

All India Peoples' Science network (AIPSN)

27 May 2021

**Urgently Expand Public and Private Sector Production
along with related R&D
to meet India's Vaccine Requirements**

Need for New Strategies

With the present Indian population of over 130 crores, the number of vaccines required to immunise the entire population would be about 310 crore doses (3.1 billion doses) or 218.5 crore doses for the 18+ adult population, allowing about 15% process losses. This is not an easy task. However, the Indian people need to know why India, a pioneer in large-scale vaccine production even before the current pandemic and a major exporter of vaccines, has to rely on just two private domestic manufacturers, Serum Institute of India (SII) and Bharat Biotech, to produce Covid-19 vaccines, a constraint that is painfully obvious today.

[India, now, has a number of public and private sector units that can make a contribution to the expansion of local production of vaccines.](#) Presently two vaccines namely COVISHIELD of Serum Research Institute (SII), Pune and COVAXIN of Bharat Biotech (BB), Hyderabad are available for supply in India. Technology for COVAXIN is fully home grown, through collaboration between BB and the National Institute of Virology (NIV), a public sector R&D institute under the Indian Council of Medical Research (ICMR), itself an agency of the Ministry of Health and Family Welfare. The central government is therefore entitled to make use of march-in-rights available to supporting government entities, as tacitly accepted by BB in extending technology transfer to 3 public-sector vaccine Units.

Up to the 2000s, 80% of India's vaccines for the Universal Immunization Programme were sourced from the public sector. Today, 90% are sourced from the private sector, that too at a higher cost. Brazil, Cuba and China are using public sector companies and institutes to undertake integrated R&D and production operations to vaccinate their populations and export to developing countries to meet their requirements. In contrast, India has neglected its public sector units. India has a large number of a few decades old facilities as well as new facilities equipped with

appropriate modern infrastructure. The central and state governments should be making full use of all these facilities to expand local production of COVID vaccines. Presently India has eleven public sector units. Some are almost ready to go into production. The government has taken some initial steps in the direction of using a few selected units. Integrated Vaccine Complex at Chengalpattu, whose construction was completed as recently as 2016, needs just one hundred crores and some handholding to start the domestic production of COVID vaccines.

There are a number of private sector units which can also contribute to the domestic production of COVID vaccines, , such as Biological E., Hyderabad, Panacea Biotech, Solan etc. [In addition to vaccine manufacturing companies, there are also companies that manufacture biologics that have the capacity to be repurposed for manufacture of vaccines.](#) Already, Dr. Reddy's Lab and [at least five biologics](#) have teamed up with Russia to procure the Sputnik-V Vaccines in the country. In all, [there are close to thirty units](#) which can be involved in the production of COVID vaccines. Such expanded manufacture in India would enable meeting domestic requirements as well as international obligations to which India, in particular SII, is committed having also accepted advance payments. Procurement of already approved vaccines from abroad by private sector units is also an option.

While the private sector is itself getting ample albeit highly belated funding from the government, the public sector is still not getting requisite support. Only recently some relatively small government grants have been given for manufacture of Covaxin under license to state owned companies such as Indian Immunologicals Ltd. Hyderabad, Bharat Immunologicals and Biologicals Corporation Ltd, Bulandshahar, to and Haffkine Institute, a Maharashtra state PSU as called for by its Chief Minister. SII cannot by itself transfer technologies since it is itself making Covishield under license from AstraZeneca, it can certainly be nudged to sub-contract work to other Units. Both SII and Bharat Biotech could be appropriately persuaded to handhold these other units as one way of paying back their own long-standing obligations to the public sector and the Indian state.

Specific suggestions for the government to announce a policy to urgently ramp up domestic production of vaccines and improve related R&D are as follows:

- 1. The existing public sector undertakings and state owned enterprises be revived and assisted to ramp up vaccine production.**
- 2. The use of the Integrated Vaccine Complex at Chengalpattu be handed over to TamilNadu Government with clear provisions allowing the state governments, public sector undertakings and state owned enterprises for contractual manufacturing of Covid vaccines using the facility.**

3. **Compulsory licenses or appropriate legislation be issued where required to enable interested parties for production of COVID 19 vaccines.**
4. **The conventionally used march-in-rights available to the Govt of India/ICMR be used to ensure technology transfer and handholding by Bharat Biotech to PSUs, SOEs and other Units to enable them produce vaccines for domestic use.**
5. **Indian companies that are planning to manufacture Sputnik V be assisted, as required, for scaling up.**
6. **SII, AstraZeneca and Novavax be persuaded to expand manufacturing in India through joint ventures or other collaborations with suitable public and private sector entities both for domestic use and export especially for the Covax facility.**
7. **Research on new vaccine development strategies and development of multiple vaccines be enabled and encouraged across research laboratories, public sector and private sector institutions. Genomic surveillance be increased appreciably and linked to viral efficacy and epidemiological studies, so that vaccines are constantly checked for efficacy against variants of concern enabling collaborative modification across manufacturers, as required, especially in view of emerging variants and for different demographics such as children.**

We the following scientists, academicians, doctors endorse the above statement:
(endorsements received till May31)

1	Gagandeep Kang	Professor
2	Shahid Jameel	Director, Trivedi School of Biosciences, Ashoka University
3	T. Sundararaman	Global Coordinator, Peoples Health Movement
4	Satyajit Rath	Visiting Faculty, IISER Pune
5	Vineeta Bal	Staff Scientist (Retired), National Institute of Immunology, New Delhi
6	T R Govindarajan	Professor (Retd) IMSc
7	Tejinder Pal Singh	Professor, Tata Institute of Fundamental Research
8	LS Shashidhara	Professor

9	Gautam Menon	Professor, Ashoka University
10	Madan Rao	Professor, NCBS, Bangalore
11	Partha Majumder	National Science Chair, Natl Inst of Biomedical Genomics
12	Sorab Dalal	Academic
13	John Kurien	Azim Premji University
14	Sheena Jain	Former Professor Jamia Millia University
15	R Ramanujam	Institute of Mathematical Sciences, Chennai
16	Ram Ramaswamy	Visiting Professor, IIT Delhi
17	Imrana Qadeer	retired Professor (Public Health)
18	G Rajasekaran	Professor Emeritus
19	N. Mani	Professor and Head Department of Economics Erode Arts and Science College Erode Tamil Nadu
20	D.Raghunandan	Delhi Science Forum
21	Ponniah Rajamanickam	Rtd. Associate Professor & AIPSN
22	B.Parthasarathy	General Secretary-- All India Federation of Retired University and College Teachers' Organisations
23	Y. Srinivas Rao	Associate professor
24	A.P.Balachandran	Syracuse University
25	H. Shakila	Professor and Head
26	TS Ganesan	Professor Medical Oncology

27 Mundur V N Murthy	Professor (Retd), The Institute of Mathematical Sciences, Chennai
28 R Shankar	Honorary Professor, IMSc
29 Usha Ramakrishnan	Retired professor, ex MKU
30 Reeteka Sud	NIMHANS
31 Ramesh Singh Sheoran	Convenor, Gurgaon water forum
32 Surinder Kumar	Professor
33 Dhruv Raina	JNU
34 Kesab Bhattacharya	Professor
35 Rakesh Prasad	Founder BallotboxIndia.com, Director Gnovations Technologies Pvt. Ltd.
36 Thirunavukkarasu	Asst.professor of microbiology
37 Surendra Ghaskadbi	Biologist
38 G Velmurugan	Scientist, KMCH Research Foundation, Coimbatore
39 Saumyen Guha	Professor, IIT Kanpur
40 RAMAN KUMAR RANA	Biochemist
41 Ramasundaram.S	Associate Prof, Unit Secretary, Tamil Nadu Science Forum, Madurai
42 Chitra.N	Associate Professor of Microbiology

43 V. Makesh Kumar	Technical Lead - Regulatory Affairs, Engineering Research and Development (R & D) Services
44 Prabir Purkayastha	President, Free Software Movement
45 K K Natarajan	Retired Professor
46 S. Krishnaswamy	Retd Senior Professor, ex Madurai Kamaraj University
47 K V Subrahmanyam	Professor, Chennai Mathematical Institute
48 R Geeta	Retired from University of Delhi
49 GK Marita	Professor in Physiology ,GSL Medical College Rajahmundry Andhra
50 Sadasivam, K	Associate Professor
51 Sitabhra Sinha	Professor, The Institute of Mathematical Sciences, Chennai
52 Venkatesh Raman	Professor, IIMSc Chennai
53 Dev Desai	ANHAD
54 Soma Marla	Principal scientist, Genomics division ICAR NBPGR New Delhi
55 V.RAVI	Associate professor, government arts college for men, krishnagiri
56 K.Durga	Principal Scientist, Genetics, ICAR IARI, New Delhi
57 S.R. Venkateswaran	Orthopedic surgeon
58 Ranbir singh dahiya	President haryana gyan vigyan samiti haryana
59 Sellan M	Associate professor
60 Senthamil selvan	state Ec member, Tamil nadu Science Forum

61 Kanagarajan	Vice-president
62 R. Vivekaanandhan	Professor (rtd.)
63 D. Narasimhan	Associate Professor (Retd.)
64 R. Kavitha	Assistant professor & Head
65 SHANMUGAM N	Assistant Professor
66 R chandran	Principal
67 G.Suresh kumar	Associate Professor and MUTA
68 Shanmugam Veeramani	Assistant professor
69 Ravisankar	Retired professor of Buisness Administration
70 J.Kalyana sundari	Retired deputy director of agriculture
71 Rajendra Prasad	Former Advisor & Head, International Scientific Affairs, CSIR, New Delhi
72 S.Saraniya	Medical doctor
73 Sunita Sheel Bandewar	Exe Director, Health, Ethics and Law Institute of FMES
74 Ashok Pandey	Public Health Research Society Nepal
75 S.Chatterjee	Scientist (Retd) , Formerly, Indian Institute of Astrophysics
76 Aurnab Ghose	Academic
77 SUJOY CHAKRABORTY	Senior Science Journalist. ABP Digital Media

78 Ravinder Banyal	Scientist
79 Amit Kumar Mandal	Assistant Professor, Raiganj University
80 Chandan K Sen	Distinguished Professor & Director
81 Prabir KC	Independent Health Consultant
82 R.Chandramohan	RETD Principal
83 Sudha N	Independent Researcher & Activist
84 Arup Kumar Chattopadhyay	Professor of Economics, University of Burdwan
85 Mahalaya Chatterjee	Professor, Calcutta University
86 Aniruddha Pramanik	Professor, Bidhan Chandra Krishi Viswavidyalaya
87 Sedhu Bharath. S	Dentist
88 Birat Raja padhan	Pruthibi science club
89 Amit Misra	Chief Scientist, CSIR-Central Drug Research Institute
90 S Janakarajan	Professor
91 Samuel Asir Raj	Professor, Manonmaniam Sundaranar University, Tirunelveli
92 Hasham Shafi	Senior Research Fellow, CSIR-central drug research institute
93 Rajiv Gupta	Former professor of Sociology University of Rajasthan Jaipur
94 Jayashree Ramadas	Professor (retired)
95 Reena Bharti	CSIR-SRF

96 G C Manoharan	Retired Professor
97 Venkat Nadella	PostDoc Policy Research Fellow, Indian Institute of Science
98 Moumita Koley	Policy post doctoral fellow
99 Ashok Jain	Former CSIR NISTADS
100 Debjani Sengupta	Retd. Professor
101 Ahmar Raza	Retired Scientist
102 Ramesh Chander	Retired Principal / District Secretary , Haryana Gyan Vigyan Samiti, Hisar , Haryana
103 S.Ramaswamy	Retired Professor
104 Suresh	Teaching Assistant
105 Kamala menon	Delhi science forum Secretary
106 Archana Prasad	Professor, Jawaharlal Nehru University, New Delhi
107 Asha Saxena Ahmad	Eye Specialist
108 C P Geevan	Independent Researcher
109 Dr K J Joseph	Director GIFT
110 Rony Thomas Rajan	Assistant professor
111 Mohanakumar	Professor
112 S. Akshay	Faculty, Indian Institute of Technology Bombay
113 Sedhu bharath. S	Dentist

114 Jins Varkey	Assistant Professor
115 Visweswaran	Retd.Banker
116 Indranil	OP Jindal Global University
117 Sundarbabu	Retired Professor
118 K J Joy	Senior Fellow, SOPPECOM
119 PrasadA Rao	Chairman SARASIJAM Technologies
120 Drraj Singhal	Chief Technical officer
121 Rao Gummadi	IT Security Audit
122 Biju IK	Member, Kerala Sastra Sahitya Parishath
123 Sanat Phatak	KEM hospital research centre
124 Harsha Merchant	Member ISSA
125 Sulakshana Nandi	Public Health Resource Network Chhattisgarh
126 Tapan Saha	Retired Senior Scientist, IESEM and Treasurer, Bangiya Bijnan Parishad
127 Prabhakar Jayaprakash	Doctoral Scholar
128 M. Siddhartha Muthu Vijayan	Scientist
129 Navjyoti Chakraborty	Research Scientist, GGS Indraprastha University
130 Amitabh Joshi	Professor, JNCASR, Bengaluru
131 D.Narasimha Reddy	Professor of Economics(rtd),University of Hyderabad

132 Saroj Ghaskadbi	Emeritus Professor, SPPU, Pune
133 Om Damani	Professor, IIT Bombay
134 Bijoya Roy	Public Health Researcher
135 R Suresh Babu	General Manager, QC Zydus Cadila
136 B. Sathesh	Senior Manager -Viral Vaccine HLL BIOTECH LTD
137 Srikanth Sastry	JNCASR
138 Bala Sathiapalan	IMSc
139 Kunhi Kannan	Kssp
140 jyotsna jha	director, centre for budget and policy studies
141 Brahmaidhya	Medical Doctor DM
142 Sharath Ananthamurthy	Professor, School of Physics, University of Hyderabad
143 Aparna Basu	Independent Researcher
144 Pradip Kumar Mahapatra	Associate Professor, Jadavpur University & General Secretary, Paschimbanga Vigyan Mancha
145 Pramode Ranjan Nandi	Professor of Veterinary Gynaecology & Obstetrics
146 Sridhar Gutam	Senior Scientist, ICAR-IIHR
147 Vivek Monteiro	Secretary, CITU Maharashtra
148 Sudha Rao	Genotypic Technology
149 Prajval Shastri	astrophysicist and AIPSN

150 Ajit M. Srivastava	Professor, Institute of Physics, Bhubaneswar
151 Subimal Sen	Ex Professor, Saha Institute of Nuclear Physics, Kolkata
152 R.Priyanka	Researcher
153 Kunta Biswas	Doctor
154 Bhabani Sankar Joardar	Professor
155 Debesh Kumar Das	Professor
156 Indira C	Public Health Researcher
157 Tarun Kumar Mandal	Ex Principal
158 Prasanna Chebbi	ISRC
159 Anna George	Scientist (retired)
160 Malini Aisola	Public health professional
161 Parthib Basu	Professor, University of Calcutta
162 Rajinder Chaudhary	Former Professor, MDU, Rohtak
163 Bittu K R	Associate Professor of Biology and Psychology, Ashoka University
164 Maitri Bose (Biswas)	Paschimbanga Vigyan Manchà
165 Rati Rao E.	Scientist Rtd
166 Soham Jagtap	Researcher, NIMHANS
167 Sweta Dash	Researcher

168 Pradeep Shinde	Assistant Professor, CIS&LS, JNU
169 Chandan Dasgupta	Honorary Professor, Indian Institute of Science
170 Annapoorna Sharma	Consultant paediatrician. FRCPCH
171 Gayatri Saberwal	Professor and Dean (Academic Affairs)
172 Richa Chintan	Jan Swasthya Abhiyan
173 Dinesh Abrol	Professor TRCSS, JNU
174 Ashok Rao	Delhi Science Forum
175 Prabir Ghosh	Academic, JNU, Delhi
176 Gauhar Mehmood	Professor JMI
177 P S Rajasekharan	KSSP
178 dr.geyanand	ex.M.L.C, JVV
179 Anshuman Das	Independent Researcher Kolkatta
180 Vandana Prasad	Independent Researcher Delhi
181 Biswajit Dhar	Professor CESP, JNU Delhi
182 Sambit Mallik	Academic IIT, Guwahati
183 Surinder Kumar	Reired Professor, Rohtak
184 Rahul	Independent Researcher Bhopal
185 Pritpal Randhawa	Academic JNU, Delhi
186 Ravindran	KSSP

187 Dharmendra Mishra	Industrial Researcher, Gurgaon
188 Savyasachi	Academic, JMI Delhi
189 Biswajit Dhar	Professor CESP, JNU Delhi
190 Satish Kalra	Retired Professor, Hisar
191 K. N. Chatterjee	General Secretary, BGVS, Dhanbad
192 O. P. Bhuratia	JS AIPSN, Shimla
193 Parminder	Independent Researcher, Delhi
194 Kunal Sinha	Academic, CU Gandhinagar
195 C. Vishnumohan	Academic, Delhi
196 Mira Shiva	Public health Researcher
197 Pravin Jha	Professor CESP, JNU
198 Avinash	Associate Professor, CIS&LS, JNU
199 N Raghuram	Professor
200 N.D. Jaiprakash	Delhi Science Forum
201 Gauhar Raza	Retired Chief Scientist, CSIR-NISCAIR
202 Madhu Prasad	Retired Professor, Delhi University
203 P V S Kumar	Retired Chief Scientist, CSIR-NISCAIR
204 Tejal Kanitkar	NIAS, Bengaluru
205 A N Basu	Ex Vice-Chancellor, Jadavpur University

206 Siddhartha Datta	Ex Pro-Vice Chancellor, Jadavpur University
207 V. Parameswaran Nair	Distinguished Professor, City University of New York
208 G V Raju	Principal
209 Parameswaran Ajith	ICTS-TIFR
210 Naresh Dadhich	Former Director and Professor Emeritus, IUCAA
211 Biswajit Chakraborty	Senior Professor, S.N.Bose National Centre for Basic Sciences, Kolkata
212 Joseph Samuel	ICTS, Blore
213 Sarin S M	Associate Professor, Dept of Medicine, GMC Kannur
214 Sanjiva Prasad	Professor, IIT Delhi