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Report No: PAD4970

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$500 MILLION

TO

INDIA

FOR A

PHSPP: TRANSFORMING INDIA'S PUBLIC HEALTH SYSTEMS FOR PANDEMIC PREPAREDNESS PROGRAM

June 4, 2022

Health, Nutrition & Population Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2022)

Currency Unit =	Indian Rupees
INR 76.52 =	US$1
US$ 0.01 =	INR 1

FISCAL YEAR
April 1 – March 31

Regional Vice President:	Hartwig Schafer
Regional Director:	Lynne D. Sherburne-Benz
Country Director:	Hideki Mori (Acting)
Practice Manager:	Trina S. Haque
Task Team Leader(s):	Suresh Kunhi Mohammed, Dinesh M. Nair

ABBREVIATIONS AND ACRONYMS

AB-HWCS	Ayushman Bharat Health and Wellness Centers
ACG	Anti-Corruption Guidelines
AHSSOH	Animal Health System Support for Improved One Health
AMR	Anti-Microbial Resistance
BSL-IV	Bio Safety Level four laboratory
COVID-19	Coronavirus Disease 2019
CPF	Country Partnership Framework
CPGRAMS	Central Public Grievance Redress and Monitoring System
CSS	Centrally Sponsored Scheme
DGHS	Directorate General of Health Services
DLI	Disbursement-Linked Indicators
DMC	Disaster Management Cell
DMEO	Development Monitoring & Evaluation Office of NITI Aayog
EIS	Epidemic Intelligence Service
ER&HSP	Emergency Response and Health System Preparedness
ESSA	Environmental and Social Systems Assessment
FSA	Fiduciary System Assessment
GDP	Gross Domestic Product
GeM	Government e-Marketplace
GoI	Government of India
GHSI	Global Health Security Index
GST	Goods and Services Tax
HLEG	High Level Expert Group
IA	Implementing Agencies
IBRD	International Bank for Reconstruction and Development
ICMR	Indian Council for Medical Research
IDSP	Integrated Disease Surveillance Program
IFSA	Integrated Fiduciary System Assessment
IHD	International Health Division of MOHFW
IHIP	Integrated Health Information Platform

IHR	International Health Regulations
INSACOG	Indian SARS CoV-2 Genomic Consortium
IR	Intermediate Results
IVA	Independent Verification Agency
MFAHD	Ministry of Fisheries, Animal Husbandry and Dairying
MOHFW	Ministry of Health and Family Welfare
MOSPI	Ministry of Statistics and Programme Implementation
MOU	Memorandum of Understanding
NCDC	National Center for Disease Control
NDMA	National Disaster Management Agency
NGBDM	National Guidelines for Biological Disaster Management
NHM	National Health Mission
NIV	National Institute of Virology
OHS	Occupational Health and Safety
PAP	Program Action Plan
PDO	Program Development Objective
PFMS	Public Finance Management System
PH	Public Health Division of MOHFW
PHL	Public Health Laboratories
PHSSP	Public Health Systems for Pandemic Preparedness Program
PM-ABHIM	Pradhan Mantri Ayushman Bharat Health Infrastructure Mission
POE	Points of Entry
PforR	Program For Results
RA	Results Area
RRT	Rapid Response Teams
SOP	Standard Operating Procedure

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
India	PHSPP: Transforming India's Public Health Systems for Pandemic Preparedness Program	
Project ID	Financing Instrument	Does this operation have an IPF component?
P175676	Program-for-Results Financing	No

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[ ] Fragile State(s)
[ ] Contingent Emergency Response Component (CERC)	[ ] Fragile within a non-fragile Country
[ ] Small State(s)	[ ] Conflict
[ ] Alternate Procurement Arrangements (APA)	[ ] Responding to Natural or Man-made Disaster
[ ] Hands-on Enhanced Implementation Support (HEIS)	

Expected Project Approval Date	Expected Closing Date
28-Jun-2022	31-Dec-2027

Bank/IFC Collaboration

No

Proposed Program Development Objective(s)

The program development objective (PDO) is to strengthen pandemic preparedness and response systems and institutions in India.

Organizations

Borrower :	India

Implementing Agency :	Ministry of Health and Family Welfare
Contact:	Lav Agarwal
Title:	Joint Secretary (Public Health)
Telephone No:	911123061195
Email:	alav@ias.nic.in

COST & FINANCING

SUMMARY

Government program Cost	1,660.00
Total Operation Cost	1,260.00
Total Program Cost	1,258.75
Other Costs	1.25
Total Financing	1,260.00
Financing Gap	0.00

Financing (USD Millions)

Counterpart Funding	**760.00**
Borrower/Recipient	760.00
International Bank for Reconstruction and Development (IBRD)	**500.00**

Expected Disbursements (USD Millions)

Fiscal Year	2022	2023	2024	2025	2026	2027	2028
Absolute	0.00	89.50	82.85	109.75	105.26	68.20	43.20
Cumulative	0.00	89.50	172.35	282.10	387.36	455.56	498.76

INSTITUTIONAL DATA

Practice Area (Lead)
Health, Nutrition & Population

Contributing Practice Areas
Agriculture and Food

Climate Change and Disaster Screening
This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Moderate

9. Other	
10. Overall	Substantial

COMPLIANCE

Policy

Does the program depart from the CPF in content or in other significant respects?

[ ] Yes [✔] No

Does the program require any waivers of Bank policies?

[ ] Yes [✔] No

Legal Operational Policies

	Triggered
Projects on International Waterways OP/BP 7.50	No
Projects in Disputed Areas OP/BP 7.60	No

Legal Covenants

Sections and Description

Section I.B(a), Schedule 2: The Borrower shall vest the overall responsibility for implementation of Results Area 1 of the Program in NCDC and MOHFW, Results Area 2 of the Program in ICMR, and Results Area 3 of the Program in the MOHFW.

Sections and Description

Section I.B(b), Schedule 2: The Borrower shall, establish, within six (6) months from the Effective Date, and thereafter maintain through the Program period, a Program Steering Committee, to be chaired by the Secretary, MOHFW, to provide overall guidance for the Program, review progress on annual work plans and budgets and

assess overall Program performance.

Sections and Description
Section I.B(c), Schedule 2: The Borrower shall establish, within six (6) months from the Effective Date, and thereafter maintain throughout the Program period, a Pandemic Preparation Coordination Committee, to ensure collaboration and complementarity between NCDC and ICMR in implementing the Program activities, and to facilitate periodic updating of India's pandemic preparedness plan.

Sections and Description
Section I.B(d), Schedule 2: The Borrower shall establish, within three (3) months from the Effective Date, and thereafter maintain through the Program period, a Program Support Unit, to provide turn-key solutions for implementation of critical works and support the day-to-day implementation of the Program across all implementing entities.

Sections and Description
Section I.B(e), Schedule 2: The Borrower shall submit the annual audit report for Program Expenditures to the Bank within nine months from the close of each Fiscal Year.

Sections and Description
Section I.D, Schedule 2: The Borrower shall prepare, approve and adopt, within six (6) months of the Effective Date, a Program Operations Manual in form and substance acceptable to the Bank.

Sections and Description
Section V.1, Schedule 2: The Borrower shall ensure that the Program's activities involving collection, storage, usage, and/or processing of Personal Data are carried out with due regard to the Borrower's existing legal framework and appropriate international data protection and privacy standards and practices.

Sections and Description
Section V.2, Schedule 2: The Borrower shall, in the event that, during the implementation of the Program, the approval of any new legislation regarding Personal Data protection may have an impact on the activities financed by the Program, ensure that a technical analysis of said impact is conducted, and that the necessary recommendations concluding the assessment and adjustments deemed necessary to efficiently protect Personal

Data, are implemented, as appropriate.

Sections and Description
Section V.3, Schedule 2: The Borrower shall, except as may otherwise be explicitly required or permitted under this Agreement and/or one or more of the Program Agreements, or as may be explicitly requested by the Bank, in sharing any information, report or document related to the activities described in Schedule 1 to the Loan Agreement, ensure that such information, report or document does not include Personal Data.

Conditions

Type	Financing source	Description
Disbursement	IBRD/IDA	Section IV. Part B.1. Schedule 2: No withdrawal shall be made: (a)on the basis of DLRs achieved prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed $25,000,000 may be made on the basis of DLRs achieved prior to this date but on or after February 1, 2022 or(b)for any DLR until and unless the Borrower has furnished evidence satisfactory to the Bank that said DLR has been achieved.

Type	Financing source	Description
Disbursement	IBRD/IDA	Section IV. Part B.2. Schedule 2: Notwithstanding the provisions of Part B.1(b) of this Section, the Borrower may withdraw an amount not to exceed US$125,000,000 as an advance; provided, however, that if the DLRs in the opinion of the Bank, are not achieved (or only partially achieved) by the Closing Date, the Borrower shall refund such advance (or portion of such advance as determined by the Bank in accordance with the formula for allocated amounts for the DLRs a set forth in the table in Schedule 4 to the Agreement) to the Bank promptly upon notice thereof by the Bank. Except as otherwise agreed with the Borrower, the Bank shall cancel the amount so refunded. Any further withdrawals requested as an advance under any Category shall be permitted only

		on such terms and conditions as the Bank shall specify by notice to the Borrower.

I. STRATEGIC CONTEXT

A. Country Context

1. **Growth rebound in FY22 has been quick, pulled up by investment, recovering consumer demand and, more importantly, a low base.** Real Gross Domestic Product (GDP) growth moderated from an average of 7.4 percent during FY14/15-FY18/19 to an estimated 3.7 percent in FY19/20, mostly due to (i) shocks to the financial sector, and (ii) decline in private consumption growth.[1] Against this backdrop, the outbreak of Coronavirus Disease (COVID-19) had a significant impact, with real GDP contracting by 6.6 percent in FY20/21.[2] On the fiscal side, the general government deficit widened significantly in FY20/21, owing to higher spending and low revenues.[3] However, with the easing of COVID-19 restrictions, Goods and Services Tax (GST) collections have crossed INR 1.1 trillion mark every month since July 2021 reaching as high as INR 1.67 trillion mark as of April 2022. The robust GST revenues are expected to continue as the economic recovery gathers momentum. World Bank (WB) forecasts that real GDP growth for FY21/22 is likely to be 8.3 percent,[4] on the back of increased capital expenditure by the government and recovering consumer demand. The real GDP in FY21/22 is expected to reach the FY19/20 level. Given the global concerns on significant uncertainty around the pandemic, elevated inflation, geo-political tensions, and extended supply disruptions, growth in FY22/23 is expected to be 8 percent.[5] Nonetheless, the expected recovery will put India among the world's fastest-growing economies over the next two years.

2. **Although India has made remarkable progress in reducing absolute poverty in recent years, including due to the allocation of significant resources for social assistance programs, the COVID-19 outbreak has delayed the course of poverty reduction.** Between 2011-12 and 2020-21, India's poverty rate has declined from 22.5 percent to values estimated to range between 9 to 12.3 percent.[6] However, projections of GDP per capita growth suggest that this estimated decline also includes a reversal of poverty reduction due to the pandemic. Labor market indicators from high frequency surveys -including from the Centre for Monitoring Indian Economy- suggest that vulnerability has increased after the pandemic, particularly for urban households, with a moderate recovery in 2021. Overall, the pandemic and its economic impacts are estimated to have raised urban poverty, creating a set of "new poor" that are relatively more likely to be engaged in the non-farm sector and to have received at least secondary education. To respond to the pandemic, the Government of India (GoI) has deployed significant resources as part of the Prime Minister Garib Kalyan Yojana for social assistance, including for urban poor households and migrants.

B. Sectoral (or Multi-Sectoral) and Institutional Context

3. **India's health system has made steady progress in recent years, but the COVID-19 pandemic has identified areas that need strengthening.** COVID-19 has underscored the urgency of revamping, reforming, and developing capacity for core public health functions at all levels. Infectious disease prevention, detection and control requires a reliable system of health surveillance that can generate real

[1] National Accounts Data, National Statistical Office, Ministry of Statistics and Programme Implementation (MOSPI).
[2] National Accounts Data, National Statistical Office, MOSPI.
[3] Union budget 2021, 2022, Ministry of Finance.
[4] World Bank estimate compared to the GoI's second advance estimate of 8.9 percent.
[5] World Bank real GDP forecasts for FY22/23 published in April 2022.
[6] Consumption Expenditure Survey 2011-12, National Sample Survey Office (NSSO), Government of India.

time data and applied public health skills to analyze and detect potential outbreaks and respond in a timely manner. The system should be able to integrate data from multiple sources, including national and international epidemic events, risk factors associated with communicable diseases, surveillance of epizootics and diseases of animal origin, emergency and climate-related events, and natural disasters. In addition to enhanced vulnerability from increasing global travel, the movement of people and goods within states that powers India's economic growth also facilitates spread of infectious diseases. The high exposure between livestock, people, and wildlife combined with weak animal disease surveillance poses risks for disease outbreaks. Most major epidemics in recent years were transmitted either through direct handling of live primates, bats, and other wildlife (or their meat), or indirect contact with farm animals such as chickens and pigs.[7] Currently, One Health collaboration and coordination remain weak, with little sharing of information and data between relevant institutions.[8]

4. **The COVID-19 pandemic has highlighted that essential public health functions required for responding to outbreaks are weak**. India started the Integrated Disease Surveillance Program (IDSP – P073651) in 2004 with World Bank support, and it was gradually expanded to provide an information technology (IT)-enabled nation-wide decentralized surveillance system. However, this system still lacks the required generation of real-time surveillance data and competent human resources trained in epidemic intelligence at the district and state levels to analyze the data to detect and respond to outbreaks. Moreover, a strong supportive laboratory network at block and district levels backed up by referral laboratories is required to confirm the etiological agents as well as monitor emerging and reemerging pathogens. Monitoring trends of highly infectious respiratory viruses and building multi-disciplinary research capacities will help India prevent future outbreaks over the long run. Further, proactive engagement with the private sector with appropriate reporting tools for sharing surveillance information remains important to countries like India where healthcare provision and financing is significantly private. The growing challenge of Anti-Microbial Resistance (AMR) due to excessive use of antibiotics in human and veterinary healthcare also has an enormous impact on management of emerging infectious diseases. This requires investments in tracking AMR and guiding rational use of antibiotics. Finally, climate change will have a huge impact on human health if no corrective, adaptive, or mitigating measures are initiated.

5. **The COVID-19 pandemic has also underscored the need for strong foundational bio-medical research ability to identify biosecurity risks from emerging and reemerging pathogens**. Keeping track of pathogens, especially those of zoonotic origin, and maintaining maps with hots spots of vulnerable areas has become a critical national function for ensuring biosecurity. During the pandemic, the Indian Council of Medical Research (ICMR) played a vital role in indigenous vaccine development and established validation platforms for assessing COVID-19 diagnostic kits. This helped in domestic industry growth, improved access, and reduced prices of testing kits ten-fold. There is a need to sustain these efforts and further enhance engagement with the private sector to scale up new technology platforms to prevent, detect and treat infectious diseases.

6. **National-level stewardship for disease surveillance and response rests with the National Centre for Disease Control (NCDC), and promotion of biosecurity through research remains the responsibility**

[7] Dobson, A. et al. 2020. Ecology and economics for pandemic prevention. *https://science.sciencemag.org/content/369/6502/379*
[8] One Health is a collaborative, multisectoral, and transdisciplinary approach recognizing the interconnection between people, animals, plants, and their shared environment.

of the Indian Council for Medical Research (ICMR), while in the Indian federal structure, responsibility to identify and respond to disease outbreaks remains with the states. The IDSP provides the essential framework for pandemic response in India. The IDSP strengthens state-led decentralized laboratory-based, IT-enabled disease surveillance of epidemic-prone diseases to monitor trends and to detect and respond to outbreaks through trained Rapid Response Teams (RRTs).[9] In addition to existing staff, states complement the surveillance workforce at state and district levels through India's National Health Mission (NHM). The central surveillance unit of IDSP is housed in NCDC which also has the mandate for meeting India's obligations for International Health Regulation (IHR) 2005 and One Health Coordination. The National Disaster Management Agency (NDMA) supports emergency responses during natural and manmade disasters. The Biological Disaster Management Guidelines issued by NDMA identified the Ministry of Health & Family Welfare (MOHFW) as the nodal Ministry for coordination with inputs from the Ministries of Agriculture, Home Affairs, Defense, Railways and Labor & Employment. The Disaster Management Cell (DMC) at MOHFW supports a coordinated national response for biomedical threats while the International Health Division is responsible for surveillance at the Points of Entry (POE).

7. **There is urgent need to reform and revamp India's public health architecture to meet 21st century disease threats, investigation, and responses**. Gaps in public health infrastructure cut across key agencies mandated to respond to pandemics and disease outbreaks. COVID-19 has highlighted the need for enhanced coordination between NCDC and ICMR with adequate autonomy, resources, and accountability to transform them into world class institutions providing effective stewardship to India's pandemic response. Human resources shortages for core public health functions impact the work of the NCDC, ICMR, NHM, and the states. As of 2022, only 10 states have 80 percent of the core surveillance positions in the districts filled. Efforts to integrate vertical surveillance systems of major diseases under the Integrated Health Information Platform (IHIP) were slow and findings from the 2015 Joint Monitoring Mission assessment for the IDSP still remain relevant. These include moving to case-based reporting for high priority diseases, integrating outbreak data with the portal system, developing a national policy and strategic plan for strengthening laboratories, improving overall quality of documentation, and augmenting zoonotic disease surveillance systems including ensuring better collaboration between health, veterinary, agriculture and wildlife departments.

8. **The COVID-19 pandemic also highlighted the need for augmenting genomic sequencing capacity**. The SARS-CoV-2 Genomic Consortium (INSACOG), consisting of 10 central and 28 regional labs, is leading India's efforts to enhance genomic sequencing.[10] Global comparison suggests that India's genomic sequencing effort requires significant acceleration.[11] India therefore needs to rapidly scale up sequencing by identifying appropriate technologies and partnerships with a wider network of laboratories both in public and private sectors as well as academia.

9. **With continuing vulnerability to future waves, India has four complementary pathways to address the health systems challenges posed by the pandemic.** First, ensuring an elevated level of vigilance to prevent future disease outbreaks, building on investments made for COVID-19 containment. Second, building a robust public health surveillance system to promptly detect disease outbreaks using real-time data and respond effectively as envisaged under the Pradhan Mantri-Ayushman Bharat Health

[9] The Rapid Response Teams include surveillance officers, infectious disease/medical and laboratory experts.
[10] https://dbtindia.gov.in/insacog
[11] India is currently undertaking 3 sequences for 1000 reported cases and median days to deposit is 63. Source: https://covidcg.org/?tab=global_sequencing

Infrastructure Mission (PM-ABHIM) and the white paper "Vision 2035 for Public Health Surveillance in India".[12] Third, building stronger national institutes to provide effective direction and leadership, including analytical capacity for pandemic preparedness and enhanced biosecurity and compliance with international norms. Finally, India needs a 21st century people-centered health system founded on a robust primary healthcare system capable of handling its rapidly changing demographic, epidemiological, environmental, and social determinants of health ensuring equity with a strong foundation for prevention and health promotion. All these are critical elements of the Global Health Security Index (GHSI).

10. **There is potential to reshape India's health sector workforce to improve women's participation in the formal health sector, particularly in complex technical job roles**. Estimates of the health workforce show that women constitute almost half of the qualified health workforce and job roles such as qualified nurses and midwives are dominated by women workers at 88.9 percent.[13] However, women in the health workforce in India are often overrepresented in contract-based, underpaid frontline jobs such as Accredited Social Health Activists (ASHAs) and Multi-Purpose Health Workers (MPHWs).[14] Additionally, healthcare institutions expect female workers to fit into systems with poorly implemented workplace policies (including harassment and discrimination at the workplace) and limited access to trainings and career advancement opportunities.[15] Improving women's presence and competencies in technical areas of work, including in surveillance, epidemiology and genomics is key to address gender discrimination in the health workforce. Additionally, global evidence suggests that women scientists are starting fewer projects, receiving fewer number of grants, and publishing less research than men in epidemiology and diseases surveillance.[16]

C. Relationship to the CPS/CPF and Rationale for Use of Instrument

11. **The proposed Program for Results (PforR) Program is directly aligned with the World Bank Group (WBG) India Country Partnership Framework (CPF) FY18–22 discussed at the Board of Executive Directors on September 20, 2018 (Report No. 126667-IN).** The Program is fully aligned with Focus Area 1 "promoting resource-efficient growth" and Focus Area 3 "investing in human capital." Under Focus Area 1, the Program supports key objective 1.5: strengthening disaster resilience by improving the country's pandemic preparedness and response capacity. Under Focus Area 3, it contributes to objective 3.4 of improving the quality of health service delivery and financing and access to quality health care by improving disease surveillance and laboratory systems. The Program is also well aligned with the 'Hows' of the CPF as it will strengthen the public institutions responsible for responding to health emergencies such as the ICMR and the NCDC. It will augment nation-wide initiatives to improve public health core functions for pandemic preparedness. While health is a state subject under the Constitution of India, the COVID-19 emergency has made it clear that the central government has a crucial coordination role to play and effective response and recovery will require central, state, district, and local government cooperation. The proposed Program will augment the stewardship role of the central government to strengthen and streamline surveillance and pandemic preparedness.

[12] Vision 2035 Public Health Surveillance in India – A White Paper, NITI Aayog, 2020.
[13] 68th round (2011-2012) of the National Sample Survey's report on employment in India; MOSPI, Government of India.
[14] Unpaid Care Work: The missing link in the analysis of gender gaps in labor outcomes; OECD, 2014.
[15] India position statement on preventing violence against health - care workers and vandalization of health - care facilities in India; International Journal of Critical Illness and Injury Science; 2017.
[16] American Public Health Association, 2021.

12. **Using a PforR lending instrument will promote accountability for delivering results and critical institutional reforms envisaged by the PM-ABHIM,** contributing to India's pandemic preparedness. Lastly, the Program will also support the "Lighthouse India" with the establishment of a platform for knowledge generation and exchange.

II. PROGRAM DESCRIPTION

A. Government Program

13. **The PM-ABHIM, launched in October 2021, is a pan-India initiative to develop and improve the public healthcare infrastructure in India** with an allocation of INR 64,180 crore (about US$8.4 billion) over a five-year period; the proposed Program is designed to continue beyond that period to support implementation of reforms and promote sustainability of the results. Building on lessons learnt from the COVID-19 pandemic, the PM-ABHIM aims to create critical institutions and systems for preventing as well as promptly detecting and responding to future pandemics and expanding delivery of high-quality people-centric primary healthcare services. The World Bank agreed to support PM-ABHIM through two mutually complementary PforR operations.

14. **A complementary PforR operation (EHSD: India's Enhanced Health Service Delivery Program – P178146), also being submitted for the WBG Board's consideration, primarily supports the Centrally Sponsored Scheme (CSS) components of PM-ABHIM, focusing on people-centered comprehensive primary healthcare service delivery** through creation of additional Ayushman Bharat Health and Wellness Centers (AB-HWCs) in rural and urban areas in targeted states. It also aims to extend nation-wide support to expand the range and quality of primary care services. Stronger focus will be given to prevention and comprehensive management of Non-Communicable Diseases (NCD) along with support to the NHM at the central level to strengthen quality and accountability systems.

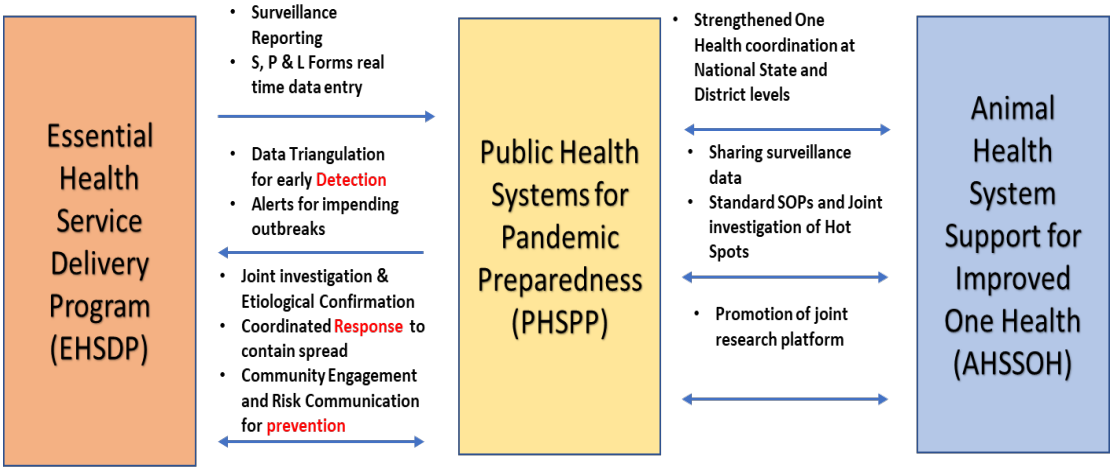
15. **The proposed PforR will primarily focus on the Central Sector components of PM-ABHIM and relevant institutions and systems to strengthen surveillance of infectious diseases and enhance India's biosecurity research.** It supports real-time surveillance data generation and use, while also providing targeted support to 20 metropolitan cities to build comprehensive surveillance systems, establish emergency operations centers, and strengthen surveillance at POE. It aims to build the capacity of the NCDC by expanding ongoing priority activities such as One Health, AMR monitoring, and reducing the impact of climate change on human health. This operation also supports India's biosecurity preparedness with a focus on pandemic research led by ICMR to track diseases that have epidemic potential such as zoonoses and respiratory viral diseases through a network of advanced virology laboratories working closely with states and the NCDC. The PM-ABHIM supports augmenting referral laboratories of NCDC and ICMR to provide mentorship, capacity building, quality assurance and advanced diagnostic backup to 730 Integrated District Public Health Laboratories being strengthened under the CSS component, thereby creating a pan-India network of public health laboratories ready for future pandemics.

16. **The complementarities between both PforR operations at the district level are portrayed in Figure 1.** The district constitutes the fulcrum of India's health system. Both operations will ensure effective coordination and complementarity at the district level, building on the unique strengths of ASHAs, the frontline health workers. These workers, in addition to promoting people-centered healthcare, also undertake "syndromic surveillance" along with the multipurpose health workers by sharing real time data on a set of syndromes to the IHIP through their mobile devices. The AB-HWCs, Block and Community

Health Centers, and District and General Hospitals, also provide real time data on selected clinically confirmed infectious diseases while block and district integrated public health laboratories update information on etiologically confirmed diseases through laboratory information systems linked to IHIP and support outbreak investigations. The district and state surveillance officers triangulate data from different sources including IHIP and identify unusual health events. They work closely with block medical officers and the community health officer in charge of AB-HWCs to investigate and respond to such events with the help of front-line workers. The NCDC provides overall stewardship through the IDSP and helps build capacities of district and state surveillance officers. Both NCDC and ICMR referral laboratories support the district integrated public health laboratories for advanced viral and zoonotic disease diagnostics as well as capacity building and laboratory quality control.

17. **The Bank is also currently supporting the GoI in preparing the India Animal Health System Support for Improved One Health Program (AHSSOH – P177671), focused on increasing India's institutional capacity to deliver animal health services to livestock farmers using a One Health framework.** The three operations are designed to complement each other.

Figure 1. Linkages among PforR operations supporting India's Pandemic Preparedness



18. **The overall government program is guided by the India National Health Policy of 2017 and described in the documents for PM-ABHIM.** To drive a holistic and broader reform agenda, the GoI's program will include: (i) relevant institutions of the MOHFW, including the ICMR under the Department of Health Research, the NCDC and the DMC under Public Health (PH) Division, and the International Health (IH) Division under the Directorate General of Health Services; and (ii) activities under the PM-ABHIM program relevant for pandemic preparedness and response.

B. Theory of Change

19. **The Program's theory of change is illustrated in Figure 2 below.** Starting with underlying and health system challenges, it highlights program inputs, expected outputs and intermediate results, and expected outcomes.

Figure 2. Program Theory of Change

PDO: To strengthen pandemic preparedness and response systems, and institutions in India

	Result Areas & Inputs	Outputs	Outcomes
RA 1 DETECT & RESPOND Expanding an IT enabled disease surveillance system & One Health coordination	• Integrated Health Information Platform (IHIP) established • Surveillance capacity expanded to 20 metropolitan cities and at 50 points of entry (POE) • Fifteen health emergency operational centers (EMOCs) established. • All divisions of NCDC strengthened along with new regional centers and network of BSL III laboratories. • Zoonotic disease sentinel surveillance centers expanded • National Program for Antimicrobial Resistance (AMR) expanded.	• Increased real time reporting of surveillance data by public and private sectors through IHIP • % Metropolitan cities & POEs with functional disease surveillance systems • % of EMOCs made fully operational with infrastructure and staffing • NCDC Divisions strengthened and adequately staffed • Zoonotic disease surveillance reporting by 100 sites • NCDC AMR Network expanded to 220 laboratories • Climate Change and health action plan developed by States	• Outbreak alerts generated by IHIP had initial investigation within 48 hrs • Augmented surveillance and response capacities of metropolitan cities • EMOCs and POEs meeting performance/IHR standards • Augmented One Health response • Updated treatment guidelines to promote rational use of antibiotics by prescribers and general population. • Enhanced state capacity to identify and respond to climate sensitive diseases
RA 2 PREVENT Enhancing biosecurity research capacity	• ICMR Center for One Health research established • Four zonal National Institutes of Virology (NIV) established • Viral Disease Research Laboratory (VRDL) network expanded • Medical Device and Diagnostic Mission Secretariat Strengthened • Regional research platform for Southeast Asia (SEA) established • Division for Research on Disease Elimination Science & Health established	• Institute for One Health made operational &national risk map published with hot spots of zoonotic diseases • Zonal NIVs build capacity of research institutions and undertake collaborative research. • VRDL networks undertake pan respiratory virus surveillance testing 200,000 samples • ICMR endorses Intellectual Property guidelines to facilitate transfer of technologies to private sector • Regional research priorities for SEA identified • Division for Research on Disease Elimination Science & Health made operational with full contingent of staff	• Districts vulnerable for zoonotic diseases transmission identified and preventive strategies developed. • Viral outbreak investigations supported & genomic sequencing capacities built. • Annual bulletin summarizing yearly trends of pan respiratory pathogens inform new vaccines/prevention strategies • MoUs entered with private/public sector to commercialize new technologies to prevent, detect or treat infectious diseases • Collaborative research to inform SEA regional strategies to prevent priority diseases
RA 3 COMPLIANCE Transforming core public health institutions &research agencies	• Pandemic preparedness program coordination structure established • MOHFW puts in place agreed short-term measures for enhancing NCDC implementation capacity including expanded EIS roll out • A high-level expert group review of NCDC institutional capacity over medium term	• Pandemic preparedness coordination structure operational • MOHFW approves timebound action plan for transforming NCDC as premier international center • MOHFW affiliates EIS program and issues guidelines to states to give priority to EIS trained officers for surveillance positions	• NCDC transformed as a world class center for prevention and control of diseases • Enhanced applied epidemiology capacities built at state and district levels
Health System Determinants	• Inadequate public financing for health – High OPE • Need to enhance efficiency in use of available public finances • Inequitable access to essential healthcare • Variable quality of care	• Poor linkages between public and private sectors in delivery of health care • HRH shortages • Heightened threat of pandemics	
Underlying Determinants	• Poverty and Malnutrition • Demographic Transition – increase in Non-Communicable diseases • Rapid Urbanization	• Climate Change • Globalization • Increased International Travel • Enhanced Bio-security Risks	• Federalism • Variable State Capacities

C. PforR Program Scope

20. **Transforming India's Public Health Systems for Pandemic Preparedness PforR is focused on strengthening pandemic preparedness and response in MOHFW agencies supporting the central sector component of PM-ABHIM.** The scope will include: (i) key public health agencies and divisions within MOHFW (PH and IH); and (ii) selected pandemic preparedness and response activities under three results areas in PM-ABHIM implemented by the three key agencies. Details are presented in table 1.

21. **The overall expenditure framework of the GoI's program ("p") for identified results areas during FY2022-23 to FY2026-27 is estimated at US$1.66 billion.** The proposed PforR Program ("P") is a subset of the government program ("p"). The fiscal boundary of this Program will be the expenditure lines related to strengthened surveillance and pandemic response, including research, and will be based on two major components: (i) regular budget allocated to the PH and IH divisions of MOHFW, the NCDC and relevant institutions of the ICMR for the abovementioned areas; and (ii) incremental cost for improving effectiveness and scaling up these interventions under PM-ABHIM. The total PforR Program expenditure is estimated at US$1.26 billion, to which the World Bank contribution will be US$500 million. Bank financing will exclude costs for BSL-IV labs at NCDC and ICMR and will include projected recurrent expenditures for ICMR Headquarters and relevant institutions (National Institute of Virology & National AIDS Research Institute). During the Program boundary analysis due care has been taken to include only the expenditure trends/projections for the above-mentioned agencies (under the Central Sector components of the PM-ABHIM scheme), and there is no overlap with the Program Expenditure Framework (PEF) for the Enhanced Health Service Delivery Program (P178146).

22. **The Program has no overlap with the ongoing India COVID-19 Emergency Response and Health System Preparedness Project (ER&HSP -P173836).** Considering the scale of the COVID pandemic in India, most resources under the ER&HSP financed the emergency response. Other activities supporting health system strengthening at national and state levels include improving preparedness, strengthening of pandemic research including multisector institutions and platforms for One Health, and training on core competencies for disease surveillance were "moved" to the PM-ABHIM, through two project restructions.

Table 1: Description of Government's (p) and Bank' (P)Programs

	GoI program ("p")	PforR Program ("P")	Reasons for non-alignment
Objective	To build a resilient and adaptable health system and ensure preparedness for future pandemics and other emergencies.	To strengthen pandemic preparedness and response systems and institutions in India.	The PforR supports a subset of the GoI's program including PM- ABHIM.
Duration	2021-2026	2022-2027	Supporting PM-ABHIM and relevant institutions and systems
Geographic coverage	Nationwide	Central sector components implemented through IH and PH divisions of MOHFW, NCDC and ICMR	Priority engagement for pandemic response in the country is being dealt with under this operation
Results areas	Ongoing central and state health initiatives under MOHFW, NHM and PM-ABHIM	Three results areas with focus on reform and innovations	The PforR supports a sub-set of the GoI's program
Overall Financing	US$1.66 billion	US$1.26 billion	The expenditures of identified subset are lower than the Government program

Description of the Program Results Areas (RAs):

23. **The proposed Program will support the three RAs that contribute to the overall outcomes of the GoI's program.** A description of Program activities, proposed Disbursement-Linked Indicators (DLIs) and associated actions from the broader Government program are provided below.

24. **RA#1: Expanding an Information Technology (IT) enabled surveillance system and One Health coordination.** This RA aims to prepare India's surveillance system to be ready to detect and report epidemics of potential international concern; ensure rapid response by expanding surveillance capacity; and prevent emergence of pathogens including those constituting public health risk by enhancing surveillance of AMR and zoonotic diseases. Specific thematic areas under this results area include:

- Development and strengthening of surveillance reporting through Integrated Health Information Platform (IHIP) to generate real time surveillance data to provide early alerts of infectious disease outbreaks.
- Strengthening of POE to meet international health regulation standards for enhanced cross border surveillance.

- Strengthening of capacities of metropolitan cities to identify and contain disease hotspots and populations vulnerable to emerging and remerging diseases.[17]
- Strengthening of disaster and epidemic preparedness by creating health emergency operation centers.[18]
- Strengthening of all divisions of NCDC focused on applied public health capacity building and establishment of regional centers.[19]
- Enhancement of ability to detect novel pathogens by expanding biosafety laboratory network to enhance advanced outbreak investigations and response.[20]
- Expansion of network of sentinel sites for One Health surveillance and network of One Health coordinators to monitor trends of zoonotic diseases.
- Implementation of an enhanced national program for anti-microbial resistance.
- Support for measures to ensure pandemic preparedness and response plans cater to the needs of women and other vulnerable populations, including through gender disaggregated data reporting.
- Preparation of state level action plans on climate change and health to strengthen climate resilience.

25. **While a large body of information exists on prevalence of reproductive tract and sexually transmitted infections on women, gender disaggregated data on women impacted by communicable diseases and outbreaks is scarce**. It is therefore important to obtain gender segregated surveillance information from the IHIP platform to better understand vulnerabilities of women. Under the PHSPP, the NCDC will prepare a report on the number of women affected by outbreaks and ensure that pandemic preparedness and response plans are grounded in sound gender analyses and needs of other vulnerable populations. PHSPP will also strengthen climate resilience by ensuring that all states prepare action plans on climate change and health. Specific activities supported under RA#1 will include civil works in the specified locations, goods, consultancies, training, workshops, and incremental operating costs.[21]

26. **RA#2: Enhancing Bio-security Capacity.** This RA, implemented by the ICMR, will focus on enhancing the capacity to detect emerging and remerging pathogens including zoonotic diseases to inform India's bio-security response and commercialization of new technologies to prevent, detect or treat infectious diseases. Key thematic areas under RA#2 include:

- Identification of hotspots for zoonotic diseases and creation of national risk maps through establishment of a new center for One Health research to build One Health research capacity.[22]
- Capacity building of medical colleges and state research institutes in viral diagnostics including genome sequencing, including through establishment of zonal National Institutes of Virology (NIV).[23]

[17] Ahmedabad; Chennai; Pune; Bangalore; Delhi; Thane; Hyderabad; Kolkata; Mumbai; Lucknow; Agra; Jaipur; Bhopal; Nagpur; Bhubaneshwar; Shimla; Chandigarh; Gurgaon; Guwahati; and Patna.
[18] Health emergency operation centers will be established in metropolitan cities.
[19] NCDC Regional Centers will be established at Bhopal, Ahmedabad, Guwahati, Dehardan and Bangalore/Hyderabad.
[20] Biosafety laboratory level III network will be developed or expanded in Amaravati (Andhra Pradesh); Raipur (Chhattisgarh); Surat (Gujarat); Ahmedabad (Gujarat); Rohtak (Haryana); Shimla (Himachal Pradesh); Ranchi (Jharkhand); Dharwad (Karnataka); Hyderabad (Telangana); and Varanasi (Uttar Pradesh).
[21] The locations where civil works may take place under RA#1 are mentioned in footnotes 17,18, 19 and 20.
[22] The One Health Center is located in Nagpur.
[23] Zonal NIVs will be established in Jabalpur, Dibrugarh, Chandigarh, and Bangalore.

- Expansion of network of viral disease research laboratories for expanded surveillance of pan-respiratory viruses and improved diagnosis of fevers of unknown etiology.
- Promotion of commercialization of technologies to prevent, diagnose and treat infectious diseases through strengthening of ICMR's Medical Device and Diagnostic Mission Secretariat to create relevant policies and establish public-private platform to engage with the industry.
- Building of Southeast Asia regional capacity to undertake collaborative research on disease dynamics of identified regionally important pathogens by creating a regional platform.
- Development of tools and playbooks for early warning signals and community engagement and risk communication during health emergencies.
- Capacity building in disease elimination science through establishment and operation of a new division for research in disease elimination at ICMR's National AIDS Research Institute.
- Capacity building in applied research for diseases of national importance, including through expansion of partnerships with medical colleges and state research institutions through multi-disciplinary research units and model rural health research units.

27. **Under the PHSSP, the ICMR will be supporting capacity building of young scientists in advanced diagnostic technique, disease elimination, mathematical modeling, and multi-disciplinary research.** To encourage career advancement of women professionals, ICMR will report gender disaggregated data of trainees attending these programs. Specific activities supported under RA#2 will include civil works in the specified locations, goods, consultancies, training, workshops, and incremental operating costs.[24]

28. **RA#3: Transforming Core Public Health Institutions and Research Agencies.** This RA focuses on enhanced coordination and building institutional capacity to implement the program to deliver high quality results. Specific activities include:

- Creation of a national Pandemic Preparedness Coordination Structure to enhance collaboration and complementarity between NCDC and ICMR and to regularly update India's pandemic preparedness plans.
- Establishment of Epidemic Intelligence Service (EIS) cell at the NCDC for promoting training and career pathways in EIS, getting EIS program affiliated to universities, and expanding field epidemiology training program.
- Capacity building of NCDC for Program implementation, including through relevant leadership enhancement, divisions and support agencies to ensure timely implementation and operationalization through planned infrastructure, equipment and human resources.
- Review of NCDC capacity and best global practices to develop an action plan to transform NCDC to a world class institute for prevention and control of diseases, and implementation of such action plan.
- Strengthening of procurement and internal audit functions at the ICMR.
- Training of public health workers to develop competencies in prevention, detection and response to disease outbreaks.

29. **Further, under the PHSSP, the NCDC will train over 1,000 public health workers to develop competencies in prevention, detection, and response to disease outbreaks.** Additionally, NCDC will review its existing human resource (HR) policies and organizational culture to promote gender equality

[24] The locations where civil works may take place under RA#2 are mentioned in footnotes 22 and 23.

at the workplace in consonance with GoI guidelines. Specific interventions will include: (i) establishing safety cells;[25] (ii) promoting flexibility in working hours, including transport/mobility support for women professionals who choose to work night shifts; (iii) piloting childcare options at workplaces to reduce women's care burden; and (iv) developing women's networks to provide young women professionals with a support system and link them to women mentors. Specific activities supported under RA#3 will include civil works in NCDC and ICMR headquarters, goods, consultancies, training, workshops, and incremental operating costs.[26]

Table 2: Program Financing by Source of Financing

Source	Amount (US$ millions)	Percent of total
Government financing	760	60.3
IBRD	500	39.7
Total Program costs	**1,260**	**100.0**

D. Program Development Objective(s) (PDO) and PDO Level Results Indicators

30. The Program Development Objective (PDO) is to strengthen pandemic preparedness and response systems and institutions in India.

31. **PDO Level Results Indicators.** Achievement of PDO will be assessed by progress on a set of strategic indicators under each RA.

Table 3. PDO Level Results Indicators under each Results Area

	RA#1: Expanding an Information Technology (IT) enabled surveillance system and One Health coordination	RA#2: Enhancing Bio-security Capacity	RA#3: Transforming core Public Health Institutions and Research Agencies
1. Outbreak alerts generated by IHIP receiving initial investigation within 48 hours (percentage)	X		
2. Metropolitan surveillance units achieving established performance benchmark (text) (DLI 2)	X		
3. Treatment guidelines for rational use of antibiotics for common infections published based on AMR surveillance (text)	X		
4. National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform appropriate preventive measures (text) (DLI 7)		X	
5. Trained researchers (disaggregated by gender) having competency in genomic sequencing (number)		X	

[25] Women's Safety Cells build on the Prevention of Sexual Harassment at the Workplace Act (2013) and focus on a periodic review of perceptions of safety at the workplace through anonymous meetings, redressal of complaints received via the Internal Complaints Committee constituted under the Act and undertake regular behavior change initiatives, including engaging with male workers at the workplace.
[26] The NCDC and ICMR headquarters are located in New Delhi.

	RA#1: Expanding an Information Technology (IT) enabled surveillance system and One Health coordination	RA#2: Enhancing Bio-security Capacity	RA#3: Transforming core Public Health Institutions and Research Agencies
6. Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting, and responding to disease outbreaks (text) (DLI 11)			X

E. Disbursement Linked Indicators and Verification Protocols

32. To advance and achieve the PDO, the development of the Program DLIs (Table 3) followed these core principles:

- Make full use of and strengthen the GoI's routine information system and maximize the use of readily available data with focus on intermediate outcomes and outputs;
- Balance ambition and feasibility, taking into consideration data collection and measurement feasibility within the Indian context; and
- Stimulate performance across the three RAs.

Table 4: Disbursement linked DLIs

DISBURSEMENT LINKED INDICATORS	PRIOR RESULTS (US$25M)	DLI BASELINE	DISBURSEMENT-LINKED RESULTS				
			RESULTS TO BE ACHIEVED BY YEAR 1	RESULTS TO BE ACHIEVED BY YEAR 2	RESULTS TO BE ACHIEVED BY YEAR 3	RESULTS TO BE ACHIEVED BY YEAR 4	RESULTS TO BE ACHIEVED BY YEAR 5
RA#1: Expanding an IT enabled surveillance system and One Health coordination							
DLI 1. Surveillance units reporting real time data through IHIP to enable early detection of disease outbreaks (disaggregated by public and private sector) **US$50M**	N/A	40% IDSP surveillance units from public sector Private sector – nil	MOHFW endorses policy and strategic plan for IHIP including strategy for enhancing private sector participation in IHIP	The e-health Division of MOHFW has created an IT Unit at MOHFW and NCDC with required infrastructure and Human Resources to house the IHIP platform	(a) 50% IDSP surveillance units from public sector reporting real time data through IHIP (b) 20% of identified private sector hospitals reporting real time data through IHIP	(a) 60% IDSP surveillance units from public sector reporting real time data through IHIP (b) 30% of identified private sector hospitals reporting real time data through IHIP	(a) 75% IDSP surveillance units from public sector reporting real time data through IHIP (b) 40% of identified private sector hospitals
DLI 2. Metropolitan surveillance units achieving established performance benchmark **US$37.5M**	$9.5m	None	NCDC develops operational guidelines for metropolitan surveillance units, which includes criteria for performance benchmarking (Prior Result)	5 metropolitan surveillance units meet established performance benchmark	10 metropolitan surveillance units meet established performance benchmark	15 metropolitan surveillance units meet established performance benchmark	20 metropolitan surveillance units meet established performance benchmark

Disbursement Linked Indicators	Prior results (US$25M)	DLI Baseline	Disbursement-Linked Results				
			Results to be Achieved by Year 1	Results to be Achieved by Year 2	Results to be Achieved by Year 3	Results to be Achieved by Year 4	Results to be Achieved by Year 5
DLI 3. Semi-annual bulletin on AMR trends published **US$36.25M**	N/A	Published since 2018	-	Semi-annual bulletins published	Semi-annual bulletins published	Semi-annual bulletins published	Semi-annual bulletins published
DLI 4. Sentinel sites reporting on zoonotic diseases of human importance **US$50M**	N/A	20	Endorsement of operational guidelines for One Health sentinel sites by NCDC	25 sentinel sites established for reporting zoonotic diseases	50 sentinel sites established for reporting zoonotic diseases	80 sentinel sites established for reporting zoonotic diseases	100 sentinel sites established for reporting zoonotic diseases
DLI 5. Existing Points of Entry meet International Health Regulations (IHR) compliance requirements **US$37.5M**	N/A	0	0	7 existing Points of Entry meet IHR compliance requirements	13 existing Points of Entry meet IHR compliance requirements	20 existing Points of Entry meet IHR compliance requirements	26 existing Points of Entry meet IHR compliance requirements
DLI 6. Health Emergency Operations Centers (HEOCs) meet performance benchmarks set for internal emergency or annual outbreak simulation exercise **US$37.5M**	$9m	0	Operational Guidelines for HEOC approved by MOHFW (Prior Result)	Vulnerability assessment has been completed and MOU on establishment of HEOCs has been signed with MOHFW for 10 states	3 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	At least 8 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	At least 15 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines
RA#2: Enhancing Bio-security Capacity							
DLI 7. National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform appropriate preventive measures **US$50M**	N/A	None	India One Health Research Network (IOHRN) has developed the list of priority zoonotic diseases for human importance	IOHRN has established protocols for identifying hotspots and national risk map based on identified priority zoonotic diseases of human importance	National Risk map with hotspots for Zoonotic Diseases of human importance is available on ICMR website		ICMR has updated the national risk map with hotspots for zoonotic diseases of human importance is updated
DLI 8. Enhanced capacity for collaborative research and	N/A	None	Each zonal NIV has developed a detailed activity plan	Each zonal NIV has identified research priorities for emerging and	Capacities built by each Zonal NIV of identified partner research institutions,	Each zonal NIV has published findings based on investigations for at least two	Each zonal NIV has published findings based on investigations for at least four

Disbursement Linked Indicators	Prior results (US$25m)	DLI Baseline	Disbursement-Linked Results				
			Results to be Achieved by Year 1	Results to be Achieved by Year 2	Results to be Achieved by Year 3	Results to be Achieved by Year 4	Results to be Achieved by Year 5
outbreak investigation of viral diseases **US$38M**			developed for its operational area.	remerging viral diseases through a consultative process involving research institutions in its zone and state governments	protocol finalized for at least one collaborative viral research project and implementation started	emerging viral diseases	emerging viral diseases
DLI 9. New technologies commercialized to enhance access to prevention, detection, or treatment of infectious diseases **US$37M**	$6.5m	None	ICMR has developed and adopted a policy on biomedical innovation and entrepreneurship for medical and allied professionals and technologists at medical, dental, paramedical institutes/ colleges (Prior Result)	ICMR has developed and approved Intellectual Property (IP) guidelines to facilitate transfer of ICMR developed/ supported technologies to the private sector for commercial production	Public private forum created to develop a list of priority medical devices/diagnostics required to manage diseases of national importance, including infectious diseases	ICMR has developed/supported at least 5 new technologies for prevention, detection, or treatment of infectious diseases of national importance	MOUs signed by ICMR with private / public sector companies for commercial production of 3 new technologies developed for prevention, detection, or treatment of infectious diseases of national importance
DLI 10. State/district scenario analysis of diseases identified for elimination undertaken by researchers trained (cumulative) in disease elimination sciences and mathematical modeling **US$25M**	N/A	None	ICMR has prepared a list of priority conditions and research areas, including risk factors for diseases for elimination through a national level consultation	ICMR has approved proficiency-based training modules on disease elimination science and mathematical modelling	20 public health professionals trained on mathematical model -based scenario analysis for diseases identified for elimination to prepare state/district level scenarios	60 public health professionals trained on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district level scenarios	100 public health professionals trained on mathematical model-based scenarios for diseases identified for elimination to prepare state/district level scenarios
RA#3: Transforming core Public Health Institutions and Research Agencies							
DLI 11. Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting, and	N/A	Advanced: 10 Frontline: 100			(a) 40 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 500 frontline health workers received training to build core	(a) 80 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 1000 frontline health workers received training to build	(a) 130 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 1500 frontline health workers received training to build core competencies in

Disbursement Linked Indicators	Prior Results (US$25M)	DLI Baseline	Disbursement-Linked Results				
			Results to be Achieved by Year 1	Results to be Achieved by Year 2	Results to be Achieved by Year 3	Results to be Achieved by Year 4	Results to be Achieved by Year 5
responding to disease outbreaks[27] **US$50M**					competencies in preventing, detecting and responding to disease outbreaks	core competencies in preventing, detecting and responding to disease outbreaks	preventing, detecting and responding to disease outbreaks
DLI 12. Action plan for transforming NCDC as a premier international center for prevention and control of diseases finalized and approved **US$50M**	N/A	None	MOHFW has constituted a high-level expert group to develop a timebound action plan to transform NCDC		MOHFW has endorsed the action plan of high-level expert group to transform NCDC	MOHFW have completed the actions for FY 2025-26 under the action plan	NCDC and MOHFW have completed the actions for FY 2026-27 under the action plan

33. **Three key criteria determined the selection of an Independent Verification Agency (IVA)**: (i) no conflict of interest; (ii) relevant technical expertise and experience; and (iii) ability to maintain information security especially sensitive bio-security data. The MOHFW has indicated its preference to use the Development Monitoring & Evaluation Office (DMEO) of the NITI Aayog as the independent verification agency (IVA). The DMEO has successfully conducted several high-quality monitoring and evaluation of government programs and meets the above criteria. As such, the MOHFW has issued a letter initiating the process for engagement of the DMEO as the IVA for the proposed PforR.

34. **The achievement of prior results and DLIs would trigger World Bank disbursements.** The detailed DLIs and allocated amount for each year are detailed in Annex 2. The MOHFW will report DLI achievement semi-annually each year or earlier depending on their achievements.

III. PROGRAM IMPLEMENTATION

A. Institutional and Implementation Arrangements

35. **The Public Health Division of the MOHFW will provide overall coordination and stewardship for the proposed Program, including compilation and sharing of periodic progress reports and DLR achievements**. The program will be implemented by relevant institutions of MOHFW namely: (i) the Department of Health Research (DHR) through the ICMR and its selected institutions; (ii) the NCDC; (iii) the DMC; and (iv) POE under the International Health (IH) Division.

36. **The NCDC will be responsible for the implementation of RA#1.** The NCDC is a subordinate office of the Directorate General of Health Services (DGHS) under the MOHFW that plays a lead role in

[27] The field epidemiology training program during the program period focuses only on advanced and frontline training programs to ensure at-least two competent professionals are available in each of 730 districts of India.

investigation and management of disease outbreaks across the country. NCDC is headed by a director who is a technical officer of the rank of Deputy Director General of Health (DDG) and comes under the purview of the DGHS. Administratively, the NCDC comes under the Public Health Division of MOHFW headed by the Joint Secretary (Public Health). All Program activities coming under the NCDC will be implemented by the concerned technical wings and branch offices of NCDC and the Public Health Division of the MOHFW in coordination with other divisions of MOHFW.

37. **The ICMR will be responsible for implementation of RA#2.** ICMR is an autonomous society under the DHR. It is the apex body for formulation, coordination, and promotion of biomedical research and is headed by the Director General. The Secretary of the DHR is the administrative head of the DHR. At present, the ICMR has 26 Institutes/ Regional Research Centers spread across various parts of the country and each of these are headed by a director. Administratively, the DHR is under the purview of the Joint Secretary. All Program activities under the ICMR will be implemented through Divisions/Cells of ICMR. Decentralized operations will be undertaken by the ICMR headquarters and its two branches.

38. **The DMC established in December 2020 is a technical unit of the MOHFW**. The cell is tasked to (i) plan for prevention, mitigation, and preparedness to manage public health emergencies of international and national concern, major epidemics, and pandemics; (ii) respond to public health emergencies; (iii) address health consequences of natural and man-made disasters; (iv) implement International Health Regulations (IHR), 2005; and (v) implement relevant ongoing Central Sector Schemes. The DM Cell is headed by a DDG rank officer assisted by two Central Health Service Medical Officers who report to a Joint Secretary (Public Health).

39. **The POE Organization is part of the International Health (IH) Division of the Directorate General of Health Services (DGHS).** It is tasked to prevent, protect, and provide a public health response to the global spread of diseases while avoiding unnecessary interference with international traffic and trade in keeping with the International Health Regulations, 2005. The nodal officer in-charge for all POEs is the DDG International Health who reports to the DGHS. Administratively, POEs come under the Public Health Division of MOHFW headed by the Joint Secretary (Public Health).

40. **The Directorate General of Health Services (DGHS) headed by the Director General of Health Services renders technical advice on medical and public health matters to the MOHFW.** The Secretary Health and Family Welfare is the administrative head of the Department of Health and Family Welfare.

B. Results Monitoring and Evaluation

41. **The Program will use existing M&E platforms of the MOHFW, NCDC and ICMR.** MOHFW has developed a very strong and robust monitoring and evaluation system, including through NHM, IDSP/NCDC and ICMR. The NCDC has a dedicated Statistical Monitoring and Evaluation Cell. The National Institute for Medical Statistics supports the ICMR. The existing information platforms will be further strengthened as part of this Program.

42. **The Results Framework and DLIs, as detailed in annexes 1 and 2, will be monitored and reported through a quarterly progress report**. The MOHFW will report on DLI achievement and provide evidence to the World Bank in line with the agreed verification protocol. The DMEO, NITI Aayog, will undertake independent verification of results as per protocols agreed with the World Bank. The data collected as

part of the verification process will complement routine health information system data collected by the above-mentioned platforms.

43. **A dedicated M&E team from MOHFW will support the monitoring of Program activities, outputs and outcomes including documentation and sharing of program learnings**. The Program also includes training activities for government researchers and M&E officers to accelerate use of data for decision making. Regular support from the World Bank team as well as national and global experts will be provided for monitoring, evaluation, and learning. Learning under the Program will contribute to the broader "Lighthouse India" learning initiative. Implementation support visits will be carried out on a regular basis and will include relevant partners.

C. Disbursement Arrangements

44. **Disbursements will be made based on achievement of results under each DLI. The GoI will prefinance expenditures for the Program using its own budgetary resources through the identified budget lines of the PEF.** The implementing agencies will prepare technical reports to document the achievement of DLIs that will be verified by the designated IVA. Upon validation of DLIs by the IVA, the MOHFW will communicate the achievement of DLIs and corresponding DLI values to the World Bank along with the supporting documents. For timebound DLIs, their achievement must happen in the year outlined in the DLI matrix. In the case of non-timebound DLIs, if the DLI targets are not achieved in the anticipated year, disbursement will be rolled over for subsequent years till such time the DLI is achieved. In the case of non-scalable DLIs, the World Bank will disburse the DLI value only upon full achievement of the DLI target. In the case of scalable DLIs, the World Bank will disburse the DLI value against achievement of the agreed thresholds and targets as set out in the DLI matrix. The World Bank will issue an official letter to MOHFW confirming the achievement of the DLI targets and value of disbursement.

45. **To provide sufficient liquidity to implement activities under the Program, the GoI has requested 25 percent of the loan proceeds to be paid as an advance.** The World Bank may provide an advance up to US$125 million against identified DLIs; such advance will be adjusted against disbursements due when such DLIs are achieved. The drawdown of the advance will be based on the GoI's needs and cash flow mismatches, if any. However, if said DLIs are not achieved (or only partially achieved) by the Program's closing date, the advance amount shall be refunded to the World Bank. With prior results achievement estimated at US$25 million, the total disbursement upon effectiveness is expected to be US$150 million (30 percent of the loan amount), within the PforR allowed threshold.

46. **In the last year of the Program, the MOHFW will reconcile the audited program expenditure** (incurred under identified budget lines) with the DLI amounts disbursed by the World Bank. Any shortfall in the program expenditure in relation to the DLI disbursement will be adjusted by the MOHFW/IAs from the final DLI (and specific DLRs) claim.

D. Capacity Building

47. **The Program will complement and enhance ongoing capacity building efforts of NCDC and ICMR** in (i) field epidemiology, by training 1,000 frontline staff; and (ii) identified technical priorities such as One Health, AMR, climate and health, genomic surveillance, private sector engagement in surveillance, and advanced data analytics for evidence-based decision-making, amongst others. Strategies will include capacity building of young researchers/scientists, and platforms for collaborative research ensuring gender balance. Implementation of science and health systems research on emerging priorities to inform

policy and programmatic decisions will be prioritized. In addition, the Program will support capacity building to effectively deliver results, recognize, and manage environment and social risks, and build fiduciary capacities.

48. **The Program will support learning throughout implementation.** The Program will provide/leverage existing platforms and mechanisms for documenting and showcasing India's best practices and innovations. Establishment of twinning arrangements with global and regional institutions of excellence will facilitate cross-learning. Learning under the Program will contribute to the broader "Lighthouse India" learning initiative by connecting practical know-how and innovations undertaken in India with other countries.

IV. ASSESSMENT SUMMARY

A. Technical (including program economic evaluation)

49. **The proposed Program is technically sound and incorporates essential public health principles and the core principles of the Global Health Security Index (GHSI).**[28] The Program focuses on five GHSI thematic areas: (i) prevention of emergence or release of pathogens; (ii) early detection and reporting of epidemics of potential international concern; (iii) rapid response and mitigating spread of an epidemic; (iv) compliance with International Health Reporting requirements; and (v) "overall risk environment and country vulnerability to biological threats" under the "National Guidelines for Biological Disaster Management (NGBDM) 2008."

50. **India has incurred significant economic losses due to the COVID-19 pandemic**. Assuming the growth rate in FY2019/20 (3.7 percent) for FY2020/21 in the absence of COVID-19, this translates into a total loss of GDP by 11.1 percent or INR 15.0 trillion in real term.

51. **Investing in public health surveillance will bring substantial economic returns.** The economic case for investing in pandemic preparedness is evident in reducing the risk of a high-cost event, which can cost the government 300 times the additional spending required in a year for preparedness. Compared to the massive economic loss faced in the COVID-19 pandemic, the average annual investment of US$332 million (US$1.66billion over 5 years) for the entire Program is significantly less. A substantial return on investment can be expected through abating a potential freeze of economic activities in pandemics (and accelerating its revitalization), reduced morbidity and mortality, and accumulation of human capital in the medium- and longer-term. Although the provision of health care services in India is dominated by a thriving private sector, public health measures, including prevention of communicable diseases and outbreak responses, are associated with significant externalities where markets do not function effectively in allocating resources. In such cases, it is expected that the government intervene to ensure effective, efficient, and equitable allocation of available resources. Therefore, activities supported under the proposed PforR do not neatly fit in private investments and public financing is warranted.

52. **Other activities under the proposed PforR will yield further significant returns on investments.** The proposed PforR has a specific focus on strengthening the One Health approach to combat emerging zoonotic diseases. According to a World Bank estimation, annual investment of US$1.9-3.4 billion in low-

[28] GHS Index Methodology 2021 prepared by the Economist Impact in partnership with NTI and Center for Health Security, Johns Hopkins School of Public Health.

and middle-income countries for effective disease control via One Health approaches could yield as much as US$30 billion in savings from reduced epidemics and pandemics—a net win of about US$26.6 billion annually.[29] Further, creation of a robust quality laboratory network across all levels will help inform management of common infectious diseases as well as monitor AMR. A recent study suggests that 4.95 million deaths in 2019 were associated with AMR globally including 1.27 million that were directly attributable: these numbers account for 14 percent and 3.6 percent of global deaths in 2019, respectively.[30] A World Bank estimate indicates that a high-case scenario of AMR—where antibiotics and other antimicrobial drugs no longer treat infections the way they are supposed to—could cause low-income countries to lose more than 5 percent of their GDP and push up to 28 million people, mostly in low and middle-income countries, into poverty by 2050.[31] Thus, the activities under the proposed PforR would prevent poor households from falling into further impoverishment on multiple fronts.

B. Fiduciary

53. **As part of Program preparation, the World Bank conducted an Integrated Fiduciary System Assessment (FSA) of the GoI agencies involved in Program implementation.** The IFSA was conducted to determine whether the fiduciary systems provide reasonable assurance that funds will be used for the intended purposes and support in achieving Program results. The conclusion of the IFSA is that the capacity and performance of the fiduciary systems for the proposed Program at all implementing agencies (IAs) are adequate. The assessment provided reasonable assurance that the financing proceeds would be used for intended purposes with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. During the IFSA, certain areas in need of improvement have been identified, and recommendations have been agreed with the GoI.

54. **Based on the IFSA, the fiduciary risk of the Program is assessed as Substantial.** Program implementation arrangements are dispersed across four implementing agencies under the MOHFW with varying implementation capacities. The residual risks and proposed mitigation measures are detailed in Annex 4.

C. Environmental and Social

55. **An Environmental and Social Systems Assessment (ESSA) for the PHSPP Program has been completed in line with the World Bank Guidance for conducting ESSAs for PforR financing operations.** The ESSA process involved a desk review of relevant documents, technical studies/reports, and information related to working of MOHFW, ICMR, NCDC, DM Cell and IH Division of MOHFW, and further face-to-face consultations with them.

56. **The overall E&S risk has been rated as 'Substantial'.** Expanding the current network of Public Health Laboratories through the construction of new Biosafety Level 3 (BSL-III) laboratories and strengthening the capacity of existing public health laboratories have been identified as key thrust areas along with enhancing capacity for surveillance and response mechanism under the Program. Setting up Regional National Institute of Virology(s), Regional NCDC Centre(s) and branches, and the Metropolitan Public Health Surveillance centers, along with laboratories construction and their operationalization are planned by the NCDC and ICMR to enhance their surveillance capacity and research capabilities

[29] World Bank. 2012. People, pathogens, and our planet: the economics of One Health.
[30] Murray et al. 2022. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. Lancet; 399: 629–55.
[31] World Bank. 2017. Drug-resistant infectious: A threat to our economic future. Am J Prev Med;50(5S1): S66–S73.

respectively. The overall impacts of the Program are likely to be positive, owing to benefits such as enhanced preparedness of the health sector towards any future pandemic or disease outbreaks. The PHSPP Program will not finance any activities that would cause high E&S risks and impacts such as land acquisition and/or involuntary resettlement, and construction of BSL-IV laboratories. An exclusion list is included in the ESSA.

57. **The key environmental risks are associated with (i) construction-related occupational health and safety hazards to the workforce and associated community safety and health aspects; (ii) lack of incorporation of design safety in the construction plan of biosafety laboratories for preventing accidental escape/release of high-risk pathogens; and (iii) biohazard risk from handling high-risk pathogens and associated biomedical wastes.** Besides working with specialized equipment, chemical reagents also pose occupational risk of exposure and/or chemical toxicity and injuries. Also, use of equipment having radiation risk and radioactive isotopes require specialized approaches, especially in storing and disposing radioactive wastes and decommissioning of such equipment. Some of the activities to be carried out by the IH Division to implement IHR at Point of Entry may also pose occupational health and environmental risks, including: (i) screening of international passengers for diseases under surveillance; (ii) disinfection, and deratting of ships and aircraft; (iii) supervision of sanitation, drinking water supply, anti-mosquito and anti-rodent work; (iv) public health clearance of dead bodies; and (v) administration of yellow fever vaccines etc.

58. **In most cases land free from any encumbrances has already been made available by the states for establishing NIVs, the One Health Centre, some of the NCDC regional centers, and the BSL-III laboratories.** For the remaining infrastructure, the implementing agencies will request land free from any encumbrances from states as part of their contribution towards the Program. The NCDC and ICMR will select appropriate construction management companies for implementing works. Sub-contracting of works to local contractors often pose additional challenges, particularly with respect to occupational health and safety. Key social risks emerge from (i) identifying and transferring the land requested for construction of these centers and laboratories by the states in a transparent manner without any adverse social impacts; (ii) potential health and sanitation, safety, and labor management related concerns at construction sites; and (iii) community health and safety concerns. While the MOHFW has experience in protection of personal data through its various program such as the National AIDS Control Program and with various surveillance programs, the GoI is at an advanced stage of enacting the law on personal data privacy which is soon expected to become the legislation and will guide the protection of personal data.

59. **The ESSA recommendations focus on strengthening the national systems and institutional arrangements for implementation, management, and reporting of E&S aspects,** including (i) incorporation of environmental and social safeguards in the design, construction and operation of Biosafety Level III (BSL-III) laboratories; (ii) periodical assessment of NCDC/ ICMR of the preparedness and response capacities of the organizations on biosafety management, for which a Monitoring Committee will be constituted and protocols developed; (iii) reporting by NCDC/ ICMR/ MOHFW healthcare facilities and diagnostic laboratories on biomedical waste generation and disposal through the CPCB mandated mobile application; (iv) inclusion of occupational health and safety as well as labor welfare provisions in the construction contracts and its periodic monitoring; (v) establishment of mechanisms for technical advisory and monitoring of environmental and social activities by an expert group during implementation; and (vi) provisions for environmental and social impact assessment (EIA) for managing E&S risks of potential substantial and/or high risk activities, through screening or site-specific Environment and Social

management Plans (ESMPs). The MOHFW has provided assurances that only land offered by state governments will be used for program infrastructure development. In case such land is not available, land donations done voluntarily without any coercion and through a transparent process of gift deeds could be considered. The key recommendations are included in the Program Action Plan (PAP), and the remaining are in the Program Operations Manual.

60. **Stakeholder consultations and disclosure**. Consultations were undertaken with key officials from the ICMR, NCDC, DM Cell, and IH Division in both physical and virtual manner. The draft ESSA report was discussed in a stakeholder consultation workshop on April 28, 2022, and feedback sought from different stakeholders, including the implementing agencies, civil society bodies, World Health Organization and other relevant ministries and the central pollution control board. The ESSA was disclosed on May 16, 2022, at the MOHFW website [32] and on May 12, 2022, on the World Bank's external website.

61. **Climate Co-Benefits.** India has high exposure to flooding, including riverine, flash, and coastal floods, and increased vulnerability to tropical cyclones and droughts. As detailed in the climate change technical note, Program aims to include climate considerations while enhancing pandemic preparedness through policy institutions and implementation. Building pandemic preparedness will also increase the adaptive capacity of vulnerable populations to deal with climate-related shocks and diseases. Through RA#1, the Program aims to expand the disease surveillance system and effective delivery of One Health. The Program will implement state-level health plans that will help identify and integrate potential climate and disaster risks posing challenges to vulnerable groups and communities and enhance resilience through proposed measures under RA#1. It will also help monitor changes in disease outbreaks and research emerging threats due to novel viruses, vector-borne diseases, and zoonotic diseases—many of which are exacerbated by changing climatic conditions. Under RA#2, the Program aims to achieve enhanced biosecurity capacity. In this regard, the program will include climate considerations in setting up and operationalizing the One Health Research Institute and National Institutes of Virology. Through RA#3, the Program aims to strengthen core public health institutions and aid cadre development and training. This will include trainings and skill development around climate mitigation and adaptation activities. Across these three areas, the Program will focus on building low carbon and climate- and disaster-resilient public health infrastructure.

62. **Gender Interventions**. The Program has integrated gender interventions under relevant RAs, and specific targets for monitoring gender interventions in outcome and intermediate targets of the Results Framework. PDO indicator 5 reports on gender disaggregated data on "trained researchers having competency in genomic sequencing." Intermediate results track (i) women public health workforce receiving frontline competency-based training in preventing, detecting, and responding to disease outbreaks; and (ii) women employed in technical job roles in NCDC HQ, ICMR HQ and in NIV Pune. The intermediate indicator on quarterly bulletin on AMR trends will contain a separate chapter on common infections among women, which is expected to have a significant impact on women's health as AMR is estimated to contribute to nearly 5 million deaths each year and pushing 28 million people to poverty by 2050.

[32] https://main.mohfw.gov.in/sites/default/files/ESSA%20Report_0.pdf

63. **Citizen Engagement.** A comprehensive communication and behavior change intervention will be implemented. It will include the development of tools and playbooks for early warning systems and risk communication during health emergencies. Communication campaigns will include messages regarding appropriate care for sick family members to decrease health risks to caregivers (often female) and information on how to minimize psychosocial impacts. These modes for communication will include TV, radio, social media, and printed materials as well as outreach through the community health workers.

64. **The PHSPP will also track citizen feedback through the Centralized Public Grievance Redress and Monitoring System (CPGRAMS), an online platform available to citizens 24x7** to lodge their grievances related to program services to the public authorities. The CPGRAMS is also accessible to citizens through a standalone mobile application downloadable through Google Play store and mobile application integrated with UMANG. The status of the grievance filed in CPGRAMS can be tracked with the unique registration ID provided at the time of registration of the complainant.

V. GRIEVANCE REDRESS SERVICES

65. Communities and individuals who believe that they are adversely affected because of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address pertinent concerns. Affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, because of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit http://www.inspectionpanel.org.

VI. RISK

66. **The overall risk to achieving the PDO is substantial.** This reflects substantial residual risks under the following categories:

67. **Technical design of Program** risks include: (i) sustained spread of the COVID-19 pandemic impacting or slowing down planned program activities; (ii) lack of timely and predictable access to expert advice and technical support; (iii) inadequate quantity of drugs and other medical inputs needed to address the health needs of the general population during a pandemic; and (iv) inadequate national monitoring and evaluation to track progress and emerging issues. These risks would be mitigated by: (i) the experience accumulated by the GoI in its response to COVID-19; (ii) technical advisory groups at national and state levels to guide the government's response; (iii) India's strong domestic capacity to manufacture drugs and medical equipment, including the close partnership with the private sector developed by MOHFW to rapidly scale up production of medical supplies and equipment to respond to COVID-19; and (iv) the Program's strong focus on strengthening the response capacity of the key institutions in charge of pandemic emergencies in the short and medium terms. The residual technical risk is assessed as Substantial.

68. **Institutional capacity for implementation and sustainability** risks arise from overall weak implementation capacity, especially when coordination among multiple stakeholders is needed. Key mitigation measures include: (i) setting up implementation support units to strengthen the NCDC and ICMR's capacity; (ii) addressing foundational policy and programmatic reforms in the initial years to build up time for delivering program outcomes; (iii) building on the experiences from COVID-19 in strengthening India's health system and response capacity; and (iv) strengthening administrative and technical coordination among implementing partners through steering/thematic level committees with clear terms of reference, and building an enabling platform for One Health to manage outbreak and emergencies.

69. The **integrated fiduciary** risk is due to the ambitiousness of the Program vis-à-vis the limited fund absorption capacity at NCDC and heterogeneous fiduciary implementation capacities across the various agencies involved in implementation. To mitigate these risks, specific measures have been included in the PAP, with clear monitorable targets included the Program's Results Framework. A dedicated implementation support unit will also be responsible for the Program's implementation.

70. **The environmental and social risks** of the Program are assessed as substantial, though the social risks are on the lower side as only government land will be used for the laboratories. The environmental risks are due to: (i) wide geographical spread of the proposed interventions; (ii) infrastructure, including laboratories, that may be in urban, peri-urban, and rural areas with limited access and capacity to treat and dispose of biomedical waste; (iii) activities that will involve working with/on new and unknown novel viruses; (iv) construction and operation of about 10-15 BSL-III laboratories; and (v) inadequate institutional capacity for addressing environmental risks and impacts both at the national (MOHFW) and sub-national levels. The ESSA has also identified the following actions to mitigate risks: (i) ensuring that contracts with construction agencies include key environmental and social clauses for addressing occupational health and safety (OHS) issues; (ii) forming an expert group for monitoring environmental and social activities; and (iii) designing and rolling out online training programs on biosafety, biosecurity, biomedical waste management, infection prevention and control, and OHS for the laboratory workforce. The social risks relate to the potential need for land to expand hospital blocks and building laboratories. However, the proposed program would only use land already under the possession of the government.

ANNEX 1. RESULTS FRAMEWORK MATRIX

Results Framework
COUNTRY: India
PHSPP: Transforming India's Public Health Systems for Pandemic Preparedness Program

Program Development Objective(s)

The program development objective (PDO) is to strengthen pandemic preparedness and response systems and institutions in India.

Program Development Objective Indicators by Objectives/Outcomes

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
To strengthen pandemic preparedness and response systems and institutions in India.							
Outbreak alerts generated by IHIP receiving initial investigation within 48 hours (Percentage)		20.00	30.00	40.00	50.00	60.00	80.00
Metropolitan surveillance units achieving established performance benchmark (Text)	DLI 2	None	NCDC develops operational guidelines for metropolitan surveillance units, which includes criteria for performance benchmarking	5 metropolitan surveillance units meet established performance benchmark	10 metropolitan surveillance units meet established performance benchmark	15 metropolitan surveillance units meet established performance benchmark	20 metropolitan surveillance units meet established performance benchmark

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
			(Prior Result)				
Treatment guidelines for rational use of antibiotics for common infections published based on AMR surveillance (Text)		Last published in 2016	NA	NA	Yes	NA	Yes
National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform appropriate preventive measures (Text)	DLI 7	None	India One Health Research Network (IOHRN) has developed the list of priority zoonotic diseases for human importance	IOHRN has established protocols for identifying hotspots and national risk map based on identified priority zoonotic diseases of human importance	National Risk map with hotspots for Zoonotic Diseases of human importance is available on ICMR website		ICMR has updated the national risk map with hotspots for zoonotic diseases of human importance is updated
Trained researchers (disaggregated by gender) having competency in genomic sequencing (Number)		0.00	0.00	0.00	0.00	50.00	100.00
Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks (Text)	DLI 11	Advanced EIS: 10 Frontline training: 100			(a) 40 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 500 frontline health workers received training to build core competencies in preventing, detecting and responding to	(a) 80 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 1000 frontline health workers received training to build core competencies in preventing, detecting and responding to	(a) 130 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 1500 frontline health workers received training to build core competencies in preventing, detecting and responding to

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
					disease outbreaks	disease outbreaks	disease outbreaks

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Intermediate Results Indicator by Results Areas

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Expanding an Information Technology (IT) enabled surveillance system and One Health coordination							
Surveillance units reporting real time data through IHIP to enable early detection of disease outbreaks (disaggregated by public and private sector) (Text)	DLI 1	40 percent IDSP surveillance units from public sector Private sector – nil	MOHFW endorses policy and strategic plan for IHIP including strategy for enhancing private sector participation in IHIP	The e-health division of MOHFW has created an IT Unit at MOHFW and NCDC with required infrastructure and human resources to house the IHIP platform	(a) 50 percent IDSP Surveillance Units from public sector reporting real time data through IHIP (b) 20 percent of identified private sector hospitals reporting real time data through IHIP	(a) 60 percent IDSP Surveillance Units from public sector reporting real time data through IHIP (b) 30 percent of identified private sector hospitals reporting real time data through IHIP	(a) 75 percent IDSP Surveillance Units from public sector reporting real time data through IHIP (b) 40 percent of identified private sector hospitals
District Public Health Laboratories reporting L forms on IHIP regularly (Percentage)		10.00	15.00	20.00	30.00	40.00	50.00
Laboratories under NCDC AMR network reporting surveillance data (Number)		35.00	40.00	50.00	100.00	160.00	220.00
Semi-annual bulletin on Anti-Microbial Resistance (AMR) trends published to promote rational use of antibiotics (Text)	DLI 3	Published annually since 2018	No	Semi-annual bulletins published	Semi-annual bulletins published	Semi-annual bulletins published	Semi-annual bulletins published
States having climate change and health action plan (cumulative) in place (Number)		0.00	0.00	10.00	20.00	25.00	30.00

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Sentinel sites reporting on zoonotic diseases of human importance (Text)	DLI 4	20.00	Endorsement of operational guidelines for One Health sentinel sites by NCDC	25 sentinel sites established for reporting zoonotic diseases	50 sentinel sites established for reporting zoonotic diseases	80 sentinel sites established for reporting zoonotic diseases	100 sentinel sites established for reporting zoonotic diseases
Existing Points of Entry meet International Health Regulations (IHR) compliance requirements (Text)	DLI 5	0.00	0.00	7 existing Points of Entry meet IHR compliance requirements	13 existing Points of Entry meet IHR compliance requirements	20 existing Points of Entry meet IHR compliance requirements	26 existing Points of Entry meet IHR compliance requirements
Health Emergency Operations Centers (HEOCs) meet performance benchmarks set for internal emergency or annual outbreak simulation exercise (Text)	DLI 6	None	Operational Guidelines for HEOC approved by MOHFW (Prior Result)	Vulnerability assessment has been completed and MOU on establishment of HEOCs has been signed with MOHFW for 10 states	3 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	At least 8 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	At least 15 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines
Enhancing Bio-security Capacity							
Annual Bulletin describing trends of Pan-Respiratory Virus and pathogens contributing to Unknown Febrile Illness published (Yes/No)		No	Yes	Yes	Yes	Yes	Yes
Strategies for community and stakeholder engagement for future health emergencies developed and tested (Text)		Not available	NA	Three community hubs representing geoclimatic areas established in partnership with state governments and civil society organizations to develop and test strategies for	Demonstration projects in 3 community hubs initiated including operational research on draft toolkit for Early Warning Signals (EWS) and playbook on Community and	Interim findings available from demonstration projects in 3 community hubs implementing EWS and CERC	Comprehensive tool kit on EWS and playbook for CERC finalized along with recommendations for health emergency response based on findings of demonstration projects in 3 community

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
				community and stakeholder engagement for future health emergencies	stakeholder Engagement and Risk Communication (CERC)		hubs
Enhanced capacity for collaborative research and outbreak investigation of viral diseases (Text)	DLI 8	None	Each zonal NIV has developed a detailed activity plan developed for its operational area	Each zonal NIV has identified research priorities identified by each Zonal NIV for emerging and remerging viral diseases through a consultative process involving research institutions in its zone and state governments	Capacities built by each Zonal NIV of identified partner research institutions, protocol finalized for at least one collaborative viral research project and implementation started	Each zonal NIV has published findings based on investigations for at least two emerging viral diseases	Each zonal NIV has published findings based on investigations for at least four emerging viral diseases
New technologies commercialized to enhance prevention, detection, or treatment of infectious diseases (Text)	DLI 9	None	ICMR has developed and adopted a policy on biomedical innovation and entrepreneurship for medical and allied professionals and technologists at medical, dental, paramedical institutes/ colleges (Prior Result)	ICMR has developed and approved Intellectual Property (IP) guidelines to facilitate transfer of ICMR developed/ supported technologies to the private sector for commercial production	Public private forum created to develop a list of priority medical devices/diagnostics required to manage diseases of national importance, including infectious diseases.	ICMR has developed/ supported at least 5 new technologies for prevention, detection or treatment of infectious diseases of national importance	MOUs signed by ICMR with private/public sector companies for commercial production of 3 new technologies developed for prevention, detection or treatment of infectious diseases of national importance.
State/district scenario analysis of diseases identified for elimination undertaken by researchers trained (cumulative) in disease elimination sciences and mathematical modeling (Text)	DLI 10	None	ICMR has prepared a list of priority conditions and research areas, including risk factors for diseases for elimination through a national level consultation	ICMR has approved proficiency based training modules on disease elimination science and mathematical modelling	20 public health professionals trained on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district	60 public health professionals trained on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district	100 public health professionals trained on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district level

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
					level scenarios	level scenarios	scenarios
Viral disease samples tested each year (CRI) (Number)		150,000.00	150,000.00	175,000.00	220,000.00	225,000.00	250,000.00
Transforming core Public Health Institutions and Research Agencies							
Coordination committee for Pandemic preparedness established and functioning as per agreed terms of reference (Text)		Not in place	Established	Active	Active	Active	Active
Action plan for transforming NCDC as a premier international center for prevention and control of diseases (Text)	DLI 12	None	MOHFW has constituted a high-level expert group to develop a timebound action plan to transform NCDC		MOHFW has endorsed the action plan of high-level expert group to transform NCDC	MOHFW have completed the actions for FY 2025-26 under the action plan	NCDC and MOHFW have completed the actions for FY 2026-27 under the action plan
Women public health workforce received frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks (Number)		18.00			100.00	220.00	360.00
Women employed in technical job roles in NCDC HQ, ICMR HQ and in National Institute of Virology Pune (Percentage)		5.00			10.00		20.00

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Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Outbreak alerts generated by IHIP receiving initial investigation within 48 hours	Numerator: Investigations initiated within 48 hours of outbreak alerts generated by IHIP Denominator: Total outbreak alerts generated by IHIP	Quarterly	IDSP program data	Status report based on IDSP program data. Investigation initiated means First Information Report (FIR) is issued	IDSP, NCDC
Metropolitan surveillance units achieving established performance benchmark	Year 1: Operational guidelines for metropolitan surveillance units developed and issued. Year 2-5: Number of Metropolitan surveillance units meeting established performance benchmark.	Annual	IDSP program data	Year 1: Publication of operational guidelines for metropolitan surveillance units specifying inputs, functional processes and performance parameters Year 2-5: Annual metropolitan surveillance unit status report	IDSP, NCDC
Treatment guidelines for rational use of antibiotics for common infections published based on AMR surveillance	"National Treatment Guidelines for Antimicrobial Use in Infectious Diseases" published.	Once every two years	Report	Publication will be based on data from the anti-microbial (AMR) surveillance program	Division of AMR Containment, NCDC
National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform	Zoonotic diseases of national importance: Year 1: List of priority	Annual	Reports/ Publi cations	Zoonotic diseases of national importance: Year 1: List of priority	ICMR

appropriate preventive measures	diseases developed by the India One Health Research Network Year 2: Protocols for identifying hotspots and preparing national risk map establised Year 3: National risk map with hotspots published on ICMR website. Year 5: National risk map with hotspots updated on ICMR website.			diseases published on ICMR website Year 2: Protocols for identifying hotspots and national risk map approved Year 3: National Risk Map with hotspots published on ICMR website Year 5: National risk map with hotspots updated on ICMR website	
Trained researchers (disaggregated by gender) having competency in genomic sequencing	Number of researchers trained by Zonal NIVs with competency in genomic sequencing	Annual	Report	Yearly training reports of Zonal NIVs .and researchers are from medical colleges, tertiary hospitals and state research institutions.	Zonal NIVs, ICMR
Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks	(a) Public health workforce trained in advanced EIS training program and (b) Public health workforce trained in frontline training program Public health workforce means medical and non-medical professionals	Annual	Report based on program data	Annual status reports on advanced EIS training (2 year mentorship based) and frontline (3 months field epidemiology) training organized by NCDC or its partner institutions. Public health workforce means medical and non-medical professionals.	Epidemiology division, NCDC

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Surveillance units reporting real time data through IHIP to enable early detection of disease outbreaks (disaggregated by public and private sector)	Year 1: Development and adoption of Integrated Health Information Portal (IHIP) Strategy inclusive of (a) transition plan for transfer of IHIP from WHO to MOHFW (b) strategy and specific actions for enhancing private sector participation in surveillance reporting. Year 2: Dedicated IHIP IT units at MOHFW and NCDC operationalized with all inputs specified in the transition plan. Year 3-5: Percentage of surveillance units reporting real time data through IHIP (disaggregated by public and private sector) Numerator: Number of surveillance units reporting 250 days in a year through IHIP (disaggregated by public and private sector) Denominator: Total number of surveillance	Quarterly	Reports	Year 1: Development and adoption of IHIP Strategy and specific actions to (a) plan for transition of IHIP platform from WHO to MOHFW and (b) enhance private sector participation in surveillance reporting. Year 2: Government letter Year 3-5: Quarterly system generated national report of IDSP surveillance units that include Government health workers, health facilities and laboratories designated as IDSP reporting units from public sector and private hospitals and laboratories enrolled under Pradhan Mantri Jan Arogya Yojana program in the reporting period.	IHIP, NCDC

	units in the country (disaggregated by public and private sector)				
District Public Health Laboratories reporting L forms on IHIP regularly	Numerator: Number of district public health laboratories reporting data through L form for 250 days in a year through IHIP Denominator: Total number of functional district public health laboratories under IDSP	Quarterly	Program report	IHIP System generated report/MIS	IHIP, NCDC
Laboratories under NCDC AMR network reporting surveillance data	Number of laboratories under NCDC AMR network reporting AMR surveillance data as per established protocols.	Annual	Program report/ MIS	Annual compiled report of program data. Laboratories means those supported by NCDC in various states/UTs as well as states/UT government supported laboratories.	Division of AMR Containment, NCDC
Semi-annual bulletin on Anti-Microbial Resistance (AMR) trends published to promote rational use of antibiotics	Bulletin outlining AMR trends published on a semi-annual basis on NCDC website within 4 months of completion of each reporting period.	Semi-annual	Report	Semi-annual bulletin of AMR trends from sites meeting QA standards only will be included in the bulletin	Division of AMR Containment, NCDC
States having climate change and health action plan (cumulative) in place	Total number of states/UTs that have developed climate change and health action plans as per guidelines	Annual	Report	Annual compliance report from National Program for Climate Change and Health (NPCCHH)	NPCCHH, NCDC

Sentinel sites reporting on zoonotic diseases of human importance	Year 1: NCDC endorses and discloses at its website Operational Guidelines for One Health sentinel sites Year 2-5: Number of operational sentinel sites reporting zoonotic diseases as per established Standard Operating Procedures (SOPs).	Annual	Operational guidelines, SOPs, Reports based on program data/MIS	Operational guidelines, SOPs, Monthly system generated compliance reports of sentinel sites reporting zoonotic diseases. Sentinel sites means medical colleges and animal health laboratories selected for surveillance of zoonotic diseases following SOPs. At least 10% sites will be from Animal Health.	National One Health Program for prevention and control of Zoonotic Diseases, NCDC
Existing Points of Entry meet International Health Regulations (IHR) compliance requirements	Number of existing Points of Entry (POE) that meet IHR 2005 compliance requirements PoE includes international airports, seaports and ground crossings.	Annual	Reports	Annual self assessment reports, supporting plans and recommendations for improvement to meet core surveillance capacity requirements for POE as per IHR 2005 - Annex 1B.	IH Division Dt.GHS
Health Emergency Operations Centers (HEOCs) meet performance benchmarks set for internal emergency or annual outbreak simulation exercise	Year 1: Operational Guidelines with performance benchmarks for HEOCs following WHO/IHR frameworks for Public Health Emergency Operations Center approved by MOHFW. Year 2: Vulnerability assessment of states/UTs	Annual	Guideline, MOU, Reports	Year 1: Operational Guidelines (including performance benchmarks), infrastructure norms, technical specifications, staffing, operational processes and response standards for HEOCs. Year 2: Vulnerability	Disaster Management Cell, MOHFW

	completed and MOU signed with 10 states/UTs Year 3-5: Number of HEOCs that meet established performance benchmark set for internal emergency or annual outbreak simulation exercise under the Operational Guidelines.			assessment reports for states/UTs, MOU with states for establishing HEOC Year 3-5: Annual assessment reports and findings from internal emergency or annual simulation exercise on performance of HEOCs	
Annual Bulletin describing trends of Pan-Respiratory Virus and pathogens contributing to Unknown Febrile Illness published	Analysis of trends of Pan-Respiratory Virus and pathogens contributing to Unknown Febrile Illness (UFI)	Quarterly	Bulletin	Annual Bulletin	Division of Epidemiology and Communicable Diseases, ICMR
Strategies for community and stakeholder engagement for future health emergencies developed and tested	Year 2: Establishment of three community hubs in partnership with state government and civil society Year 3: Initiation of demonstration projects in community hubs, demonstration projects in three community hubs, including operational research on Early Warning Systems (EWS) and Community & Stakeholder Engagement & Risk Communication (CERC) Year 4: Interim findings	Annual	Report based on program data	Partnership MOU for three community hubs, Annual Progress reports, EWS toolkit, CERC playbook	Division for Research in Disease Elimination Sciences and Health, ICMR

	from demonstration projects in three community hubs Year 5: Recommendations for health emergency response based on findings of demonstration project in three community hubs, comprehensive toolkit for EWS and playbook for CERC				
Enhanced capacity for collaborative research and outbreak investigation of viral diseases	Year 1: Detailed activity plan available for each zonal NIV Year 2: Research priorities identified by each zonal NIV Year 3: Capacity building by each zonal NIV of research partners, protocol development and commencement of collaborative research Year 4: At least two investigations supported by each zonal NIV and findings published Year 5: At least four investigations supported by each zonal NIV and findings published	Annual	Acitivity Plan, Reports, Protocols, Publications	Year 1: Activity plan for each zonal center Year 2: Research priorities and partners mapped by each zonal NIV Year 3: Comprehensive report summarizing number of researchers trained in partner research institutions along with protocols for collaborative research Year 4-5: Report of investigations supported and publication of collaborative research	Zonal NIVs, ICMR
New technologies commercialized to enhance prevention, detection, or	Year 1: Development and endorsement of Policy for	Annual	Reports, Policy,	Year 1: Policy on biomedical innovation	MDMS Division, ICMR

treatment of infectious diseases	biomedical innovation and entrepreneurship for new technologies for different categories of health professionals and institutions by ICMR/DHR. Year 2: Development and approval of guidelines on intellectual property rights (IPR) to facilitate transfer of technology to private sector for commercial production including provision of royalty and incentives. Year 3: Establishment of a public-private forum as per agreed terms of reference to develop a list of priority medical devices/ diagnostics, required to manage diseases of National Importance, including infectious diseases. Year 4: ICMR has developed/supported a minimum of 5 new technologies for prevention, detection or treatment of infectious diseases of national		Guidelines/SOP, MOU	and entrepreneurship Year 2: SOP/guidelines on IPR to facilitate technology transfer, inclusive of provision of royalty to scientists Year 3: Proof of establishment of public private forum and Minutes of Meeting thereafter Year 4: Proof of concept for new technologies developed/supported for prevention, detection, or treatment of infectious diseases of national importance Year 5: Copy of MOUs between ICMR/DHR with private / public sector companies	

	importance. Year 5: MOU signed by ICMR with private /public sector companies for commercial production of 3 new technologies developed for prevention, detection or treatment of infectious diseases of national importance				
State/district scenario analysis of diseases identified for elimination undertaken by researchers trained (cumulative) in disease elimination sciences and mathematical modeling	Year 1: A list of priority conditions and research areas including risk factors for diseases identified for elimination developed Year 2 Proficiency-based training modules developed and criteria and process for selection of participants endorsed by ICMR. Year 3-5: Number of researchers trained (cumulative and disaggregated by gender) on mathematical model based scenario analysis for diseases identified for elimination to prepare state/district level scenarios	Annual	Report based on program data	Year 1: Report of national consultation along with approved list of priority conditions and research areas Year 2: Proficiency based training modules along with criteria and process for selection of participants Year 3-5: Annual training reports and proficiency assessment of trained researchers to prepare state/district level scenarios	Division for Research in Disease Elimination Sciences and Health, ICMR

Viral disease samples tested each year (CRI)	Number of viral samples tested each year by laboratories under the VRDL network	Annual	Report	Report based on program data/MIS	Division of Epidemiology and Communicable Diseases, ICMR
Coordination committee for Pandemic preparedness established and functioning as per agreed terms of reference	Creation of a National Pandemic Preparedness coordination committee to enhance collaboration and complementarity between NCDC and ICMR	Annual	Govt Order / Letter, Minutes of Meeting	Terms of reference (ToR), Government OM, 6 monthly Minutes of Meeting (MoM)	Public Health Division, MoHFW
Action plan for transforming NCDC as a premier international center for prevention and control of diseases	Year 1: The MOHFW constitutes a High Level Expert Group (HLEG) comprising of national and international experts with defined terms of reference agreed with the World Bank to develop a timebound and costed medium term action plan for transforming NCDC. Year 3: The MOHFW endorses the action plan along with list of agreed actions for transforming NCDC. Year 4-5 Annual Progress updates on completion of agreed actions outlined in the approved plan shall be prepared by NCDC.	Annual	GO /Letter, Progress reports	Year 1: Government Order constituting the HLEG Year 3: Government letter endorsing the action plan Year 4-5: Annual progress reports on agreed actions	Public Health Division, MOHFW

Women public health workforce received frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks	Number of women public health workforce who participated in frontline training program organized by NCDC	Annual	Report based on program data	Annual training reports/ training MIS from frontline training program. Public health workforce means medical and non-medical professionals.	Epidemiology Division, NCDC
Women employed in technical job roles in NCDC HQ, ICMR HQ and in National Institute of Virology Pune	Numerator-Number of women who are permanent staff among Scientist B and higher cadres working at ICMR HQ and NIV, Pune and officers from the Central Health Service cadre appointed/deputed at NCDC HQ during the program. Denominator-Number of permanent staff with designation of Scientist B and higher working at ICMR HQ and NIV Pune and officers from the Central Health Service cadre appointed/deputed at NCDC HQ during the program.	Annual	Report	Annual status report	ICMR HQ, NCDC HQ & NIV, Pune

ANNEX 2. DISBURSEMENT LINKED INDICATORS, DISBURSEMENT ARRANGEMENTS AND VERIFICATION PROTOCOLS

Disbursement Linked Indicators Matrix

DLI 1	Surveillance units reporting real time data through IHIP to enable early detection of disease outbreaks (disaggregated by public and private sector)			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	50,000,000.00	3.97
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	40 percent IDSP surveillance units from public sector Private sector – nil			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	MOHFW endorses policy and strategic plan for IHIP including strategy for enhancing private sector participation in IHIP		7,500,000.00	One time payment on achievement of DLR
Results to be achieved in FY23/24 (Year 2)	The e-health Division of MOHFW has created an IT Unit at MOHFW and NCDC with required infrastructure and human resources to house the IHIP platform		7,500,000.00	One time payment on achievement of DLR
Results to be achieved in FY24/25 (Year 3)	(a) 50 percent IDSP surveillance units from public sector reporting real time data through IHIP (b) 20 percent of identified private sector hospitals reporting real time data through IHIP		12,143,000.00	Public:$0.71m/percent increase in surveillance units(max of $7.14m);Private: $0.25m/percent increase in pvt. hospitals(max of

			$5m)
Results to be achieved in FY25/26 (Year 4)	(a) 60 percent IDSP surveillance units from public sector reporting real time data through IHIP (b) 30 percent of identified private sector hospitals reporting real time data through IHIP	9,643,000.00	Public:$0.71m/percen increase in surveillance units(max of $7.14m);Private:$0.25m/percent increase in pvt. hospitals(max of $2.5m)
Results to be achieved in FY26/27 (Year 5)	(a) 75 percent IDSP surveillance units from public sector reporting real time data through IHIP (b) 40 percent of identified private sector hospitals	13,214,000.00	Public:$0.71m/percet increase in surveillance units(max of $10.71m);Private:$0.25m/percent increase in pvt. hospitals(max of $2.5m)

DLI 2	Metropolitan surveillance units achieving established performance benchmark			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Outcome	Yes	Text	37,500,000.00	2.98
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	NCDC develops operational guidelines for metropolitan surveillance units which includes criteria for performance benchmarking (Prior Result)		9,500,000.00	One time payment of $ 7.5 million
Results to be achieved in	5 metropolitan surveillance units meet		7,000,000.00	US$1.4m for each surveillance unit

FY23/24 (Year 2)	established performance benchmark		meeting performance benchmark up to a maximum of 28m from year 2-5
Results to be achieved in FY24/25 (Year 3)	10 metropolitan surveillance units meet established performance benchmark	7,000,000.00	US$1.4m for each surveillance unit meeting performance benchmark up to a maximum of 28m from year 2-5
Results to be achieved in FY25/26 (Year 4)	15 metropolitan surveillance units meet established performance benchmark	7,000,000.00	US$1.4m for each surveillance unit meeting performance benchmark up to a maximum of 28m from year 2-5
Results to be achieved in FY26/27 (Year 5)	20 metropolitan surveillance units meet established performance benchmark	7,000,000.00	US$1.4m for each surveillance unit meeting performance benchmark up to a maximum of 28m from year 2-5

DLI 3	Semi-annual bulletin on AMR trends published			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	36,250,000.00	2.88
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	Published annually since 2018			
Prior Results			0.00	
Results to be achieved in	-		0.00	NA

FY22/23 (Year 1)			
Results to be achieved in FY23/24 (Year 2)	Semi-annual bulletins published	9,062,500.00	US$4.53m on publishing AMR bulletin twice a year with a maximum of US$9.06m per year
Results to be achieved in FY24/25 (Year 3)	Semi-annual bulletins published	9,062,500.00	US$4.53m on publishing AMR bulletin twice a year with a maximum of US$9.06m per year
Results to be achieved in FY25/26 (Year 4)	Semi-annual bulletins published	9,062,500.00	US$4.53m on publishing AMR bulletin twice a year with a maximum of US$9.06m per year
Results to be achieved in FY26/27 (Year 5)	Semi-annual bulletins published	9,062,500.00	US$4.53m on publishing AMR bulletin twice a year with a maximum of US$9.06m per year

DLI 4	Sentinel sites reporting on zoonotic diseases of human importance			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	50,000,000.00	3.97
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	20.00			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	Endorsement of operational guidelines for One Health sentinel sites by NCDC		7,000,000.00	One time payment on achievement of result

Results to be achieved in FY23/24 (Year 2)	25 sentinel sites established for reporting zoonotic diseases	2,690,000.00	US$0.54m for each established sentinel site reporting with a maximum of US$43m from year 2-5
Results to be achieved in FY24/25 (Year 3)	50 sentinel sites established for reporting zoonotic diseases	13,440,000.00	US$0.54m for each established sentinel site reporting with a maximum of US$43m from year 2-5
Results to be achieved in FY25/26 (Year 4)	80 sentinel sites established for reporting zoonotic diseases	16,130,000.00	US$0.54m for each established sentinel site reporting with a maximum of US$43m from year 2-5
Results to be achieved in FY26/27 (Year 5)	100 sentinel sites established for reporting zoonotic diseases	10,740,000.00	US$0.54m for each established sentinel site reporting with a maximum of US$43m from year 2-5

DLI 5	Existing Points of Entry meet International Health Regulations (IHR) compliance requirements			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	37,500,000.00	2.98
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	0.00			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	0.00		0.00	NA
Results to be achieved in	7 existing Points of Entry meet IHR compliance		10,096,200.00	US$1.44m per POE per year with

FY23/24 (Year 2)	requirements		max of US$37.5m from year 2-5
Results to be achieved in FY24/25 (Year 3)	13 existing Points of Entry meet IHR compliance requirements	8,653,800.00	US$1.44m per POE per year with max of US$37.5m from year 2-5
Results to be achieved in FY25/26 (Year 4)	20 existing Points of Entry meet IHR compliance requirements	10,096,200.00	US$1.44m per POE per year with max of US$37.5m from year 2-5
Results to be achieved in FY26/27 (Year 5)	26 existing Points of Entry meet IHR compliance requirements	8,653,800.00	US$1.44m per POE per year with max of US$37.5m from year 2-5

DLI 6	Health Emergency Operations Centers (HEOCs) meet performance benchmarks set for internal emergency or annual outbreak simulation exercise			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	37,500,000.00	2.98
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	Operational Guidelines for HEOC approved by MOHFW (Prior Results)		9,000,000.00	One time payment
Results to be achieved in FY23/24 (Year 2)	Vulnerability assessment has been completed and MOU on establishment of HEOCs has been signed with MOHFW for 10 states		10,000,000.00	US$0.5m for vulnerability assessment and US$0.5m upon signing of MOU per state with max of US$10m

Results to be achieved in FY24/25 (Year 3)	3 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	3,700,000.00	US$1.23m per HEOC meeting performance benchmark with max of US$18.5m from year 3-5
Results to be achieved in FY25/26 (Year 4)	At least 8 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	6,166,700.00	US$1.23m per HEOC meeting performance benchmark with max of US$18.5m from year 3-5
Results to be achieved in FY26/27 (Year 5)	At least 15 HEOCs meet performance benchmarks set for internal emergency or annual outbreak simulation exercise, as laid down in the operational guidelines	8,633,300.00	US$1.23m per HEOC meeting performance benchmark with max of US$18.5m from year 3-5

DLI 7	National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform appropriate preventive measures			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	50,000,000.00	3.97
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	India One Health Research Network (IOHRN) has developed the list of priority zoonotic diseases for human importance		15,000,000.00	One time payment on achievement of DLR

Results to be achieved in FY23/24 (Year 2)	IOHRN has established protocols for identifying hotspots and national risk map based on identified priority zoonotic diseases of human importance	15,000,000.00	One time payment on achievement of DLR
Results to be achieved in FY24/25 (Year 3)	National Risk map with hotspots for Zoonotic Diseases of human importance is available on ICMR website	15,000,000.00	One time payment on achievement of DLR
Results to be achieved in FY25/26 (Year 4)	-	0.00	NA
Results to be achieved in FY26/27 (Year 5)	ICMR has updated the national risk map with hotspots for zoonotic diseases of human importance is updated	5,000,000.00	One time payment on achievement of DLR

DLI 8	Enhanced capacity for collaborative research and outbreak investigation of viral diseases			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	38,000,000.00	3.02
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	Each zonal NIV has developed a detailed activity plan developed for its operational area.		7,500,000.00	One time payment on achievement of the result
Results to be achieved in	Each Zonal NIV has identified research priorities		7,500,000.00	One time payment on achievement

FY23/24 (Year 2)	for emerging and remerging viral diseases through a consultative process involving research institutions in its zone and state governments		of the result
Results to be achieved in FY24/25 (Year 3)	Capacities built by each Zonal NIV of identified partner research institutions, protocol finalized for at least one collaborative viral research project and implementation started	7,500,000.00	One time payment on achievement of the result
Results to be achieved in FY25/26 (Year 4)	Each zonal NIV has published findings based on investigations for at least two emerging viral diseases	5,166,700.00	US$0.65m for each (max of 8 investigations) outbreak investigation supported by each zonal NIV
Results to be achieved in FY26/27 (Year 5)	Each zonal NIV has published findings based on investigations for at least four emerging viral diseases	10,333,300.00	US$0.65m for each outbreak investigation supported by each zonal NIV (max of 16 investigations)

DLI 9	New technologies commercialized to enhance prevention, detection or treatment of infectious diseases			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	37,000,000.00	2.94
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	ICMR has developed and adopted a policy on biomedical innovation and entrepreneurship for		6,500,000.00	One time payment upon achievement of DLR

	medical and allied professionals and technologists at medical, dental, paramedical institutes/ colleges (Prior Result)		
Results to be achieved in FY23/24 (Year 2)	ICMR has developed and approved Intellectual Property (IP) guidelines to facilitate transfer of ICMR developed/ supported technologies to the private sector for commercial production	6,500,000.00	One time payment upon achievement of DLR
Results to be achieved in FY24/25 (Year 3)	Public private forum created to develop a list of priority medical devices/diagnostics required to manage diseases of national importance, including infectious diseases.	7,500,000.00	One time payment upon achievement of DLR
Results to be achieved in FY25/26 (Year 4)	ICMR has developed /supported at least 5 new technologies for prevention, detection or treatment of infectious diseases of national importance	10,500,000.00	US$2.10m per technology
Results to be achieved in FY26/27 (Year 5)	MOUs signed by ICMR with private/public sector companies for commercial production of 3 new technologies developed for prevention, detection or treatment of infectious diseases of national importance	6,000,000.00	US$2.0m per technology

DLI 10	State/district scenario analysis of diseases identified for elimination undertaken by researchers trained (cumulative) in disease elimination sciences and mathematical modeling			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	25,000,000.00	1.98
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	ICMR has prepared a list of priority conditions and research areas, including risk factors for diseases for elimination through a national level consultation		7,500,000.00	One time payment upon achievement of DLR
Results to be achieved in FY23/24 (Year 2)	ICMR has approved proficiency-based training modules on disease elimination science and mathematical modelling		7,500,000.00	One time payment upon achievement of DLR
Results to be achieved in FY24/25 (Year 3)	20 public health professionals trained on mathematical model -based scenario analysis for diseases identified for elimination to prepare state/district level scenarios		2,000,000.00	US$0.10m per researcher trained with maximum of 10m from year 3-5
Results to be achieved in FY25/26 (Year 4)	60 public health professionals trained on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district level scenarios		4,000,000.00	US$0.10m per researcher trained with maximum of 10m from year 3-5
Results to be achieved in	100 public health professionals trained on		4,000,000.00	US$0.10m per researcher trained

FY26/27 (Year 5)	mathematical model-based scenarios for diseases identified for elimination to prepare state/district level scenarios		with maximum of 10m from year 3-5

DLI 11	Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	50,000,000.00	3.97
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	Advanced EIS: 10 Frontline training: 100			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	-		0.00	NA
Results to be achieved in FY23/24 (Year 2)	-		0.00	NA
Results to be achieved in FY24/25 (Year 3)	(a) 40 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 500 frontline health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks		13,750,000.00	Advanced: $0.13m/health worker/year (max of $3.75m); Frontline: $0.03m/ health worker/year (max 10m)
Results to be achieved in FY25/26 (Year 4)	(a) 80 advanced health workers received training to build core competencies in preventing,		17,500,000.00	Advanced: $0.13m/health worker/year (max of $5m);

	detecting and responding to disease outbreaks (b) 1000 frontline health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks		Frontline: $0.03m/ health worker/year (max of 12.5m)
Results to be achieved in FY26/27 (Year 5)	(a) 130 advanced health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks (b) 1500 frontline health workers received training to build core competencies in preventing, detecting and responding to disease outbreaks	18,750,000.00	Advanced: $0.13m/health worker/year (max of $6.25m); Frontline: $0.03m/ health worker/year (max of 12.5m)

DLI 12	Action plan for transforming NCDC as a premier international center for prevention and control of diseases finalized and approved			
Type of DLI	**Scalability**	**Unit of Measure**	**Total Allocated Amount (USD)**	**As % of Total Financing Amount**
Intermediate Outcome	Yes	Text	50,000,000.00	3.97
Period	**Value**		**Allocated Amount (USD)**	**Formula**
Baseline	None			
Prior Results			0.00	
Results to be achieved in FY22/23 (Year 1)	MOHFW has constituted a high-level expert group to develop a timebound action plan to transform NCDC		20,000,000.00	One time payment upon achievement of DLR
Results to be achieved in	-		0.00	NA

FY23/24 (Year 2)			
Results to be achieved in FY24/25 (Year 3)	MOHFW has endorsed the action plan of high-level expert group to transform NCDC	10,000,000.00	One time payment upon achievement of DLR
Results to be achieved in FY25/26 (Year 4)	MOHFW have completed the actions for FY2025-26 under the action plan	10,000,000.00	One time payment upon achievement of DLR
Results to be achieved in FY26/27 (Year 5)	NCDC and MOHFW have completed the actions for FY2026-27 under the action plan	10,000,000.00	One time payment upon achievement of DLR

Verification Protocol Table: Disbursement Linked Indicators

DLI 1	Surveillance units reporting real time data through IHIP to enable early detection of disease outbreaks (disaggregated by public and private sector)
Description	Year 1: Development and adoption of Integrated Health Information Portal (IHIP) Strategy inclusive of (a) transition plan for transfer of IHIP from WHO to MOHFW (b) strategy and specific actions enhancing private sector participation in surveillance reporting through IHIP. Year 2: Dedicated IHIP IT units at MOHFW and NCDC operationalized with all inputs specified in the transition plan. Year 3-5: Percentage of surveillance units reporting real time data through IHIP (disaggregated by public and private sector) Numerator: Number of surveillance units reporting 250 days in a year through IHIP (disaggregated by public and private sector) Denominator: Total number of surveillance units in the country (disaggregated by public and private sector)
Data source/ Agency	IHIP, NCDC
Verification Entity	IVA
Procedure	Year 1: MOHFW approves IHIP strategy inclusive of (a) transition plan for transfer of IHIP from WHO to MOHFW describing all inputs (Human Resources, Space, IT equipment, Cloud services etc.) required to make IHIP, IT cells at MOHFW and NCDC fully functional (b) strategy and specific actions for enhancing private sector participation in surveillance reporting. The IVA verifies and confirms the disclosure of transition plan with all inputs required for IHIP IT cells and strategy for enhanced

	private sector participation in surveillance reporting. Year 2: Government letter confirming operationalization of dedicated IHIP-IT units at MOHFW and NCDC with all inputs specified in the transition plan. The IVA verifies and confirms that all specified inputs are in place. Year 3-5: Quarterly system generated national report of IDSP surveillance units that include Government health workers, health facilities and laboratories designated as IDSP reporting units from public sector and private hospitals and laboratories enrolled under Pradhan Mantri Jan Arogya Yojana program in the reporting period. IVA will undertake data quality assessment (DQA) as per agreed TOR to verify the quality of data and share DQA report with the IDSP - NCDC, Public Health Division of MOHFW and the World Bank.

DLI 2	Metropolitan surveillance units achieving established performance benchmark
Description	Year 1: Operational guidelines for metropolitan surveillance units developed and issued. Year 2-5: Number of Metropolitan surveillance units achieving the established performance benchmark.
Data source/ Agency	IDSP, NCDC
Verification Entity	IVA
Procedure	Year 1: MOHFW approves and discloses at its website Operational Guidelines for metropolitan surveillance units (specifying inputs, functional processes and performance parameters. The guidelines will: a) provide details of infrastructure requirements, staffing norms and roles, criteria for determining operationalization, funds flow, protocols for data collection and data analytics, checklists and reporting formats (technical and financial) b) define the performance benchmarks for these units c) outline the criteria, process and periodicity for assessing performance of metropolitan surveillance units against the benchmarks. *The IVA verifies and confirms the disclosure of operational guidelines with all inputs required.* Year 2-5: NCDC shares annual metropolitan surveillance unit status report of metropolitan surveillance units achieving established performance benchmarks with Public Health Division, MOHFW, IVA and the World Bank. *The IVA will develop a sampling methodology and annually visit a of metropolitan surveillance units selected randomly to verify their performance against the annual functionality status reports. A report based on field visit observations will be prepared and shared with the IDSP unit, NCDC, Public Health Division, MOHFW and the World Bank.*

DLI 3	Semi-annual bulletin on AMR trends published
Description	Year 2-5: Bulletin outlining AMR trends published on a semi-annual basis on NCDC website within 4 months of completion of each reporting period. AMR trends from sites meeting QA standards only will be included in the bulletin
Data source/ Agency	Division of AMR Containment, NCDC
Verification Entity	IVA
Procedure	Year 2-5: Semi-annual bulletin of AMR trends from sites meeting QA standards will be published on NCDC website within 4 months of completion of each reporting period. NCDC will share an electronic copy of the semi-annual bulletin on completion of each reporting period with the Public Health Division, MOHFW, IVA and the World Bank. *The IVA will assess compliance of surveillance sites and data analytics used to draw AMR trends with protocols established by NCDC within the stipulated time period and share its conclusions with NCDC, PH Division, MOHFW and the World Bank.*

DLI 4	Sentinel sites reporting on zoonotic diseases of human importance
Description	Year 1: NCDC endorses and discloses at its website Operational Guidelines (inclusive of inputs, functional processes, quality assurance parameters and outputs) for One Health sentinel sites. Year 2-5 Number of operational sentinel sites reporting zoonotic diseases as per established Standard Operating Procedures (SOPs). Sentinel sites means medical colleges and animal health laboratories selected by NCDC for undertaking surveillance of zoonotic diseases in samples tested by them. At least 10 percentage sites will be from Animal Health. Operational means the selected medical college or animal health laboratory has received the funds from NCDC for laboratory strengthening, human resources, completed the requisite training/capacity building on zoonotic disease surveillance and have started reporting zoonotic surveillance data as per established SOP.
Data source/ Agency	National One Health Program for prevention and control of Zoonotic Diseases, NCDC
Verification Entity	IVA
Procedure	Year 1: NCDC endorses and discloses at its website Operational Guidelines (inclusive of inputs, functional processes, quality assurance parameters and outputs) for One Health sentinel sites. *The IVA verifies and confirms the disclosure of operational guidelines with all inputs required.* Year 2-5: Monthly system generated compliance reports of sentinel sites reporting zoonotic diseases to be shared with

	IVA. Sentinel sites means medical colleges and animal health laboratories selected for undertaking surveillance of zoonotic diseases following SOPs. Atleast 10 percent sites will be from Animal Health. Operational means the selected medical college has received the funds from NCDC for laboratory strengthening, human resources, completed the requisite training/capacity building on zoonotic disease surveillance and have started reporting zoonotic surveillance data as per established SOP. *The IVA will verify compliance of sentinel sites with criteria for operationalization and reporting in accordance with established guidelines and SOPs as per agreed TORs on a randomly selected subset of sentinel sites. A report will be prepared and shared with the NCDC, Public Health Division, MOHFW and the World Bank.*

DLI 5	Existing Points of Entry meet International Health Regulations (IHR) compliance requirements
Description	Year 2-5: Number of existing Points of Entry (POE) that meet IHR 2005 compliance requirements POE includes international airports, seaports and ground crossings. Currently, there are 33 POE operational in the country. IHR compliance requirements means meeting the core surveillance capacity requirements for designated airports, seaports and ground crossings as per IHR 2005 - Annex 1B.
Data source/ Agency	POE IH Division, Dt. GHS
Verification Entity	IVA
Procedure	Year 2-5: Annual self-assessment reports using WHO POE core competency tool for routine and emergency situations along with supporting plans and recommendations for improvement to meet core surveillance capacity requirements for POE as per IHR Annex 1B *IVA to verify the assessment covering a randomly selected sub sample of POEs and share report with Public Health Division, MOHFW and the World Bank*.

DLI 6	Health Emergency Operations Centers (HEOCs) meet performance benchmarks set for internal emergency or annual outbreak simulation exercise
Description	Year 1: Operational Guidelines with performance benchmarks for HEOCs following WHO/IHR framework for Public Health Emergency Operations Center approved by MOHFW. Year 2: Vulnerability assessment of states/UTs completed and MOU

	for establishment of HEOCs has been signed with 10 states/UTs Year 3-5: Number of Health Emergency Operations Center (HEOC) that meet performance benchmark set for internal emergency or annual outbreak simulation exercise as laid down in the Operational Guidelines.
Data source/ Agency	Disaster Management Cell, MoHFW
Verification Entity	IVA
Procedure	Year 1: MOHFW approves and discloses at its website Operational Guidelines (including performance benchmarks), infrastructure norms, technical specifications, staffing, operational processes and response standards for HEOCs. *The IVA verifies and confirms the disclosure of operational guidelines with all inputs required.* Year 2: Vulnerability assessment reports for states/UTs, MOU with states for establishing HEOC are shared with the IVA. *The IVA will verify methodology and accuracy of vulnerability assessment with guidelines/protocols established by DM Cell, review the MOU and share conclusions with DM Cell, PH Division, MOHFW and the World Bank* Year 3-5: Annual assessment reports and findings from internal emergency or annual simulation exercise on performance of HEOC will be shared with the IVA on an annual basis. *The IVA will verify the assessment reports and findings from internal emergency and simulation exercises covering a subsample HEOCs selected randomly and share its report with the DMC, Public Health Division of MOHFW and the World Bank*.

DLI 7	National risk-map with hot spots for zoonotic diseases of human importance prepared and updated to inform appropriate preventive measures
Description	Year 1: List of priority zoonotic diseases of human importance developed by the India One Health Research Network Year 2: Protocols for identifying hotspots and preparing national risk map based on identified priority zoonotic diseases of human importance established Year 3: National risk map with hotspots for priority zoonotic disease of human importance is available on the ICMR website. Year 5: National risk map with hotspots for zoonotic disease of human importance is updated on the ICMR website
Data source/ Agency	ICMR
Verification Entity	IVA
Procedure	Year 1: Approved list of priority zoonotic diseases of human importance is published on the ICMR website and shared with the IVA.

	Year 2: Approved protocols for identifying hotspots and national risk map based on identified priority zoonotic diseases of human importance are finalized and shared with the IVA. Year 3: Approved national risk map with hotspots for zoonotic diseases of human importance is published on ICMR website and shared with the IVA. Year 5: Updated version of the national risk map with hotspots for zoonotic diseases of human importance is published on ICMR website and shared with the IVA. The IVA will verify the priority list of zoonotic diseases, approved protocols, criteria used for identification of hotspots for preparation of the national risk map. The IVA shall also review the published national risk map with hotspots for zoonotic diseases of human importance in Year 3 and Year 5.

DLI 8	Enhanced capacity for collaborative research and outbreak investigation of viral diseases
Description	Year 1: Detailed detailed activity plan available for each zonal NIV. Year 2: Research priorities identified by each zonal NIV Year 3: Capacity building by each Zonal NIV of research partners, protocol development and commencement of collaborative research Year 4: At least two investigations supported by each zonal NIV and findings published Year 5: At least four investigations supported by each zonal NIV and findings published
Data source/ Agency	Zonal NIVs, ICMR
Verification Entity	IVA
Procedure	Year 1: Activity plans for their respective operational area developed by Zonal NIVs endorsed by ICMR and shared with IVA. Year 2: Research priorities identified by each zonal NIV through a consultative process along with supportive documentation endorsed by ICMR and shared with IVA. Year 3: Each Zonal NIV will prepare a comprehensive report summarizing number of researchers trained in partner research institutions along with protocols for collaborative research and shares with IVA. Year 4-5: Each Zonal NIV will share report of investigations supported and publication of collaborative research with the IVA. IVA will verify the reports and publications shared by Zonal NIVs as per the agreed TORs and share the report with ICMR and the World Bank

DLI 9	New technologies commercialized to enhance prevention, detection or treatment of infectious diseases
Description	Year 1: Development and endorsement of Policy on biomedical innovation and entrepreneurship for new technologies for different categories of health professionals and institutions by ICMR/DHR. Year 2: Development and approval of Intellectual Property (IP) guidelines to facilitate transfer of technology to private sector for commercial production including provision of royalty and incentives Year 3: Establishment of a public-private forum as per agreed terms of reference to develop a list of priority medical devices/ diagnostics, required to manage diseases of national Importance, including infectious diseases. Year 4: A minimum of 5 new technologies shall be developed/supported and available for prevention, detection, or treatment of infectious diseases of national importance. Year 5: MOUs signed by ICMR with private /public sector companies for commercial production of 3 new technologies developed for prevention, detection, or treatment of infectious diseases of national importance.
Data source/ Agency	Medical Device & Diagnostics Mission Secretariat (MDMS) Division, ICMR
Verification Entity	IVA
Procedure	Year1: Policy on biomedical innovation and entrepreneurship for different categories of health professionals and institutions approved by ICMR/DHR, made available on ICMR website and shared with the IVA. Year 2: SOP/guidelines on Intellectual Property Rights to facilitate technology transfer, inclusive of provision of royalty to scientists approved by ICMR/DHR, made available on ICMR website and shared with the IVA. Year 3: Proof of establishment of public private forum shall be shared with the IVA. Once the forum is established, it will continue to remain active. Minutes of Meeting (MoM) will be shared with the IVA through the life of the program Year 4: Proof of concept for new technologies developed/supported for prevention, detection, or treatment of infectious diseases of national importance shall be provided to the IVA. In Year 4 a minimum of five new technologies shall be developed. The IVA will validate the information following the TOR as part of verification. Year 5: Copy of the MOUs between ICMR/DHR with private / public sector companies to produce at least 3 new technologies will be shared with the IVA.

DLI 10	State/district scenario analysis of diseases identified for elimination undertaken by researchers trained (cumulative) in disease elimination sciences and mathematical modeling
Description	Year 1: A list of priority conditions and research areas including risk factors for diseases identified for elimination developed through a national consultation Year 2: Proficiency-based training modules on disease elimination science and

	mathematical modeling developed and criteria and process for selection of participants endorsed by ICMR. Year 3-5: Number of researchers trained (cumulative) on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district level scenarios Public health professionals means researchers
Data source/ Agency	Division for Research in Disease Elimination Science and Health
Verification Entity	IVA
Procedure	Year 1: A list of priority conditions and research areas, including risk factors for diseases identified for elimination, report of the national consultation along with list of participants will be shared with IVA. Year 2: Proficiency based training modules and criteria and process for selection of participants endorsed by ICMR will be shared with the IVA. Year 3-5: Annual training reports and proficiency assessments of public health professionals trained (cumulative and disaggregated by gender) on mathematical model-based scenario analysis for diseases identified for elimination to prepare state/district level scenarios will be shared with the IVA. Public health professionals means researchers The IVA will review the annual training reports including proficiency assessment findings and share its report with ICMR, and the World Bank.

DLI 11	Public health workforce receiving advanced EIS and frontline training (cumulative) with core competencies in preventing, detecting and responding to disease outbreaks
Description	(a) Public health workforce trained in advanced training program and (b) Public health workforce trained in frontline training program Advanced EIS training refers to the 2 year mentorship-based EIS training program. Frontline training refers to 3-months field epidemiology training program organized by NCDC or its partner institutions. Public health workforce means medical and non-medical professionals.
Data source/ Agency	Epidemiology Division, NCDC
Verification Entity	IVA
Procedure	Year 3-5: Proofs of call-for-applications for advanced EIS and frontline training program and details of selected cohort/s (separately for advanced EIS and frontline training program) to be submitted to IVA prior to start of the training programs. This will be followed by submission of annual reports on status of advanced EIS and frontline training programs. This report

	would include data on number of officers trained in (a) advanced EIS training program organized by NCDC (disaggregated by gender) (b) number of officers trained in frontline training program organized by NCDC (disaggregated by gender). IVA as per the TOR will verify and provide an annual status report on: (i) State/UT-wise availability of dedicated surveillance staff – number of positions sanctioned, filled and vacant, disaggregated by regular/ contractual staff. (ii) State/UT wise status on implementation of additional incentives for officers trained in advanced EIS program and frontline training program as outlined in NHM-PIPs (iii) Feedback (on a sample basis) from completed cohorts of officers for both advanced EIS and frontline training courses on challenges and career progression in job roles and responsibilities on completion of training will be collected. The report will be shared with Epidemiology Division, NCDC, Public Health Division, MOHFW and the World Bank.

DLI 12	Action plan for transforming NCDC as a premier international center for prevention and control of diseases finalized and approved
Description	Year 1: MOHFW has constituted a high-level expert group to develop a timebound action plan to transform NCDC Year 3: MOHFW has endorsed the action plan of high-level expert group to transform NCDC Year 4: MOHFW have completed the actions for FY 2025-26 under the action plan Year 5: NCDC and MOHFW have completed the actions for FY 2026-27 under the action plan
Data source/ Agency	MoHFW
Verification Entity	IVA
Procedure	Year 1: Government Order issued by the MOHFW constituting the High Level Expert Group (HLEG) along with the agreed terms of reference shall be shared with the IVA. Minutes of the HLEG meetings and guidance notes/background papers and analyses shall also be shared with the IVA. Year 3: Government letter endorsing the medium year action plan for transforming NCDC shall be shared with the IVA. A list of agreed actions for effective and timely implementation of the plan shall also be shared with the IVA. The IVA will assess whether the action plan is aligned with core weakness identified by the HLEG. Year 4-5: Annual Progress updates with accompanying supportive evidences on completion of agreed actions as outlined in the approved plan shall be shared with the IVA. The IVA would interact with NCDC, Public Health Division-MOHFW on a six-monthly basis to assess progress made in implementation of the action plan against set timelines and tasks. A compliance report will be prepared and shared with the NCDC, Public Health Division-MOHFW and the World Bank.

ANNEX 3. SUMMARY TECHNICAL ASSESSMENT

1. **The proposed Program is technically sound and incorporates essential public services and core principles of the Global Health Security Index (GHSI).**[33] The Program focuses on three thematic areas: (i) Prevention of emergence or release of pathogens; (ii) Early detection and reporting of epidemics of potential international concern; and (iii) Rapid response and mitigating spread of an epidemic. The Program also incorporates evolving global best practices in disease surveillance and biosecurity, including critical ground realities learned from the COVID-19 Pandemic. Early identification of COVID-19 cases was hampered by inadequate diagnostic capacity, insufficient contract tracing, fragmented data systems, incomplete data insights for public health responders and sub optimal governance of all these elements.[34] The PM-ABHIM aims to address these critical needs and weaknesses identified in the IDSP implementation and builds on India's innovations during COVID-19 while addressing remaining challenges.

2. **Integrated Health Information Platform (IHIP).** The PHSSP will strengthen India's capacity of disease surveillance systems through several inter-related interventions, including expansion of the IHIP, setting up metropolitan surveillance units, building capacities at subnational level through EIS training, and scaling up of surveillance for AMR and zoonotic diseases. The IHIP responds to the recommendations of the 2015 Joint Monitoring Mission (JMM) for case-based surveillance, reprioritization of diseases under surveillance, and standardized documents and data collection processes. While IDSP is the first stakeholder of the IHIP platform, the vision is to gradually include other national priority programs, HMIS and EHR on this platform. The IHIP currently covers 24 states and under the PM-ABHIM the MOHFW aims to scale this nationwide with improved reporting and take over the implementation responsibility from WHO.

3. **Augmented Surveillance Systems.** The PHSSP will support innovative surveillance techniques. The existing Indian SARS-CoV -2 Genomics Consortium (INSOCOG) will be further expanded through building capacities of researchers from medical colleges and state referral laboratories. The PHSSP will support augmenting the AMR and Zoonotic disease surveillance through expanding sentinel sites and establishing metropolitan disease surveillance systems with geospatial analytical capacity in 20 large metros.

4. **Epidemic Intelligence Service (EIS) capacity building.** To meet India's needs for EIS trained officers, the MOHFW expanded the EIS program under three levels – Advanced (2 year), Intermediate (6 months) and frontline (3 months). Except for a few states such as Tamil Nadu and West Bengal, there is no structured process of recruiting EIS trained staff for disease surveillance. Most IDSP staff receive short term contracts and the lowest compensation package, leading to high attrition rates. The Program aims to address this bottleneck by creating a dedicated EIS division at NCDC to expand training capacity and initiate efforts to get a university recognition. In addition, states will be advised to give priority and additional incentives to appoint EIS trained officers as district and state surveillance officers.

[33] GHS Index Methodology 2021 prepared by the Economist Impact in partnership with NTI and Center for Health Security, Johns Hopkins School of Public Health

[34] Oliver W Morgan, Ximena Aguilera, Andrea Ammon, John Amuasi, Ibrahim Soce Fall, Tom Frieden, David Heyman et al. Disease Surveillance for the COVID-19 era: time for bold changes, *www.the* lancet.com Vol 397 June 19, 2021.

5. **Public Health Laboratory Networking.** Public Health Laboratories (PHLs) have long been a weak link within India's health system and laboratory strengthening has remained vertical and confined to a single disease. The PHSPP will support a nation-wide evolution of a comprehensive public health laboratory network through the establishment of high-quality BSL-III referral laboratories by the NCDC and ICMR. In addition, the Program will support capacity building of researchers in medical colleges and state referral laboratories in applied viral diagnostics with a strong focus on genomic sequencing. The program will also provide mentorship support to state and district level laboratories and build pan India systems for external quality assurance. The program will strengthen IT linkages of IPHLs at district and block levels with IHIP.

6. **One Health and AMR.** India adopted a National Action Plan on AMR in 2016 and three states (Kerala, West Bengal, and Madhya Pradesh) have developed state action plans. The National Program for AMR containment is being coordinated by the AMR surveillance unit at NCDC since 2013-14. Under the Program, the NCDC has plans to create a dedicated Division of National AMR containment and expand its AMR surveillance network to 70 labs and collaborate with 150 state laboratories.

7. **The national framework for One Health in India recommends a focus on building capacity for prevention, detection, and response to zoonotic diseases and AMR.** India has established One Health coordination structures at National, State, and District levels. A National standing committee on Zoonosis constituted in 2007 is chaired by the DGHS, while 32 states have committees chaired by Principal Secretary Health and 373 district have committees chaired by District Collectors. The Zoonotic Diseases Division of NCDC has identified 80 sentinel sites at medical colleges to augment nationwide zoonotic disease surveillance under the Program. The Center for One Health research in Nagpur will promote transdisciplinary and holistic research by creating a network of One Health research Institutes to identify hot spots for zoonotic diseases and develop national risk maps.

8. **Program institutional setup and governance structure:** National-level stewardship for identification and containment of pandemics and promotion of biosecurity through research rests with the NCDC and ICMR respectively. In the Indian federal structure, however, responsibility to identify and respond to disease outbreaks remains with the states. The IDSP provides the essential framework for pandemic response in India, while the NDMA supports emergency responses during natural and manmade disasters.

9. **The proposed program incorporates some of the key lessons from global best practices in surveillance on institutional capacity**, including: (i) shift from vertical disease focused surveillance to an integrated surveillance systems approach; (ii) provision of adequate financial resources and competent and well-paid human resources; (iii) national coordination and stewardship of surveillance for large countries with federal structure; (iv) continous adaptation of country surveillance systems to changing disease patterns and evolving new threats; (v) real time surveillance data generation to ensure prompt information sharing, analysis and response; and (vi) communicating scientific findings to the public, health care workers, researchers, media and policy makers.

10. **Under the program, the annual Budget allocated to NCDC will increase more than five-fold**. The program requires "accelerated implementation" to achieve its ambitious five-year targets for infrastructure and systems development, working closely with states and metropolitan cities. Currently,

NCDC has limited delegation of financial powers and requires approvals from DGHS and MOHFW for all fiduciary decisions which significantly impede implementation.

11. **A two-pronged approach is proposed to enhance NCDC institutional effectiveness.** Over the short-term the focus would be on initiating the building of technical leadership of NCDC coupled with creating appropriate enhanced leadership structures and processes. The proposed short term measures include: (i) creating an empowered Program Steering Committee (PSC) chaired by the Secretary-Health and Family Welfare to provide overall guidance, approve annual workplans and budgets and assess overall program performance annually; (ii) constituting a Technical Advisory Group (TAG) consisting of leading global public health experts from different areas of specialization to guide annual priority areas of work for NCDC divisions with a focus on augmenting India's pandemic preparedness; (iii) upgrading the position of Director NCDC and positioning of a full time Joint Secretary supported by a Director/Deputy Secretary Finance and Administration; and (iv) setting up a Program Support Unit, and a Procurement Support Agency to strengthen program implementation and administration of NCDC. To evolve a longer-term strategy for NCDC as a world class institution for prevention and control of diseases, a High-Level Expert Group (HLEG) will be constituted to develop a timebound costed action plan by the third year of the Program, which will be reported to MOHFW. Timely implementation of this action plan is included under the PAP.

12. **The ICMR has full functional autonomy under the DHR headed by the Secretary who is also the Director General**. The ICMR has put in place program management structures for implementation of the PM-ABHIM with focal points identified for each program activity coordinated by a member secretary. The initial assessments suggest that there is still need for additional implementation support and to segregate roles and strengthen the internal audit function.

13. **A Pandemic Preparedness Program Coordination Committee** will be established to ensure collaboration and complementarity between NCDC and ICMR and to avoid duplication. This structure will also facilitate periodic updating of India's Pandemic Preparedness Plan.

Program Expenditure Framework

14. **The Government's program (p) will include the PB-ABHIM Central Sector Components as well as relevant institutions and divisions** supporting the program including the NCDC, the ICMR and MOHFW Divisions/Cells for Disaster Management, Ports of Health and E-health. The Bank-financed Program (P) will include the full Government program excluding BSL-IV laboratories and land acquisition as well as ongoing major civil works implemented outside the PM-ABHIM (Figure 3).[35] Detailed program expenditures for Government and Bank Programs are presented in Tables 1.a and 2.a.

[35] The locations where civil works may be carried out under the Program are included in footnotes 21,24 and 26. Civil works in any other location will not be covered within the Program, unless agreed with Bank.

Figure 3: Program Expenditure Framework

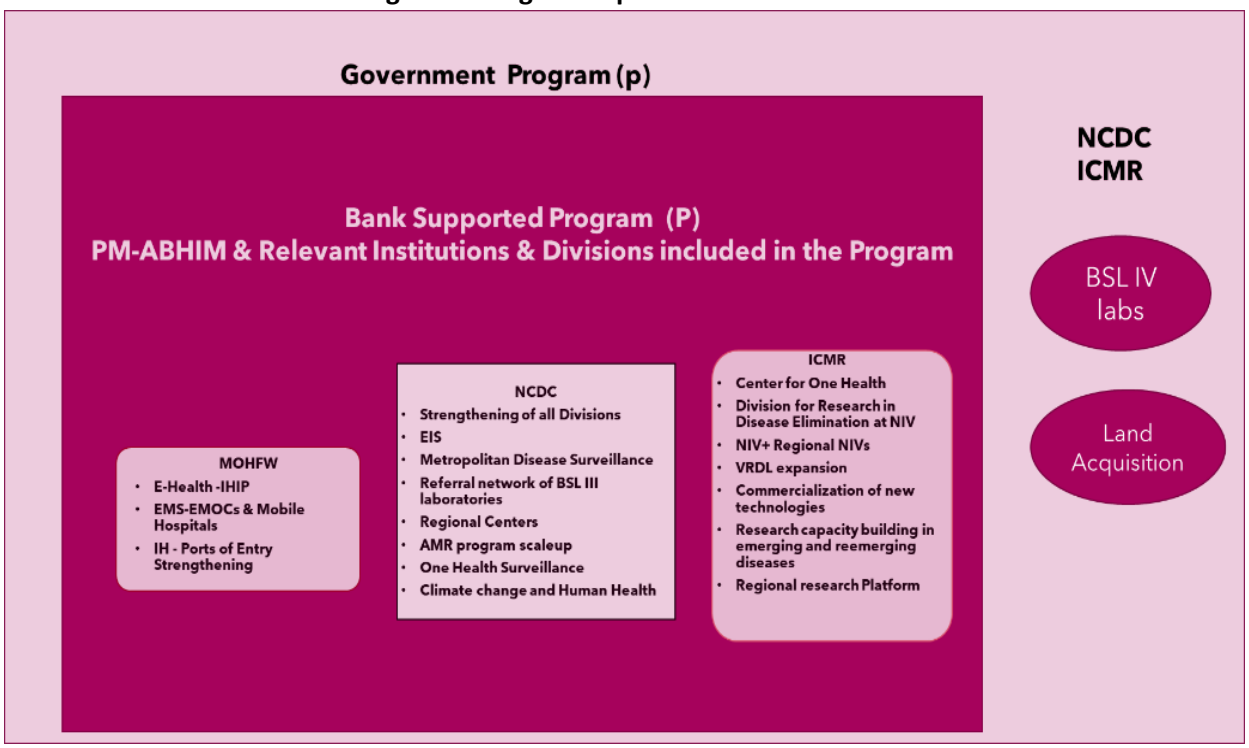

Table 1.a: Expenditure categories under the government program (p) INR Crore[36]

Agency	Y1	Y2	Y3	Y4	Y5	Total
Critical Care Hospitals	150.00	300.00	550.00	700.00	520.00	2,220.00
Port_IH	139.51	133.99	139.00	100.27	103.64	616.41
DMC_PH	297.24	78.83	95.11	98.07	101.79	671.04
NCDC	546.53	688.55	892.48	870.83	852.92	3,851.31
ICMR (only 3 institutes)	967.19	1,079.12	1,065.72	988.39	977.39	5,077.81
Total	2,100.47	2,280.49	2,742.32	2,757.56	2,555.74	12,436.58
					INR million	**124,365.78**
					US$ million	**1,658.21**

[36] One Crore is equivalent of ten million

Table 2.a: Expenditure categories under PHSPP (P) INR Crore						
Agency	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Total**
Critical Care Hospitals	-	-	-	-	-	-
Port_IH	128.64	122.57	127.01	87.68	90.43	556.33
DMC_PH	265.87	45.88	60.52	61.75	63.66	497.69
NCDC	481.30	620.07	820.57	795.32	773.64	3,490.90
ICMR (only 3 institutes)	956.36	1,067.75	1,021.40	943.47	931.84	4,920.83
Total	1,832.17	1,856.27	2,029.51	1,888.23	1,859.56	9,465.74
					INR million	94,657.35
					US$ million	1,262.10
					Operation (P) size as a % of government program (p) – 76%	
					Total Bank financing US$500 million	
					Total Bank financing as a % of Program – 40%	

ANNEX 4. SUMMARY FIDUCIARY SYSTEMS ASSESSMENT

1. As part of Program preparation, the World Bank carried out an Integrated Fiduciary System Assessment (IFSA) of GoI agencies involved in the Program implementation. The conclusion of the IFSA is that the capacity and performance of the fiduciary systems for the proposed Program, at all implementing agencies (IAs) are adequate. The assessment provided reasonable assurance that the financing proceeds would be used for intended purposes with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability. During the IFSA, certain areas in need of improvement have been identified, and recommendations have been made as part of legal agreements, Results Framework, and the PAP.

2. Based on the FSA, the fiduciary risk of the Program is assessed as **Substantial.** Program implementation arrangements are dispersed across four Implementing Agencies under the MOHFW, with varying implementation capacities for the government program. The residual risks and proposed mitigation measures addressed through RF and PAP are given below:

- Strengthen the capacity and the institutional arrangements within NCDC. The proposed Program's budget allocation is almost five times the previous budgets of NCDC. Program design includes institutional level interventions to facilitate strengthening of NCDC, including placement of a full time Joint Secretary to steer the program implementation, to be supported by a Director or Deputy Secretary – Finance and Administration, and a Program Support Unit along with a Procurement Support Agency to augment the fiduciary capacities. This critical intervention is monitored through the RF of the Program. Other initiatives are documented in the Technical Assessment.
- Strengthen the transparency of financial and procurement information. None of the agencies assessed currently disclose information on contract awards. It is recommended that for the proposed program, all contract awards of value more than INR 20 million (approximately US$ 285,000) shall be publicly disclosed through the website. Similarly, it is noted that annual audit reports and financial statements of ICMR and NCDC are not disclosed on the website. It is recommended that the Audit Reports and Audited Financial Statements be disclosed in the official website (PAP action).
- NCDC and ICMR have varied approaches to procurement processes and contract management. The procurement processes being conducted by NCDC and ICMR in principle follow the General Financial Rules (GFRs) 2017 and procurement manuals (Manual for Procurement of Goods, 2017 and Manual for Procurement of Consultancy & Other Services, 2017) issued by the Ministry of Finance of the GoI. However, the data shows that there is inconsistency in the use of procurement/ bidding methods for various processes across these two institutions. It is thus recommended to adopt a Process Manual or Standard Operating Procedure for ICMR and NCDC. In addition, a central unit to oversee contract management and compliance with the terms and conditions of the contract may help NCDC to ensure quality implementation of this operation.
- Limited procurement experience of the International Health Division of MOHFW (IHD) and DMC. The DMC and IHD (departments under the MOHFW) are fairly new with no prior experience of procurement or working with multi-lateral institutions. Most of the staff responsible for procurement and contract management are also new and may require additional support. Training of key responsible resources will be required to fill this gap under the proposed Program.

- The existing system of complaints management will be used for the Program: The existing CPGRAMS will be used for complaint management and redressal of the overall project including for procurement/contract management. Additionally, the Government eMarketplace (GeM) grievance management system will be used for complaint management and redressal for procurements under GeM. During implementation, the implementing agencies will report complaints received/resolved in the agreed format to the Bank on a biannual basis.

3. **Reliability and timeliness in Program expenditure reporting**. The use of GoI's Public Financial Management System (PFMS) will be continued by all Implementing Agencies during the Program life. In addition, at ICMR the bespoke accounting software 'ICMR Balances' will be used uniformly. This will be monitored through the Program duration as a PAP action.

4. **Fiduciary oversight mechanism in consonance with increased scale of operations.** The scale of operations at NCDC and ICMR will increase significantly under the proposed Program, thus the need to enhance the existing fiduciary oversight through urgently setting up a process/ system within NCDC to manage compliance and follow ups of audit issues raised in Internal Audit and Comptroller and Auditor General of India (C&AG) audits, as inadequate systems were noted in this respect. Also, a mechanism will be put in place to strengthen the in-house Internal Audit function in ICMR. Finally, Audit Committees at Implementing Agency level for ICMR and NCDC is proposed to meet at least twice a year to review the audit reports (both internal and external) and compliances. The above-mentioned interventions will be monitored through a PAP action.

5. **Statutory audits at IA-level.** A separate audit will be conducted by the C&AG for the Program as per the agreed ToR between C&AG and World Bank as endorsed by Department of Economic Affairs. The report will be submitted to the Bank within 9 months from the close of the Financial Year (FY). This requirement is enforced through a legal covenant.

6. **Key Performance Indicators (KPIs) for fiduciary performance will be monitored during Program implementation.** They will be monitored by the Implementing Agencies, and reports (in agreed format) will be shared with the World Bank every 6 months during the Program life.

- Budget distribution to IAs in PFMS in a timely manner (measured in Days)
- Available budget with IAs to implement the Program
- Six-monthly expenditure reporting against identified budget lines from PFMS/ ICMR balances to keep track of financial progress of the Program
- Periodic Audit Committee meetings
- Procurement related complaints lodged, resolved, and reported (Nos)
- Disclosure of contract award at IAs respective websites for contracts valued more than INR 1 crore
- Procurement process cycle time for tenders/contracts of value above INR 1 crore
- Time and cost overrun for tenders/contracts of value above INR 1 crore
- Use of Direct Contracting or Single Source method
- Monitoring critical staffing gaps (including appointment and trainings for procurement and FM)

7. **Procurement Exclusions.** None of the proposed procurements are anticipated to be above the Operations Procurement Review Committee (OPRC) threshold. This means, at the present risk rating of 'Substantial,' contracts at or above thresholds (US$75 million for works, US$50 million for goods and non-consulting services, and US$20 million for consultant services) are not allowed under the Program.

8. **Applicability of the World Bank's Anti-Corruption Guidelines to the Program:** The World Bank "Guidelines on Preventing and Combating Fraud and Corruption in Program for Results Financing dated February 1, 2012 and revised on July 10, 2015 (*https://ppfdocuments.azureedge.net/3682.pdf*)" shall apply to the Program. Requirements under these guidelines include but not limited to (a) borrower's obligation on informing the World Bank about all fraud and corruption related allegations and investigations, (b) the World Bank's right to conduct administrative inquiries, and (c) ineligibility of debarred firms for contract awards.

9. It is clarified to the implementing agencies that these guidelines shall be applicable to all activities within the Program boundary and not the parts of the government program that are outside these boundaries. As an action item under the resulting Program, it is required that (a) all bidding documents refer to the World Bank's Anti-Corruption Guidelines (ACG) and the bidders must agree to these clauses, and (b) at the time of bid opening each procurement agency shall ensure that none of the participating bidders is listed in the World Bank's latest online list (*https://www.worldbank.org/en/projects-operations/procurement/debarred-firms*) of debarred firms. An ACG protocol has also been discussed and agreed upon to operationalize the ACG implementation and reporting.

ANNEX 5. SUMMARY ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

1. **The ESSA for the PHSPP Program was completed in line with the World Bank Guidance for conducting ESSAs for PforR financing operations.** The ESSA process involved a desk review of relevant documents, technical studies/reports, and information related to working of the MOHFW, the ICMR, the NCDC, DMC, and International Health Division (IHD) of MOHFW. This was complemented with virtual and face-to-face consultations with relevant experts and officials from ICMR, NCDC, DM Cell, and IH Division to capture current practices, opinions, anecdotal evidence, functional knowledge, and concerns. The draft ESSA report was consulted with a range of stakeholders on April 28, 2022, and feedback incorporated.

2. **The key environmental risks are associated with** (i) construction-related occupational health and safety hazards, risks to the workforce and associated community safety and health aspects; (ii) lack of design safety in the construction plan of Biosafety laboratories poses occupational health risks to the laboratory workforce as well as to community health and safety due to accidental escape/release of high-risk pathogens from such laboratories; and (iii) handling of high-risk pathogens and associated biomedical wastes pose a risk of biohazards exposure to the laboratory workforce, waste handlers and the community in case of improper waste disposal. Besides working with specialized equipment e.g., autoclaves and centrifuges, chemical reagents pose occupational risk of exposure and/or chemical toxicity and injuries. Also, use of equipment with radiation risk and radioactive isotopes require specialized approaches, especially in storing and disposing radioactive wastes and decommissioning of such equipment. Some of the activities to be carried out by the IHD for implementation of IHR at Point of Entry such as airport, ports, and land border units may also pose occupational health and environmental risks and include: (i) screening of international passengers for diseases under surveillance; (ii) disinfection, and deratting of ships and aircraft; (iii) supervision of sanitation, drinking water supply, anti-mosquito and anti-rodent work; (iv) public health clearance of dead bodies; and (v) administration of yellow fever vaccines etc. The key social risks emerge from (i) identifying and transferring the land requested for construction of centers and laboratories by the states in a transparent manner without any adverse social impacts; (ii) potential health and sanitation, safety, and labor management related concerns at construction sites; and (iii) community health and safety concerns.

3. **Environmental and Social System Assessment.** The provisions of the existing environmental legal and regulatory framework are adequate but require enabling institutional and technical capacity. While the provisions of the Biomedical Waste Management & Handling Rules, 2016 – as amended up to 2019 are being implemented, other relevant environmental Acts, such as, hazardous, solid, plastic and E-waste Rules 2016 require additional capacity building efforts. The IHR 2005 also mandates national governments to monitor and manage public health at POE, including airports, seaports, and land border units where there is human travel and transfer of goods across international borders. Though this was further incorporated in the Indian Aircrafts Public Health Rules, 2015 and Indian Ports Public Health Rules, 2015, the current national regulations are old and do not adequately cover public health requirements congruent with the International Health Regulations, 2005.

4. **The existing legislative framework is adequate to ensure social sustainability and the protection of marginalized and vulnerable populations** including women, the elderly, the differently abled, ST, SC, women headed households, patients with chronic diseases, and informal sector workers (including domestic workers, laborers, and construction workers). It ensures (i) protection of the interest of all the vulnerable population mentioned above; (ii) non-discrimination based on religion, race, caste, and gender;

and (c) transparency with right to information. MOHFW has experience in protection of personal data through its various programs such as the National AIDS Control Program and with various surveillance programs, and the GoI is in an advanced stage of enacting a law on personal data privacy that will guide the protection of personal data. The building and other constructions workers related act, and the Occupational Safety, Health and Working Conditions Code, 2020 further strengthens the labor related framework and legislations. However, institutional capacity and regular monitoring is required for compliance.

5. **In most cases land is already made available by the states free from any encumbrances to set up various centers and laboratories**, such as NIVs, One Health Centre, some of the NCDC branches, and the BSL-III laboratories. For the remaining infrastructure, the implementing agencies follow the process of requesting for land free from any encumbrances from states as part of their contribution towards the program.

6. **MOHFW and all the implementing agencies leverage existing country systems to receive, resolve and manage grievances.** The Centralized Public Grievance Redress and Monitoring System (CPGRAMS) is an online web-enabled system (https://pgportal.gov.in/) in association with Directorate of Public Grievances (DPG) and Department of Administrative Reforms and Public Grievances (DARPG) to register and track grievances. Any grievances with respect to MOHFW, ICMR, NCDC, DM Cell, and IH Division as well as state specific grievances can also be lodged here and will be directed to respective agencies and state departments for resolution and reported back through CPGRAMS system.

7. **The key environmental and social gaps include** (i) improper screening of identified construction sites for any environmental and social risks and impacts; (ii) lack of a designated organization for managing biosafety and biosecurity aspects arising from current and future expansion of the laboratory system in NCDC; (iii) no committee of NCDC which advises and/or monitors the works awarded for construction of centres and laboratories; (iv) lack of defined strategy and structured program for training and capacity building on biosafety related to biomedical waste management and Occupational Health and Safety of the workforce in laboratories; (v) old regulatory framework of current national regulations that does not adequately cover public health requirements congruent with the IHR 2005; and (vi) sub-contracting to local contractors often poses additional challenges with respect to occupational health and safety of construction workers along with gaps in monitoring of labor health and safety, and community health and safety concerns.

8. **Excluded Activities**: The PHSPP program will not finance any activities that would cause high E&S risks and impacts including activities involving:

- Any land acquisition, physical relocation and/or involuntary resettlement impacts.
- Construction and establishment of BSL-IV laboratories
- Any work that would convert or encroach forest lands, notified wetlands or eco-sensitive areas.
- Activities that are not in compliance with Central and State environmental legislation.
- Use of child or bonded or forced labor or labor involved in any hazardous activities.
- Destruction or damage to any physical and cultural resources.

9. **Program Actions**. The ESSA document includes a range of recommendations. The Program Actions are as given below:

Table 1. Program Actions recommended by the ESSA

Action Description	Responsibility	Due Date	Completion Measurement
Signing of an MOU with selected construction agency on ensuring key environmental and social clauses for addressing Occupational Health and Safety issues and compliances with the provisions of the national labour laws.	NCDC	Agreement/MOU signed before construction begins	MOU signed
Establishing mechanisms for technical advisory and monitoring of environment and social activities by an expert group during implementation	MOHFW, ICMR, NCDC	Within 12 months of effectiveness	Guidelines prepared detailing mechanism for technical advisory and monitoring supervision of E&S activities, and expert group notified through a Government Order and/or Office Memorandum
Designing online training program on Biosafety, Biosecurity, Biomedical waste management, IPC and OHS for laboratory workforce	NCDC	Within 12 months of effectiveness	Online course available

ANNEX 6. PROGRAM ACTION PLAN

Action Description	Source	DLI#	Responsibility	Timing		Completion Measurement
Strengthen EIS Cell at NCDC with 5 full time officers deputed from central public health cadre/consultants and maintained thereafter	Technical		Epidemiology division, NCDC	Other	Within 24 months of the Effective Date	5 full time officers deputed from central public health cadre/consultants in place and maintain strength thereafter
Reactivate, and conduct annual meetings thereafter, of the Inter-sectoral committee for AMR coordination (Health, Animal Husbandry, Fisheries, Agriculture Environment)	Technical		AMR Surveillance Unit, NCDC	Recurrent	Yearly	a) Government order / office memorandum / letter on constitution of committee b) Minutes of meeting available thereafter on an annual basis
Upgrade the position of Director and appoint and maintain a full time Joint Secretary supported by a team, in number and with qualifications acceptable to the Bank, to effectively steer the Program implementation and results achievement by NCDC	Technical		MOHFW	Other	Within 6 months of the Effective Date	Government order/ office memorandum
Establish regional research platform for World Health Organization – South East Asia region	Technical		ICMR	Other	Within 24 months of the Effective Date	Report on launch of research platform
Signing MOU with	Environmental		NCDC	Other	Agreement/	MOU signed

selected construction agency which shall include the obligations to comply with key environmental and social clauses for addressing Occupational Health and Safety issues and comply with the provisions of the national labour laws	and Social Systems				MOU signed before constructio n begins	
Design and roll out an online training program on biosafety, biosecurity, biomedical waste management, infection prevention and control, and occupational health & safety for laboratory workforce	Environmental and Social Systems		NCDC	Other	Within 12 months of the Effective Date	Self-paced online course available
Establish mechanisms for technical advise and monitoring implementation of environmental and social activities by an expert group	Environmental and Social Systems		NCDC, ICMR and MOHFW	Other	Within 12 months of the Effective Date	Guideline prepared detailing mechanism for technical advise and monitoring implementation of environmental and social activities, and expert group established
Establish audit committees at ICMR and NCDC	Fiduciary Systems		NCDC and ICMR	Other	Within 6 months of Effectivenes s, and continued during the Program period	Office memorandum on institution of audit committee in ICMR and NCDC
Establish process and system within NCDC to manage compliance and follow up of issues raised by internal and Comptroller &	Fiduciary Systems		NCDC	Other	Within 6 months of the Effective Date, and continued during the	Guidelines issued on process to be followed to manage compliance and follow ups of audit issues raised in internal audit and C&AG audits

Auditor General (C&AG) audits					Program period	
Develop a mechanism to strengthen the in-house internal audit at ICMR	Fiduciary Systems		ICMR	Other	Within 6 months of Effectiveness, and continued during the Program period	Office memorandum on institution of mechanism to strengthen in-house internal audit
Report complaints/grievances received on Centralized Public Grievance Redress and Monitoring System (CPGRAMS) and GeM portal (including those on procurement) and their resolution biannually	Fiduciary Systems		NCDC, ICMR, MOHFW	Other	Within 6 months of the Effective Date (bi-annual)	Bi-annually, report submitted to the Bank on procurement and other grievance redressal as received on CPGRAMS and GeM portals
Disclose contract award of value more than INR 1 crore on respective websites within 15 days after award of said contract	Fiduciary Systems		NCDC, ICMR, MOHFW	Recurrent	Semi-Annually	Bi-annually, report submitted to the Bank on disclosures
Submit report on Fiduciary Key Performance Indicators (KPI) to the Bank by NCDC, ICMR and MoHFW in agreed formats	Fiduciary Systems		NCDC, ICMR, MOHFW	Recurrent	Semi-Annually	Bi-annually, report submitted to the Bank on Fiduciary KPIs
Publicly disclose annual audit reports and audited financial statements of NCDC and ICMR, as well as for the overall Program on their official websites.	Fiduciary Systems		NCDC and ICMR	Recurrent	Yearly	Annually shared with the Bank (within a month from receipt of an acceptable report) and publicly disclosed.