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by Amitendu Palit
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POLICY PERSPECTIVE

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COVID-19 has drawn attention to the importance of making supply chains resilient by containing risks from geographic concentrations of sourcing. The risks are highest for strategic industries such as pharmaceuticals, critical minerals and semiconductors. Reducing sourcing dependency to increase resilience will require heavy financial incentivization.

Disruptions in global and regional supply chains are not new, but they've become more frequent during the last decade. Most disruptions have arisen from natural disasters. The earthquake in Fukushima, Japan and the flooding in Thailand, both in 2011, heavily disrupted global automobile and electronic supply chains.¹ Other calamities, such as Hurricane Sandy in the U.S. and famines in the Horn of Africa, also disrupted production networks and supply chains.

The World Economic Forum's (WEF) analysis of supply chain disruptions has confirmed that disasters and extreme weather events are the most common causes.² Similar disruptions within the last decade were attributed mostly to natural causes and weather-related adversities, IT disruptions and cyber-attacks.³

The rising incidence of disruptions has made global businesses fully aware of the importance of enhancing supply chain resilience. This has involved working on firm-specific collaborative strategies for ensuring production networks are able to reorganize as fast as possible after being jolted by unanticipated events.

COVID-19 as a Resilience Booster

COVID-19 has turned the goal of making supply chains resilient into a global and national priority. Two factors have been responsible for this: the scale of disruptions and the strategic importance of supply chains, including the power that some countries wield for disrupting them.

The scale of disruptions from COVID-19 is unprecedented. The pandemic first broke out in the Wuhan province of China in late 2019, leading to stringent lockdowns. Production shutdowns in Wuhan resulted in huge shortages in supplies of industrial raw materials and intermediate and final products required by various industries. China's economic recovery was followed by fresh episodes of the pandemic in Southeast Asia and East Asia in 2021. This caused further setbacks for supply chains. Industrial production halted in Malaysia, Vietnam, Thailand, Taiwan and Korea, creating chip shortages for automobile and electronic supply chains. Businesses and governments across the world realized that, unlike in the pre-COVID days, supply chain

¹ Steve Lohr, "Stress Test for the Global Supply Chain," *New York Times*, March 19, 2011, <https://www.nytimes.com/2011/03/20/business/20supply.html>.

² Gurpriya Bhatia, Charles Lane and Adrian Wain, "Building Resilience in Supply Chains," World Economic Forum (WEF), January, 2013, http://www3.weforum.org/docs/WEF_RRN_MO_BuildingResilienceSupplyChains_Report_2013.pdf.

³ Staff, "Asia-Pacific Trade Facilitation Report 2021," Asian Development Bank (ADB), October 2021, <https://www.adb.org/sites/default/files/publication/737991/asia-pacific-trade-facilitation-report-2021.pdf>.



disruptions are not always going to be short-lived and sporadic. Resilience strategies, therefore, have to be upgraded from quick fixes to long-lasting solutions.

The disruptions COVID-19 caused have also drawn attention to the vital strategic importance of some supply chains and the power that some countries have to disrupt them. Countries enjoying near-monopoly status as sourcing locations for key inputs can significantly disrupt these chains. The disruptions can arise from unexpected setbacks affecting production in these countries, such as the COVID-19 pandemic. Similarly, deliberate government actions, such as export bans, can also significantly disrupt supplies.

Both factors have heightened global urgency for safeguarding supply chains. The Supply Chain Resilience Initiative (SCRI),⁴ launched by Japan, India and Australia, and discussions among the Quadrilateral Security Dialogue (Quad) countries (the U.S., Japan, India and Australia)⁵ intend to bring the world's major economies together to work towards making supply chains more resilient.

Both these initiatives focus on protecting vital supply chains with a national security perspective. These supply chains include pharmaceuticals, semiconductors, critical minerals, energy and telecommunications. Without mentioning it upfront, these resilience initiatives acknowledge the vulnerabilities of supply chains from China, which is the largest sourcing hub for several key inputs.

Strategic Supply Chains and Sourcing Dependencies

The plight of pharmaceutical supply chains illustrates the vulnerabilities for strategic industries arising from geographic concentration of global sourcing.

Over the years, shifting production to low-cost locations has led major pharmaceutical companies from the U.S. and Europe to stop the upstream production of active pharmaceutical ingredients (APIs) used in finished-dose formulations (FDFs). API production has moved to China and various other low-cost locations, with export to the U.S. and Europe for preparing the final formulations.

The obvious outcome of the efficiency-driven geographical dispersion of pharmaceutical supply chains has been to make China a global leader in API production.⁶ China's ability to produce large volumes at low costs has helped it maintain its leading role. Global pharmaceutical supply chains have become heavily dependent on sourcing from China. This heavy dependence puts global medicine supplies at risk in the event that supplies from China are interrupted.

⁴ Staff, "Australia-India-Japan Trade Minister's Joint Statement on Launch of Supply Chain Resilience Initiative," Press Information Bureau, Government of India, April 27, 2021, <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1714362>.

⁵ Staff, "Fact Sheet: Quad Leaders' Summit," The White House, September 24, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/fact-sheet-quad-leaders-summit>.

⁶ Rory Horner, "The World Needs Pharmaceuticals from China and India to Beat Coronavirus," The Conversation, May 25, 2020, <https://theconversation.com/the-world-needs-pharmaceuticals-from-china-and-india-to-beat-coronavirus-138388>.



The larger geopolitical threat created by the sourcing monopoly China enjoys can be understood from the issues India has experienced. India is also a major producer of APIs, but unlike China, it does not produce as many since its thriving generic formulation industry requires less.

API production is more expensive in India, making imports from China a more economically sensible option.⁷ Over the years, India has developed a deep dependency on drug imports from China, making its pharmaceutical industry vulnerable to supply disruptions from China.

This dependency increases India's worries over China's ability to extract geopolitical advantages by weaponizing its prominence as a sourcing location. The worries are high at a time when India's relations with China are at their worst, following border skirmishes in the Himalayas soon after the outbreak of COVID-19. It is, therefore, hardly surprising that India has announced policies for reducing its drug-sourcing dependency on China by financially incentivizing more local production of APIs.⁸

China, has a history of using economic influence for geopolitical gains.⁹ India finds traction in the larger efforts of the SCRI and the Quad to ensure the stability of critical mineral supply chains. Critical minerals, such as lithium and rare earths, are essential for large-scale production of clean, decarbonized products, such as electric vehicles. China has an undisputed hold over the global critical minerals market and can leverage its clout over the critical mineral supply chains for geopolitical power projection.¹⁰

The concerns extend to semiconductor supply chains as well. The global chip shortage and difficulties faced by electronic and automobile supply chains underscore the importance of diversifying sourcing and building local capacities. Control over access to semiconductors, and industries using chips extensively, will be decisive in dictating advantages in the ongoing U.S.-China rivalry for global technological supremacy. Enhancing the resilience of semiconductor supply chains will thus be a high priority.

The Road Ahead

Achieving resiliency in strategic supply chains – pharmaceuticals, critical minerals, semiconductors – in the post-COVID-19 world will engage several countries, notably global

⁷ Antibiotics are among the major APIs that India imports in large quantities from China due to insufficient production at home. Imports are incentivized by higher domestic costs of production. For more details, see Amitendu Palit, "COVID-19, Supply Chains and Dependence on China: The Indian Perspective," *Joint U.S.-Korea Academic Studies*, Korea Economic Institute of America, vol. 32, July 30, 2021, https://keia.org/wp-content/uploads/2021/07/KEI_Joint-US-Korea_2021_210728.FINAL_.pdf.

⁸ Staff, "Guidelines for the Production Linked Incentive (PLI) Scheme for Promotion of Domestic Manufacturing of Critical Key Starting Materials (KSMs) / Drug Intermediates (DIs) / Active Pharmaceutical Ingredients (APIs) in India," Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, Government of India, October 29, 2020, https://pharmaceuticals.gov.in/sites/default/files/REVISED%20GUIDELINES%20FOR%20BULK%20DRUGS-29-10-2020_1.pdf.

⁹ The most recent examples include China's unilateral trade actions against Australia. In the past, China has resorted to trade coercion against Japan and the Philippines.

¹⁰ Amitendu Palit, "What China-Taliban Ties Mean for the US, Canada and the World," Macdonald Laurier Institute, October 21, 2021, <https://www.macdonaldlaurier.ca/china-taliban-ties-mean-us-canada-world/>.



middle powers with large economies, in long-term strategizing. The proactivity on display in this regard is noteworthy.

Initiatives such as the SCRI and Quad will need to manage a number of complex and conflicting issues to achieve progress on their plan for resilience. Foremost among these will be efforts to convince businesses of the importance of pulling in strategic supply chains among partners and allies. This would require overlooking the virtues of economic efficiency in organizing supply chains. To what extent supply chain actors are motivated to do so will depend on incentives on offer. Countries will need to mobilize considerable subsidies and financial resources for incentivizing resilience.

► About the Author

Amitendu Palit is a senior research fellow and research lead (trade and economic policy) at the Institute of South Asian Studies (ISAS) in the National University of Singapore (NUS). He is an economist specializing in international trade policies, regional economic developments, comparative economic studies and political economy of public policies. He worked with the government of India for several years, with his longest span being in the Department of Economic Affairs in the Ministry of Finance. Prior to joining ISAS in April 2008, he was with the Indian Council for Research on International Economic Relations (ICRIER), a leading economic policy research institute and think tank in Delhi. His research focuses on the economic and political implications of India's integration with the Asia-Pacific region, the impact of mega-regional trade agreements and the various determinants of external trade and integration policies of China and India. His books include *The Trans-Pacific Partnership, China and India: Economic and Political Implications*; *China India Economics: Challenges, Competition and Collaboration*; and *Special Economic Zones in India: Myths and Realities* (co-authored). He has also edited several books and published in peer-reviewed academic journals. He is a columnist for India's well-known financial daily, *Financial Express*, and a regular contributor to the *China Daily*. He appears regularly as an expert on the BBC, Bloomberg, Channel News Asia, CNBC, Australian Broadcasting Corporation (ABC), Doordarshan (India) and All India Radio.

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