

INDIA COVID-19 PROCUREMENT: CHALLENGES, INNOVATIONS, AND LESSONS

DISCUSSION PAPER

December 2021

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WORLD BANK GROUP
Health, Nutrition & Population

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Health, Nutrition, and Population (HNP) Discussion Paper

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Health, Nutrition, and Population (HNP) Discussion Paper

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Paper prepared as a Dissemination Piece of COVID-19 India's Programmatic Lessons Learned

Abstract: This working paper documents the challenges, innovations, and lessons in the procurement of essential medical commodities during the first wave of the COVID-19 pandemic in India.

COVID-19 created unprecedented shortages of essential medical supplies and equipment due to the sudden surge in demand. Severe global supply chain constraints of essential COVID commodities and unprecedented demand for lifesaving equipment led to an entirely supplier-driven market and huge variation in prices. To address this concern, the government of India took over the responsibility for centralized procurement to support the states. Flexible conditions were permitted under the existing legal frameworks and budgets to undertake fast-track procurement, while empowered groups helped to accelerate decision making. Initially, this enabled accelerated imports, and over time, the development of local markets, based on a whole-of-government approach.

This led to the development of specific standards, sourcing appropriate raw material, ensuring availability of workforce, and maintaining efficient supply chains to deliver finished products in a timely manner to state governments, depending on assessed need. Handholding the industry; accelerated tendering; and pre dispatch inspections by competent agencies, including testing of random samples, helped to ensure quality of products. In addition to enhanced access, this initiative also helped to steeply bring down the prices of essential COVID supplies. A unique feature seen in India was the active role played by the private sector in testing, contributing to nearly 50 percent of laboratories and in the raising of additional resources by venture capital firms to support domestic manufacturing of COVID commodities.

The COVID-19 Emergency Response and Health Systems Strengthening Project—jointly financed by the World Bank and Asian Infrastructure Investment Bank (AIIB)—supported these initiatives through hands-on procurement support and capacity-building. Flexibility in emergency procurement using country procedures during the peak ensured timely availability of COVID commodities.

Disclaimer: The findings, interpretations, and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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This working paper documents the challenges, innovations, and lessons in procurement of essential medical commodities during the first wave of the COVID-19 pandemic in India.

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LIST OF ACRONYMS

ACG	Anti-Corruption Guidelines
ADRDE	Aerial Delivery Research and Development Establishment
AIB	Asian Infrastructure Investment Bank
BFP	Bank-Facilitated Procurement
BIS	Bureau of Indian Standards
CPD	Central Procurement Division
DGHS	Director General of Health Services
DRDE	Defense Research Development Establishment
DRDO	Defense Research Development Organization
EMR	Emergency Medical Response
EU	European Union
FOB	Free on Board
GeM	Government e-Marketplace
GFR	Government Financial Rules
GoI	Government of India
HEIS	Hands-On Extended Implementation Support
HLL	Hindustan Latex Lifecare Limited
ICMR	Indian Council of Medical Research
ICU	Intensive Care Unit
IFC	International Finance Corporation
IHR	International Health Regulation
MOHFW	Ministry of Health and Family Welfare
MSMEs	Micro, Small, and Medium Enterprises
NGO	Nongovernmental Organization
NHM	National Health Mission
OC	Oxygen Concentrator
OECD	Organisation for Economic Co-operation and Development
PMJAY	Pradhan Mantri Jan Arogya Yojana
PPE	Personal Protective Equipment
PRAMS	Procurement Risk Assessment Management
RNA	Ribonucleic Acid
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SITRA	South India Textile Research Association
STEP	Systematic Tracking of Exchanges in Procurement
UCC	Unique Certification Code
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

1. COVID-19 created unprecedented shortages of essential medical supplies and equipment due to the sudden surge in demand. A complex supply chain environment—given the geographic concentration of manufacturing plants as well as travel restrictions—compounded this further. Countries tried wide-ranging approaches, including flexibility in procurement and development of domestic manufacturing to overcome these challenges. Such approaches, however, created new challenges on account of reduced oversight, affecting quality and long-term sustainability of the augmented domestic manufacturing capacity.
2. This paper takes a close look at the initiatives taken by the government of India (GoI) to ensure sustained supply of essential medical commodities during the critical initial phase of the COVID pandemic, including efforts to develop the local market following a whole-of-government approach. Severe global supply chain constraints of essential COVID commodities and unprecedented demand for lifesaving equipment led to an entirely supplier-driven market and to huge variation in prices. To address this concern, the GoI took over the responsibility for centralized procurement to support the states. Flexibility under existing legal frameworks and budgets allowed fast-track procurement, while empowered groups helped to accelerate decision making. This enabled accelerated imports to begin with, and the development of local markets later on.
3. The Central Procurement Division (CPD) and Emergency Medical Response (EMR) division of the Ministry of Health and Family Welfare (MOHFW) and the Indian Council of Medical Research (ICMR) led India's initial efforts to sustain supply chains supported by Hindustan Latex Lifecare Limited (HLL) acting as procurement agent. While the CPD primarily focused on supply of personal protective equipment (PPE), goggles, and N95 masks to safeguard health staff, the ICMR rapidly ramped up testing infrastructure in partnership with the private sector and established a validation mechanism to scale up the availability of COVID testing supplies.
4. This led to the development of specific standards, sourcing appropriate raw material, ensuring availability of workforce, and maintaining efficient supply chains to deliver finished products in a timely manner to state governments, according to the assessed need. A whole-of-government approach engaging all key ministries and state governments was followed while ensuring clear separation of roles and responsibilities of different committees involved in procurement. Handholding the industry; accelerated tendering; and pre dispatch inspections by competent agencies, including testing of random samples, helped to ensure quality of products.
5. In addition to enhanced access of these critical inputs to frontline health staff, this initiative also helped to steeply bring down the prices of these essential COVID supplies. For example, the price of N95 masks came down from Rs 250 to Rs 20 and PPE from Rs 700 to Rs150. Similarly, the price of Reverse Transcription Polymerase Chain Reaction (RT-PCR) test kits used as a gold standard to confirm COVID infection fell from Rs1,207 to Rs 72, and the price of the Ribonucleic Acid (RNA) extraction kit fell from Rs 336 to Rs 37, while that of viral transport media dropped from Rs 182 to Rs 24 within six months. Once the market had adequate suppliers meeting established standards, both the CPD and ICMR ensured that their products were listed at the Government e-Marketplace (GeM), which enabled states to place orders directly.
6. A unique feature in India was the active role of the private sector in testing, contributing to nearly 50 percent of laboratories as well as of venture capital raising additional resources to

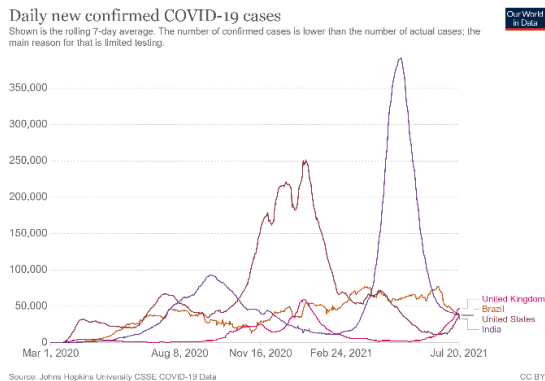
support domestic manufacturing of COVID commodities and develop IT-supported innovations for teleconsultation and intensive care unit (ICU) management. However, long-term implications of market development in the globalized supply chains need carefully calibrated export controls to balance domestic needs with global market opportunities for local manufactures.

7. The COVID-19 Emergency Response and Health Systems Strengthening Project—jointly financed by the World Bank and Asian Infrastructure Investment Bank (AIIB)—supported these initiatives through hands-on procurement support and capacity-building. Flexibility in emergency procurement using country procedures during the peak ensured timely availability of COVID commodities. Bank Facilitated Procurement (BFP) also supported timely supply of lifesaving oxygen concentrators during the second wave.

PART I: INTRODUCTION

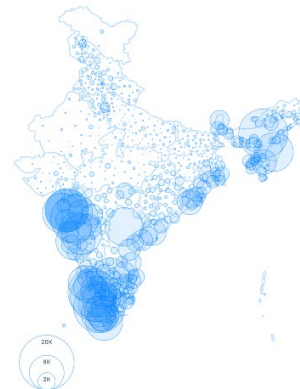
8. **The COVID-19 pandemic had a devastating impact on lives and livelihoods**, with over 207 million cases and 4.36 million deaths reported as of August 15, 2021.¹ This reversed the gains made in poverty reduction, and recovery is expected to be prolonged. Since its first confirmed case of COVID-19 on January 30, 2020, India reported over 32 million COVID-19 cases by August 15, 2021, and ranked second globally (after the United States) in cumulative cases reported. At its first peak in the middle of September 2020, India was reporting nearly 100,000 cases daily, which steadily declined to 11,000 cases by mid-February 2021 (Figure 1). However, with the onset of the second wave, the daily reported cases started increasing again in late February 2021 and rapidly catapulted to nearly 400,000 daily cases being reported by May 8, 2021. The second wave peak stabilized by July 2021, and since then India has consistently reported between 35,000 to 46,500 cases daily. Within India, there is wide variation in distribution of COVID-19, with nine states² contributing to over two-thirds of the total reported cases (Figure 2).

Figure 1. Daily Confirmed COVID-19 Cases in India, Brazil, UK, and USA



Source: <https://ourworldindata.org/covid-cases>.

Figure 2. Distribution of COVID Cases in Indian States, July 20, 2021



Source: [Coronavirus Outbreak in India - covid19india.org](https://covid19india.org).

9. **The health systems of most countries, including those rated high on the Global Health Security Index, faced new challenges in responding to the pandemic.** Serious shortages of essential medical supplies and equipment were common due to the sudden surge in global demand for testing kits and personal-safety and lifesaving equipment during the initial waves. Subsequent waves caused by the Delta variant created huge demand for medical oxygen. This was compounded by the complex supply chain environment with the global manufacturing base concentrated in China, where production costs were low. The supply chain constraints were further exacerbated when China shut down entire cities and several manufacturing plants. Evolving evidence on the efficacy of preventive and treatment protocols also created new demand for products that were not part of the existing supply chains. Further, stringent travel restrictions during the pandemic affected movement of goods, while limitations in sending and receiving documents and inability to have face-to-face interactions also affected traditional public procurement processes.

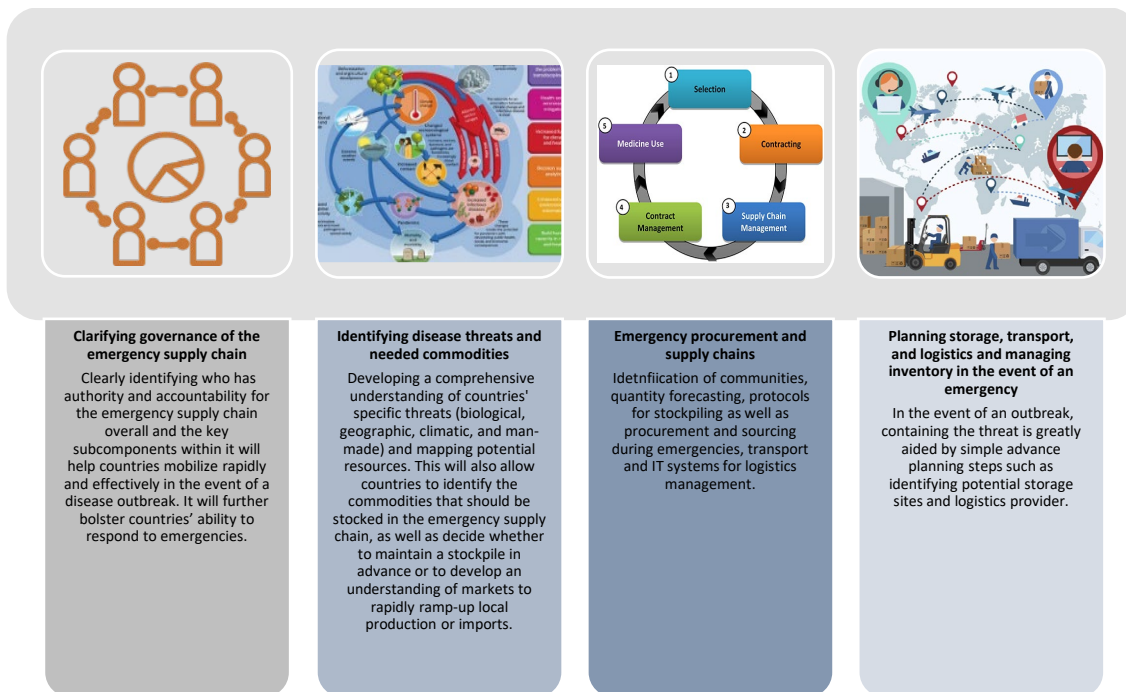
¹ <https://ourworldindata.org/covid-cases>.

² Maharashtra (6.23 million), Kerala (3.19 million), Karnataka (2.89 million), Tamil Nadu (2.54 million), Andhra Pradesh (1.94 million), Uttar Pradesh (1.71 million), West Bengal (1.52 million), Delhi (1.44 million), and Chhattisgarh (1.01 million).

10. **To address these exceptional market uncertainties, several countries introduced innovations in public procurement to make processes responsive to the emergency context.** Agile supply chains were quickly put in place to address market failures. This paper lists some global experiences and summarizes procurement innovations undertaken by the government of India (GoI), including its efforts to develop the domestic market for essential COVID-19 commodities and lifesaving equipment. The scope of this paper is limited to documenting such innovations at the national level in support of subnational governments to improve access to essential COVID commodities. Procurement of COVID vaccines is not part of this analysis as this often involved multilateral and bilateral contracts as well as special supply chain arrangements. The paper also highlights the value-addition provided by the World Bank through the *India-COVID-19 Emergency Response and Health Systems Preparedness Project*, which provided US\$1.5 billion joint financing by the World Bank and Asian Infrastructure Investment Bank (AIIB). The primary target audience for this report include senior government policy makers, procurement specialists and agents, and staff of donor agencies supporting emergency operations.
11. **The report is organized into six sections.** The first section provides the context and the second summarizes evolving global knowledge of innovations in public procurement during emergencies. The third section highlights India's specific procurement challenges as the COVID pandemic unfolded. The fourth describes India's response to enhance supply of COVID commodities during the initial waves. The fifth section highlights some of the evolving opportunities and challenges in promoting domestic markets, including the role played by private venture capital financing companies. The final section describes the value-addition by the World Bank and lists emerging key lessons.

PART II: PREPAREDNESS AND EMERGENCY SUPPLY CHAIN MANAGEMENT FOR PUBLIC HEALTH EMERGENCIES—GLOBAL EXPERIENCES

Figure 3. Emergency Supply Chain Management Preparedness—Key Components



12. The International Health Regulation (IHR) and global experiences clearly highlight that preparedness is critical for public health emergencies. A comprehensive review of global best practices on preparedness and management of emergency supply chains during public health emergencies by the United States Agency for International Development (USAID)³ highlighted four key components: (a) Clarifying governance of emergency supply chain; (b) Identifying disease threats and needed commodities; (c) Emergency procurement and supply chains; and (d) Advance planning storage, transport, and logistics (Figure 3).

Innovations in Public Procurement during Emergencies

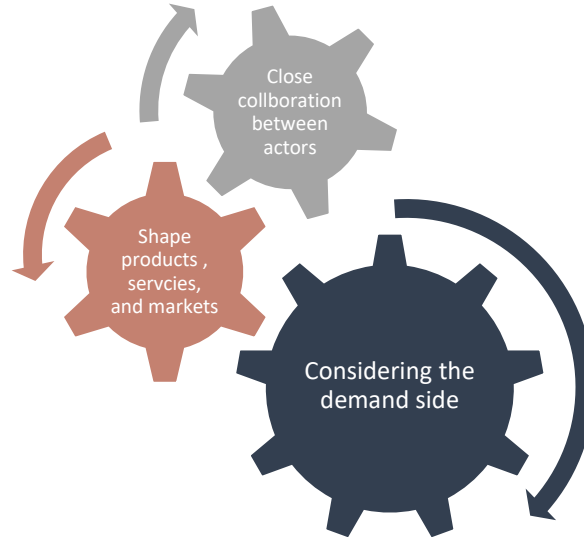
13. Innovative procurement is buying goods and services in a way that stimulates the supply chain to invest in developing better and more innovative solutions to meet unmet needs.⁴ Primarily, it involves closer collaboration between different actors (users, manufacturers, suppliers, and procurement agencies) to meet demand-side needs and apply procurement power to shape products/services and markets (Figure 4).⁵

³ Best Practices in Supply Chain Preparedness for Public Health Emergencies; USAID | Global Health Supply Chain—Technical Assistance Multi-Award IDIQ (GHSC-TA) Contract No. AID-OAA-I-15-00030.

⁴ L. Hernandez Garvayo, Head of Unit, FECYT, Ministry of Economy, Spain, Presentation in OCED workshop December 5–6, 2013.

⁵ Lenders and Fearon. 2008. "Developing Purchasing's Foundation." *Journal of Supply Chain Management* 44 (2): 17–27.

Figure 4. Innovative Procurement



14. **Accelerated public procurement during emergencies such as the COVID-19 pandemic tends to conflict with the core guiding principles of openness, transparency, and economy.** To address this concern, many countries have provisions in their legal frameworks and policies for responsive public procurement during emergencies.
15. **Several countries effectively responded to COVID-19 by introducing innovations while balancing these with accountability requirements of public procurement.**⁶ This paper provides examples from a combination of developed and developing countries on how they addressed supply chain challenges by amending policies. Specifically, examples from a middle-income country (South Africa) and a country with a federal structure (the United States) that are relevant for India are included.
16. **The European Commission performed a combined bidding for over 25 member states, which enhanced the response from bidders** (Box 1). The United Kingdom issued a clear policy note on direct procurement to help contracting authorities undertaking emergency procurement (Box 2).

Box 1. Joint Procurement by the European Union

The European Commission launched four different tender calls for medical equipment for 25 member states during February–March 2020. The commission played a coordinating role while the member states bought the goods. This joint procurement helped to improve the response by the number of offers received, which in some cases exceeded the requested quantities.

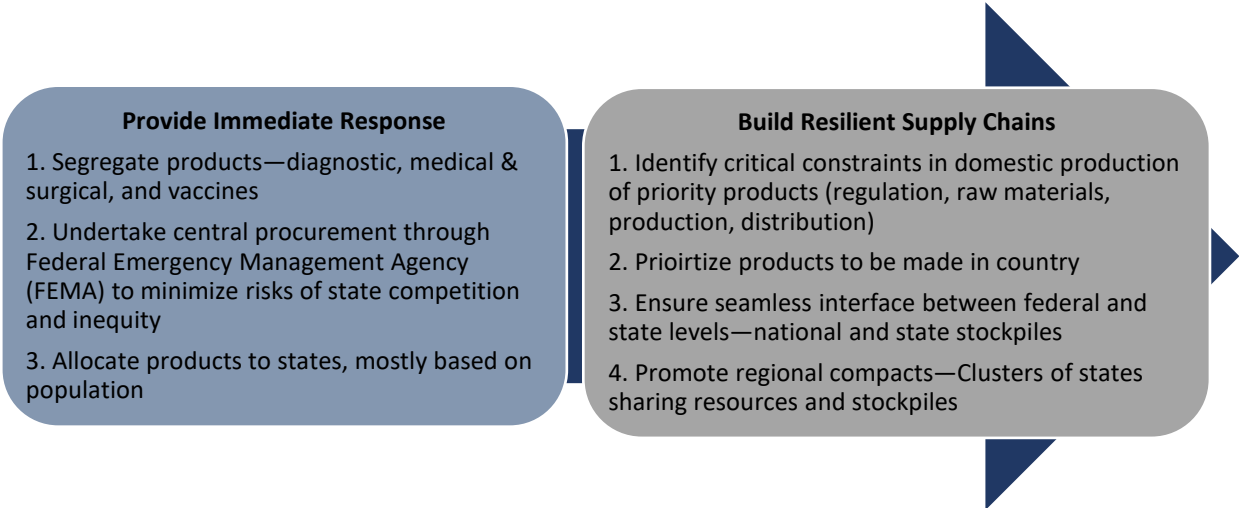
Box 2. Policy Guidance on Direct Awards—United Kingdom

Early adaptation of a policy note by the United Kingdom to provide guidance on procurement procedures to purchase goods, services, and works in situations of emergency (to assess whether conditions specified in policy are met, provide written justification, limit purchases only to the absolute necessary, and use commercial judgment especially if the prices are higher than regular market, and publish contract award notice within 30 days from the award) helped contracting authorities during the emergency.

⁶ Impact of COVID on public procurement; <https://cms.law/en/int/publication/impact-of-covid-19-on-public-procurement>.

- 17. **South Africa declared the COVID-19 outbreak a national disaster on March 15, 2020, following its Disaster Management Act.** This was followed by a gazette notification of steps necessary to prevent escalation and minimize effects of the disaster as per the emergency provisions of the Public Finance Management and the Municipal Finance Management Acts. On March 19, 2020, the National Treasury issued emergency procurement instructions to state and public entities to deal with the COVID-19 pandemic. The National Treasury negotiated and agreed on prices with suppliers of preventative goods and took measures to ensure continuity of supplies and to keep prices in check. Items, suppliers, and prices were listed in annexes to the instruction. Accounting officers and authorities were directed to procure the listed goods from the suppliers at the prices listed. If none of the suppliers could supply them, flexibility was given to procure the listed goods from other suppliers at prices not exceeding the prices listed in the instruction, without the need for approval from the National Treasury. Reporting obligations helped to keep a check on such procurement.
- 18. **The US government created a bipartisan Capitol Hill Steering Committee for Pandemic Response and Health Security.** The American Rescue Plan provided US\$10 billion under the Defense Production Act and US\$6 billion for research, which enabled a pan-government approach to ramp up domestic production and provide strategic investments for long-term sustainability and for building resilient systems. These resources also enabled initiatives to amend regulatory systems to enhance US production capacity and promote rethinking on procurement strategy to provide preference to domestic products. A two-pronged strategy was developed focusing on immediate and longer-term response to build resilient supply chains (Figure 5), which helped states and domestic industry players to prioritize and prepare better for future pandemics. Some new areas identified for future focus included investments in emerging infectious diseases and advance production of commodities that could be used in multiple products such as adjuvants.⁷

Figure 5. US Strategy for Immediate and Sustained Response to Build Pandemic Supply Chains



Source: Author’s summary of US strategy.

- 19. **Several countries added the quality dimension to the traditional “lowest price” focus of public procurement.** For example, the new European Union (EU) Procurement Directive

⁷ https://www.jhsph.edu/research/affiliated-programs/johns-hopkins-drug-access-and-affordability-initiative/publications/Pandemic_Supply_Chain.pdf.

(2014/24/EU) no longer specifies price as an award criterion and emphasizes “best price-quality ratio” for deciding most economically advantageous tender to obtain high-quality works, goods, and services that are optimally suited to EU’s their needs.

20. **Some priority actions to accelerate public procurement based on evolving global lessons during the COVID-19 pandemic summarized by the Organisation for Economic Co-operation and Development (OECD)⁸** are presented in Figure 6.

Figure 6. Accelerated Procurement during Emergencies—OECD



Source: Author’s summary of OECD, Tracking Coronavirus Contributing to a Global Effort.

21. **Innovations to accelerate supply of essential COVID commodities also come with some risks.** The initiative taken by the United States Food and Drugs Administration (US FDA) to temporarily suspend import regulations at the height of the pandemic in 2020 left the field open for dozens of companies that saw an opportunity to make a quick profit. An investigation by CNN unearthed a massive scandal involving medical-grade nitrile gloves. These gloves are almost entirely produced in Southeast Asia, where abundant natural rubber—the main ingredient—is available, and highly specialized factories were built over the years to manufacture these gloves. The investigation has shown that a Thailand-based company exported previously used nitrile gloves to the United States, supplying nearly 200 million gloves during the pandemic. A further CNN investigation at a Los Angeles warehouse confirmed that most of the gloves were not nitrile, but lower-grade latex or vinyl, and many were soiled and secondhand.⁹ There were also challenges in enhancing domestic production to meet emergency needs without considering future market demand in the global supply chain.

⁸ COVID-19: Competition and Emergency Procurement; OECD, Tracking Coronavirus (COVID-19) Contributing to a Global Effort.

⁹ <https://www.cnn.com/2021/10/24/health/medical-gloves-us-thailand-investigation-cmd-intl/index.html>.

PART III: SUPPLY CHAIN CHALLENGES ENCOUNTERED BY INDIA DURING THE PANDEMIC

22. **Severe disruption in global supply chains.** The pandemic resulted in an unparalleled surge in global demand on suppliers that were geographically concentrated in China over the years due to low production costs. This was further compounded by challenges in transportation due to travel restrictions affecting both international and domestic logistics. Closure of offices during lockdowns and concerns about vulnerability to COVID affected traditional public procurement processes such as bidding through envelopes, pre-bid meetings with suppliers to clarify their concerns, and inspection of manufacturing sites to determine supplier capacity and production quality.
23. **Limited planning and forecasting.** While India continuously handles large disease outbreaks and natural calamities such as floods, earthquakes, and cyclones, most of such calamities were limited to a specific region. States with support from the center were able to quickly mount an effective response to address such situations. Hence, the Gol traditionally has kept only limited stockpiles of essential medical supplies for few northeastern states and union territories. Challenges also existed due to evolving evidence on the efficacy of COVID prevention and treatment protocols, requiring creation of new supply chains and dropping of some existing products. While states that had systems such as medical supply corporations in place (e.g., Tamil Nadu and a few other states) started procurement of COVID commodities, testing kits, and lifesaving equipment, the Gol had to step in to handle global supply constraints and high price variation in bids submitted by limited suppliers.
24. **Limited technical specifications.** Like most countries, India also met initial challenges in coming up with well-defined “technical specifications” for various COVID-19 products; essential lifesaving equipment; and kits required for COVID-19 diagnosis, treatment, and research. For many of these goods, the specifications were either not available or not specific enough, as most criteria used in past procurements primarily focused on “desirable features.” Also, early user experiences found constraints with some types of ventilators.
25. **Extremely limited domestic production capacity.** When the pandemic started in January 2020, India had no domestic manufacturers for personal protective equipment (PPE), diagnostic kits, and nitrile gloves, which were essential to protect the health staff handling COVID cases. There were only two manufacturers of N95 masks in the country, while ventilator manufacturers were limited. Further, viral transport media and testing kits, essential for sample collection from suspected cases and transportation to the laboratory and testing, were not available in adequate numbers, and the testing laboratories across the country were rapidly scaled up from 18 to over 2,500 within a span of four months.
26. **Inadequate market intelligence.** India lacked a comprehensive database of manufacturers and suppliers of commodities as well as of protective and lifesaving equipment needed for responding to the COVID pandemic. There were also no credible data on price or track record of suppliers from the past procurement of similar goods. As the intensity of the pandemic was not uniform across states, demand forecasting was extremely difficult.
27. **Price and supply constraints due to global demand.** The limited number of international suppliers jacked up prices of COVID commodities and equipment severalfold due to unprecedented global demand. Many suppliers also demanded 100 percent advance payments or resorted to cash-and-carry modes, which are not possible under public procurement laws. This resulted in unprecedented price escalation, where the highest bidders ended up getting supplies. Worldwide air travel bans created a major bottleneck for supply chain management.

PART IV: INDIA'S INNOVATIVE RESPONSE

28. **The Indian government applied emergency provisions of existing acts to accelerate procurement of essential COVID commodities and equipment** (Figure 7). Key innovations included (a) adoption of a *whole-of-government approach* to stimulate local production that helped to steeply reduce unit prices and dependency on global supplies; (b) introduction of accelerated tendering process and quality assurance protocols; (c) efficient supply chain management informed by computerized modeling that helped to project number of cases and admissions, including oxygen/intensive care unit (ICU) requirements among states based on epidemiological trends; and (d) quickly moving the quality-assured COVID commodities to the government's e-procurement site, which enabled states to start accessing these products at competitive prices without going through a tendering process. The "Hands-On Expanded Implementation Support" agreement enabled the World Bank to provide additional technical assistance for procurement to the agencies implementing the project. This effort was further augmented with the flexibility provided by the World Bank to apply relevant provisions in the government procurement procedures for the emergency response component of the project on an exceptional basis.

Figure 7. Provisions for Emergency Procurement in India

General Financial Rules and Manual for Procurement of Goods 2017	The Epidemic Diseases Act 1897 Amended in 2020	National Disaster Management Plan 2019
<ul style="list-style-type: none"> • Direct procurement by purchase committee; procurement from a single source • Selection by direct negotiation; and nomination on the lines of single tender mode 	<ul style="list-style-type: none"> • Direct procurement without quotation and by purchase committee • Single Tender Enquiry with reduced time for bids 	<p>During disasters, the National Disaster Management Authority (NDMA) has power to authorize departments/authorities to make emergency procurement for rescue and relief operations</p>

Source: Author's summary of provisions for Emergency Procurement in India.

29. **States are primarily responsible for delivering health services in India** while the Gol provides additional support to states for national health priorities through the umbrella National Health Mission (NHM) and the flagship health insurance program, the Pradhan Mantri Jan Arogya Yojana (PMJAY). However, due to global supply constraints, the Gol had to step in to support the states. This section describes the role of the Central Procurement Division (CPD) and the Emergency Medical Response (EMR) division of the Ministry of Health and Family Welfare (MOHFW) and the Indian Council for Medical Research (ICMR), respectively, in ensuring supply of essential COVID commodities and testing kits.

Procurement of COVID Commodities by the Ministry of Health and Family Welfare

Procurement strategy development

30. **The Gol introduced several innovations in procurement practices, balancing the urgent need to save lives and protect the precious health care workforce while developing the domestic market.** Additional resources were quickly mobilized through multilateral institutions, and a comprehensive procurement strategy was developed focusing on meeting emergency needs quickly while supporting market development to ensure better competition and prices while putting in protocols for quality assurance. The Gol adopted a whole-of-

government approach to address bottlenecks by ensuring a steady supply of raw materials, availability of labor for manufacture, development of quality standards, and distribution of finished products during nationwide lockouts. Several states also complemented these efforts through local innovations to accelerate supply of diagnostic kits, critical equipment, and lifesaving oxygen.

Early easing of public procurement norms

31. India started introducing emergency procurement protocols as early as March 2020, when the COVID pandemic was still evolving, with only about 1,000 cases and 29 deaths reported by the country. Following the guidance from the cabinet secretary, the highest-ranking civil servant in the Gol, the Department of Expenditure issued necessary notification on March 27, 2020, to ease procurement and transportation of medical and other essential supplies for COVID-19 operations.¹⁰ This allowed secretaries of five departments/ministries¹¹ to decide on essential

Box 3. Modification of Procurement under General Financial Rules 2017

Enables to

1. Procure medical essential supplies without tendering
2. Procure essential medical supplies from international markets without tendering
3. 100 percent advance payment to the manufacturer
4. Procure different products at different times at different prices

items for responding to the COVID pandemic and apply provisions under the Government Financial Rules (GFR) to procure from a single source and, if unavoidable, at different rates (Box 3). Flexibility was given to these departments/ministries to procure through the Indian missions abroad. If the entire quantity needed was not immediately available, simultaneous use of multiple methods to procure the same item at different rates was permitted. A logistic committee was constituted to coordinate supply chain management.

32. All Ministries/departments responding to the pandemic were given flexibility to use its existing budget allocations for COVID-19 procurement; in case of shortage of funds, a dedicated budget head was provided as a temporary measure with authorization up to Rs 200 crore (US\$27 million). A provision to seek special approvals for excess expenditures beyond this was provided for expenditures incurred up to March 31, 2020.

Enhanced central role in procurement

33. Due to the severely constrained global supply chain environment, the Gol asked the MOHFW to step in and support the states in procuring COVID commodities. This was done through imports, initially with the help of the Ministries of External and Home Affairs, and by developing local markets subsequently. The MOHFW worked closely with the Ministry of Textiles, Ministry of Defense, and Departments of Science and Technology and Biotechnology to develop local markets. The World Bank and AIIB-supported *COVID-19 Emergency Response and Health Systems Strengthening Project* helped accelerate this response. An official order was issued on March 30, 2020, to enable the Gol to take the responsibility of COVID-19 procurement until the supplier markets were adequately developed. The strong foundation and processes established by the National Health Mission created an effective platform for coordination between the national and state governments to ensure timely flow of commodities and cash, depending on state needs.

¹⁰ I.D. No.101/2/1/2020-CA. IV, dated March 26, 2020.

¹¹ Department of Pharmaceuticals, MOHFW, including Department of Health Research, Ministry of Textiles, Department of Consumer Affairs, and Ministry of Civil Aviation.

Procurement capacity-building, coordination, and accelerated clearances

34. **The procurement capacity at the CPD of the MOHFW was limited to buying pharmaceuticals for ongoing National Health Programs** and was not adequate to handle large-scale emergency procurement, especially for a pandemic of COVID-19 magnitude spreading rapidly across the country. Contracting HLL Lifecare Limited (formerly **Hindustan Latex Limited** [HLL]), which had experience in handling supplies during past natural disasters as procurement agent, helped to accelerate emergency procurement. HLL supported CPD in the preparation of bidding documents as well as in bidding, evaluation, and award of the contract. It also helped in managing the supply chain to deliver commodities according to the needs of the states.
35. **To accelerate approvals, the Gol created several empowered interministerial groups**, led by secretaries/heads of departments. Empowered Group 3 was mandated to provide oversight for the production and supply of essential medical utilities across the country from PPE to oxygen cylinders and ventilators. The empowered group deployed teams of officers, scientists, and engineers for extending hands-on support to scale up domestic production. The empowered groups met daily through videoconferencing, and approvals were given at the end of meetings that enabled prompt procurement decisions. India also initially imposed a number of export restrictions to ensure availability of essential medical equipment.

Developing the local market

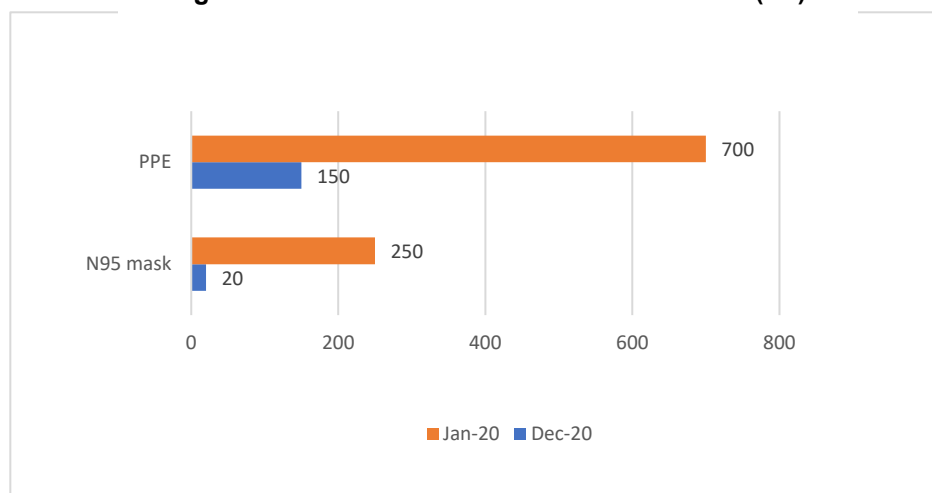
36. **As a first step, the EMR division of the MOHFW constituted an expert panel to develop specifications** for overalls, goggles, and N95 masks. HLL reached out to the South India Textile Research Association (SITRA), based in Coimbatore, Tamil Nadu, to develop prototypes and identify appropriate raw materials meeting the standards. These prototypes and specifications were shared with the industry, and product quality was assessed through test runs. However, the manufacturers faced initial challenges in meeting the quality standards of PPE due to the risk of leakage along the seams. This issue was promptly resolved by the Defense Research Development Organization (DRDO), which developed an appropriate sealant. Effective coordination with the Ministries of Textiles and Home Affairs with support from the logistics group ensured movement of raw materials to the manufacturers and of distribution of finished products to states. Special work permits issued to production and packaging staff allowed manufacturers to reach full production levels during lockdowns. Many states are currently manufacturing PPE, with Karnataka, Tamil Nadu, Gujarat, Punjab, Maharashtra, Rajasthan, West Bengal, Delhi, Haryana, and Uttar Pradesh taking the lead. As of September 15, 2021, 422.79 million N95 masks, 176.91 million PPE, and 49,797 ventilators were distributed to states, union territories, and central government institutions.¹² On May 27, 2020, MOHFW issued an advisory on reprocessing and reuse of eye protection goggles by health workers, which allowed extended use without the risk of infection.
37. **Ventilators were critical lifesaving equipment in huge demand during the pandemic.** Before the COVID pandemic, India was mostly importing ventilators following US FDA or CE certifications. Due to unprecedented global demand, the ventilator supply chain was entirely disrupted at the beginning of the pandemic in March 2020. To address this, the MOHFW worked with medical experts and biomedical engineers under the leadership of the Director General of Health Services (DGHS) to develop essential and desirable specifications for ventilators and sought feedback from suppliers. The updated specifications, incorporating suggestions from manufacturers, were reviewed by another expert committee consisting of

¹² "Chasing the Virus: A Public Health Response to the COVID-19 Pandemic," January 2020–November 2020, Vol. 1, MOHFW, Gol.

medical doctors and scientists with both technical expertise and hands-on experience in their use. About 25 manufacturers including several newcomers came forward to produce ventilators. However, many of them had limited financial and infrastructure capacity. The Gol pulled in automobile and electrical manufacturing companies to handhold these new entrepreneurs to produce ventilators. The expert committee regularly interacted with these manufacturers and helped them to achieve required performance standards. In addition, support from agencies such as the DRDO, Departments of Biotechnology and Science and Technology, helped design some critical inputs for ventilators such as valves and pressure sensors that were in short supply. Before COVID, India had only three manufacturers of ventilators with a capacity to produce 10,000 units per year. As of November 2020, India has 25 manufacturers with capacity between 150,000 to 200,000 units per year.¹³

Accelerated tendering

Figure 8. Price Decline in PPE and N95 Masks (Rs)



Source: Author's summary based on information provided by Central Procurement Division, MOHFW.

38. Under the leadership of the Ministry of Finance, the MOHFW held consultations with six manufacturers of PPE that initially met the qualifications criteria. The lowest price quoted by them was taken as the benchmark, and other manufacturers were asked to match this price and quality. Once an adequate number of manufacturers were available, the MOHFW introduced open tendering without a closing date or disclosure of the negotiated price. This enabled all eligible manufacturers to take part in bidding; by the end of May 2020, over 1,000 suppliers were participating and over 80 percent of the value of contracts awarded by the MOHFW went to Indian manufacturers, which contributed to a steep decline in prices (Figure 8).

Quality assurance

39. The Ministry of Textiles helped domestic production by supplying nonwoven fabric, which is a basic component of N95 masks, and was imported before March 2019. The ministry also issued detailed quality control protocols for PPE on April 6, 2020, describing the method and process to be followed while testing PPE suits. These protocols were regularly

¹³ "Chasing the Virus: A Public Health Response to the COVID Pandemic." MOHFW, Gol.

updated¹⁴ based on new developments. By November 2020, India had 10 quality control laboratories approved by the Ministry of Textiles for testing and certification of PPE overalls. The Ministry of Textiles also made it mandatory to obtain a Unique Certification Code (UCC) for each tested sample, prior to the supply, and to emboss the details of the UCC (name of the manufacturer, date of manufacture, and batch number) on each overall.

40. **HLL hired inspection agencies to undertake pre-dispatch inspections** at manufacturing sites. In addition, random samples were collected from different batches for quality assessment independently by competent laboratories such as DRDO, Defense Research Development Establishment (DRDE), Aerial Delivery Research and Development Establishment (ADRDE), Labs of Ordinance Factory Board, SITRA. Initially, the rejections, mostly due to poor penetration at seams of PPE, were as high as 20–30 percent, but the product quality improved significantly later. SITRA also developed a Blood Penetration Resistance Tester for PPE and licensed a company to produce and make this equipment available to the industry to help internal quality control (Figure 9). By May 2021, adequate number of manufacturers for PPE and N95 masks started producing quality products, and the MOHFW worked with the Bureau of Indian Standards (BIS) to establish standards.¹⁵

Figure 10. Blood Penetration Resistance Tester



Source: <https://sitra.org.in/product-development/>.

Supply chain management

41. **A whole-of-government approach was used in ensuring effective supply chains during the national lockdowns (Figure 10).** The DGHS prepared initial state-specific quantification of personal safety equipment and ventilators based on a model that applied the epidemiology of COVID-19, making projection of cases, admissions, and oxygen/Intensive Care Unit bed requirements. The MOHFW further fine-tuned these state allocations based on pandemic spread and state-specific requests. HLL established eight regional warehouses at strategic locations from where supplies were delivered to state

Figure 9. Whole-of-Government Approach in Supply Chain Management



Source: Author's summary based on information shared by the CPD, MOHFW.

¹⁴ First two revisions on April 22 and May 5, 2020.

¹⁵ BIS specifications: (a) For overalls: IS 17423:2020.

warehouses. The procurement agent maintained a 24/7 logistic cell with dedicated staff to monitor supplies. Supplies from these warehouses were delivered to states either through dedicated lifeline Udan flights, facilitated by the Ministry of Civil Aviation (Figure 11), or by road.

Figure 11. Lifeline Udan Flight Bringing Supplies



Warranty and maintenance

42. **The contract for ventilators included a one-year warranty** and required the supplier to maintain a team with adequate consumables and spares in all states to ensure response within 48 hours. All equipment procured had a sticker displaying a toll-free number of the manufacturer's maintenance team to ensure prompt response.

Enabling Government e-Marketplace

43. **Once the market had adequate suppliers meeting quality standards, the GoI made these products available at the government's e-procurement initiative, the Government e-Marketplace (GeM).** As the number of BIS-certified essential COVID commodity manufacturers started rising, the GoI stopped centralized procurement and included these products under GeM. This enabled states to place orders directly without tendering. Disclosure of lowest prices of each COVID commodity at the website of the procurement agency helped in benchmarking and in enhanced transparency.

Bank Facilitated Procurement

44. **The World Bank introduced the option of BFP to support countries to access quality assured COVID commodities and equipment at competitive rates when global supply chains were seriously constrained.** Under this approach, the World Bank reaches out to multiple suppliers across the globe; checks the quality of their products through competent agencies; collects, analyzes, and compares offers of those who meet quality standards; drafts contracts; and facilitates direct contracting between the borrower agencies and the selected suppliers. Upon authorization of borrowers, payments are made directly to the suppliers by the World Bank. The World Bank BFP team also helps logistics to ensure timely delivery of procured goods. The option of using BFP is triggered with a letter signed by the borrower, requesting the World Bank's assistance to procure.
45. **The GoI signed the BFP letter under the COVID-19 Emergency Response Project in April 2020.** However, the BFP option was never used until the second COVID wave struck. At the end of April 2021, the need for medical oxygen was higher, as the number of cases

were rising. The World Bank received requests from the MOHFW and a few other states including Tamil Nadu, Andhra Pradesh, Punjab, and Nagaland to support procurement of oxygen concentrators (OCs) through the BFP option. OCs were considered a better and more sustainable choice for health facilities located in remote parts of the country, where transporting oxygen cylinders is difficult. The BFP team at the World Bank contacted all prospective suppliers, and, subsequently, a total of six contracts for 34,600 units of OCs were finalized with two suppliers from China; deliveries were completed by June 2021.

46. **The major benefit of BFP is speedy delivery of quality-assured products in bulk quantities when supply chains are constrained, ensuring overall value for money.** If the government had gone through the normal bidding process, even through direct contracting, the minimum time for procuring all these would have taken approximately two to three months.
47. **There were, however, some challenges in resolving concerns raised by clients** on some contract provisions, such as the definition of the “Force Majeure Clause” and “Place of Arbitration” in case of disputes and for “Types of Quality Certifications.” These issues were resolved through dialogue and deliberation.
48. **While BFP is an important option for accessing products during emergencies, a candid assessment of the risks and additional demands on the World Bank staff to ensure effective coordination between suppliers and purchasers is required.** Managing expectations of purchasers is also a challenge, as it is not always possible to meet the demand due to the dynamics in the market, which could affect the World Bank’s relationship with purchaser governments. In addition, there is also a need for strengthening the purchaser’s capacity in emergency procurement systems and processes.

Scaling-Up of Testing by the Indian Council of Medical Research

Procurement challenges in the early phase

49. **The ICMR was given the mandate to rapidly scale up COVID-testing infrastructure in the country.** Being a research organization, the ICMR had never undertaken large-scale procurement. It had no systems in place for such huge procurement to support the nationwide network of public laboratories. In addition, there was no local manufacture of critical inputs such as testing kits and viral transport media, and quality of kits procured internationally varied considerably. Being a seller’s market, the ICMR was severely constrained to procure critical inputs for scaling up testing.

Strategy

50. **The government empowered the ICMR to play its role effectively.** The minister of health and family welfare delegated financial powers to the director general, ICMR, to procure up to Rs 100 crore (about US\$13.5 million), which was fourfold higher than the existing delegation of Rs 24 crores (about US\$3.2 million). The circular issued by the Department of Expenditure, Ministry of Finance, in March 2020, also provided flexibility to undertake emergency procurement through processes such as single source, direct orders from manufacturers, and a shorter notice period. Tasked with the responsibility of rapidly scaling up nationwide testing, the ICMR followed a proactive approach to involve the private sector in this important effort.

Development of procurement systems

51. **The ICMR constituted three committees to accelerate procurement while ensuring segregation of roles to ensure transparency and good governance.**

- (a) **Committee to forecast requirements:** This committee focused on making projections for different types of kits and viral transport media. A dynamic model was developed to meet the needs of testing laboratories that rapidly expanded from 18 to nearly 3,000, while taking into consideration the shelf life of lab consumables.
- (b) **Procurement Committee:** This committee included two subcommittees—a Technical Specification Subcommittee and a Negotiation/Experts Committee, which included experts from the ICMR as well as from outside. The Technical Specifications Subcommittee developed specifications for different types of laboratory consumables required for COVID testing and undertook technical evaluation of the bids. The Negotiations/Expert Committee led the negotiation of rates of items/equipment that were proprietary in nature or to be procured from a single source. This committee was also responsible for discussion with the firm to clarify various logistic issues related to supply, installation, and annual and comprehensive maintenance including batch testing of COVID-19 diagnostic kits and machines. This subcommittee also constantly monitored the global markets and applied exchange rates to establish benchmark Free on Board (FOB) prices¹⁶ and led the financial evaluation of bids.
- (c) **Distribution Committee:** This committee analyzed the evolving needs of different states and ensured that effective supply chains operated through 4 national and 16 regional depots. The ICMR adopted a hub-and-spoke model to supply directly from these regional depots to accredited public labs. In some instances, the state governments directly picked up stocks from the regional depots. This committee regularly interacted with state government representatives based in New Delhi to address bottlenecks.

Market development

52. **Domestic market development.** Meanwhile, the ICMR mobilized scientists with expertise in Reverse Transcription Polymerase Chain Reaction (RT-PCR) and viral transport media and arranged interactions with domestic manufacturers to develop Indian markets. ICMR scientists provided handholding support to Indian companies to improve quality and manufacturing capacity. The ICMR also focused on evolving molecular technology through repurposing equipment used for tuberculosis (TB) diagnosis. A validation system established by the ICMR assessed the quality of lab consumables being offered by suppliers (both domestic and international) by assessing compliance with established technical standards.
53. **Market development increased competition and steeply drove down prices.** For example, the price of the RT-PCR kit came down from Rs 1,207 in March 2020 to Rs 72 by August 2020. Similar trends were seen in prices of RNA extraction kits—from Rs 336 to Rs 37, and viral transport media—from Rs 182 to Rs 24. As a result, the ICMR was able to procure all required kits at much lower prices and save more than Rs 1,000 crore (about US\$135 million equivalent) from the allocations made under the World Bank–supported India-COVID-19 Emergency Response and Health Systems Strengthening Project.

Quality assurance

54. **In addition to the validation system, the ICMR also established protocols for pre-bid discussion, which provided a platform for potential bidders to interact with the Technical Specifications Committee experts.** This helped the Technical Specifications Committee, which is mandated to develop and ensure compliance with technical specifications, to evolve such specifications in a transparent and inclusive way without

¹⁶ The seller quotes the price of delivering to the nearest port.

compromising on quality. The Technical Specifications Committee was fully empowered to take the final decision on whether a product met the required specifications. The Negotiations/Experts Committee made its recommendation only after such confirmation, the Procurement Committee reviewed and evaluated the proposal as per GFR 2017 and related notifications on procurement issued periodically by the Govt. Initially, several bidders were rejected for not meeting quality, but the situation improved gradually.

Transparency and accountability

55. **To avoid conflict of interest while developing the local market, the ICMR ensured openness to all manufacturers, and there was no selective handholding.** It also ensured that experts who provided handholding were not members of the technical committee reviewing the bids.

Supply chain management

56. **To ensure uninterrupted supply of test kits and transport media, the ICMR established 4 national depots** at New Delhi, Mumbai, Chennai, and Kolkata, supported by a network of 16 regional depots.

Ensuring prompt payments

57. **The ICMR ensured that all required documentation was completed up-front as soon as orders were placed.** E-mail tracking was put in place to provide confirmation of supplies received by regional depots, and payments were made based on quantities supplied rather than waiting until the supplier fulfilled the entire order. This ensured more sustained cash flow to the micro, small and medium enterprises (MSMEs) that tend to have limited capital. The ICMR also created a dedicated nodal unit to review documentation and make payments. Despite these initiatives, there were still some delays in payments for equipment as mandatory installation certification was required before releasing payments, which took some time.

Support from procurement agent

58. **Engagement of procurement agencies helped the ICMR to accelerate procurement.** When the number of proposals for procurement of various COVID-19 diagnostic kits and equipment increased substantially, the ICMR decided to hire a full-time Procurement Service Agency. After following a proper process, the ICMR appointed HLL Infratech Services Limited (HITES), a 100 percent subsidiary of HLL Lifecare Limited, as Procurement Service Agency to support the procurement process, which got rapidly expanded as the COVID-testing laboratory network increased severalfold.

Decentralization to states

59. **As adequate markets were developed through handholding and validation systems, the ICMR encouraged successful bidders to register on the Govt's e-procurement site, GeM,** which enabled state governments to directly place orders. Continuation of the validation system by the ICMR ensured sustained quality, and the ICMR also maintained regular interaction with the manufacturers.

PART V: OPPORTUNITIES AND CHALLENGES IN DEVELOPING DOMESTIC MARKETS

Opportunity for Micro, Small, and Medium Enterprises (MSMEs) created by GeM

60. **Developing a domestic market helps to improve access and reduce prices, but it comes with its own set of challenges if there is no longer-term vision.** While the e-market enhanced market access for suppliers, it still needs to overcome initial teething problems, especially limited vendor base in some geographic areas of India. Despite the steep increase in exports, the relatively low profit margins in PPE business requires Indian manufacturers to move up the value chain, creating automated infrastructure to enhance quality and improve profit margins. Government restrictions on exports need to be carefully calibrated to ensure domestic manufacturers that positively responded to the emergency needs of the country are not subjected to protected controls while they are stuck with huge stockpiles of supplies. Finally, public financing for domestic markets needs to be complemented with private financing, which enhances participation and accountability.
61. **The Indian Government’s e-Marketplace (GeM) provided swift response during COVID when sellers and buyers had limited opportunities to transact through formal procurement mechanisms, by offering an efficient and transparent solution for supplying COVID commodities.** Established in 2016, GeM hosts more than 1.6 million products and has a supplier base of nearly 0.9 million. A World Bank assessment in June 2020 showed that GeM generates up to 9.75 percent savings and reduces procurement lead time by 2–4 weeks. Under the COVID-19 Emergency Response Health Systems Strengthening Project, GeM was requested to host COVID-19–related items, leading to creation of a dedicated web page with 113,862 items with 27,047 registered sellers, which resulted in over 150,000 orders valued at US\$327 million. The most common products ordered included testing kits, ambulances, hand sanitizers, and masks. A fast-track registration process and reduction in bidding time to just three days from an average of two weeks enabled large numbers of MSMEs to participate in the e-marketplace.
62. **Under the COVID-19 Emergency Response, the World Bank increased the threshold for procurement through GeM up to US\$1 million.** Recently, a few COVID infrastructure categories were also added to the GeM, including mobile diagnostic labs, basic COVID-19 hospitals, isolation facilities, and intensive care units. These additions will help in fast-tracking procurement under the additional COVID-19 emergency response package approved in July 2021, with a focus on expanding health infrastructure in rural and peri-urban areas. While GeM provided a unique platform to link buyers and sellers, it is still evolving and has some teething problems such as limited geographic vendor base, challenges in product assessments, and difficulties in registration for foreign suppliers.

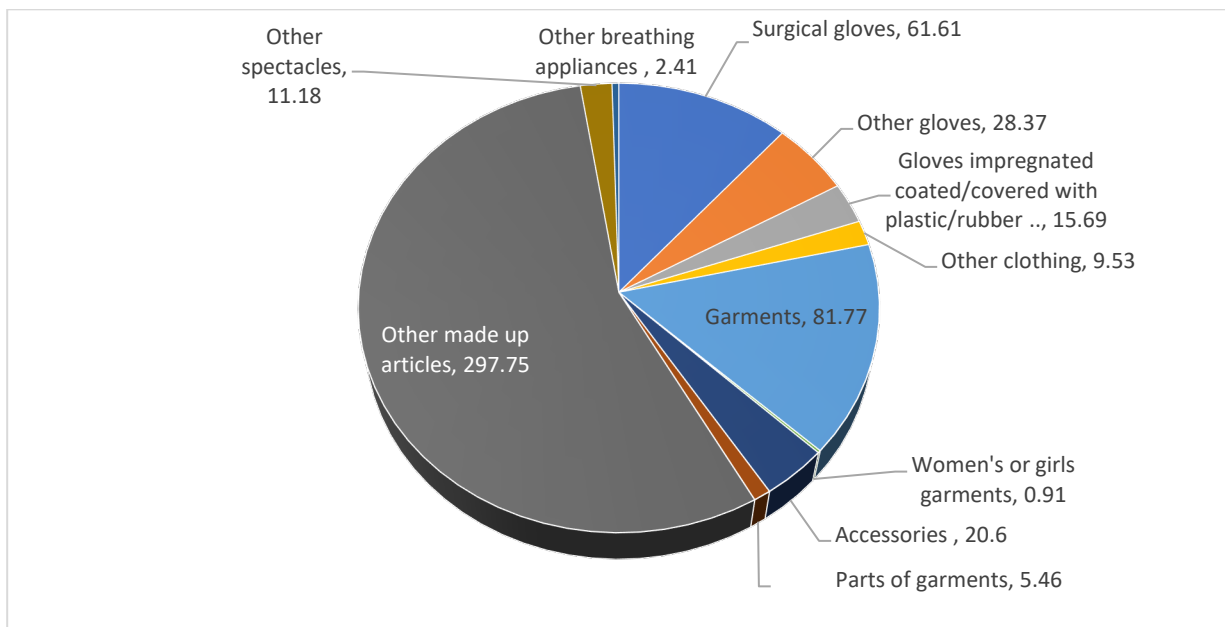
New market opportunities

Table 1. Import Dependency to Export Surplus by December 2020

Item	Quantity permitted for export (in millions)
Viral transport media	38.8
RNA extraction kits	54.9
RT-PCR kits (single tube)	21.4

63. **With strategic market development, India slowly transformed from import dependency to export surplus for many COVID commodities by December 2020.** The handholding of Indian companies by the ICMR resulted in significant increase in indigenous manufacturing capacity for various types of COVID-19 diagnostic kits. Under the ICMR validation mechanism, both RT-PCR testing kits and rapid antigen testing kits were assessed for their satisfactory performance. Among the 514 RT-PCR testing kits assessed, 204 were found to meet performance standards (sensitivity of 95 percent and above and specificity of 99 percent and above). Among these 204, nearly two-thirds (135) are kits produced by domestic manufacturers. Similarly, among 135 rapid antigen testing kits evaluated, 52 met the established performance standards, and 37 of them are produced by domestic manufacturers.
64. **The global demand for PPE wear opened a new window of opportunity for Indian medium- and small-scale manufacturers** during the challenging pandemic year of 2020–2021. PPE orders contributed to 72 percent of the textile industry revenue in 2021; without PPE the industry would have incurred massive losses and contributed to large-scale unemployment.¹⁷ As PPE kits cannot be reused, it is anticipated that there will be constant demand for them. In addition, this gear is also used in other industries where there is risk for exposure to hazardous material such as chemical and radiological industries. The International Finance Corporation (IFC) estimates the medical PPE market at US\$8 billion in 2019 and projects 6–9 percent annual growth during 2023–2025, which will provide new opportunities for Indian manufacturers in a sector hitherto dominated by China, the United States, and Germany, with increasing competition from Bangladesh and Vietnam (Figure 12).

Figure 12. India Medical Textile Exports, April 2020 to February 2021
(US\$535.28 million)



Source: Author's summary from M. Sharma, "Stripped Bare of Orders," 2021.

¹⁷ M. Sharma. "Stripped Bare of Orders, Textile Sector Finds a Savior in PPE Kits," *Economic Times*, July 7, 2021.

Box 4.

ACT grants enhanced availability of N95 masks

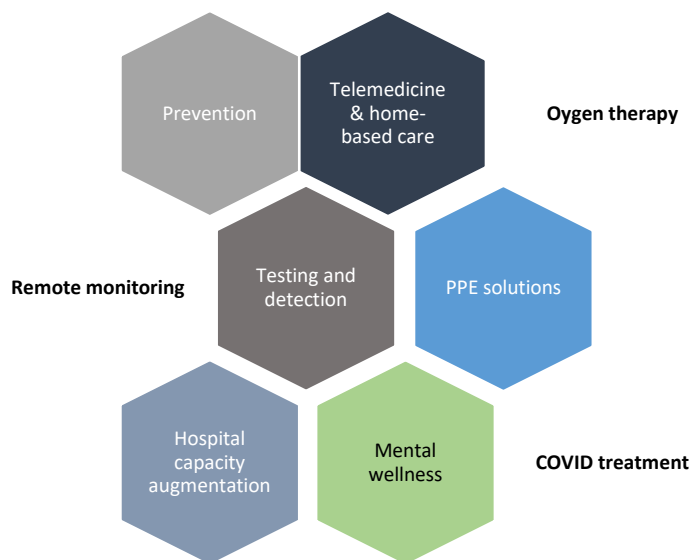
Through a Rs 100 million grant (US\$1.3 million equivalent) to Aravind Mills as well as by engaging with other local manufacturers, the Action COVID-19 Team (ACT)—a coalition of Indian start-up funds—enhanced domestic production capacity of N95 masks by 3 million per month. It also helped in freeing up capital, which enabled these manufacturers to use it for purchase of additional raw material as well as to import more manufacturing machines.

65. While volumes are quite impressive, the Indian textile industry feels that the PPE business is not remunerative due to low margins and international quality certifications, unless the industry moves up in the value chain creating automated infrastructure for mass-scale manufacture and enhances in-house testing facilities to ensure high precision. Targeted skill-development programs are required to have more trained personnel. Also, understanding of international market conditions and certification from reputed international agencies, such as US FDA, will be critical for expanding the global footprint of Indian PPE manufacturers.

Private financing to create COVID-19 innovations and enterprise ecosystem

66. In addition to the government, private financiers played a role in augmenting market response (Figure 13). Action COVID-19 Team (ACT), a coalition of Indian start-up and venture capital funds, and strategic partners awarded around Rs 1,000 million grants to technology-driven start-ups covering wide-ranging COVID-19 prevention and response activities during the first wave, with the aim of connecting them to local, state, and national governments, and to nongovernmental organizations (NGOs) working on containing COVID-19. These grants are supposed act as force multipliers and promote an ecosystem for innovations and enterprise development in the COVID-19 response. Key achievements include (a) additional N95 manufacturing capacity by Aravind Mills; (b) freeing up capital, addressing liquidity issues, and helping start-ups to import equipment required for production; (c) tele-ICU solutions by Cloud Physician that allowed one ICU care specialist to cater to 60–80 patients, working with local governments in Karnataka, Maharashtra, Kerala, and Ladakh; (d) Corona Safe Network backed up by the Kerala government, providing a digital war room with an online dashboard; and (e) Mahakavach, a track-and-trace program of the government of Maharashtra. This initiative focused more on oxygen supply during the second wave. However, longer-term impact of such private-financed ecosystems still needs to be assessed.

Figure 13. Start-Up Initiatives Support by ACT Grants



Source: “An Rs 100 Crore Fund for 55 Startups: Can ACT Grants Create an Ecosystem That Outlasts the Pandemic?” *The Economic Times*, July 21, 2021. <https://economictimes.indiatimes.com/prime/pharma>.

Challenges in creating markets—think globally act locally

67. Rapid expansion of production without adequate understanding of the future market—especially in the post pandemic period—will come with its own set of challenges. Like the GoI, the US government rapidly infused US\$250 million of federal funding into Puritan Medical Products, a small family-owned company in Guilford, Maine, which was the only large-scale manufacturer of the highly specialized nasopharyngeal swabs in the United States. So great was the country’s need for these swabs that the government even facilitated a truce between the two cousins who owned the company, and whose long-standing family feud had delayed investments in the plant’s expansion. Puritan was thus able to retrofit two idle plants and establish a new one, ramping up monthly production fifteen-fold—from 20 million to nearly 300 million—in less than one year. In January 2020, the US government bought as many as 90 percent of its almost 2 million swabs from the manufacturer. Puritan is now well-positioned to dominate the global market for medical swabs, an industry that is estimated to touch US\$4 billion by 2027.
68. Unfortunately, the same proactive approach did not work well for ventilators in India and N95 masks in the United States. The change in the prescribed treatments for COVID-19 patients, the restrictions on exports by countries struggling to meet their own requirements, the ban on advertisements to conserve essential supplies, as well as the mismatch in supply and demand between manufacturers and the health care industry created their own challenges.
69. Before the pandemic hit, India had three ventilator manufacturers that could produce no more than 10,000 units a year. With the onset of the COVID crisis, several more players rapidly entered the market, raising annual production capacity more than tenfold. Unfortunately, the demand for ventilators was much less than originally envisaged, as doctors increasingly preferred noninvasive devices. This was further compounded by the export restrictions imposed by the Indian government to conserve ventilators for its own needs. It was only in August 2020, four months after the restrictions were imposed, that the curbs were partially lifted at the request of the Indian Medical Device Industry. By then, the global market was

saturated, while the Indian industry had piled up a huge inventory of unsold devices, leading to a deep financial crisis for some manufacturers.

70. The story of N95 mask production in the United States is another classic example of failure to get local manufacturers to produce a scarce commodity during an emergency. The US manufacturers could not match global wholesale prices due to the higher costs of local raw materials and wages. They could not sell their masks to a desperate local public either, as online advertising was restricted to avoid depriving health care professionals of this essential commodity.

PART VI: WORLD BANK VALUE-ADDITION

71. In addition to financial support provided through the COVID-19 Emergency Response and Health Systems Preparedness Project, the World Bank supported the use of country systems in procurement. Further, World Bank experts provided sustained hands-on extended implementation support (HEIS) to all the implementing agencies—the MOHFW, ICMR, and the National Center for Disease Control (NCDC)—on a 24-7 basis.
72. The project implementation manual and targeted online training programs, organized for capacity-building of procurement officers and agents, provided clear guidance on fiduciary aspects and ensured compliance and consistency with the agreed country procedures.
73. Tracking all procurements supported under the project through the online Systematic Tracking of Exchanges in Procurement (STEP) system helped the World Bank and borrowers to plan and track procurement activities. The STEP system also facilitated the transformation of data into knowledge by identifying bottlenecks in the procurement process and improved accountability and transparency of both the World Bank and the borrower.
74. The flexibility provided by the World Bank for using country procedures for emergency procurement during the pandemic's peak enabled India to procure lifesaving COVID commodities and equipment in time. The World Bank also enhanced thresholds for use of GeM from US\$100,000 to US\$1 million.
75. Despite allowing flexibility in national procurement norms to address emergency needs, due diligence was exercised by the World Bank team by applying the World Bank's anti-corruption guidelines (ACG) and AIIB's prohibited practices guidelines as well as continuous monitoring of supplies and payments and systematic post procurement reviews. Emerging risks and mitigation measures were assessed and recorded in the system through Procurement Risk Assessment Management (PRAMS) tools. This added layer of due diligence assessment helped mitigate risks present with vendors and made them accountable for shared responsibilities. The Ministry of Health and Family Welfare has expressed interest in incorporating the ACG in the government's future tender documents.
76. The World Bank's Bank Facilitated Procurement (BFP) facility helps to link the client and manufacturer or supplier in a supply chain—constrained environment. This facility was effectively used by the borrower (federal and state level) to procure about 22,500 OCs during the deadly second wave in April–May 2021.
77. In addition to the COVID-19 Emergency Response Operation, the World Bank also provided BFP to enable a swift response for the procurement of OCs during the COVID second wave. Moreover, the Bank facilitated technical assistance to support the strengthening of oxygen systems in the states of Andhra Pradesh, Meghalaya, Uttarakhand, and West Bengal.

PART VII: LESSONS LEARNED

- A. Innovations in procurement following a whole-of-government approach and the development of domestic supplier markets helped India improve availability of critical supplies during the COVID-19 pandemic and better prepare for future pandemics and health emergencies that pose serious challenges for global supply chains.
- B. Flexible arrangements offered by development partners during emergencies helps in delivering a speedy response while safeguarding principles of efficiency and transparency.
- C. Hands-on extended procurement support by country-based fiduciary teams of multilateral development partners helps build capacity and accelerate government's decision making.
- D. Crisis provides an opportunity to identify bottlenecks in domestic manufacture and supply chain management to find locally relevant longer-term solutions to address them.
- E. Development of standards compliant with global best practices will create export markets for domestic manufacturers and also improve supply chains to low- and middle-income countries.
- F. Emergency procurement should provide a clear pathway toward medium- and long-term strategy for streamlining public procurement.
- G. Creating a centralized database with specifications and inventory of suppliers and procurement prices, as done through GeM, will help to deliver a timely response during future emergencies.

This working paper documents the challenges, innovations, and lessons in the procurement of essential medical commodities during the first wave of the COVID-19 pandemic in India.

COVID-19 created unprecedented shortages of essential medical supplies and equipment due to the sudden surge in demand. Severe global supply chain constraints of essential COVID commodities and unprecedented demand for lifesaving equipment led to an entirely supplier-driven market and huge variation in prices. To address this concern, the government of India took over the responsibility for centralized procurement to support the states. Flexible conditions were permitted under the existing legal frameworks and budgets to undertake fast-track procurement, while empowered groups helped to accelerate decision making. Initially, this enabled accelerated imports, and over time, the development of local markets, based on a whole-of-government approach.

This led to the development of specific standards, sourcing appropriate raw material, ensuring availability of workforce, and maintaining efficient supply chains to deliver finished products in a timely manner to state governments, depending on assessed need. Handholding the industry; accelerated tendering; and pre dispatch inspections by competent agencies, including testing of random samples, helped to ensure quality of products. In addition to enhanced access, this initiative also helped to steeply bring down the prices of essential COVID supplies. A unique feature seen in India was the active role played by the private sector in testing, contributing to nearly 50 percent of laboratories and in the raising of additional resources by venture capital firms to support domestic manufacturing of COVID commodities.

The COVID-19 Emergency Response and Health Systems Strengthening Project—jointly financed by the World Bank and Asian Infrastructure Investment Bank (AIIB)—supported these initiatives through hands-on procurement support and capacity-building. Flexibility in emergency procurement using country procedures during the peak ensured timely availability of COVID commodities.

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