorities of improving agricultural production and transportation; and 3) achieving a level of transparency and monitoring to ensure that the resource windfall from conversion is used to strengthen the civilian economy and not plowed back into military modernization.

Although the costs and risks of defense conversion are real, success in this enterprise would serve several important US and South Korean interests.

- First, while the benefits of a “peace dividend” should not be overstated, it could help to marginally improve the North’s economic development and prosperity, which would give Pyongyang a greater stake in stability and more to lose if it reverted to its past hostility.
- Second, reconverting civilian industries back to military uses could be expensive and cause economic dislocations, raising the bar for the North’s return to hostility.
- Third, South Korean participation in defense conversion would advance inter-Korean economic cooperation and thus help to consolidate North-South reconciliation.
- Lastly, Kim Jong Un appears to be serious about shifting human and material resources to the civilian sector. Resources diverted to the civilian sector would mean fewer resources devoted to military modernization.

History Lessons

The history of defense conversion in other countries illuminates both the scope and complexity of the challenge but also offers lessons learned and best practices that might enable North Korea to achieve modest success in this area in a cooperative endeavor with other stakeholders on the peninsula. There are generally four areas of difficulty in implementing defense conversion plans: 1) technology transfer barriers, specifically the physical transfer of technologies from military to civilian sectors; 2) management leadership barriers related to convincing defense enterprises and the military to participate in the process; 3) over-specialization of staff; and 4) lack of knowledge of how to scout commercial markets and locate potential customers from the civilian sector.

Defense conversion has been attempted in many countries, including the US, former Soviet Union, China, the former Czechoslovakia and Poland. Their experiences, described in the annex to this essay, suggests that defense conversion is extremely challenging and expectations for success should be modest, but positive results can be achieved with the right mix of preparations and policies. What general and North Korean specific lessons can be distilled from these defense conversion experiences? What are considered best practices for successful defense conversion?

The government must account for the fact that conversion is a long-term and high-risk process, with no guarantee of a return at all. To do this, it must provide extensive planning and sufficient incentives for different stakeholders to invest in the conversion project. In addition, the government must not prolong major privatization decisions, as this would cause the best employees to leave the sector while the remaining management hesitates to make substantial decisions. Lastly, defense conversion will be impacted in no small part by domestic and international politics as well as the state of international markets for both arms and civilian products.

The ingredients for successful defense conversion in North Korea would be an effective dual-use technology policy that requires strong state intervention to oversee both the implementation of the policy and the performance of the industries involved; market-oriented management models within defense enterprises; and incentives to redirect the human and material resources of the military-industrial complex to civilian purposes due to the lower prestige and benefits sometimes tied to civilian production.¹

North Korean Defense Conversion: Challenges and Opportunities

In the 2000s, the North Korean military industry commanded the heights of the economy, based on the regime's "military-first policy." As a consequence, the allocation of resources in the country's planned economy was heavily skewed toward propping up the military sector. And today, the military industry remains a mainstay of the North Korean economy as it continues to enjoy monopolistic benefits in resource distribution. The conversion of the North's inefficient military industry for the production of collective public goods could contribute towards Kim's goal of economic development and delivering on his promise to the North Korean people of "no more belt tightening."

Kim Jong Un has opined about the need to devote more of North Korea's limited resources to development of the civilian economy. Indeed, for the better part of a decade, and especially since Kim assumed power in 2011, senior DPRK officials have questioned the contribution that

defense spending makes to the growth of the civilian economy. Thus, from the perspective of civilians in Pyongyang, conventional force reductions could further lessen the defense burden shouldered by the North Korean economy and allow Pyongyang to devote greater resources to the civilian sector.

Defense expenditures are, in fact, a serious drag on the North Korean economy. In its 2016 [World Military Expenditures and Arms Transfers report](#), the US Department of State estimated that the North's military expenditures averaged about US\$3.7 billion a year based on the period between 2005 and 2015, or roughly 23 percent of its GDP. (By comparison, the US spends roughly 3.4 percent of its GDP on defense.) Estimates of DPRK defense spending are notoriously unreliable and vary widely, but most analysts estimate that North Korean defense spending makes up about a quarter of all government spending.

According to the ROK's 2016 [Defense White Paper](#), North Korea operates some 300 arms factories as well as civilian factories that can transition to arms production in a short period of time. In addition, with most of its war supplies in tunnel storage facilities, North Korea is assessed to possess a stockpile of war supplies that can last one to three months. Converting many of these facilities to civilian purposes might lead to lower defense spending and increase production of civilian goods, although how efficiently and profitably are open questions.

While North Korea does not seem to have made any explicit statements on repurposing defense production facilities, the government has converted other military facilities for civilian use in the past, albeit on a very small scale. Two notable examples are the conversion of two military airfields into civilian airports and the Saenal Hotel, originally built for military use, into a luxury hotel. Kim has personally alluded to these initiatives, which appear to fall under his *byungjin* policy, allowing the regime to earn foreign currency while minimizing the negative impact on its local population and defense program.

Defense conversion will be hard and expensive depending on its scale and scope. The conversion of North Korea's military industry could take several different forms—which are not necessarily mutually exclusive—and Pyongyang will need to decide which paths make the most sense given bureaucratic, technical and budgetary constraints. The first would be conversion of defense-related research and development facilities. The second type would consist of partial conversion of defense production facilities to increase production of civilian goods while maintaining some military production; the third category would involve a greater commitment to spinning off civilian uses of military production. The final and most extreme form would convert the production of all military goods to civilian production.¹

Considering the scope of economic underdevelopment in the North Korean economy, some variation of the fourth option would be the most desirable, but also the most difficult method. In addition to the challenge of securing adequate outside funding for these programs, there would be five critical challenges to success:

- First, defense conversion would need to be integrated into the plans, programs and priorities for future inter-Korean economic cooperation.
- Second, it should be implemented in a way that advances the broader goals of promoting greater market reforms and better business practices in North Korea.

- Third, plans for conversion of physical plants and equipment currently devoted to defense production should be aligned with North Korean sectoral priorities, in particular expanding agricultural production and improving transportation infrastructure.
- Fourth, there would need to be close monitoring of resources that are conserved from converting or closing defense facilities; the plowing of these resources into technological modernization of a smaller military force would negate major gains from defense conversion.
- Finally, the scope and pace of defense conversion would need to be synchronized with how quickly North Korean military factory workers can be trained to produce civilian products.

Prospects for Multilateral Cooperation

These are formidable challenges. Even assuming that the North Korean government is willing to undertake defense conversion, there are questions about its resources and capacity—and whether Pyongyang would agree to accept the transparency that would be required for success. Many of these challenges could be overcome or mitigated with multilateral involvement in the defense conversion enterprise, which could bring resources, know-how and capacity to help redress North Korean shortfalls in these areas. Continued North-South reconciliation could create many opportunities for inter-Korean cooperation in defense conversion, including an infusion of South Korean funds to support, for example, retraining and reeducation of North Korean defense factory workers, joint planning and the creation of new North-South mechanisms, perhaps even a joint private sector business to oversee the defense conversion enterprise. North and South Korea can also draw on their previous experience and lessons learned from their economic cooperation during the Sunshine era, and especially joint projects, to distill best practices while avoiding the mistakes of the past.

Whether there is a role for other countries in North Korea's defense conversion is more problematic. A multilateral layer on top of North-South cooperation in defense conversion may make it more palatable to Pyongyang. But it is doubtful that the government would have enough trust in China, the US, Russia or Japan to share sensitive economic information related to cooperative defense conversion tasks; and the Russians, even if they had the will to play a significant role, lack the resources. That said, the Chinese could provide resources to assist the North in converting some of its defense production facilities to civilian use. The Russians, drawing on their experience in implementing cooperative threat reduction programs with the US, could lend advice and expertise to dismantling and converting defense factories. It might even be possible, if there is a significant improvement in US-North Korean relations, for Congress to appropriate funding to assist the North Koreans with environmental clean-up of defense factories that are being converted to civilian use. This level of multilateral participation in North Korean defense conversion would place a greater premium on effective coordination among donors and could slow the process down, but the benefits of successful defense conversion would outweigh these complications, and proceeding with deliberate speed would be prudent in any case.

A Steep Hill to Climb

Dismantling the North Korean military state would help to make normalization, peace and security on the peninsula more irreversible. But it would also be a tough slog that will require patience, pragmatism and respect for North Korean priorities and sensitivities. To avoid overreaching, it will be important for other stakeholders to remember that, as much as Kim may want outside assistance for defense conversion, he also will be very sensitive about having defense conversion taken over by outsiders. Likewise, he will want to ensure that the conversion program supports his broader agenda for economic development and reforms. These constraints will be a feature and not a bug in how defense conversion is implemented.

It would be prudent, therefore, for the defense conversion process to begin with one or two small pilot projects. To make these projects more attractive to Pyongyang—and more feasible—they should be aligned as much as possible with North Korea’s economic development priorities in the special economic zones it has created to promote trade and development. And perhaps most important of all, it will be critical to integrate plans for defense conversion with planning for military manpower demobilization and the reintegration of ex-military personnel into the civilian economy so that both processes are mutually reinforcing—the subject of the final section of this special report.

Endnotes

¹ Un-chul Yang, “A Study on the Conversion of North Korea’s Military Industry to Civilian Production,” *The Sejong Institute*, October 17, 2013.

Annex

Case Studies in Defense Conversion

There is no standard formula for successful defense conversion, and its results are partly contingent on domestic and global trends and politics. However, historical case studies offer valuable insight into the various challenges of conversion and potential strategies to mitigate them.

United States

It is useful to consider a conversion case that occurred under very favorable circumstances and is generally regarded as the most successful in US history: America's massive military demobilization following World War II. Clearly, the conditions the US faced in the immediate post-war period and those confronting North Korea today are radically different. The American economy benefitted from highly developed civilian technology, research and development, and wartime innovations in war supporting industries and pent-up consumer demand and savings. Finally, many of the arms production factories had originally been producing civilian commodities before the relatively short war, which made their reconversion less of a challenge.

However, the success of the US conversion program did not hinge alone on the country's macro-economic performance. An extraordinary amount of advance planning by both government and business facilitated the transition. Government at all levels engaged in fiscal planning by preparing public works proposals and programs for retraining of veterans. The micro-economic planning of labor transfers, retooling, product design and market research was left to private firms.

These favorable factors notwithstanding, the success of reconversion was modest at best, primarily because the planning, due largely to domestic politics, was relegated to different agencies with piecemeal missions and no central mechanism was created for coordination of programs.¹ Thus, while some firms were able to successfully transition into the civilian economy, such cases seemed to be the exception rather than the norm. In 1966, an Arms Control and Disarmament Agency report examined twelve case studies of commercial diversification attempts by US defense firms and found "a discouraging history of failure" and the loss of many facilities to productive use.²

Soviet Union

The Soviet Union's defense conversion experiences were, on the whole, also problematic. After World War II, project implementation went relatively smoothly, primarily because it mostly involved a return to the original production of the enterprises.³ But its success was limited: in 1946, upon completion of reconversion, total output stood at less than 60 percent of its prewar level largely because of the scale and scope of destruction during the war of much of the Soviet Union's industrial and agricultural sectors.⁴

The conversion effort after the Cold War, on the other hand, was a failure. In his speech to the UN General Assembly in 1988, President Gorbachev declared a commitment to unilateral conversion of the Soviet military economy.⁵ Orders were given to some 400 military enterprises to convert to civilian production. This command met resistance from managers who were hesitant to give up their military privileges and resources.

In addition, rather than moving defense plants into the commercial sector, Gorbachev's campaign moved civilian plants into the defense sector. The defense management, working with little training in commercial production, took over ongoing operations in other fields. The government left the individual defense firms to handle the concrete actions of conversion, causing many firms to lose their state subsidies.⁶ The firms were also ordered to produce goods identified as "socially necessary," with no regard for profitability and competitiveness.⁷ As a result, firms scrambled to produce low-tech consumer goods that were not aligned with the capabilities of the industrial plants. Examples included airplane plants producing saucepans and missile plants making baby carriages and beer containers.⁸ Unsurprisingly, the resulting products cost well above their market value and the sector experienced a brain drain to businesses that were more profitable and prestigious.⁹ Finally, the unexpected length of the conversion process diminished the effectiveness of firms undergoing conversion. Some military equipment manufacturers increased the production of weapons and sold them abroad; a majority of these businesses, however, went bankrupt because of their small size and the competitiveness of other suppliers in overseas markets.

China

China's defense conversion was a decades-long learning experience which involved a great deal of planning and readjustment, with mixed results. It is important to note that the aim of the Chinese conversion was very different from that of the US and the Soviet Union. In the first instance, the Chinese do not use the word "conversion" to refer to this transition. Instead, they use the term "military-civilian combination" (*junmin ronghe*), as they aim to both enhance the economy *and* modernize the military simultaneously. Therefore, unlike the American and Soviet cases, Chinese conversion took place in a particular strategic context.

Although the Chinese military-industrial complex continued to modernize and optimize its defense production, it also started producing civilian goods on a large scale. At least according to semi-reliable Chinese sources; in 1993, 77.4 percent of the gross output value of the military-industrial complex was in civilian products, up from 8.1 percent in 1978.¹⁰ In the early 2000s, the amount of civilian production in each of the 11 large defense corporations was estimated to range about 65 to 90 percent, depending on the firm.¹¹

By 1979, restructuring the military had become an important part of the economic reform agenda. In the 1980s, Deng Xiaoping ordered the People's Liberation Army (PLA) and defense industries to increase their involvement in civilian industries. To achieve this goal, the central authority created the Commission of Science, Technology, and Industry for National Defense (COSTIND), which became responsible for expediting R&D in defense industries and for implementing defense conversion policy. COSTIND exercised a great amount of direct control

as well as oversight over many different processes, playing a leading role in conversion of individual enterprises to nonmilitary production.

Other important changes facilitated the initial stages of the conversion project. Nation-wide economic reforms introduced the contract system, and younger, more professional personnel were placed in the leadership of the military-industrial complex. Defense economics was established as a new field of study, which stressed the need for modernization driven by data, not politics. In addition, contrary to the Soviet and to some extent the American experience, many Chinese defense industry executives supported the top state leaders and the mission of COSTIND.

All this said, conversion in China encountered problems. Although the military industry had significantly increased its production of civilian goods throughout the 1980s, serious inefficiencies remained. According to data from the 1980s, military industries on average had much lower labor productivity per person and lower average profits in comparison with non-military plants. Only about 33-50 percent of the productive capacity of military industries was being utilized. Many Chinese firms found it difficult to convert their entire infrastructure for the production of civilian, commercial goods; many civilian goods produced by defense firms were low quality, uncompetitive and generated few profits.¹² Some sectors, such as shipbuilding and electronics, have certainly demonstrated an impressive ability to turn themselves into successful producers of mainly civilian goods. However, Chinese defense conversion has produced mixed results at best.

Former Czechoslovakia

Former Czechoslovakia had the largest defense industry in the Warsaw Pact after the Soviet Union. Following the fall of the communist regime in 1989, there was a strong political will in the new Czech government to convert its substantial arms industry, driven by the strong moral commitment of the new government to an international peace regime and the push to reduce losses caused by the fall in arms demand in the late 1980s. Ultimately, however, political and economic realities ultimately thwarted defense conversion. Several factors played a role in this outcome. These included the lack of detailed, comprehensive planning, global political and economic changes and domestic social tension caused by rising unemployment.

In 1990, following the guidelines of the federal government's decisions, a broad conversion competition was announced, and 125 plans were approved in the Czech lands and in Slovakia. During 1991-1992, government policy (while not publicly stated) was to let about half the defense industry go bankrupt or be converted by free market forces and to rescue the rest with state support. However, because it was unknown which enterprises would be slated for abandonment or resurrection, military enterprises that were near or in bankruptcy resorted to simple survival techniques and political lobbying to save their position. Of the 125 projects originally accepted, only 40 to 50 were implemented two to three years after the launch of the conversion program. Furthermore, the federal institutions did not address the labor, regional, market and industrial policy dimensions of the endeavor, leaving the conversion project without a patron.

The slow pace, unimpressive results, possible abuses of subsidies, and dramatic political changes occurring in the Czech Republic from 1991 to 1992 could explain the government's change of direction on conversion. A report by the Minister of Economy in 1992 suggested that only factories that completely stopped producing arms should get subsidies for conversion. Considering that the enterprises most committed to conversion planned a gradual transformation, this decision was a financial blow to conversion as a whole, even though the simultaneous government decision to liberalize arms exports acted as an incentive to continue producing and exporting weapons. As it were, Czechoslovakia was losing business partners due to the postwar fall of demand, embargoes and insolvencies throughout the former Warsaw Pact and the Third World.

The federal institutions were unable or unwilling to address all the complexities of conversion. Labor, regional, market and industrial policy dimensions of the problem were not addressed. The task of administering the whole process was distributed among several federal and regional ministries and government agencies. No decisions were made on economic means to facilitate conversion, like preferential credits, tax allowances or wage regulations, which were all under the federal government's purview. In short, the project of conversion had no "patron." In fact, the ministries actually refused responsibility—for example, representatives of the Ministry of Industry would pass the problem to the Ministry of Labor, who passed it on to the Ministry of Defense and so on.

In 1988-1989, the first significant cuts in defense production were implemented due to the fall of demand from Warsaw Pact countries. In 1989-1990, the new Czech government made further reductions, and several Third World customers became insolvent or politically undesirable business partners, further diminishing export demand and causing an accumulation of unpaid arms exports. As the Gulf conflict escalated around 1990, the embargo imposed on some of the former Czechoslovakia's main trading partners in the Arab world further cut arms demand. Moreover, due to a deep worldwide recession in the 1990s, conversion had to take place without significant financial help from abroad. In most developed countries, the markets for durable consumer goods and other typical products of conversion like agricultural and construction machinery were either near saturation or were areas of intense competition.¹³

The problems in the defense sector caused by the broader economic crisis in the early 1990s hit the workforce particularly hard. Conversion, in the short run, aggravated the effects of unemployment, falling living standards, social tensions and growing inequalities. Given that the two processes were occurring simultaneously, it was easy for political actors to attribute the cause of all the problems to conversion.

Poland

Like the former Czechoslovakia, the Polish defense industry faced a crisis around 1990. Low export competitiveness, limited marketing experience, lack of access to capital and underutilization of labor were standard obstacles for many heavy industries transitioning to a free-market economy. Combined with the contraction of the global arms market, the Polish defense industry was near financial collapse.

While Polish authorities proclaimed conversion as a national objective as early as 1987, they did little to encourage it other than cut military expenditures, partly due to internal disagreement within the government. This left many firms in limbo, forcing defense producers to adopt a “wait and see” approach. As one firm manager implored, “Let the guys in Warsaw make a decision so that we’ll know what to do. Let them make any decision. Then we would be able to undertake decisions here in our own company—which plan we should implement, what, who we are looking for, and so on.”

Around the turn of the 1990s, total output from military-related enterprises fell by more than 77 percent. Although civilian production increased, total production levels were still far lower than before, with high unemployment. By 1995, more than half of the 180,000 employees working in the defense industry in 1988 had lost their jobs. Defense producers lost any privileges they might have enjoyed during the Cold War, adding to their financial burdens. Defense workers also experienced a loss of privileges, and consequently, defense firms had a difficult time retaining skilled workers.

Government rhetoric notwithstanding, conversion never emerged as a national objective in Poland. Limited conversion assistance was provided to a small number of defense firms by the Industrial Development Agency (ARP), a financial institution established by the central government in 1992 to grant loans to state-owned enterprises in the process of restructuring. However, there was no comprehensive plan for restructuring the dilapidated defense industry or for its conversion to civilian uses.¹⁴

Endnotes

- ¹ J. Davidson Alexander, “Military Conversion Policies in the USA: 1940s and 1990s,” *Journal of Peace Research* 31, no. 1 (1994), <https://doi.org/10.1177/0022343394031001003>.
- ² Kenneth L. Adelman and Norman R. Augustine, “Defense Conversion: Bulldozing the Management,” *Foreign Affairs* 71, no. 2 (Spring 1992): 27, <http://www.jstor.org/stable/20045123>.
- ³ Tarja Cronberg, *Transforming Russia: From a Military to a Peace Economy* (London, UK: I.B. Tauris, 2003), 47.
- ⁴ Gilbert W. Nutter, Israel Borenstein, and Adam Kaufman, *Growth of Industrial Production in the Soviet Union* (New Jersey, Princeton University Press, 1962), 4.
- ⁵ Cronberg, *Transforming Russia*, 47.
- ⁶ Gerard J. Janco, “The Conversion of the Defense Industry into Civilian Production,” *The Eurasia Center*, (Summer 1991), https://eurasiacenter.org/archive/1990-1999/1991conversion_of_the_defense_indust.htm.
- ⁷ Julian Cooper, “Conversion is dead, long live conversion!”, *Journal of Peace Research* 32, no. 2 (1995): 130, <http://www.jstor.org/stable/425062>.
- ⁸ Adelman and Augustine, 33.
- ⁹ Janco, “The Conversion of the Defense Industry into Civilian Production.”
- ¹⁰ Deba R. Mohanty, “Defence industry conversion in China,” *Strategic Analysis* 22, no. 12 (July 2008): 1846, <https://doi.org/10.1080/09700169908458926>.
- ¹¹ Evan S. Medeiros, “Analyzing China’s Defense Industries and the Implications for Chinese Military Modernization,” *RAND Corporation*, February 2004, <https://www.rand.org/pubs/testimonies/CT217.html>.
- ¹² Mohanty, “Defence industry conversion in China.”
- ¹³ Yudit Kiss, “Lost Illusions? Defence Industry Conversion in Czechoslovakia, 1989-92,” *Europe-Asia Studies* 45, no. 6 (1993): 1045-1069, <https://www.jstor.org/stable/152668>.
- ¹⁴ Sean M. DiGiovanna and Ann Markusen, *From Defense to Development?: International Perspectives on Realizing the Peace Dividend* (Abingdon, UK: Routledge, 2004).