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Report No: PAD5055

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$82 MILLION

TO

INDIA

FOR AN

ANIMAL HEALTH SYSTEM SUPPORT FOR ONE HEALTH PROGRAM-FOR-RESULTS (AHSSOH)

April 18, 2023

Agriculture And Food Global Practice
South Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective Feb 28, 2023)

Currency Unit = INR

INR 82.50 = US\$1

US\$0.75 = SDR 1

FISCAL YEAR

April 1 - March 31

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**ABBREVIATIONS AND ACRONYMS**

AAP	Annual Action Plan
ACG	Anti-Corruption Guidelines
AHD	Animal Husbandry Department
AHSSOH	Animal Health System Support for One Health
AMR	Anti-Microbial Resistance
ASCAD	Assistance to States for Control of Animal Diseases
BMGF	Bill and Melinda Gates Foundation
BMW	Biomedical Waste
BSL	Bio Safety Levels
CH ₄	Methane
CO ₂ -eq	Carbon Dioxide Equivalents
CoA	Chart of Accounts
COVID	Coronavirus Disease
CPF	Country Partnership Framework
CPGRAMS	Centralized Public Grievance Redress and Monitoring System
C&AG	Comptroller & Auditor General of India
DAHD	Department of Animal Husbandry and Dairying
DLI	Disbursement Linked Indicator
DLR	Disbursement Linked Results
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
ESSA	Environmental & Social Systems Assessment
ESVHD	Establishment and Strengthening of Veterinary Hospitals and Dispensaries
E&S	Environmental and Social
FBD	Food-borne Disease
FMD	Foot and Mouth Disease
FSA	Fiduciary Systems Assessment
FSSAI	Food Safety and Standards Authority of India
GAHP	Good Animal Husbandry Practices
GCRF	Global Crisis Response Framework
GDP	Gross Domestic Product
GHG	Greenhouse gas
GoI	Government of India
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
IBRD	International Bank for Reconstruction & Development
ICAR	Indian Council of Agricultural Research
ICMR	Indian Council for Medical Research
ISO	International Organization for Standardization
IT	Information Technology
IVA	Independent Verification Agency
KPI	Key Performance Indicators
LHDCP	Livestock Health and Disease Control Program
LIMS	Laboratory Information Management System



LoU	Letter of Undertaking
MIS	Management Information System
MoEFCC	Ministry of Environment Forestry and Climate Change
MoHFW	Ministry of Health and Family Welfare
MoFAHD	Ministry of Fisheries Animal Husbandry and Dairying
MVU	Mobile Veterinary Unit
M&E	Monitoring & Evaluation
NADCP	National Animal Disease Control Program
NADRS	National Animal Disease Reporting System
NCDC	National Center for Disease Control
NDLM	National Digital Livestock Mission
NGO	Non-Governmental Organization
NPIU	National Project Implementation Unit
OH	One Health
OHSU	One Health Support Unit
OIE PVS	World Organization for Animal Health - Performance of Veterinary Services
PAP	Program Action Plan
PDO	Program Development Objective
PFMS	Public Financial Management System
PforR	Program for Results
PHSPP	Public Health System for Pandemic Preparedness Program
PIM	Program Implementation Manual
PMU	Program Management Unit
PPR	<i>Peste des Petits Ruminants</i>
PSC	Program Steering Committee
PSCA	Parliamentary Standing Committee on Agriculture
RA	Results Area
RDDL	Regional Diseases Diagnosis Laboratories
REDISSE	Regional Disease Surveillance Systems Enhancement Project
SIA	State Implementing Agencies
SNA	State Nodal Agencies
SOP	Standard Operating Procedures
SPIU	State Program Implementing Unit
SSP	State Strategic Plan
Tg	Tetragrams
TSA	Technical Support Agencies
WBG	World Bank Group
WOAH	World Organization for Animal Health



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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
India	Animal Health System Support for One Health Program (AHSSOH)	
Project ID	Financing Instrument	Does this operation have an IPF component?
P177671	Program-for-Results Financing	No

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Contingent Emergency Response Component (CERC)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Small State(s)	<input type="checkbox"/> Conflict
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)	
Expected Project Approval Date	Expected Closing Date
10-May-2023	30-Nov-2027

Bank/IFC Collaboration

No

Proposed Program Development Objective(s)

The Program Development Objective is to increase the quality and coverage of animal health services for livestock farmers and improve One Health coordination in Participating States.

Organizations

Borrower :	India
Implementing Agency :	Ministry of Fisheries, Animal Husbandry & Dairying, Department of Animal Husbandry & Dairying
Contact:	Dr. O P Chaudhary



Title: Joint Secretary (LH)

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COST & FINANCING

SUMMARY

Government program Cost	164.00
Total Operation Cost	164.00
Total Program Cost	163.80
Other Costs	0.21
Total Financing	164.00
Financing Gap	0.00

Financing (USD Millions)

Counterpart Funding	82.00
Borrower/Recipient	82.00
International Bank for Reconstruction and Development (IBRD)	82.00

Expected Disbursements (USD Millions)

Fiscal Year	2023	2024	2025	2026	2027	2028
Absolute	0.00	7.17	15.09	22.84	25.41	11.48
Cumulative	0.00	7.17	22.26	45.10	70.52	82.00

INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Environment, Natural Resources & the Blue Economy,
Health, Nutrition & Population



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	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Low
9. Other	Low
10. Overall	Moderate

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.D.1 of Schedule 2 to the Loan Agreement (LA): The Borrower, through MoFAHD, shall ensure that, not later than three (3) months after the Effective Date, each Participating State will submit to MoFAHD a Letter of Undertaking (“LoU”) for the Borrower to provide financing for Program Expenditures to the Participating State, under terms and conditions set forth in this Agreement and the PIM.

Sections and Description

Section I.F.1(a) of Schedule 2 to the LA: The Borrower shall not later than three (3) months after the Effective Date (or such other date which the Bank has confirmed in writing to the Borrower is reasonable and acceptable under the circumstances) engage and thereafter maintain, at all times during the implementation of the Program, an independent verification agent under terms of reference acceptable to the Bank to verify the evidence supporting the achievement of one or more DLRs and certify the fulfillment of such DLRs.

Sections and Description

Section I.B.3 of Schedule 2 to the LA: The Borrower shall: (a) maintain, until the completion of the Program the NPIU consisting of the existing staff of the DAHD and headed by the Joint Secretary of the MoFAHD, with the One Health Support Unit (“OHSU”) providing support, to manage the Program at the national level; and (b) not later than six (6) months after the Effective Date (or such other date which the Bank has confirmed in writing to the Borrower is reasonable and acceptable under the circumstances) ensure that the DAHD is fully staffed, including, inter alia, with additional technical consultants to strengthen capacity in specific areas including procurement, and implementation and oversight of the environmental and social framework, all as set forth in the PIM.

Sections and Description

Section I.B.4 of Schedule 2 to the LA: The Borrower shall, not later than three (3) months after the Effective Date (or such other date which the Bank has confirmed in writing to the Borrower is reasonable and acceptable under the circumstances), establish and thereafter maintain, until the completion of the Program, at each Participating State, a One Health Coordination Committee to oversee the Program at the state level, which will also serve to oversee implementation of the State Strategic Plan at the state level, as set forth in the PIM.

Sections and Description

Section I.B.5 of Schedule 2 to the LA: The Borrower shall, not later than six (6) months after the Effective Date (or such other date which the Bank has confirmed in writing to the Borrower is reasonable and acceptable under the circumstances), establish and thereafter maintain, until the completion of the Program, at each Participating State, a SPIU to assist AHDs in day-to-day management and implementation of the Program, all as set forth in the PIM.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	Section 4.01(a) of Article IV of the LA: The Program Implementation Manual has been adopted in a



		manner acceptable to the Bank.
Type Effectiveness	Financing source IBRD/IDA	Description Section 4.01(b) of Article IV of the LA: The Borrower has established the Program Steering Committee in a manner acceptable to the Bank.
Type Effectiveness	Financing source IBRD/IDA	Description Section 4.01(c) of Article IV of the LA: The Program: (i) has been budgeted under a separate scheme head in the annual budget of DAHD; (ii) has a uniform funding pattern of 100 percent central assistance; and (iii) funds have been flowing directly into the PFMS registered bank accounts in the Participating States.
Type Disbursement	Financing source IBRD/IDA	Description Section IV.B.1 of Schedule 2 to the LA: 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 \$3,000,000 may be made on the basis of DLRs achieved prior to this date but on or after October 1, 2022; or (b) for any DLR under Categories (1) to (5), until and unless the Borrower has furnished evidence satisfactory to the Bank that said DLR has been achieved.



I. STRATEGIC CONTEXT

A. Country Context

1. **India's growth is expected to moderate in FY23/24 to 6.3 percent, from an estimated 6.9 percent in FY22/23, due to easing consumption growth and global growth spillovers.** Despite the global growth slowdown, real GDP is expected to have expanded by 6.9 percent in FY22/23.¹ This robust growth was underpinned by buoyant private consumption in the first half of FY22/23 and strong expansion in investment activity supported by a sustained increase in public capital spending. In contrast, government consumption growth moderated due to the central government's commitment to reduce current spending. Robust domestic demand and elevated food prices kept headline inflation above the Reserve Bank of India's tolerance range (2 – 6 percent) in FY22/23. The growth momentum eased in the second half of FY22/23 as high inflation, higher borrowing costs and global spillovers weighed on domestic demand and dampened exports growth. Real GDP growth is expected to moderate further to 6.3 percent in FY23/24. Consumption is likely to be constrained by rising borrowing costs, slower growth in incomes and continued fiscal consolidation. The government's sustained investment push, healthy corporate profits, and a reduction in bank nonperforming loans will likely buoy investment despite reduced risk appetite and elevated input costs. Slowing imports growth and ongoing strength in services exports is expected to contribute to a narrowing of the current account deficit to 2.1 percent of GDP in FY23/24. Despite the increased public investment, the government is likely to continue pursuing fiscal consolidation. The general government deficit will decline to 8.7 percent in FY23/24 (9.4 percent: FY22/23), due to lower current spending and modest revenue growth, reflecting the withdrawal of pandemic-related support programs. The current level of the fiscal deficit stabilizes the debt-to-GDP ratio at around 83 percent.

2. **India has made remarkable progress in reducing extreme poverty over the past two decades, with the share of the population living below US\$2.15 per person per day (2017 PPP) estimated to have halved between 2011 and 2019.**² However, the pace of poverty reduction has slowed in recent years, with key welfare indicators being slow to improve.³ These recent estimates suggest that the COVID-19 pandemic induced spike in extreme poverty (US\$2.15 per capita per day, 2017 PPP), of up to 4 percentage points, moderated in 2021-22. Facilitated by widespread access to vaccines, extreme poverty rates are estimated to have declined to 13.8 percent in 2021-22, although not as low as pre-pandemic levels. More than 40 percent of India's population lived below the lower-middle income poverty line (US\$3.65 per capita per day, 2017 PPP) even before the pandemic.⁴ Inequality in consumption has remained stable, with a Gini index of around 35 over the past two decades. Child malnutrition has remained high, with 35.5 percent of children under the age of 5 years being stunted and 67 percent of children aged 6-59 months being anemic during 2019-21.⁵ Headline employment indicators have improved since 2020 but concerns about job quality and real wage growth remain.⁶

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

3. **India has one of the largest livestock populations in the world, with the sector significantly contributing to India's agricultural GDP.** The livestock census (2019) estimates India's livestock population at 536 million.

¹ World Bank real GDP forecasts published in India Development Update, April 2023.

² Estimates are based on the methodology documented in a World Bank Policy Research Working paper by Roy and van der Weidie (2022), which relies on imputed consumption from the Consumer Pyramid Household Surveys (CPHS) implemented by the Centre for Monitoring the Indian Economy, a private data company. The CPHS sample is re-weighted to make it more nationally representative. The series has been revised to incorporate recent survey years (Macro Poverty Outlook, Spring 2023). In 2004, India's extreme poverty rate was 39.9 percent using the same international poverty line. In 2011, this rate was 22.5 percent.

³ World Bank Poverty and Inequality Platform. <https://pip.worldbank.org/country-profiles/IND>.

⁴ World Bank Poverty and Inequality Platform. <https://pip.worldbank.org/country-profiles/IND>.

⁵ Government of India, Ministry of Health and Family Welfare, 2022. National Family Health Survey (NFHS - 5), 2019–21 report.

⁶ World Bank Macro Poverty Outlook. Spring 2023. Estimates from PLFS data.



Globally, India has the largest buffalo population, and the second largest cattle and goat populations. It also has one of the largest poultry markets with an estimated 850 million birds (2019). The livestock sector contributes about 27 percent to agricultural GDP, which amounted to US\$91.7 billion in 2019.⁷ The sector employs 50 percent of the workforce engaged in agriculture and plays a significant role in the livelihoods of millions of people working in the rural economy. There are an estimated 70 million small-scale dairy farms in the country. Livestock is the main source of livelihoods for small and marginal farmers.⁸ The livestock sector contributes to food and nutrition security through the consumption of milk, eggs, and meat, as well as to farm incomes through the sale of livestock and livestock products. Furthermore, livestock is an important asset for many rural households, providing draught power, manure for agricultural production, and insurance against extreme weather.

4. India is at high risk of animal disease outbreaks that have led to enormous economic costs, estimated at more than US\$3.3 billion annually. In India, 68 percent of the workforce relies on farming and remains in close contact with domestic animals and poultry, thereby becoming frequently exposed to sick or infected animals. The increased interaction between livestock, people and wildlife also poses risks of zoonotic disease outbreaks. Indeed, there has been a high incidence of endemic zoonotic diseases, including Rabies, Brucellosis, Toxoplasmosis, Cysticercosis, Echinococcosis, Japanese Encephalitis (JE), Leptospirosis, Scrub Typhus, Zoonotic Tuberculosis, and Kyasanur Forest Disease. Foot and Mouth Disease (FMD) outbreaks alone are estimated to result in about US\$3.3 billion in annual losses through low productivity, mortality of animals, and income losses due to reduced export revenues. More recently, the African Swine Fever outbreak in March 2020 killed more than 100,000 pigs in the northeastern states.⁹ Zoonotic diseases are endemic in India and such outbreaks have occurred at regular intervals. They include the following: Leptospirosis (2005); the Avian Flu (2006, 2020); Nipah virus (2018); Severe Respiratory Syndrome (2003); as well as bubonic and pneumonic plagues (1994). Rabies is fatal and endemic in India, and India accounts for about 35 percent of the global burden of rabies.¹⁰ About 97 percent of the estimated 20,000 annual rabies deaths in India are by dog bites.¹¹

5. A lack of awareness about good animal husbandry practices and weak monitoring of food safety in animal-sourced products contribute to disease outbreaks and economic losses. The estimated economic burden of food-borne diseases (FBD) in India is approximately US\$15 billion per year, including productivity losses, the costs of treating illnesses, as well as trade-related losses.¹² Globally, Asia and Africa have the highest burden of FBD, with India bearing the second largest cost of FBD worldwide. Furthermore, FBDs disproportionately affect the poor and children under five years old and are one of the main drivers of stunting.¹³ Animal products and fresh produce are a major source of FBDs and contribute significantly to the economic burden of FBDs. For example, pathogenic bacteria such as *Salmonella* are commonly found in meat, poultry, seafood and *khoa* (a dairy-based dessert) in India.¹⁴ Similarly, *E coli* 0157 is commonly found in meat, milk, *paneer*, and ice cream.¹⁵ India has more than 1,176 slaughterhouses and 75 modern abattoirs, as well as hundreds of illegal slaughterhouses.¹⁶ The implementation of disease control mechanisms and food safety standards at critical risk

⁷ Trading Economics. www.tradingeconomics.com. (2019).

⁸ Bora, N. (2017). "Vulnerability of the Livestock Sector to Climate Change Condition: A Case of India". *International Journal of Environment, Agriculture and Biotechnology (IJEAB)*. Vol. 2, Issue 1.

⁹ www.feedstrategy.com.

¹⁰ Hampson, K. et al (2025). "Estimating the Global Burden of Endemic Canine Rabies". *Neglected Tropical Diseases*. Vol. 9(5) and WHO. WHO Expert Consultation on Rabies: Third Report; Abela-Ridder, B., Ed.; World Health Organization: Geneva, Switzerland, 2018; ISBN 9789241210218.

¹¹ Radhakrishnan, S., et al (2020). "Rabies as a Public Health Concern in India—A Historical Perspective". *Trop. Med. Infect. Dis.* 2020, 5, 162.

¹² The World Bank Group. "The Safe Food Imperative". Steven Jaffee et al. (2016).

¹³ Stunting is very high in India, impacting 35 percent of under five-year-old children (40 million).

¹⁴ Singh, P. et al. (2018). "Prevalence of *Salmonella* spp in Milk and Milk products. *Asian Journal of Dairy and Food Research*. Vol: 37 (1) p. 12.

¹⁵ Rao, S. et al, (2012), "Foodborne diseases in India – A Review". *Food Journal*. Vol. 114 (5) pp. 661 – 680.

¹⁶ Central Pollution Control Board in Consultation with Central Leather Institute. "Revised Comprehensive Industry Document on Slaughterhouses". (2017).



points, including slaughter facilities and informal cattle markets is weak, thereby contributing to FBD and animal disease outbreaks.

6. Women face multiple barriers in accessing animal health services, and targeted interventions are needed to address these barriers as they are most at risk of zoonoses. The following gender gaps were identified as being relevant to the Program Boundary. *First*, rural women provide over 75 percent of production labor, which includes managing animal fodder and nutrition; milking; animal health; manure management; and overseeing pen cleaning. Yet women face many constraints, including a lack of awareness of and access to veterinary and extension services, as well as to training interventions. *Second*, women scientists working in the livestock sector face limited leadership opportunities. For instance, whereas 56 percent of scientists working in animal health laboratories are women, only 43 percent of laboratory managers are women (World Organization for Animal Health (WOAH), 2012). *Third*, pregnant women and women frontline workers are highly vulnerable to zoonoses exposure since they oversee the management of regular livestock activities. The risks for pregnant women include miscarriages and stillbirths due to inadequate information and exposure. Veterinarians and para-vets are at higher risk of zoonoses—and over 70 percent of veterinary students are female. These gaps and constraints highlight the need for greater development of veterinary capacity and service delivery.

7. Wildlife-livestock-human transmission risks are increasing rapidly. India is one of 17 mega-diverse countries, with 7–8 percent of recorded species on 2.4 percent of the earth's land area. Although India has taken significant measures to protect its forest areas (currently about 24 percent of India's geographic areas), the quality of forests is degrading in several pockets due to the continued extraction of firewood and open grazing practices by forest-fringe livestock owners. These forest-fringe populations are exposed to increased risk of zoonotic diseases that jump from wildlife to livestock and/or humans. The lack of systematic disease surveillance, inadequate veterinary capacity, and a lack of a consolidated database of wildlife disease incidents increase zoonotic disease transmission risks from the wildlife sector.

8. The threat of future pandemics from diseases of animal origin is real—with the main risk factors being weak disease surveillance, diagnosis and reporting in the livestock and wildlife sectors, emerging pests, as well as increased disease risks due to climate change and land-use changes. Diseases of animal origin continue to pose global risks to public health systems. About 60 percent of pathogens that cause human diseases come from domestic animals or wildlife, and 75 percent of emerging human pathogens are of animal origin.¹⁷ With climate change and increased interaction of the human population with wildlife, these threats are intensifying—especially given the projected growth in the demand and production of animal-sourced products in India, combined with the importance of the livestock sector for the livelihoods of the poor. Therefore, improving disease management capacity is imperative to reducing the risks of spillover of diseases to people.

9. Anti-microbial resistance (AMR) is a major public health concern in India. AMR occurs when microbes (e.g., bacteria, viruses, fungi, and parasites) adapt over time and no longer respond to drugs which makes infections harder to treat and increases the risk of disease spread and severe illness. According to the National Center for Disease Control (NCDC) (2017), the emergence of resistance is not only limited to the older and more frequently used classes of drugs, but there has been a rapid increase in resistance to the newer and more expensive drugs, like carbapenems. There is a rising rate of AMR across multiple pathogens of clinical importance in India. In 2008, about 29 percent of isolates of *Staphylococcus aureus* were methicillin resistant, and by 2014, this has risen to 47 percent (NCDC, 2017). There have been few assessments of AMR in the livestock sector and in animal-sourced products, and the emergence of AMR from antibiotic overuse in the animal sector is likely to be an unmeasured burden in India. In addition, livestock farmers face additional risk due to their close contact with animals that

¹⁷ www.oie.org - renamed World Organization for Animal Health (www.woah.org) on 30 May 2022.



might be colonized or infected with resistant bacteria.

10. Climate change has many multiplier effects on animal health and zoonoses risks. With increasing temperatures, the most significant direct impact comes from heat stress that negatively impacts animal welfare and productivity. Heat stress causes metabolic alterations and oxidative stress. It also suppresses the immune and endocrine system, resulting in an increased propensity for disease incidence, animal death, and reduced productivity. Research projects that heat stress will reduce milk production in India by 15 million tons by 2050, which may pose a significant financial burden to livestock producers.¹⁸ Furthermore, extreme events, including severe droughts, precipitation events, and coastal floods, have direct impacts on livestock. The indirect effect follows more intricate pathways and includes the climate influences on pathogen density, as well as the distribution and multiplication of vectors and vector-borne diseases and soil, food, and water-borne diseases. Recent research concluded that climate change is increasing the risks of emerging new viruses and lists India as one of the highest-risk regions for emerging new viruses due to the impacts of climate change.¹⁹ Climate change also compounds several social and economic drivers, such as land use change and urbanization, which continue to put the human population and livestock closer to wildlife—thereby facilitating the growing threat of a zoonotic spillover of emerging new diseases. Climate change impacts will likely exacerbate existing vulnerabilities and inadequacies in the country's animal health and food safety systems, introducing additional burden on the capacities of institutions for their preparedness and response to emerging new diseases.

11. CH₄ emissions from Indian livestock was 15.3 Tg in 2012. GTP₂₀ and GTP₁₀₀ for livestock-related CH₄ emission in India in 2012 were 1030 and 62Tg CO₂-eq, respectively.²⁰ Improved animal health contributes to greater gains in efficiency and productivity, which in turn helps to reduce the greenhouse gas (GHG) intensity of livestock farming. While the livestock sector is a major source of GHG emissions, there are practical entry points for mitigating climate change, including increasing the adoption of better health management of livestock and disease management practices at the farm level and adoption of better manure management practices to reduce GHG emissions.

12. The core capacity for animal health management in India needs strengthening. There are several government schemes targeting specific animal diseases including various vaccination schemes (e.g., FMD vaccination). But in other areas, the management of diseases has largely been reactive and prevention capacity is weak. The schemes focus more on containment measures to prevent the spread of animal diseases during outbreaks, rather than on preventive measures such as improved livestock management systems, disease surveillance and testing. The underlying capacity for animal disease management in India is weak, which increases the risks of disease spillover from animals to humans. Operationalizing more effective “One Health” coordination is predicated on strengthening the core aspects of animal disease management, particularly disease surveillance, the capacity for timely and accurate disease diagnosis, and the provision of quality veterinary services. On the wildlife side, this would require building national and sub-national capacity for disease surveillance and reporting, which can be integrated with animal and human disease reporting on a single digital platform. Furthermore, potential hotspots for harmful pathogens need to be identified and monitored.

13. The Department of Animal Husbandry and Dairying (DAHD) has launched several schemes to strengthen animal health management. The implementation of the overall set of animal health management schemes has achieved some results. However, key challenges remain, including institutional strengthening to enhance the results orientation of such programs, as well as adopting a One Health framework. The last WOAHP Performance of Veterinary Services (OIE PVS) conducted in 2018, and the assessment report of the Parliamentary Standing

¹⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4823286>.

¹⁹ Carlson, C.J., Albery, G.F., Merow, C. *et al.* Climate change increases cross-species viral transmission risk. *Nature* (2022).

²⁰ Kumari S *et al.* (2018). DOI: 10.5772/intechopen.81713.



Committee on Agriculture (PSCA) released in August 2021 identified several gaps and challenges.²¹ In addition, data and information gathered through stakeholder consultations during the Program preparation revealed various weaknesses. The main challenges and gaps are as follows:

- **Veterinary manpower shortages and low quality of training and oversight.** At the country level, a mere 34,500 field veterinarians are employed as compared to a requirement of 67,000. There is a gap of about 50 percent in the number of needed para-veterinarians.²² The existing veterinary technicians and field support staff (52,000 actively employed) meet less than 20 percent of the needs on the ground. Few veterinarians have received sufficient training in applied epidemiology and related subjects, such as risk analysis, food safety management systems, biosafety and biosecurity, and quality assurance. The shortages of field veterinarians contribute to a lack of supervision of veterinary para-professionals. There is also variability in the quality of training for veterinary para-professionals.
- **Diagnostic capacity challenges, including significant variability between states.** There are notable shortcomings, including: (i) a lack of a standardized sampling framework; (ii) training and incentives for field staff to collect and transport samples following proper handling protocols; (iii) few diagnostic facilities at the district level; and (iv) weak infrastructure and systems for last-mile veterinary service provision and incomplete or inaccurate disease diagnostics. There is also significant variability in the utilization and quality of animal disease diagnostic infrastructure across states. The required lab infrastructure and equipment are considered inadequate in some laboratories but in others, existing infrastructure and equipment are not optimally utilized. The laboratories do not follow a uniform system of quality protocol procedures. Since there is no state- or national-level benchmark standards, the animal disease diagnostic performance of the laboratories varies within and between the states. Since there are no regular audits, it is unknown whether some laboratories are following the prescribed standard biosafety protocols required for waste disposal, and for other laboratories there are no protocols being followed. In addition, due to the lack of a lab consumables procurement system, some laboratories receive surplus consumables, whereas others face shortages. The small block or district-level laboratories are most affected because of inadequate infrastructure, equipment, consumables, manpower, capacities, systems, and protocol. This limits the scope of their abilities to provide animal disease diagnostic services to remote rural areas.
- **Inadequate knowledge and skills among laboratory staff.** This is exacerbated by the frequent transfer of manpower, which poses a challenge as laboratories require skilled manpower at all times. Poor logistical support for sample collection, labelling, packaging, storing, and dispatching restricts the number of good quality samples received in the laboratories, resulting in disease underreporting. This in turn negatively impacts disease surveillance. The issuance of timely laboratory results to the intended target group(s) is currently not effective.
- **Disease surveillance and reporting challenges.** Key gaps found by the World Organization for Animal Health - OIE PVS investigation of India include: (i) a lack of sound outbreak investigations with identification of risk factors and tracing; (ii) minimal surveillance activity at both slaughter facilities and livestock markets, which are important aggregation sites for disease detection and risk management; (iii) a lack of routine differential diagnostic testing of key syndromes, e.g., FMD and highly pathogenic avian influenza (HPAI); and (iv) an overdependence on vaccinations with inadequate supporting control measures such as public

²¹ OIE was renamed to WOA in May 2022. OIE and WOA are used interchangeably in the document.

²² Veterinary para-professionals are community animal health workers who received training to provide services in artificial insemination, first-aid, administration of medicine and vaccines and who assist veterinarians.



awareness, movement control and improved biosecurity. A further challenge to managing diseased cattle is the inability to cull them – despite legal mandates (e.g., in the case of FMD)– because of prohibitive cattle slaughter policies due to the religious significance of cows in India. Additional gaps include the lack of access of disease reporting systems by last-mile staff, a lack of systematic training, and poor incentives for staff to use such systems. A computerized National Animal Disease Reporting System (NADRS) was established in 2009. However, it is barely functional, with very few disease incidents (4,800) reported through the platform in FY20–21 because farmers have little incentive to do so. There is weak coordination with the staff of the wildlife/forest department at the state level for integrating wildlife disease surveillance. The OIE (2018) recommends improving the sharing of zoonotic disease information between human health and animal health, as well as better coordination concerning food safety at the slaughter, distribution, and retail levels to improve surveillance.

- **Poor livestock extension support.** Despite the increasing salience of livestock in the agricultural sector in India, agricultural extension systems do not include knowledge and extension support for Good Animal Husbandry Practices (GAHP), including farm-level biosafety and biosecurity procedures to prevent and minimize animal disease and zoonotic transmission risks. Animal health services, such as vaccinations and disease management, are provided through veterinary and para-veterinary workers. Also, there is no standardized framework in place for them to provide knowledge support to farmers with a preventive lens.

14. Improved animal health outcomes require a shift from a schemes-based approach to a systems-based approach, as well as increased implementation capacity at the Centre and in the Union States. Animal health management is considered a state subject in the Indian Constitution, with inter-state transmission of diseases a concurrent responsibility for both the Union States and the Center. However, a sizable proportion of the financial outlays for animal health management comes from central sector schemes. They have focused on management and eradication (through vaccinations) of individual animal diseases. Schemes are implemented in silos at the state level, with limited resources being used uniformly across the state, rather than emphasizing high-risk diseases and geographic hotspots. The state context with respect to disease risk varies widely, and a flexible approach will be needed to address state-specific needs.

15. A OH framework is required for the effective prevention of zoonotic-related pandemics and outbreaks. The OH framework emphasizes multidisciplinary collaboration for holistic interventions to help reduce disease risks by improving human, animal, and environmental health through enhanced control of neglected and emerging infectious diseases, many of which are zoonoses. There is a history of public investment in strengthening aspects of the OH framework in India. In this context, various specialized public sector institutions have been created in areas from food safety to animal disease forecasting. India was one of the pioneers in adopting the OH framework, hosting the International Ministerial Conference on OH in 2007 that adopted core OH principles. Furthermore, a high-level Committee on Eco-Health was established by the Ministry of Health and Family Welfare (MoHFW) in 2020. However, the operationalization of OH activities and coordination on the technical level between animal and human health has been weak. There is little sharing of information and data between relevant institutions. For example, both rabies control and AMR management are fragmented between human health and animal health services, thereby limiting their effectiveness.

C. Relationship to the CPS/Country Partnership Framework (CPF) and Rationale for Use of Instrument

16. The proposed Animal Health System Support for One Health (AHSSOH) Program (“Program”) is consistent with the World Bank Group (WBG) Country Partnership Framework FY18-FY22, discussed by the Board of



Executive Directors on September 20, 2018 (Report No. 126667-IN).²³ It contributes to the CPF objective 1.1. to promote more resource-efficient, inclusive, and diversified growth in the rural sector. Building the capacity of livestock farmers and other value chain actors to adopt good animal husbandry practices, better animal health management and awareness of zoonotic disease reduces disease incidence, productivity losses, mortality, as well as the associated and substantial economic costs accruing to rural populations. The Program enhances the adoption of market standards for animal health management, as well as food quality and safety in animal product value chains. With its focus on zoonoses, the Program contributes to objective 1.5 to strengthen disaster resilience by improving the detection and prevention of endemic and emerging infectious diseases.

17. The Program integrates the CPF focus on the “how” by strengthening the capacity of nodal institutions for implementing a OH framework at the national level. At the same time, it partners with the Participating States to build their planning and implementation capacity, thereby helping to operationalize and demonstrate OH on the ground. Finally, it supports “Lighthouse India” with lessons from the Program Participating States, thus informing the national program implementation in other states.²⁴

18. The Program is aligned with the WBG Global Crisis Response Framework (GCRF). It directly contributes to the following two GCRF pillars: Pillar 3 on *Strengthening Resilience* by enhancing pandemic preparedness, and Pillar 4 on *Strengthening Policies, Institutions and Investments for Rebuilding Better* through bolstering the capacity of Participating state and national institutions. The Program commits US\$69.7 million to Pillar 3 and US\$12.3 million to Pillar 4.

19. The World Bank brings significant knowledge and global experience in disease strengthening and surveillance programs with cross-sectoral design. The Bank supported various programs addressing similar development needs guided by the OH principles. The Bank, along with technical partners, led the international support to respond to the H5N1 avian influenza crisis. The post-Ebola Regional Disease Surveillance Systems Enhancement Project (REDISSE) in West and Central Africa also adopted a OH framework to strengthen diagnostic capacity in laboratories, surveillance in human and animal populations, and epidemic preparedness. In this regard, it was highly successful.

20. This Program also draws lessons from World Bank-financed agricultural and livestock projects and will coordinate closely with two companion projects to strengthen the framework for animal health management and OH outcomes. Best practices from several completed and ongoing operations informed the design of this project, including the Livestock Competitiveness and Food Safety Project (P090723) in Vietnam, the Livestock and Fisheries Sector Development Project (P159382) in Ethiopia, and the National Dairy Support Project (P107648) in India. The Program will coordinate closely with: (i) the upcoming National Dairy Support Project, Phase 2 (P178239) to enhance delivery of extension services to dairy farmers and strengthen food quality and safety in the dairy sector; (ii) the Transforming India’s Public Health Systems for Pandemic Preparedness Project (PHSSP) -P175676, approved June 2022) to strengthen implementation of OH collaboration efforts. The Program will explore opportunities of collaboration with the Essential Health Service Delivery Program (P178146, approved June 2022).

²³ A Performance and Learning Review for India is under preparation and is expected to propose a two-year extension to the CPF.

²⁴ As part of the CPF, “Lighthouse India” seeks to create and curate knowledge and know-how generated within the WBG program and India more broadly and systematically disseminate it across India and with the outside world.



21. **The PforR is the best-suited instrument to respond to the current needs of improving animal health management and OH capacity in India.** Given the variability of implementation of existing animal disease control schemes and OH capacity across the states, using an instrument that creates incentives for outcomes rather than inputs will help shift the focus of the current government program towards outcomes. A results-based instrument is most suited to supporting core institutional capacity and a “systems-based” approach for improving coordination and collaboration between human, animal, and wildlife health management. A PforR also allows the World Bank to recognize the Government of India (GoI) in terms of its ownership of and commitments for their animal health program. It does so by providing incentives for states to integrate a multi-sectoral approach to emerging infectious diseases and zoonotic disease management. Lastly, the PforR instrument will strengthen institutional capacity by developing and supporting implementation of governance frameworks, for example, regulations, national standards, and guidelines for various aspects of animal health management and OH.

II. PROGRAM DESCRIPTION

A. Government Program

22. **The DAHD is implementing an overarching animal health management program, namely the Livestock Health and Disease Control Program (LHDCP).** Its objective is to control animal diseases and zoonoses. The program was restructured in 2021 in line with the findings of the OIE PVS evaluation report (2018) and the recommendations of the PSCA (2021). The program consists of: (i) an umbrella Livestock Health and Disease Control Scheme with sub-components targeting the upgrading of veterinary facilities, control of Classical Swine Fever and *Peste des Petits Ruminants* (PPR) Control Programme; and (ii) the National Animal Disease Control Program (NADCP), with two sub-schemes for the control of FMD and Brucellosis (Table 1). The key objectives of the LHDCP are to maintain a healthy, disease-free livestock population and prevent various zoonotic diseases. The NADCP seeks to control FMD and Brucellosis by 2025 with vaccinations, and to eradicate them by 2030. The program and schemes are strategically relevant. Firstly, they contribute directly to national development objectives of doubling farmer incomes, employment generation and entrepreneurship by improving animal health, and increasing livestock productivity and production. Secondly, they contribute to controlling zoonoses and increasing core capacity for animal disease management, thereby helping to reduce the threat of future pandemics. Thirdly, the program contributes to reducing emissions from livestock by improving animal productivity.

Table 1: LHDCP Schemes and Sub-Schemes

LHDCP Scheme	Brief Description
A. Livestock Health and Disease Control Scheme	
(i) Assistance to States for Control of Animal Diseases (ASCAD).	<ul style="list-style-type: none"> • Vaccinate livestock (including poultry) against economically important diseases. • Control of emergent and exotic diseases. • Support for research innovation, publicity, awareness, and training. • Strengthen disease diagnostic laboratories and biological production units. • National Digital Livestock Mission (NDLM) program, - streamline reporting of animal diseases using a computerized system to record and monitor the livestock disease situation in the country. • Compensation to farmers for the culling of infected animals.



(ii) Establishment and Strengthening of Veterinary Hospitals and Dispensaries (ESVHD).	• Help states establish new veterinary hospitals, dispensaries, and Mobile Veterinary Units (MVU), as well as strengthen/equip the existing ones.
(iii) PPR-Control Programme.	• Vaccination of goat and sheep population against PPR.
(iv) Classical Swine Fever Control Program (CSF – CP).	• Vaccination against classical swine fever.
B. National Animal Disease Control Program (NADCP)	
(i) FMD Control Program.	• Vaccination against FMD.
(ii) Brucellosis Control Program.	• Vaccination against Brucellosis.

23. **The GoI has shown a commitment to the LHDCP, and the program has achieved results.** Achievements include: (i) the vaccination of 381 million cattle against FMD and the declaration of FMD-free zones in three states; (ii) the introduction of an animal disease reporting system - NADRS; (iii) immunization against other economically important diseases (including Brucellosis and PPR); and (iv) the initiation of a control program for classical swine fever in the northeastern regions. However, these achievements are constrained by the factors noted earlier, and gaps exist. The government allocated approximately US\$462 million from FY17-18 to FY20-21 covering all 29 states and 8 union territories. Budgetary allocations to the schemes have been increasing, and about US\$140 million was spent in FY20-21. The budgetary allocation for the overall government program for FY21-26 is US\$1.3 billion.

24. **The restructured LHDCP focuses on building systemic capacity to prevent, manage, and respond to animal diseases.** The program seeks to move from a focus on financing inputs to a focus on systemic capacity and outcomes. To do so, it focuses on six Results Areas (RAs) related to key challenges identified in the sector: strengthening institutional capacity for integrated animal health management and OH coordination; improving quality, coverage and access to veterinary services; strengthening disease diagnostic capacity and efficiency; developing and scaling up the use of digital disease surveillance platforms; enhancing community awareness and the adoption of the GAHP; and achieving comprehensive vaccination coverage against the most economically significant animal diseases (Table 2).

Table 2: LHDCP Results Areas (RAs)

	Measurable Results
I. Strengthen institutional and implementation capacity	
Strengthen planning, implementation, coordination, and monitoring capacity.	<ul style="list-style-type: none"> • Evidence-based strategic plans for program implementation focusing on priority diseases and high-risk geographic areas developed and implemented by states. • OH coordination framework established, and animal disease and AMR data are shared at the state and national levels.
II. Improve access to quality animal health care and better disease control and management	
Upgraded veterinary health and laboratory infrastructure for effective service provision.	• Upgraded animal health service infrastructure in one hundred districts.
Functioning MVUs providing services in remote locations.	• Increase in the number of women farmers and farmers in remote locations receiving doorstep services.
Enhanced capacity of veterinarians, para-veterinarians to provide quality services.	• Increased proportion of veterinarians, para-veterinarians trained under the updated OH framework.
III. Building capacity for better diagnostic systems	
Laboratory and diagnostic facility capacity upgraded at regional, state, district, and block levels.	• Upgraded infrastructure for regional and state laboratories, with relevant accreditation received.
Training of laboratory manpower in good practices.	• Good laboratory practices adopted by laboratories.



IV. Consolidate and scale up animal health and disease surveillance using information technology (IT) systems	
Disease reporting under the NDLM is functional.	<ul style="list-style-type: none"> The NDLM is rolled out in all districts. Animal disease data is being regularly shared with the human health platform.
V. Increased adoption of the GAHP by farmers and other actors along livestock commodity value chains	
Training, extension systems and communication campaigns include the GAHP and enhancing coverage of farmers.	<ul style="list-style-type: none"> Increased number of farmers adopting the GAHP, biosafety and biosecurity measures.
Training on handling practices for staff of identified livestock points, including livestock markets and abattoirs.	<ul style="list-style-type: none"> Increased adoption of safe handling practices and disease screening and reporting at high-risk sites.
VI. Comprehensive vaccination coverage.	
Enhanced pace and coverage of vaccination.	<ul style="list-style-type: none"> 100 percent coverage for all nationally important animal diseases.

25. **The Program will collaborate closely with development partners (DPs) on different aspects of implementation.** The Bill and Melinda Gates Foundation (BMGF) in India is working on advancing the OH Framework. It is funding the OH Support Unit (OHSU) to support the Ministry of Fisheries Animal Husbandry and Dairying (MoFAHD) in developing technical capacity on OH implementation. The OHSU is anchored in the MoFAHD, and it will support the Program on OH coordination. In addition, the Program will collaborate closely with the International Livestock Research Institute (ILRI) on research and technical support, as well as with the Food and Agriculture Organization (FAO) and the WOA. The DPs will contribute to the technical aspects, including undertaking required assessments. The World Bank Executed Food System 2030 Multi-Donor Trust Fund will provide technical support for analyses to the program.

26. **Another Bank operation, the Transforming India's PHSP, which was recently approved; complements the "One Health" framework proposed under areas of the AHSSOH.**²⁵ The PHSP aims to strengthen pandemic preparedness and response systems, as well as institutions in India. The PHSP is anchored in the MoHFW, and it will be implemented by various agencies of the MoHFW, including the Department of Health and Research, the NCDC and the Indian Council for Medical Research (ICMR). The AHSSOH will also collaborate with the PHSP on priority areas for OH, including: (i) strengthening of the OH coordination mechanism among the MoHFW, the MoFAHD and the Ministry of Environment Forestry and Climate Change (MoEFCC); (ii) AMR data and investigations from the livestock sector into the National AMR Plan led by the NCDC; (iii) instituting disease surveillance data sharing mechanisms; (iv) the development of common national standards and standard operating procedures (SOPs) for priority zoonotic diseases; and (v) the promotion of joint research, including the identification of climate-related zoonotic disease hotspots. There are no overlaps in funding between the PHSP and AHSSOH operations. Table 3 summarizes the keys features and OH coordination measures of the AHSSOH and PHSP.

Table 3: PHSP and AHSSOH One Health Coordination Measures

	Results Areas	Linkages to strengthen One Health
PHSP, US\$500 million, 2022-2027	<ol style="list-style-type: none"> Expanding an Information Technology (IT) enabled surveillance system and One Health coordination. Enhancing Bio-security Capacity. Transforming Core Public Health Institutions and Research Agencies. 	<ul style="list-style-type: none"> Sharing of disease surveillance data between animal and human health sectors. Increased coordination in the detection of zoonotic diseases of human importance through increased sentinel surveillance sites. Standardized SOPs and joint investigation of hot spots. Joint training needs assessment and training of
AHSSOH, US\$82 million, 2023-2028	<ol style="list-style-type: none"> Strengthening Institutional Capacity for Implementation and Coordination of the One Health (OH) Framework. 	

²⁵ P175676: \$500 million, approved June 28, 2022. <https://projects.worldbank.org/en/projects-operations/project-detail/P175676>.



	<ol style="list-style-type: none">2. Enhancing Diagnostic Capacity for Effective and Timely Disease Diagnosis.3. Increasing Access to Quality Veterinary Services4. Enhancing surveillance capacity for effective animal disease reporting and monitoring.5. Increasing Community Awareness of Animal Disease Management Practices and Zoonoses.	<p>human, livestock, and wildlife health personnel.</p> <ul style="list-style-type: none">▪ Promotion of joint research platforms to identify priority zoonotic diseases of human importance and develop hotspot maps.
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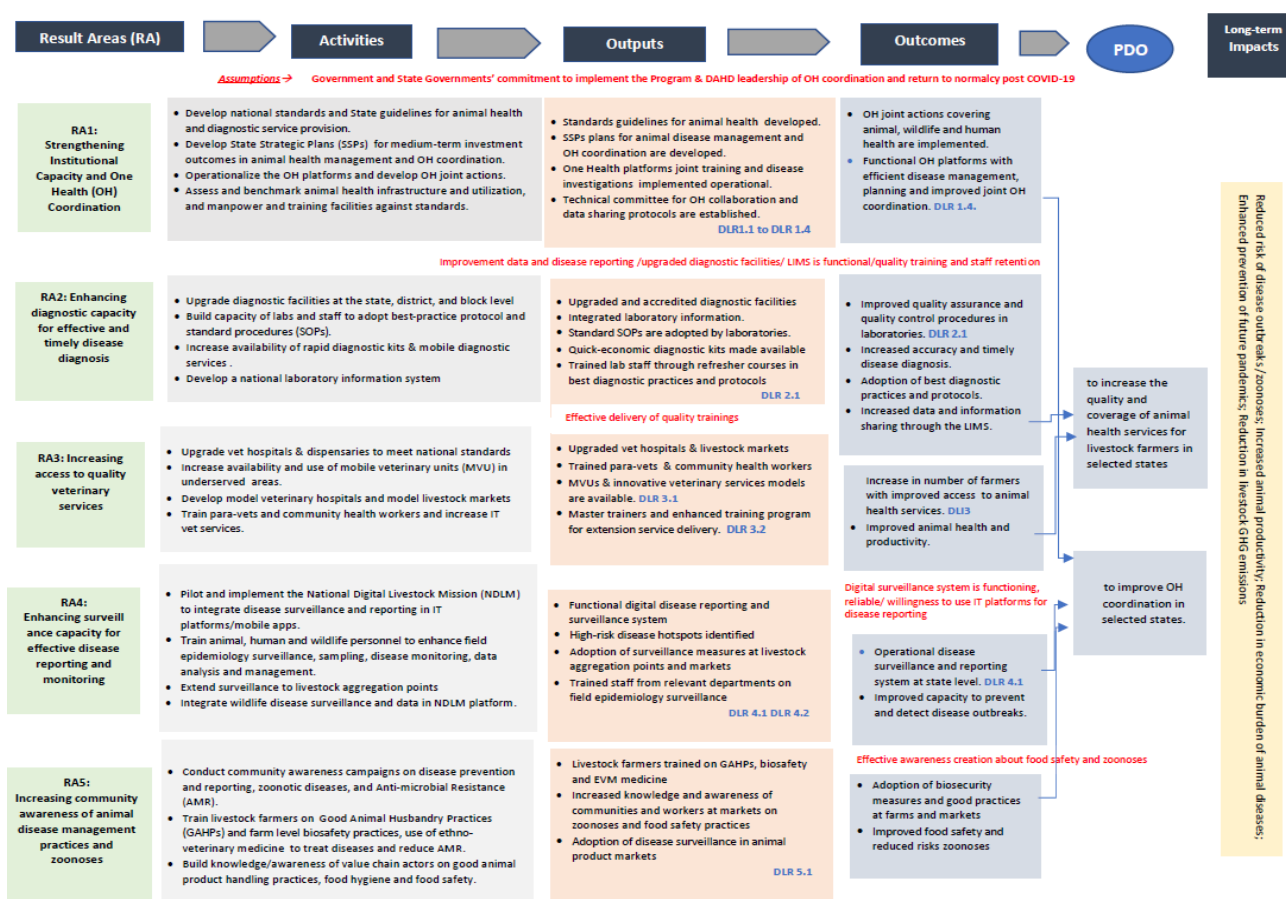
B. Theory of Change

27. The Program aims to build the core capacity of the Participating States to strengthen animal disease management and operationalize OH, as well as to shift the LHDCP toward the adoption of a systems approach to disease management, including zoonoses. The following Theory of Change (ToC) (Figure 1) depicts the causal chain impacting the institutional “means” (intermediate outcomes) and the performance “end” (program development outcomes), thereby contributing to long-term impacts of reducing the risk of disease outbreak and zoonoses, as well as enhancing the prevention of future pandemics.

28. The key assumptions and requirements that underpin the Program ToC include: (i) GoI commitment to implement the program including the provision of central transfers to support focused state engagement and ownership; (ii) high-level commitment and buy-in at the Participating State level to support the institutional capacity diagnostic exercises and the Participating States’ commitment to develop their own strategic plans, forming the basis of the Program support; (iii) DAHD leadership to effectively bring in the environment and human sector counterparts to support the proposed OH interventions, as well as the participation of relevant agencies from the MoHFW; (iv) key outcomes of the RAs rest on improving data and disease reporting by veterinary officers, the availability of skilled manpower, effective implementation and quality training under the RAs, and a willingness to use IT platforms for timely disease reporting and effective awareness creation about food safety and zoonoses.



Figure 1: Theory of Change for the AHSSOH Program



C. PforR Program Scope

29. **The Program will be implemented over five years (FY23-28).** The US\$164 million Program Boundary supported by the Program focuses on aspects of the LHDCP concerning the building of systemic capacity for animal health management and OH coordination (see Program Boundary in Table 4). It supports interventions for institutional capacity building, systems development, and improving the quality and coverage of diagnostic and veterinary services. It will be financed in the amount of US\$82 million by the IBRD and US\$82 million by the GoI. A detailed breakdown of financing across the disbursement-linked indicators (DLIs) are provided in Table 6, and the expenditure framework in Table 2 of *Annex 3*.

30. **The PforR focuses on building systemic capacity for animal health management and OH coordination. As such, it will enhance the impact of the larger government program expenditures.** To achieve this, the AHSSOH Program is supporting a shift in the nature of the MoFAHD's support architecture through the LHDCP. This includes strengthening the capacity of the Participating States to implement the LHDCP as an integrated program with clearly defined outcomes, rather than a set of animal health schemes. It will also adapt the program to focus on priority diseases and high-risk geographies based on the Participating State context. In addition, the AHSSOH will support the capacity of the DAHD to implement and monitor the LHDCP at the national level.



31. **The Program adds value to the LHDCP.** This will be through: (i) directly addressing the key identified gaps on animal disease diagnostics, surveillance, and in animal health service delivery; (ii) investing in specific activities to strengthen preventive measures of animal diseases and zoonoses management, including increasing knowledge and training on biosecurity and GAHPs; (iii) improving OH coordination mechanism and addressing selected OH issues in the Participating States; and (iv) addressing food safety and conducting risk-based assessments in livestock product value chains, which will create knowledge and data to support evidence-based interventions and policies on animal disease and zoonoses management.

32. **The Program supports the LHDCP implementation in five Participating States.** The Participating States were selected based on a set of criteria, including livestock population, disease risks and commitment to conduct a diagnostic exercise, as well as the development of a State Strategic Plan (SSP) clearly listing outcome goals. The Program implementation in these Participating States will generate learning and best practices for national program implementation in other states.

33. **The Program will be implemented in the states of Assam, Karnataka, Maharashtra, Odisha, and Madhya Pradesh.** These Participating States hold about 138.8 million livestock, which amounts to 26 percent of India's total. Madhya Pradesh is the third leading state in total livestock population in the country. Maharashtra, Assam, and Odisha are among the top ten cattle population states holding a total of 34.8 million cattle. Maharashtra is a major poultry producing state. Together with Karnataka, Assam, and Odisha, it is among the top ten poultry states, holding 207.9 million poultry. The Participating States hold approximately 31 percent of India's dog population of 9.4 million dogs. The five Participating States constitute about 29 percent of India's forest cover, and forests account for 39 percent of the total area of Odisha. There is a sizable wildlife population in the Participating States, and Maharashtra and Assam have among the highest cases of poaching, and illegal trafficking of wild animals is high in Odisha. The rate of animal disease incidence is high in these Participating States. Using the incidence of nine selected priority diseases in all the states reported by the Integrated Disease Surveillance Project (IDSP) (2019 through 2020), the Participating States reported the most incidences.²⁶

Table 4: LHDCP and PforR Program Scope

	Government Program ("p")	Program Supported by the PforR ("P")	Reasons for Non-alignment
Objective	Improving animal health outcomes through enhancing support to states and implementing disparate animal health interventions as a unified program.	Strengthening institutional capacity, quality of technical services and coverage to achieve enhanced animal health and OH outcomes in Participating States.	The Bank will support a subset of the government program.
Duration	FY 21-26	FY 23-28	The original LHDCP has been in place since 2002 and the restructured LHDCP has been in place since 2021. Given the nature of program investments, five years are required to achieve the targeted results. The current financing allocations for the government program have been made up to 2026. The next review of the program and allocations for subsequent years will be made in 2026. As the flagship animal disease control program, the GoI will continue to finance the program and

²⁶ The diseases include Diarrheal Disease, Rabies, Brucellosis, Toxoplasmosis, Cysticercosis, Japanese Encephalitis (JE), Plague, Leptospirosis, Scrub Typhus, Trypanosomiasis, Nipah, Kyasanur Forest Disease, Kala Azar, Dengue, Chicken Gunya, Anthrax, Avian Influenza.



			intends to provide counterpart financing into 2028 (see paragraph 78).
Geographic coverage	National	Five Participating States selected based on criteria including livestock population and disease risks. (Assam, Karnataka, Maharashtra, Odisha, and Madhya Pradesh).	This is to concentrate investments and demonstrate an approach and impact which can then be replicated through the national program in other states.
Results Areas	See Table 2 for RAs 1-6.	The PforR will support the LHDCP RAs 1-5.	RA 6 concerning vaccination coverage is not being supported directly. Government financing is in place for procurement and supply of vaccines. The PforR will support implementation capacity for enhanced delivery of the vaccination programs through RAs 1-5.
Financing	National Program: US\$1.3 billion	US\$164 million.	PforR contribution – US\$82 million.

34. **Table 5 summarizes the US\$164 million Program portion of the LHDCP supported by the PforR by expenditure allocation.** It encompasses expenditures corresponding to the five core RAs of the Program, and these expenditure categories are mapped to specific DAHD budget line items (refer to Table 2 in *Annex 3*).

Table 5: The Program Expenditure Framework (US\$)

Expenditure Categories Summarized from Budget Heads/Objects	
Publicity and awareness	2.02
Training and capacity building	8.03
Consultancies and professional services	9.64
Surveillance and monitoring of important livestock and poultry diseases	6.13
Upgrading disease diagnostic laboratories	94.85
Upgrading veterinary facilities and scaling up the use of MVUs	36.61
Program management costs	3.76
Program Administration Costs (Establishment Exp/Secretariat Services/Only DAHD)	2.96
Total	US\$164

35. **The Program will support five RAs:** (i) Strengthening Institutional Capacity for Implementation and Coordination of the OH Framework; (ii) Enhancing Diagnostic Capacity for Effective and Timely Disease Diagnosis; (iii) Increasing Access to Quality Veterinary Services; (iv) Enhancing Surveillance Capacity for Effective Disease Reporting and Monitoring; and (v) Increasing Community Awareness of Animal Disease Management Practices and Zoonoses. The detailed descriptions of the RAs and their associated activities follow below:

36. **RA 1 – Strengthening Institutional Capacity for Implementation and Coordination of the OH Framework.** RA 1 supports a shift from individual schemes focusing on input provision to a results-based approach that focuses on effective management and prevention of animal diseases, establish functioning coordination mechanisms for specific OH action areas and improve institutional capacity to implement effective animal health management. RA 1 will support improved capacity across the nodal national and state-level institutions responsible for livestock, wildlife, and human health. It will also conduct a detailed diagnostic exercise and develop SSPs for animal health and zoonoses management, as well as for the Participating State's OH framework. These SSPs will form the basis for Program financing and implementation in the Participating States. In addition, RA 1 is expected to strengthen joint planning, surveillance, and implementation of integrated disease



management strategies, including clear and measurable goals.

37. Activities under the RA 1 include: (i) conducting a diagnostic assessment to identify disease risks, capacity constraints, quality, and capacity utilization of existing animal health infrastructure; (ii) developing SSPs that prioritize interventions and investments based on a risk-based approach, including strengthening the Participating States' OH frameworks; (iii) training and capacity building for staff (with state-level targets for female staff) in the stakeholder departments and agencies; (iv) developing national quality standards, including animal health service provision, the mapping and benchmarking of animal health infrastructure, and manpower and training facilities against such standards; (v) establishing OH Steering Committees (OHSCs) for OH coordination across different Ministries to operationalize coordination mechanisms for selected OH actions; and (vi) implementing joint research platforms with national and international institutions concerning specific aspects of OH. The diagnostic assessment will also assess gaps and identify investments needed to strengthen compartmentalization, restrictions on animal movement and quarantine systems to manage disease spread. Under RA 1, the Program will help support the Participating States to operationalize specific areas of OH. These OH areas include:

- a. Anti-microbial Resistance: This will include research concerning microbial residues and resistance in animal-sourced products; the development of AMR State-level action plans; AMR training; and data and information sharing between human and animal health agencies to strengthen the coordination with the National AMR Action Plan led by the NCDC. Support will include raising awareness, improving capacity and knowledge on AMR in relation between climate risks, and with animal health to enhance resilience. The OH approach in the program will contribute to climate adaptation and resilience outcomes.
- b. Identification and mapping of emerging disease risk hotspots, including climate-sensitive zoonotic diseases.
- c. Implementation of joint actions concerning selected priority and zoonotic diseases by state and joint investigations of disease outbreaks in the Participating States, including climate-sensitive zoonotic diseases. Support will include facilitating multidisciplinary disease surveillance to strengthen cross-sectoral epidemiological capacities that enhance climate resilience outcomes.
- d. Establishment of coordination between the Food Safety and Standards Authority of India (FSSAI) and the veterinary and animal husbandry departments at the national and state levels.
- e. Formalization of agreements and protocols for the sharing of diagnostic facilities, as well as for the testing of wildlife disease diagnostics and surveillance between the MoFAHD and the MoEFCC. The support will enhance climate resilience by facilitating collaboration and coordination among various stakeholders to establish an integrated disease surveillance and response systems supported by risk communication and reporting, including on an integrated system for the identification and mapping of climate sensitive disease.
- f. Joint training needs assessment and delivery of training to animal, wildlife, and human health personnel under the relevant Program RAs in the Participating States, including raising awareness on likely climate risks, impact on animal, wildlife and human health, and adaptation measures.

38. These activities complement the human health and OH institutional capacity building program activities under the PHSP on the strengthening of epidemic response, disease surveillance and training of public health workers.

39. RA 2 – Enhancing Diagnostic Capacity for Effective and Timely Disease Diagnosis. RA 2 aims to strengthen the diagnostic capacity of laboratory staff for animal diseases at the district, state, regional and national levels to facilitate timely, quality diagnosis and effective responses to disease outbreaks, including climate-sensitive zoonotic diseases. Activities under RA 2 include: (i) the physical upgrading of diagnostic facilities at the district, state, regional and national levels; (ii) the development and adoption of diagnostic facilities service standards



for faster, more accurate disease screening; (iii) the adoption of best practice protocols and accreditation of laboratories with the relevant national and international standards; (iv) the development and implementation of a laboratory information system for effective data sharing; (v) the enhancement and the availability of economical, kit-based diagnostics to increase last-mile diagnostic service provision; and (vi) training and capacity building of laboratory staff, field-level veterinarians, para-vets and forest department staff (including training in field epidemiology). Joint training and improving diagnostic effectiveness are key OH elements related to diagnostics. The Program will also support the Participating States disease diagnostic laboratories in establishing epidemiological units, as well as in building the capacity of these units to conduct disease surveillance and epidemiologic surveillance with support from national and international institutes. Training and capacity building plans for veterinary workers will consider strengthening of capacities on disease surveillance and epidemiology informed by climate risk and impacts.

40. Upgrading of diagnostic facilities at the district, state, regional and national levels to improve the quality of diagnostic facilities. The specific upgrading activities will be informed by a detailed needs assessment/diagnostic (under RA 1) regarding infrastructure, manpower, capacities, current level utilization, as well as potential needs based on emerging challenges and state requirements. A technical agency will be hired to assess the laboratories in each state and develop a strategic roadmap for strengthening diagnostic capacities. Laboratory upgrading will include the installation of appropriate disposal facilities for laboratory waste (for example, sharps, cultures, tissues, blood, animal products, glassware, etc.). The Program will also support each Participating State in strengthening at least one laboratory to conduct food (of animal origin) safety tests for surveillance purposes with support from the FSSAI. Support to proposed upgrading of infrastructure will prioritize climate resilient design standards and the creation of energy efficient infrastructure to increase climate adaptation and mitigation outcomes, respectively.

41. Adoption of best practice protocols and accreditation of laboratories with relevant national and international standards to improve the quality of animal disease diagnosis. The diagnostic assessment prepared by selected agency under the guidance of the National Accreditation Board for Testing and Calibration Laboratories (NABL) will evaluate the laboratory systems and protocols followed in the laboratories from the point of sample collection to results communications of the tested samples. It will also review the existing standards. Regarding the nodal referral, that is, the state-level laboratories, the Program will aim to obtain the NABL's accreditation with the International Organization for Standardization (ISO) 17025/2017 standards. For laboratories below the nodal referral level (that is, those at the district and block levels), the Program will aim for the laboratories to adopt service standards and protocols to obtain quality assurance quality control (QAQC) certification. The laboratories will be supported in implementing a systematic process for procurement of lab consumables to avoid scarcity and to improve optimal utilization. In addition, the Program will support the development of best practice SOPs for various laboratory functions, training, and technical assistance interventions and support implementation capacity to increase adoption of these SOPs and reduce biological/chemical risks and hazards.

42. Improving the efficiency of laboratories and its diagnostic services offered to users. The Program will support developing and implementing a laboratory information system (LIMS) to enhance effective information sharing and timely communication of results. In addition, the Program will support increased adoption of low-cost kit-based diagnostics to extend the speed and effectiveness of diagnostic services in remote areas. A baseline survey will include an assessment of time taken from sample collection to communicate test results to the referring entity. The survey will include the five national priority diseases as part of the SSP. The Program will make significant investments in periodic training and capacity building of laboratory staff across several areas including SOPs, handling biological samples from wild animals and standard biosafety and biosecurity protocols. The Program will aim to create a cadre of lab staff for each Participating State so that laboratory



personnel are transferred from one laboratory to another laboratory, and not to non-laboratory assignments. The Program will seek to increase the participation of women in technical job roles and as laboratory scientists as part of diagnostic capacity-building interventions. Overall, the establishment of such standard practices and efficiencies will improve India's preparedness and response to emerging zoonotic diseases, (including those diseases that are sensitive to rising global temperatures due to climate change), which contributes to climate resilience outcomes.

43. RA 3 - Increasing Access to Quality Veterinary Services. This RA aims to increase the access of livestock farmers to quality veterinary services. The activities under RA 3 include: (i) upgrading of veterinary hospitals and dispensaries to meet minimum national standards; (ii) increasing knowledge about the impacts climate change on animal diseases and disseminating this knowledge and raising awareness through veterinary extension services; (iii) scaling up of the use of the MVUs for last-mile service provision to livestock farmers, with a particular focus on women farmers; (iv) an increase in services in underserved locations; (v) developing model veterinary hospitals in a cluster of districts through upgradation of existing facilities; and (vi) capacity building of para-vets and community health workers through induction and refresher training covering topics including disease prevention and control, biosafety, biosecurity, vaccination, communication, animal science, and veterinary products. This will help to increase the strength of the workforce, as well as the quality of services. RA 3 will support the adoption of solar energy systems to power veterinary facilities and MVUs and develop and incorporate training modules linking the impacts of climate change and heat stress on animal health to relevant stakeholders. Upgrading of veterinary hospitals and related infrastructure will follow climate-resilient design standards including flood protection in flood-prone areas, and passive ventilation for cooling (to counteract the impacts of heat on both animal health and productivity). Also, the Program will explore connecting veterinary facilities with effective climate information services, such as warnings about the onset of extreme weather events like storms, floods, heatwaves, etc.

44. RA 3 will target training, equipping, and certifying women para-vets and Community Health Workers. As community para-veterinary workers, women will play a critical role in the provision of last-mile livestock services. This RA will also assess gaps in existing service provision to women farmers and rearers. As such, it will add service provision options, for example, flexible timing, home delivery of services, and village-level support networks. The Program will introduce innovative approaches to bolster service delivery. These include field tests, hand-held reporting devices, call-centers, tele-medicine, and innovative animal health service delivery to beneficiaries. In addition, the Program will support the development of national standards and guidelines for animal health service delivery, including for veterinary hospitals and other dispensaries. Under this RA, the Program will mobilize women and offer targeted training programs to them with the objective of increasing the proportion of women animal health trained and accredited animal health professionals in Participating States. The Program will build the capacity of veterinary stakeholders to respond adaptively to unexpected climate extreme events, disease outbreak emergencies and natural disasters.

45. The Program will support the LHDCP in mobilizing private sector participation in veterinary and diagnostic service provision, and online service delivery to livestock farmers. The Program seeks to support increased private sector participation in veterinary, diagnostic and food safety service provision through: (i) public-private partnerships (PPPs) with private sector agencies for the deployment of MVUs in the Participating States; (ii) supporting DAHD to roll out the NDLM (an integrated IT-based disease surveillance system and regular disease reporting (using IT platforms and mobile applications).; and (iii) supporting market assessments of veterinary and diagnostic service provision. The Program will seek opportunities to create incentives for private sector players to operate call centers and MVUs on a fee-for-service model. The NDLM targets increasing private sector participation in provision of animal health services and knowledge dissemination through digital applications. The Program will support setting data standards that foster market development and on-boarding of private



sector farmer facing software applications; and scaling up the use of *Livestack*, a unique ID system linked to ear tagging of animals intended to support farmer-facing software and services application development. The Program will make direct investments to increase the number of solar-powered MVUs and other innovative IT-based animal services to increase the coverage and quality of service delivery. Support will incorporate knowledge about climate change impacts on livestock and animal health in the livestock extension material and advisory services, animal health literacy and awareness to build the capacity of farmers in remote areas who are vulnerable to climate change.

46. Market development for veterinary and animal health diagnostic services are hampered by: (i) the lack of clear regulations and standards for such services; (ii) the public sector through state Animal Health Departments and Regional Diseases Diagnosis Laboratories (RDDLs) being the single dominant provider of such services leaving little room for private sector participation; (iii) the limitation of some farmers to pay for improved services due to financial constraints; and (iv) due to the economic incentives above, a private sector focus on commercial value chains (such as poultry farming) instead of smallholder livestock farmers who are the majority of livestock farmers. The Program will support DAHD in (i) undertaking a market assessment identifying policy and regulatory changes needed to spur market-based service provision in animal health diagnostic services; (ii) assessing opportunities for closer collaboration and data sharing between private and public animal health service providers, and (iii) increasing the use of low-cost diagnostic kits for major diseases, thus spurring private sector development of such kits.

47. RA 4 - Enhancing surveillance capacity for effective disease reporting and monitoring. RA 4 aims to strengthen the surveillance of animal diseases, including zoonoses. It will also operationalize OH in disease surveillance by supporting joint field epidemiologic surveillance and data sharing between AHD and Forestry Department. The activities under RA 4 include: (i) developing integrated IT platforms and mobile applications for disease reporting, that are aligned with and able to feed information into human disease reporting platforms; (ii) integrating wildlife disease surveillance in the NDLM; (iii) training and onboarding forest department staff to disease-reporting platforms; (iv) capacity building of animal, human and wildlife health personnel, specifically to strengthen joint disease surveillance in high-risk locations and protected areas; (v) supporting the establishment of IT platforms to track key supplies, such as vaccines, and provide accessible digital services to farmers, and (vi) strengthening the capacity of the FSSAI to test animal-sourced products and initiating coordination with the DAHD to promote food safety in animal products. Integrating wildlife disease surveillance into the NDLM directly contributes to OH, given the significant origin of zoonoses from the animal and wildlife sectors. Also, improving surveillance will contribute to early detection and prevention. The World Bank, in partnership with technical institutions, will provide technical support to DAHD to use the improved surveillance data to inform decision making on allocation of budgets and adjusting implementation strategies for priority diseases.

48. Developing integrated IT platforms and mobile applications for livestock and wildlife disease reporting, surveillance, and epidemiology. The Program will support the implementation of NDLM. This will help to achieve timely disease reporting and monitoring. Designed by the Principal Scientific Advisor's (PSA) Office, the NDLM will be rolled out in a phased manner with a pilot in one of the Participating States informing subsequent rollout in the other Participating States. The Program will provide support for integration of wildlife disease reporting linking critical data across animal health services including disease diagnostics, treatment, animal identification and vaccination status into the NDLM database. Support for development and rollout for NDLM is predicated on enabling data sharing and linkages with the human health disease surveillance system, the Integrated Health Information Platform (IHIP), and efforts will be made for both systems to have similar back-end software to assure efficient data sharing. In addition, the Program will provide support to improve animal disease risk prediction to inform effective prevention, preparedness, and response, and to make animal disease surveillance



sensitive to climate change vulnerabilities.

49. Strengthening forecasting for priority animal diseases. The Program will provide support for building the capacity of the Participating States to use disease forecasts to target interventions. The Program will support building the capacity of the Indian Council of Agricultural Research (ICAR) National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), specifically on epidemiology, disease forecasting and disease economics modeling. This will be done through support for training and partnerships with global experts and technical institutions. High-quality data is essential to conducting useful disease forecasting and analysis of the economic burden of animal diseases, including zoonoses. However, disease underreporting is a challenge. The ICAR-NIVEDI factors in 60-70 percent of underreporting predictions in its disease forecasting. The Program will support the Participating States in establishing epidemiological units responsible for supplying data at regular intervals to the Central Epidemiological unit, the ICAR-NIVEDI, as well as for sharing the epidemiological reports with other departments, including the Health Department, the Forestry Department and the FSSAI. An assessment concerning the key factors and disincentives that contribute to disease under-reporting at the field level will be done to inform disease reporting scaling up interventions.

50. Capacity building of animal, human and wildlife personnel to strengthen disease surveillance, monitoring, and epidemiology. Key personnel will be trained in planning, designing, and implementing epidemiological studies, as well as in data analysis and reporting. District- and block-level staff under the Veterinary and Wildlife Departments will also receive training to improve their knowledge and skills regarding field epidemiology, biological sample collection, data, and information collection for disease surveillance, monitoring, and epidemiology. The program will support joint routine surveillance in high-risk areas identified in the SSPs. The field staff who perform biological sample collection will receive training covering methods for different types of biological samples collection, proper sample handling and storage, as well as personal protective measures to avoid zoonotic transmission and spread. Training will include proper disposal of biomedical waste (BMW) in the field and at the laboratory. The Program will share resources with the state Forestry Departments to ensure the collection of biological samples from wild animals. Periodic biological sample collection from live animal markets, smuggled animals (wildlife) markets, and aggregation points will help in investigating food safety and zoonoses.

51. RA 5 – Increasing Community Awareness of Animal Disease Management Practices and Zoonoses. RA 5 aims to increase community awareness about animal disease management practices by farmers and other value chain actors, with a focus on high-risk areas identified in the SSPs. This will help to minimize the risks of zoonoses. The main areas of support include: (i) conducting community awareness campaigns about zoonotic diseases, disease prevention and reporting requirements with a specific focus on pregnant women and young mothers; (ii) building the capacity of livestock farmers to maintain the GAHP necessary to strengthen biosecurity and biosafety measures at the farm level, and to improve manure management including using manure for clean energy and manure slurry for fertilizer; and (iii) improving disease management capacity and practices in high-risk sites — including livestock markets, abattoirs, slaughterhouses, and informal markets. Training will include guidance and awareness building about food hygiene, with a focus on women. This will help to increase food safety at the household level. RA 5 will also contribute to OH by reducing the risks of zoonoses and AMR at the community level. In addition, RA 5 will support specific behavior change, awareness and information campaigns tailored to women farmers, as well as laborers vis-a-vis disease management including zoonoses. It will also support training on the GAHPs, including biosafety measures, good practices in food hygiene and food safety.

52. Capacity building at the farm level will include training farmers on biosecurity measures to minimize disease spread, as well as animal health management practices. These will include the use of ethno-veterinary medicine, knowledge and awareness about AMR, proper manure management, as well as other practices that promote animal health and nutrition. These measures will help to reduce the risks of disease outbreaks. Good



practices for the other value chain actors will include: (i) training and building the knowledge of butchers, market operators, other retailers, slaughterhouse workers and owners, and transporters concerning hygienic product handling practices; and (ii) training in the use of low-cost and safer equipment, as well as other interventions to improve food safety in selected markets. In addition, awareness campaigns will include risk communications about wildlife and animal meat consumption and trade.

53. The targeted beneficiaries include farmers, and particularly women, who account for over 75 percent of production labor. They are most at risk and are often excluded from training and services; as such, they will benefit from enhanced GAHP skills and risk communications. Market actors, such as butchers, will benefit from increased capacity to reduce public health risk. The Animal Health Veterinary Departments (AHVD) will also support training and risk communications capacity. Thus, consumers will benefit from reduced public health risks from consuming livestock products. Training and capacity building efforts under RA 5 will incorporate climate change and animal health literacy, raising awareness on climate risk, integration of climate change and GAHPs into extension, including biosafety measures such as fencing to limit interaction of livestock with wild animals to reduce zoonotic disease spread, better manure management and knowledge on use of manure for biogas to reduce emissions, all of which contribute to climate adaptation and mitigation outcomes.

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

54. The PDO is to increase the quality and coverage of animal health services for livestock farmers and improve One Health coordination in Participating States.

55. The following are the proposed PDO indicators:

- a. Laboratories operating under improved quality assurance and quality control procedures (number).
- b. Livestock farmers with increased access to improved animal health services (number, disaggregated by gender).
- c. Digital disease surveillance system operating in each Participating State (number).
- d. One Health joint actions covering animal, wildlife and human health implemented (Yes/No).
 - (i) Establishment of functional OH platform.
 - (ii) AMR state action plan notified.
- e. Livestock farmers adopting biosecurity measures (number; disaggregated by gender).

56. Increasing the quality of animal health services encompasses several elements. This includes: (i) setting quality standards and the use of these standards in the provision of animal health services; (ii) improving timely response related to animal disease diagnoses and communication to farmers; (iii) improving standards and best practices at diagnostic facilities to assure accurate animal disease diagnoses, and (iv) updating and strengthening the content of animal health extension and advisory services toward a disease prevention approach, including good animal husbandry practices, AMR awareness, OH Health, food safety and climate change. Coverage refers to increasing access to animal health services to more livestock farmers, including reaching more farmers in remote areas.

57. The operationalization of the digital disease surveillance system encompasses the: (i) implementation and use of the NDLM system in each Participating State; and (ii) the reporting and data entry of disease incidents on the NDLM in each Participating State.

58. Animal diseases are a major driver of reduced animal productivity and increased emission intensity. The WOA estimates that, on average, 20 percent of animal productivity losses globally can be attributed to animal



diseases. Improved animal health contributes to greater gains in efficiency and productivity, which in turn helps to reduce the GHG intensity of livestock farming. India has the largest cattle population in the world, but it has among the lowest beef consumption of any country. Thus, cows live longer and emit more methane over their lifetimes. However, while the livestock sector is a major source of GHG emissions, it is equally a potential part of the solution to help reduce GHG emissions because there are practical entry points for mitigating climate change.

59. The Program's contribution to GHG emission reductions will be derived from improving animal productivity. This is through enhanced health and disease management, as well as through the training of livestock farmers on the GAHPs, thus helping to reduce methane emissions. The GAHPs supported through the Program will include: (i) better health management of livestock and disease management practices, which will improve animal productivity, thereby helping to reduce emissions; (ii) better manure management practices and use of manure for biogas to reduce emissions; and (iii) other climate-smart related activities that are relevant to specific cases and areas of the Program.

E. Disbursement-Linked Indicators and Verification Protocols

60. The resources of the Program will be disbursed based on the achievement of five DLIs. These DLIs were chosen to reflect five principles: (i) achieving an integrated approach to animal disease and zoonoses management; (ii) creating incentives to shift toward strategic planning and an outcome-oriented approach; (iii) building standards, guidelines and frameworks to achieve quality animal health service provision; (iv) prioritizing elements and technical aspects to address capacity constraints faced by state and national institutions; and (v) supporting the ability to provide incentives for results to achieve the PDO. The other performance indicators are in the Program Action Plan (PAP) and the PforR's Results Framework (RF). Table 6 lists the DLIs and Disbursement Linked Results (DLRs), and the respective funding allocations. *Annex 2* depicts the detailed DLI matrix.

61. The allocation amounts of the DLIs reflect the estimated resources and incentives required to achieve the results and to make progress toward those results. Program resources will be channeled to the respective departments through the normal budgetary process of the DAHD and the five Participating State Governments. The Participating State Governments will prepare consolidated reports concerning the achievement of results using Monitoring & Evaluation (M&E) data collected. The data will be stored in the management information system (MIS) for the Program. An Independent Verification Agency (IVA) will use the MIS data and undertake the necessary field visits to verify the reported results and share progress reports with the DAHD. The DAHD will in turn forward them to the World Bank after review and approval by the Program Steering Committee (PSC). Upon completion of IVA verification and acceptance by the World Bank, the DAHD can seek withdrawals from the Bank. Table 6 lists the DLIs, DLRs and the respective funding allocations.

Table 6: DLIs and DLRs Allocation and Justification (US\$ million)

DLI	DLR	US\$ millions	Justification for DLI Selection
DLI1: Enhancing institutional capacity for animal health management	DLR 1.1: DAHD has: (i) established technical committees on disease surveillance and AMR; (ii) adopted data sharing protocols for AMR; and (iii) signed an agreement with MoEFCC and adopted protocols for sharing animal health diagnostic facilities for wildlife disease diagnostics and surveillance.	3	Supports the establishment of coordination mechanisms and data-sharing protocols.



and One Health Coordination	DLR 1.2: DAHD has approved SSPs laying out medium-term investment framework and target outcomes on animal health management and OH coordination for Participating States.	14.795	Supports shifting from annual input expenditures to evidence-based strategic plans.
	DLR 1.3: DAHD has notified the National Standards for veterinary service provision.	2	Supports development and adoption of a common national quality standard for veterinary services.
	DLR 1.4: Each participating state has developed and notified a joint action plan (human health and food safety) on AMR listing implementation steps and timelines to operationalize National AMR Action Plan.	5	Supports the development and implementation of AMR state action plans.
DLI2: Strengthening diagnostic capacity	DLI 2.1: Diagnostic facilities at the state, district, and block levels certified to relevant standards.	17	Supports the upgrading of diagnostic facilities and certification to relevant standards.
DLI3: Strengthening veterinary service provision	DLR 3.1: Veterinary facilities upgraded to meet national standards. ²⁷	10	Supports upgrading of veterinary facilities and service provision to minimum quality standards.
	DLI 3.2: Increase in livestock farmers who received animal health services through Mobile Veterinary Units (percentage).	10	Supports the use of MVUs to increase doorstep service provision to women and farmers in remote areas.
DLI4: Scaling up integrated disease surveillance	DLR 4.1: Number of disease incidents reported on online platform	10	Supports the operationalization of NDLM and online disease reporting in Participating States.
DLI5: Increasing community level animal health management	DLR 5.1: Number of rearers and personnel. ²⁸ that have been trained on disease surveillance, One Health Framework, good Animal Husbandry Practices and farm level biosafety and biosecurity measures.	10	Supports the development and integration of extension modules on the GAHPs, including AMR, biosecurity, and food safety practices in extension programs.
	Total²⁹	US\$81.795	

62. **The DLIs contribute directly to the following GCRF pillars.** DLI 1 contributes directly to Pillar 4 by strengthening institutional capacity of the DAHD and Participating States capacity to improve the management of animal health, and by building medium term strategic plans and frameworks for disease management and OH coordination to rebuild better. DLI 2 contributes to Pillar 3 by improving future pandemic preparedness and resilience through strengthening the diagnostic capacity of animal diseases including zoonoses. DLI 3 aligns directly with Pillar 4 by increasing livestock farmers' access animal health services which will help reduce the risks of disease outbreaks including Transboundary Animal Diseases and zoonoses, which contributes to pandemic preparedness. DLI 4 contributes to Pillar 3 through scaling up integrated disease surveillance which contributes to pandemic preparedness to improve timely detection and response to disease outbreaks. Lastly, DLI 5 contributes directly to Pillar 4 by focusing on capacity training of livestock farmers and other actors on disease surveillance and good practices to improve biosafety and biosecurity measures.

²⁷ Veterinary facilities: refers to veterinary hospitals, clinics facilities where veterinary services are provided to livestock farmers to treat and examine animal diseases/ailments.

²⁸ Personnel includes (i) community paraprofessionals; (ii) livestock commodity value chain actors; and (iii) and forest management committee members.

²⁹ The IBRD US\$82 million financing of the AHSSOH Program has a front-end-fee of US\$205,000.



III. PROGRAM IMPLEMENTATION

A. Institutional and Implementation Arrangements

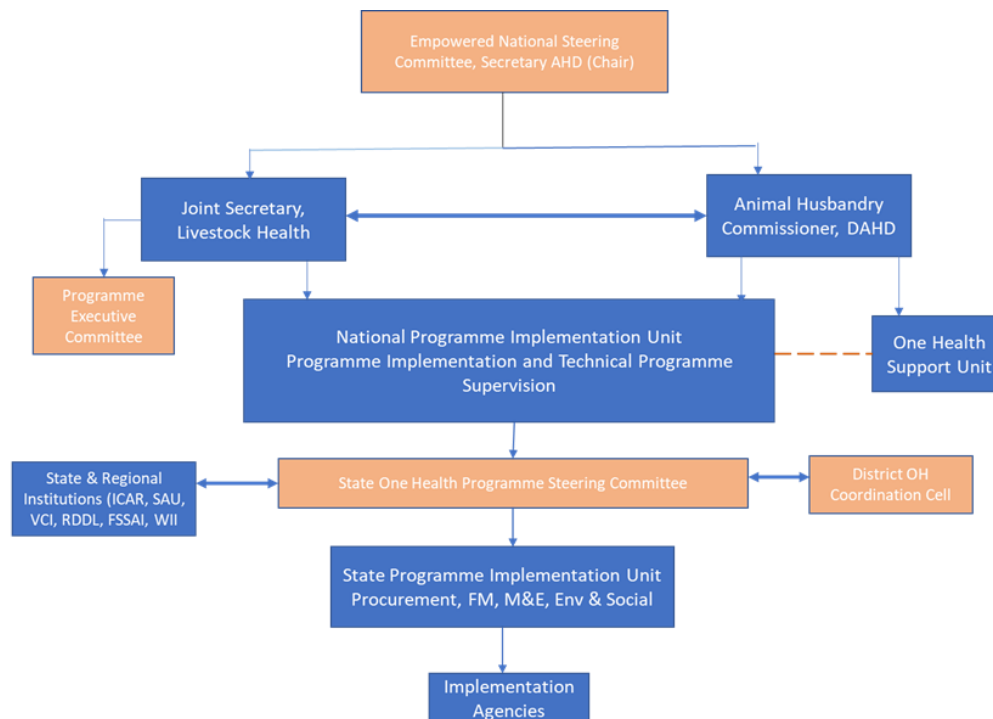
63. **The Program will be implemented through the DAHD's existing institutional modalities and systems, which will be strengthened through Program support.** The Program will be implemented by the DAHD at the national level, and by the state Animal Husbandry Departments (AHDs) in each of the five Participating States. Three RDDs in Assam, Karnataka, and Maharashtra will also serve as the Implementing Agencies (IAs) under the program, directly receiving funds from the DAHD for facility management, and diagnostic and training services related to their own operations.

64. **Institutional capacity building is a core focus of the Program.** As such, RA 1 will conduct training and capacity building of department staff at the national and state levels. A PSC headed by the Secretary of Animal Husbandry with corresponding OH departments and agencies (including human health, environment/wildlife, and food safety) will be established to oversee the Program at the national level. The National Project Implementation Unit (NPIU) will consist of the existing staff of the DAHD, headed by the Joint Secretary of Animal Health. The existing OHSU will provide support to manage technical aspects of the program at the national level. The DAHD will hire additional technical staff to strengthen capacity in specific areas including procurement, as well as implementation and oversight of the environmental and social (E&S) framework. Participating States will be required to submit a Letter of Undertaking (LoU) to the MoFAHD, confirming their readiness to participate in accordance with the Program design and procedures laid out in the Program Implementation Manual (PIM). At the Participating State level, a OH Coordination Committee will be established. It will correspond to the national PSC, which will also serve to oversee implementation of the SSPs at the state level. A State Program Implementing Unit (SPIU) will be hired in each of the Participating States to assist the AHDs in implementing the Program. The DAHD will also hire an IVA to verify DLR achievements.

65. **A two-pronged approach is proposed to manage both technical aspects and overall program implementation (Figure 2).** The OH technical aspects of the Program will be led by the Animal Husbandry Commissioner, while the Program implementation, including the administrative aspects will be led by the Joint Secretary of Livestock Health. The implementation design will assure effective linkages and communication between both the technical aspects and the coordination elements of the Program. A PSC will be led by the Secretary of DAHD who will oversee and guide the overall Program.



Figure 2: Summarized Institutional Implementation Arrangements of the Program



66. **Key reporting requirements will include:** (i) the PIM; (ii) Annual Workplans based on the SSPs; and (iii) Quarterly Progress reporting of input, output, intermediate and outcome level progress. Where needed, proposed remedial actions to address performance slippages. The NPIU will coordinate and lead the preparation of Program reports and consolidate all state-level reporting into a single Program report.

B. Results Monitoring and Evaluation

67. **The Program design supports the strengthening of data reporting and M&E systems.** The Program will support the capacity building of the DAHD and Participating States to monitor Program implementation. This will be achieved through: (i) the hiring of technical specialists as part of the NPIU and the SPIU; (ii) the development of a Program M&E plan focusing on the RAs; (iii) the scaling up and adoption of the NDLM for real-time data collection from the field; and (iv) developing data dashboards to assist Participating State Governments and the DAHD in effectively monitoring Program implementation.

68. **Program monitoring will consist of the following elements:** (i) preparation of a Program M&E plan; (ii) periodic monitoring of progress; (iii) verification of results by the IVA; and (iv) studies and assessments for impact evaluations. The DAHD will prepare a M&E plan that specifies the methodology, responsibilities for data collection and reporting, as well as sources of data. The SPIUs will be responsible for the implementation of the M&E plan in the Participating States. The Technical Support Agencies (TSAs) will be hired, as needed, at the state level for the RAs where additional capacity is needed. The NPIU will develop a monitoring information system to track implementation of Program activities and investments. Quarterly progress reports will be compiled by the NPIU and shared with the PSC and the World Bank. The IVA hired by the MoFAHD will verify results against the DLIs and then submit the verification reports through the DAHD to the World Bank.



69. **The DAHD PMU will undertake or support the agreed studies for evaluating the impact of selected activities.** These will include: (i) specific RA technical studies; (ii) surveys concerning the progress of specific PDO indicators; (iii) an assessment of the effectiveness and impact of various capacity-building training, which will be conducted under the RAs; (iv) annual audits of BMW management and worker health and safety; (v) annual satisfaction surveys of end-users of veterinary facilities; and (vi) annual reports on the performance of the NDLM and disease reporting on the online platform. The Program will periodically document and showcase results stories from the field relevant to the various RAs. This will help to strengthen the overall knowledge base to support the assessment at the completion of the Program. The impact assessment of the Program will be supported through baseline, mid-term, and end-of-program surveys. The NPIU will compile good practices emerging from the Participating States for knowledge sharing within the Participating States, as well as with other states.

C. Disbursement Arrangements

70. **The DLI matrix and the proposed annual financial allocations are presented in Annex 2.** The MoFAHD and Participating States will pre-finance the Program expenditures using their budgetary resources through the identified budget lines of the Expenditure Framework. The Program funds will be disbursed by the World Bank to the GoI based on the satisfactory achievement of the DLRs. On verification and certification, the MoFAHD will communicate the DLR achievement to the World Bank in the agreed form. Based on the World Bank's approval letter, disbursement requests will be submitted to the World Bank office by the Controller of Aid, Accounts, and Audit, using the World Bank's e-Business platform. Many DLRs are scalable, with funds being disbursed in proportion to the results achieved. Where actions are not achieved in any particular year, the allocated amount will be carried over to the subsequent year. If targets are reached before the deadlines, the disbursement may be made earlier after clearance from the World Bank.

D. Capacity Building

71. **Institutional capacity development is a fundamental tenet of the Program.** The Program aims to strengthen core institutional capacity at the DAHD and in Participating States to improve the management of animal diseases and OH coordination. Training and institutional capacity building feature in all five RAs supported by the PforR. RA 1 supports institutional and governance strengthening actions, including establishing coordination mechanisms; developing national standards; and developing and implementing an integrated approach to animal health management through SSPs. RA 2 and RA 4 include activities to increase disease diagnostic and surveillance capacity through the training of laboratory and veterinary personnel, and the adoption of a LIMS. RA 3 will support the upgrading of training modules on animal health and zoonoses management, as well as regular and refresher training for veterinarians and para-veterinarians in Participating States. RA 5 will support institutional arrangements for the inclusion of animal health in extension services by different service providers, as well as the development of extension modules and a cadre of master trainers for training of field personnel.

72. The Program will also support capacity building to enhance financial management, procurement, and oversight functions at the national and state levels.

IV. ASSESSMENT SUMMARY

A. Technical (including program economic evaluation)

Strategic Relevance



73. India has one of the largest livestock populations in the world, and it is a hotspot for animal disease outbreaks. India has the largest livestock population in the world and increased interaction between livestock, humans and wildlife poses risks of disease outbreaks. There have been high incidences of endemic zoonotic diseases. The threat of future pandemics from diseases of animal origin is real. The main risk factors are weak disease surveillance, diagnosis and reporting in the livestock and wildlife sectors, emerging pests, as well as diseases due to changes in climate and land-use. The underlying capacity of animal disease management in India is weak, which increases the risks of disease spillover from animals to people. Therefore, it requires strengthening, including the operationalization of the integrated OH framework.

Technical Soundness

74. The Program is informed by strong technical assessments concerning the gaps in veterinary and animal disease management. These include assessments in 2018 by the OIE, the assessment report of the PSCA (2021), as well as lessons learned from similar World Bank projects.

75. The Program focuses on helping the GoI address the challenges that constrain effective animal disease and zoonoses management, while also helping to operationalize OH. Given the profound costs of the COVID-19 pandemic and future pandemics, the Program contributes to India's preparedness and capacity to reduce the risks of future pandemics. The five results areas supported by the Program focus on gaps identified in the technical assessments, focusing on building systemic capacity for disease surveillance, diagnostic and veterinary service provision, and community adoption of GAHP.

76. A detailed diagnostic exercise will be conducted in the five Participating States. This diagnostic exercise will identify disease risk hotspots and gaps and challenges in enhancing animal health and OH outcomes, which will inform development of an SSP. The SSP will be the basis for all Program expenditures in Participating States.

77. Program Expenditure Framework: The overall expenditure framework of the government program ("p") for FY21–26 is estimated at US\$1.2 billion. The Program ("P") is a subset of the government program ("p"). The total program expenditure framework for five years is estimated at US\$164 million, to which the World Bank will finance US\$82 million, representing 50 percent of the program boundary. The Program Boundary focuses on institutional capacity building, systems development, as well as improving the quality and coverage of diagnostic and veterinary services. The Program Boundary excludes civil works related to the construction of new facilities, and procurement of vaccines. Civil works under the Program will include renovations and upgradation of existing physical infrastructure (e.g., veterinary hospitals, veterinary dispensaries, laboratories etc.). Given the existing and significant government investments in animal disease vaccines and vaccination activities, there is limited value addition for the Program to support such activities. However, based on detailed diagnostics and the SSPs, the Program can provide support to improve the monitoring and evaluation of Participating States' animal vaccination programs and help enhance their effectiveness. *Annex 3, Table 2* lists the detailed expenditure framework. Risks to the Program Expenditure Framework arising from budget constraints are low, given the GoI's track record of increased financial allocations to the sector, as well as the Program Boundary covering only a proportion of the overall budgetary allocation to the DAHD for the larger government program. An action plan on the timely submission of annual work plans based on the SSPs for incorporation in DAHD's annual budget allocation requests is included in the Program's PAP. Overall, given the GoI's financial commitment to the program, increased financing outlays to animal health programs over the past three years, and its planned budgeted expenditure over the next four years, the funding for the PforR Program is expected to be predictable and sustainable.



78. The completion of the Program, a five-year Program, falls beyond the LHDCP timeline. Following a mid-term evaluation of the LHDCP, a proposal for extending it will be submitted by the DAHD per DoE's guideline on "*continuation/extension of public funded ongoing scheme*", to align the Program with the 15th Finance Commission cycle. This proposal is part of the approved Economic Financial Committee for the Program by the GoI.

Economic Justification

79. **The public provision of financial resources for strengthening the core capacity of animal health systems and One Health coordination in India is justified.** First, the economic burden of infectious diseases is overwhelming. The economic impact associated with the 2009 Avian flu outbreak was estimated at around US\$20 billion for Asia. India accounts for 35 percent of global rabies cases, and the global annual economic burden of rabies is estimated to be US\$8.6 billion. Economic losses associated with the COVID-19 pandemic have been significant and are ongoing. The costs of disease outbreaks and pandemics disproportionately affect the poor and the most vulnerable households. Second, the benefits of strengthened disease surveillance, reporting, and timely responses at the state and district levels translates into public goods for India—and indeed for the world, because undetected and uncontrolled outbreaks are likely to spread to other countries. These benefits of preventing the spread of infectious diseases—including emerging infectious diseases, zoonoses and priority transboundary diseases—accrue to individuals and other countries. However, there is no mechanism to restrict the benefits to those who pay. Hence, these benefits are non-excludible and non-rivalrous goods both within and outside of India. Thus, the Program is comprised primarily of *public goods*.

80. **The Program interventions will yield enormous benefits in the long term.** These benefits include: (i) reducing the economic burden associated with animal and zoonotic disease outbreaks and the costs associated with FBDs; (ii) reducing the risks of disease spill over from animals to humans, thereby reducing the potential for future pandemic outbreaks and associated economic, social, and human losses; (iii) improving livestock productivity, which indirectly contributes to increasing incomes and the livelihoods of many, especially poor households in rural areas; (iv) reducing GHG emissions in the long term from the livestock sector through improved efficiency and animal productivity gains; and (v) public health benefits and economic gains from improved food safety and reduction in AMR.

81. **The quantitative economic analysis of the Program indicates that it is economically viable.** Preliminary economic analysis of the proposed interventions conducted over ten years at a 6.5 percent discount rate shows the Economic Net Present Value (ENPV) of the Program is estimated at US\$743 million and the Economic Internal Rate of Return (EIRR) at 131 percent. The cost benefit analysis conducted on the discounted incremental benefit and incremental cost amounts to 11.9. Hence, the Program is economically viable. Due to data limitations, the benefits of this Program are not fully accounted for, especially on the public health front.

B. Fiduciary

82. **As per integrated Fiduciary Systems Assessment (FSA), the Program's fiduciary systems, subject to implementation of proposed mitigation measures, will provide reasonable assurance that financing proceeds will be used for intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability.** The FSA covered the systems and processes adopted under the LHDCP at the national level and in the four of the five Participating States (Assam, Karnataka, Maharashtra, and Odisha) as these will be relied upon for the Program. Within LHDCP, the FSA focused on the performance of two specific components – ASCAD and ESVHD – as these along with the expenditure at DAHD constitute the Program boundary. The FSA followed the World Bank's Policy for PforR and the related directive, identified key fiduciary



risks that may affect the Program's development outcomes and recommended systems improvement and capacity-strengthening/risk mitigation measures.

83. Financial management. The key source of fiduciary risks is the complex design of LHDCP. Fund flow arrangements under LHDCP vary not only across components but also across activities within the same component. This has led to (i) multiple implementing entities in Participating States, (ii) weak linkages between planning and budgeting processes, and (iii) expenditure accounting dispersed across systems (i.e., some proportion of expenditure accounted through the state treasuries and the rest through the Public Financial Management System). The other critical areas of weakness in the Participating States include irregular and ineffective internal audit arrangements and delayed external audits. The Program fiduciary arrangements have been designed to address these risks and have been summarized below.

- To introduce a multi-year perspective in planning, strengthen the linkages between planning and budgeting and allow inputs from the Participating States to feed into the annual budgeting exercise of DAHD, the SSPs developed under the Program will be translated into costed annual action plans (AAPs). These AAPs will then serve as the basis for deciding on the quantum of funds disbursed to the five Participating States by DAHD. The AAPs for the ensuing financial year will be received by DAHD from the Participating States latest by December so that allocations requested can be suitably incorporated in the annual budget of DAHD.
- To address the challenges posed by the complex funding and implementation arrangements of LHDCP, all Program activities (i) will be budgeted under a separate scheme head in the annual budget of DAHD, (ii) uniform funding pattern of 100 percent central assistance, and (iii) flow directly into the PFMS registered bank accounts in the Participating States. To strengthen accounting and financial reporting under the Program, usage of the Expenditure-Advance-Transfer (EAT) module of PFMS will be made mandatory for Program expenditure. A Program specific Chart of Accounts will be developed and documented in the PIM that will allow tracking of expenditure across key activities of the Program. This CoA will be used by the Participating States for recording and reporting of expenditure under the Program.
- To improve internal control through strengthening of the internal audit function, an internal audit system will be established under the DAHD Program Management Unit (PMU) specifically for the Program. Internal audit will follow the terms of reference agreed with the World Bank, which will be an integrated procurement and FM audit including review of procurement performance and compliance. Private audit firms may be hired to ensure timely internal audit of all implementing entities. Follow-up of internal audit observations will need priority and would be the responsibility of the state nodal agencies (SNAs)/ Participating State implementing agencies (SIAs).
- The Program audit arrangements require the Program annual financial statements to be audited by the Comptroller & Auditor General of India (and the Office of the State AGs) under the terms of reference (ToR) already agreed for World Bank supported operations. DAHD and the Bank will work with the C&AG to strengthen the ToR to include specific aspects of a PforR operation and procurement review. The implementing entities will ensure that the (i) the financial statements are generated from PFMS, (ii) audit observations relating to the Program are complied with/resolved in a time-bound manner, and (iii) annual audit reports are disclosed on their respective website. Oversight will be provided by the DAHD PMU.

84. Procurement: The Program supported activities will exclude activities that involve procurement of (a) works, estimated to cost US\$75 million equivalent or more per contract, (b) goods IT or Non-consulting Services, estimated to cost US\$50 million equivalent or more per contract, (c) consultant services, estimated to cost US\$20 million equivalent or more per contract.



85. Table 7 shows the likely procurement profile of the Program:

Table 7: Potential Program Procurement Profile

Procurement Category	Likely Procurement Profile
Goods	Procurement of solar-powered MVUs, veterinary medicines and injections, medical equipment, diagnostic kits, bio-safety equipment, laboratory equipment, supplies and consumables, IT hardware, development of software/web applications, portals and outsourced IT manpower, furniture, laptops, printers and photocopying machines, equipment and material for awareness programs, vehicles, etc.
Works	The works procurement will consist of minor civil works involving renovation and maintenance of existing veterinary health facilities.
Consultancies	Procurement of consultancies, mostly at the central level and a few small consultancies at the state level. These include technical consultancies and specialists, diagnostic assessments, the procurement of MIS, including laboratory information systems. Hiring of an IVA; annual audits of BMW management; and a third-party annual procurement audit. Technical agency for assessing and developing a strategic roadmap for strengthening diagnostic capacities; a technical support agency for training various staff in accordance with requirements of standard lab operations, etc.

86. Based on performance data analysis, there have been cases of longer procurement cycle times, delays in release of funds to the State Animal Health Department, absence of predictability to procurements, limited procurement disclosure, weak concurrent audits, multiple implementing agencies with varying capacities, absence of effective procurement complaint handling mechanism and inadequate oversight over procurement functions, ineffective at implementing agency levels, etc. Weak oversight and monitoring of results and slow implementation due to multi-state nature of the Program has been identified as a potential risk. Lastly, the risk of forced labor in solar panels and solar components has emerged as a significant risk during recent times based on multiple incidents across the globe reported in media.

87. Mitigation measures to address identified risks shall be through PAP and through a fiduciary Key Performance Indicators (KPI) report shared with World Bank on semi-annual basis, with KPI and reporting formats agreed with the Bank. Similarly, complaint handling report in accordance with Anti-Corruption Guidelines (ACG) protocol shall also be shared with World Bank on semi-annual basis, and agencies procuring solar panels will include, in their contracts with developers and utilities, requirements that neither they, nor their solar panel suppliers have or will engage or employ forced labor.

88. Applicability of the World Bank's ACG to the Operation. The Program will be subject to the World Bank's Governance ACG. As there is no distinction between World Bank and Gol's funded activities within the Program boundary (of \$164 million), these guidelines shall be applied in an unrestricted manner to all activities within The Program boundary. Guideline requirements include but are not limited to: (a) borrower's obligation to inform the World Bank about all fraud- and corruption-related allegations and investigations; (b) the World Bank's right to conduct administrative enquiries regarding fraud and corruption allegations; and (c) the ineligibility of World Bank debarred firms for contract awards that are on the Bank's debarment list (<https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>). To operationalize the ACG, DAHD will undertake the steps as defined in the Annex 4 and hold a workshop for nodal Program counterparts at DAHD and in Participating States immediately after Program effectiveness to familiarize them with the Bank's ACGs and obligations under the Program.

C. Environmental and Social

89. **The Program will deliver positive Environmental, Social, Public Health and Safety benefits** through improvements in coordination on OH and animal health, waste management capacity, diagnostic infrastructure,



and capacity to manage disease outbreaks, delivery of animal health services to livestock farmers, and community awareness and capacity on managing animal health.

90. The Environment and Social (E&S) risks associated with the Program are assessed as Moderate. High or Substantial risk activities are not financed under the Program, and the identified E&S risks/impacts are adequately mitigated and managed through strengthening of existing E&S mechanisms and actions. The potential environmental risks and impacts relate to: (a) biosafety in labs and diagnostic facilities and the management of BMW (including liquid, e-waste, pharmaceutical, carcass and other hazardous waste) in the MVUs, laboratories, veterinary clinics, slaughterhouses, and wet markets/local markets in urban and rural areas; (b) occupational health and safety of workers in diagnostic facilities and waste management activities; and (c) community health and safety associated with BMW management in urban and rural areas. Program activities will not lead to any irreversible/adverse environment impacts. Construction-related temporary impacts during upgradation works and health and safety risks associated with BMW management will be managed through adequate safeguard measures.

91. Upgradation of diagnostic, veterinary and market facilities will involve civil works for repair, maintenance, and renovation, which will be carried out within the existing physical footprint of the facilities. Land acquisition, resettlement and involuntary resettlement impacts are not anticipated. Adequate safeguard measures will be implemented to mitigate any health and safety risks for the labor from these small-scale works. The other social risks relate to: a) workers health and safety in diagnostic and waste management facilities, as well as community health and safety associated with waste management; b) gaps in delivery of veterinary services in remote, tribal areas, migratory routes/settlements and disaster prone areas; c) lower access of women livestock farmers and small holders from vulnerable communities to AH and veterinary services; d) low levels of community awareness about, and engagement with, AH and zoonotic diseases; and e) weak capacity of frontline workers on OH and zoonotic. The Program will support deployment of solar powered MVUs, in which case the risk of forced labor in solar component supply chains will have to be mitigated.³⁰ The overall E&S risk is rated Moderate given that most of the E&S risks could be effectively mitigated and managed through strengthening of the existing E&S systems.

92. An Environmental and Social Systems Assessment (ESSA) has been completed, in accordance with Bank guidance. The ESSA process involved desk review, workshops, consultations, and meetings with key officials from DAHD and Animal Husbandry Departments (AHDs) from the Participating States of Assam, Karnataka, Maharashtra, Odisha, and Madhya Pradesh, as well as other stakeholder institutions. These interactions were done through virtual mode due to COVID-19 restrictions/protocols. The assessment benefitted from resources and written submissions provided by the Participating States, as well as Bank's ongoing experience with livestock-based livelihoods, and AH service delivery among excluded communities. Two multi-stakeholder workshops were conducted during 22-24th June 2022. The first workshop involved consultations with Non-Governmental Organizations (NGOs), CBOs, community resource persons (CRPs), and field level officials from all Participating States, including representatives from tribal areas, while the second workshop involved key AHD officials and other department officials from the Participating States. The key findings of the ESSA are: dedicated staffing for managing environment and social risks in AH sector is absent; guidelines and SOPs on occupational/community health and safety need consolidation and systematic implementation, especially in AH facilities and waste management activities, technical capacity of staff on E&S is variable; outreach of AH services in tribal and remote areas is variable. The consultations revalidated these gaps and the measures identified in

³⁰ The risks of forced labor in solar panels and solar components supply chains have emerged in global media in recent times.



ESSA. The draft ESSA report was shared with DAHD and AHDs for feedback and suggestions. The final ESSA report has been disclosed on the World Bank and DAHD websites.³¹

93. The ESSA recommendations focus on addressing key identified gaps. The PAP includes specific E&S actions on (i) appointment of E&S nodal officials in DAHD and five Participating States; (ii) adoption of guidelines on biosafety, biosecurity, waste management and occupational/community health and safety; (iii) training program for frontline AH staff, workers and communities on OH/AH; (iv) integration of E&S aspects into state diagnostic and strategic planning exercises, with specific actions on inclusion of underserved areas and vulnerable communities; and (v) conduct of annual audit of biomedical and other wastes. Other E&S actions that are included in the PIM relate to safeguard screening of upgradation works and incorporation of required mitigation actions in design, construction and operation of upgraded facilities; improved coordination with state pollution boards on waste tracking and reporting, awareness building and consolidated reporting on grievance redressal, data privacy guidelines, community facing communication products/campaigns on E&S measures; integration of E&S indicators in Lab MIS, progress reporting on implementation of PAP and PIM actions; and knowledge and learning activities on E&S practices in AH/OH practices.

94. Grievance redress mechanism (GRM). The Participating State AHDs rely on multiple channels to receive/register, escalate, manage, and resolve grievances. The GoI's online grievance redressal portal—the Centralized Public Grievance Redress and Monitoring System (CPGRAMS)—is functional in all the Participating States and has been generating relevant grievance redressal data.³² CPGRAMs is available to citizens to lodge their service delivery related grievances to public authorities. DAHD has established a separate unit to monitor complaints submitted through CPGRAMS and track their redressal through concerned grievance officers. In addition to CPGRAMs, citizens in the Participating States submit grievances through multiple state specific mechanisms, such as the Participating State Government's online grievance portals, call centers, departmental emails/hotlines as well as through district collectors and district offices of the AHDs. Both CPGRAMs and state specific mechanisms are functional and generate data on grievance redressal on periodic basis. However, the grievance data and reports many may not be consolidated and monitored adequately. While grievance tracking and escalation mechanisms exist, these are not well disseminated and well understood among citizen's and livestock farmers. The Program will support better dissemination of existing GRMs among communities to raise awareness, along with a more streamlined mechanism of consolidation grievance reporting by AHDs.

95. Protection of personal data: The GoI and the Participating State Governments, including the DAHD and its state departments, have experience in the protection of personal data through established operating procedures for data protection and complying with the existing data protection rules of the GoI. The procedures for ensuring that data collected through the Program complies with existing data protection rules and regulations will be detailed by DAHD in the PIM.

96. Climate Co-Benefits: The Program's contribution to GHG emission reductions in the long term will be derived from improving animal productivity. This will be achieved through enhanced health and disease management, as well as through the training of livestock farmers on GAHPs, thus helping to reduce methane emissions. The GAHPs supported through the Program will include: (i) better health management of livestock and disease management practices, which will improve animal productivity, thereby helping to reduce emissions; (ii) better manure management practices to reduce emissions; and (iii) other climate-smart related activities that are relevant in specific cases and areas of the Program. The Program will support an animal disease

³¹ Disclosed on World Bank website on 27 October 2022 (<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099340010272240781/p17767102f787a0b0bfb0ddc52ddbcc26>); Disclosed on DAHD website on 10 April 2023 https://dahd.nic.in/sites/default/files/AHSSOH_ESSA_EnvironmentalSocialSystemAssessmentReport-forUploading.pdf.

³² <https://pgportal.gov.in/>



management system that takes into consideration climate change challenges. Under RA 1, the Program will support the identification and mapping of emerging disease risk hotspots, including climate-sensitive zoonotic diseases in each participating state. These will contribute to the prioritization of climate-sensitive zoonotic diseases, as well as an assessment of the impact on these diseases, thus enhancing the State's capacity to further assess risk and planning. Under RA 2, the Program will strengthen the wildlife departments' access to diagnostic facilities to conduct better surveillance.

97. Citizen engagement. The Program will enhance public outreach and citizen's engagement in the animal health and veterinary services sector through: (i) behavior change, public awareness and information campaigns targeting livestock farmers, community AH workers, and other value chain actors on animal health-related issues; (ii) targeted outreach efforts to mobilize women, vulnerable farmers and other end users in extension activities and training programs, and increase their access to and use of veterinary facilities; (iii) annual satisfaction surveys of end-users of veterinary service provision; and (iv) strengthening of service standards on AH service delivery and existing grievance redress mechanisms.

V. GRIEVANCE REDRESS SERVICES

98. World Bank's Grievance Redress Service (GRS). Communities and individuals who believe that they are adversely affected as a result of a Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance mechanism or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit <https://accountability.worldbank.org>.

VI. RISK

99. Overall Risk: The overall risk to the development outcome of the Program is **Moderate**. Existing risks are significantly mitigated by the demonstrated commitment of DAHD in developing the restructured LHDCP program with increased focus on systems and institutional strengthening; the increased financial outlays by the GoI on prevention of priority animal diseases such as FMD and Brucellosis; and the TA support being provided by BMGF and the World Bank to enhance Program implementation capacity. The E&S risks are rated Moderate. However, Institutional Capacity and Fiduciary risks are considered Substantial.

100. The Institutional Capacity risk is considered Substantial. Institutional risks arise from inadequate implementation and coordination capacity in the AH and Wildlife departments in the Participating States. Implementation will succeed only if SSPs are developed with due consultations. They should also be based on diagnostic assessments and data as specified in the Program design, and institutional capacity is enhanced to implement the SSPs. This risk is partially mitigated through the Program making significant investments in enhancing implementation capacity through: (a) strengthening NPIUs and setting up SPIUs; and (b) assessing



and upgrading training curriculum for department staff and front-line service providers; and (c) strengthening M&E systems.

101. **Fiduciary risk is also Substantial.** The key risks include: (i) absence of multi-year/strategic perspective in planning, the weak linkages between planning and budgeting, and a top-down approach to budgeting; (ii) poor accounting practices; (iii) weak internal controls including internal audit; (iv) delays in annual external audits; (v) delays in finalizing procurement decisions and issue of contracts; (vi) inefficient record keeping of procurement transactions, resulting in non-availability of records for audit and oversight; (vii) lack of oversight of procurement functions in the implementing agencies; (viii) non-preparation and non-publication of annual procurement plan and information on award of contract on the portal affecting transparency; (ix) lack of effective procurement complaint handling mechanism to improve transparency and accountability; and (x) risk of forced labor in solar panels and solar component supply chains.

102. **The mitigation measures proposed include:** (i) the use of the PFMS in making payments and reporting expenditures; (ii) ensure costed annual work plans are prepared based on SSPs; and (iii) building FM capacity in the Program implementing agencies through PFMS training and the hiring of contractual services, where required to strengthen internal controls; (iv) a system to be developed to ensure that the procurement decisions are taken in reasonable time and contract is awarded to the selected bidder/consultant within the initial validity of bids/proposals; (v) maintain procurement records and information centrally for each procuring entity in a manner so that relevant data for procurement progress monitoring for overall procurement and contract management and for audits is made available easily and promptly; (vi) for effective oversight, procurement reviews will be included under internal and external audits for the Program; (vii) establishment of an effective procurement complaint mechanism; (viii) ensuring that agencies procuring solar panels will include in their contracts with developers and utilities, requirements that neither they, nor their solar panel suppliers, have or will engage or employ forced labor.



1. RESULTS FRAMEWORK MATRIX

Results Framework

COUNTRY: India

Animal Health System Support for One Health Program (AHSSOH)

Program Development Objective(s)

The Program Development Objective is to increase the quality and coverage of animal health services for livestock farmers and improve One Health coordination in Participating States.

Program Development Objective Indicators by Objectives/Outcomes

Indicator Name	DLI	Baseline	End Target
Increase the quality and coverage of animal health services for livestock farmers.			
(1) Laboratories operating under improved quality assurance and quality control procedures (Number)	DLI 2	0.00	20.00
(2) Livestock farmers with increased access to improved animal health services (disaggregated by gender). (Number)	DLI 3	724,000.00	2,900,000.00
(a) of which are women (Percentage)		10.00	35.00
(3) Digital disease surveillance system operating in each Participating State (Number)		0.00	5.00
Improve One Health coordination.			



Indicator Name	DLI	Baseline	End Target
(4) One Health joint actions covering animal, wildlife and human health implemented through the establishment of functional OH platform and AMR state action plan notified (Yes/No)	DLI 1	No	Yes
(5) Livestock farmers adopting biosecurity measures (Number) (Number)		32,280.00	150,000.00
(a) of which are women (Number)		0.00	28,000.00



Intermediate Results Indicator by Results Areas

Indicator Name	DLI	Baseline	End Target
Building Institutional Capacity for Implementation and Coordination of the One Health Approach.			
(1) Increase in wildlife samples tested in shared laboratory diagnostic facilities (Percentage)		0.00	25.00
(2) Data sharing on AMR between animal and human health is functional (Yes/No)		No	Yes
(3) Periodic testing of animal products for antimicrobial residue and resistance in Participating States (Yes/No)		No	Yes
Strengthening diagnostic capacity.			
(4) Laboratory manpower trained. (Number)		117.00	585.00
(a) of which are women (Percentage)		15.00	20.00
(5) Laboratories adopting standard SOPs. (Number)		35.00	210.00
(6) Farmers who received access to diagnostic services per year. (Number)		2,000.00	10,000.00
(7) Reduction in the average time for testing collected samples. (Percentage)		0.00	30.00
Strengthening access to quality veterinary services.			
(8) Veterinary hospitals upgraded through the Program. (Number)		0.00	400.00
(9) Increase in livestock farmers receiving veterinary services through vet. hospitals, MVUs and IT based platforms. (Number)		53,000.00	800,000.00
(a) of which are women (Number)		0.00	212,000.00
(10) Animal health professionals who have been trained and		0.00	3,500.00



Indicator Name	DLI	Baseline	End Target
certified through the Program (paravets, veterinarians, CAHW). (Number)			
(a) of which are women health professionals (Percentage)		0.00	350.00
Enhancing surveillance capacity for effective disease reporting and monitoring.			
(11) Proportion of online animal disease incidents reported responded to within the recommended time-period. (Percentage)		0.00	75.00
(12) Joint routine surveillance conducted in high-risk areas by veterinary and wildlife departments under the Program. (Yes/No)		No	Yes
Increasing community awareness of animal disease management practices and Zoonoses.			
(13) Community outreach campaigns on GAHPs supported through the Program. (Number)		0.00	360.00
(a) of which are women reached (Percentage)		0.00	60.00
(14) Value chain actors trained in good animal health and good animal product handling practices through the Program (Number)		0.00	5,000.00
(a) of which are farmers (Number)		0.00	4,500.00
(b) of which are butchers/livestock markets/wet markets (Number)		0.00	500.00
(d) of which are women (Number)		0.00	2,000.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
(1) Laboratories operating under improved quality assurance and quality control procedures	Reduction in the average testing time at RDDIs for five priority diseases: (1) Avian Influenza, (2) Glanders, (3) African Swine Fever/Classical Swine Fever, (4) Foot and Mouth Disease, and (5) Rabies.	Annual in year 1, semi-annual after year 2	Diagnostic laboratory facilities	Progress reports and survey	SPIUs and ADHD PMU
(2) Livestock farmers with increased access to improved animal health services (disaggregated by gender).	Improved health services include access to quality and timely animal health services, and preventive animal health advisory services provided under a revised livestock extension curriculum designed under AHSSOH. Livestock farmers are people engaged agricultural activities related to raising and keeping animals for business, household consumption, use of animals for draft power. Include farmers in remote villages.	Annual in year 1; semi-annual after year 2	Progress annual reports based on farmers records and surveys	Survey and technical progress reports	SPIUs
(a) of which are women					



(3) Digital disease surveillance system operating in each Participating State	Measures the implementation of NDLM and regular disease reporting using IT platforms and mobile applications for timely disease reporting and monitoring. Baseline of zero refers to system not being operational. End target refers to system being operational in the five Participating States.	Annual	Progress report and data from NDLM	Program Report / Surveys	
(4) One Health joint actions covering animal, wildlife and human health implemented through the establishment of functional OH platform and AMR state action plan notified	Joint OH actions include development of (1) OH platforms and (2) AMR state plans. Functioning of OH platform will be measured based on meeting of the OH committee at regular intervals, minutes of the meeting, initiated actions based on the decisions reached. State AMR actions plans will be notified by DAHD.	Semi-annual from year 2	OH Committees records and data	Progress Report and Survey	DAHD/PMU and One Health Support Unit (OHSU)
(5) Livestock farmers adopting biosecurity measures (Number)	Biosecurity measures includes various actions taken by livestock farmers to reduce the chances of an	Annual then semi-annual after year 2	Extension records / Surveys	Based on survey data and progress report	SPIUs and DAHD PMU



	infectious disease being carried onto the farm by people, animals, equipment, or vehicles, and to reduce the chance of disease leaving the farm and reducing the chances of livestock animals interacting with wildlife animals. Measures vary by type of livestock animals and farm type. The intended outcome is also to reduce veterinary public health risks.				
(a) of which are women					



Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
(1) Increase in wildlife samples tested in shared laboratory diagnostic facilities	Number of samples from the wildlife departments at state level being tested in DAHD laboratories.	Annual then semi-annual from year 2	DAHD diagnostic facilities	Semi-annual progress report	SPIUs
(2) Data sharing on AMR between animal and human health is functional	Captures AMR related data sharing among DAHD and the relevant departments of MoHFW including NCDC, ICMR and FSSAI. To be based on the protocols for data sharing to be developed during early program implementation. Functional refers to data being shared annually.	Annual	SPIUs and DAHD PMU	Annual reports	SPIUs
(3) Periodic testing of animal products for antimicrobial residue and resistance in Participating States	Captures antimicrobial residue and resistance test results from animal sourced products (e.g. milk and meat). Tests will be conducted by the relevant human health authority and the DAHD nodal agencies with support from international partners.	Annual	Diagnostic facilities, testing authority data and survey-based data	Technical report based on survey data using risk assessment methodologies. Reports will be included on program annual report.	PMU and SPIUs
(4) Laboratory manpower trained.	Includes training on sample collection, surveillance and epidemiology, and other	Annual then semi-annual	Diagnostic facilities records	Progress reports and technical reports	SPIUs



	laboratory quality and safety protocols.	from year 3.			
(a) of which are women					
(5) Laboratories adopting standard SOPs.	Standard SOPs will be developed by CDDL and notified by DAHD, which will integrate Health and Safety SOPs.	Semi-annual from year 2	SPIUs and DAHD PMU	Progress and technical reports, audit reports on biomedical waste management, worker health and safety	SPIUs and Auditing Agency
(6) Farmers who received access to diagnostic services per year.	Number of livestock farmers receiving animal diagnostic services.	Annual	Farmers records	Survey and progress reports	SPIUs
(7) Reduction in the average time for testing collected samples.	Reduction in the average testing time - from sample collection to communication of result back to referring source - at RDDs for five priority diseases: (1) Avian Influenza, (2) Glanders, (3) African Swine Fever/Classical Swine Fever, (4) FMD, and (5) Rabies.	Annual year 1 then semi-annual year 2	Diagnostic laboratory facilities.	Progress reports, Laboratory MIS and survey. Baseline value will be developed based on the diagnostic exercise conducted at the state level.	SPIUs and ADHD PMU
(8) Veterinary hospitals upgraded through the Program.	Upgrading of selected veterinary hospitals.	Semi-annual after year 2	Animal Health facilities	Progress reports	SPIUs
(9) Increase in livestock farmers receiving veterinary services through vet. hospitals, MVUs and IT based platforms.	Percent increase of livestock farmers receiving veterinary services.	Annual in year 1 then semi-annual from year 2	Farmers records / survey	Based on farmer surveys	SPIUs



(a) of which are women					
(10) Animal health professionals who have been trained and certified through the Program (paravets, veterinarians, CAHW).	Animal health professionals includes para-vets, veterinarians and CAHWs and wildlife health professionals. Training of para-professional includes, among other, training on biosecurity measures, food safety, AMR, waste disposal first aid services, disease reporting, sample collection, productivity enhancement.	Annual in year 1 and then semi annual from year 2	DAHD	Progress reports and technical reports	SPIUs
(a) of which are women health professionals					
(11) Proportion of online animal disease incidents reported responded to within the recommended time-period.	Measures the proportion of disease incidents and outbreaks reported on the surveillance system that are responded to within the recommended timeframe. The time-period of response will be measured against the DAHD notified standard.	Annual	Surveillance Platform	Data from the surveillance platform and surveys of livestock farmers, relevant veterinary field professionals and diagnostic professionals.	SPIUs and DAHD PMU
(12) Joint routine surveillance conducted in high-risk areas by veterinary and wildlife departments under the Program.	Refers to the diseases investigated jointly on EIDs or re-emerging infectious diseases (zoonotic or non-zoonotic) jointly conducted	Semi-annual from year 2	DAHD/Progress reports	Progress reports and technical reports	SPIUs



	between veterinary and wildlife departments in the Participating States.				
(13) Community outreach campaigns on GAHPs supported through the Program.	Number of community outreach campaigns.	Semi-annual after year 2	DAHD	Progress reports	SPIUs and ADHD PMU
(a) of which are women reached	Percentage of farmers and rearers reached that are women.				DAHD, State AHDs
(14) Value chain actors trained in good animal health and good animal product handling practices through the Program	GAHPs refers to principles of good practices and minimum requirements for the rearing and farming of animals including commercial and backyard production to ensure the safety of animal products for human consumption, health safety and comfort the animals and farm workers. These practices include animal nutrition, animal health and disease management, waste management, manure management, biosecurity measures, and hygienic food preparation and food safety. GAHPs minimize disease risks and spread, and contribute to animal and human health, and to	Annual in year 1 then semi-annual from year 2	Progress reports and technical reports	Survey data. Risk assessment studies technical reports conducted	SPIUs and PIU



	animal welfare supporting the five freedoms for animals as defined by WOA. Beyond the farm level good practices includes practices at live animal markets, hygienic and proper animal product handling practices at butcherries, other retailers and markets that support food safety and animal safety.				
(a) of which are farmers					
(b) of which are butchers/livestock markets/wet markets					
(d) of which are women					



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

Disbursement Linked Indicators Matrix				
DLI 1	Enhancing institutional capacity for animal health management and One Health Coordination.			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Text	24,795,000.00	30.49
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
2023	DLR 1.1: DAHD has: (i) established technical committees on disease surveillance and AMR; (ii) adopted data sharing protocols for AMR; and (iii) signed an agreement with MoEFCC and adopted protocols for sharing animal health diagnostic facilities for wildlife disease diagnostics and surveillance.		3,000,000.00	DLR 1.1: 1,000,000 per each (i), (ii) and (iii) action for three actions
2024	DLR 1.2: DAHD has approved State Strategic Plans laying out medium-term investment framework and target outcomes on animal health management and OH coordination for Participating States. DLR 1.3: DAHD has notified the National Standards for veterinary service provision.		16,795,000.00	DLR 1.2: \$3,000,000 per SSP approved up to \$15,000,000 DLR 1.3: \$1,795,000
2025	DLR 1.4: Each participating state has developed and notified a joint action plan (human health and food safety) on AMR listing implementation		5,000,000.00	DLR 1.4: \$1,000,000 per Participating State up to \$5,000,000



	steps and timelines to operationalize National AMR Action Plan.			
2026	0.00		0.00	0.00
2027	0.00		0.00	0.00
DLI 2	Strengthening diagnostic capacity			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Text	17,000,000.00	20.73
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
2023	0.00		0.00	n/a
2024	DLI 2.1: Diagnostic facilities at the state, district, and block levels certified to relevant standards (same for subsequent years).		5,000,000.00	\$250,000 per state and district facility certified and \$100,000 for block and below
2025	As above		5,000,000.00	As above
2026	As above		6,000,000.00	As above
2027	As above		1,000,000.00	As above
DLI 3	Strengthening veterinary service provision.			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	No	Text	20,000,000.00	24.39
Period	Value		Allocated Amount (USD)	Formula



Baseline	None			
2023	None		0.00	0.00
2024	DLR 3.1 Veterinary hospitals, veterinary clinics and veterinary dispensaries have been upgraded to meet National Standards		10,000,000.00	\$0.25 million per hospital and \$0.1 million per clinic and dispensary
2025	DLR 3.2 Increase of livestock farmers who received animal health services through MVUs		10,000,000.00	\$500,000 for every additional 3% coverage from a baseline of 1,832,535 up to \$10,000,000
2026	0.00		0.00	0.00
2027	0.00		0.00	0.00
DLI 4	Scaling up integrated disease surveillance.			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Text	10,000,000.00	12.20
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
2023	0.00		0.00	0.00
2024	DLR 4.1: Number of disease incidents reported on online platform (same for subsequent years).		1,000,000.00	\$50,000 per 1,000 incidents reported
2025	As above		3,000,000.00	As above
2026	As above		4,000,000.00	As above



2027	As above		2,000,000.00	As above
DLI 5	Increasing community level animal health management.			
Type of DLI	Scalability	Unit of Measure	Total Allocated Amount (USD)	As % of Total Financing Amount
Output	Yes	Text	10,000,000.00	12.20
Period	Value		Allocated Amount (USD)	Formula
Baseline	0.00			
2023	0.00		0.00	0.00
2024	DLR. 5.1: Number of rearers and personnel that have been trained on disease surveillance, One Health Framework, good Animal Husbandry Practices and farm level biosafety and biosecurity measures (same for subsequent years).		1,000,000.00	For men: \$0.1 mn for every 5,000 rearers and \$0.25 mn for every 500 personnel trained (scalable up to a total of \$5 million)
2025	As above		3,000,000.00	As above
2026	As above		3,000,000.00	As above
2027	As above		3,000,000.00	As above



Verification Protocol Table: Disbursement Linked Indicators

DLI 1	Enhancing institutional capacity for animal health management and One Health Coordination.
Description	<p>DLR 1.1: One Health institutional framework strengthened at national level. DAHD (i) has established one technical committee on disease surveillance and one technical committee on AMR; (ii) has adopted data sharing protocols for AMR; and (iii) has signed an agreement with MOEFCC and adopted protocol for sharing animal health diagnostic facilities for wildlife disease diagnostics and surveillance. DLR 1.2: DAHD has approved SSPs laying out medium-term investment framework and target outcomes on animal health management and OH coordination for Participating States. SSPs for animal health management and OH coordination to be supported through Program financing approved by the PSC at MoFAHD. The SSPs will follow a standardized template approved by the PSC and include a 4 year implementation plan, including critical actions and budgets related to the five RAs of the Program. SSPs from each Participating State will be submitted for the approval of PSC as per procedures laid out in the PIM. DLR 1.3: DAHD has notified the National Standards for veterinary service provision National minimum standards for veterinary service provision adopted by GOI. The standards will be based on international best practices and relevant WOA guidelines and will include segments on user rights and service standards; animal assessment and care; and hygiene and infection control. Notified will include official communication by the GoI on standards including the standards being officially gazetted. DLR 1.4: Each Participating State has developed and notified a joint action plan (human health and food safety) on AMR listing implementation steps and timelines to operationalize National AMR Action Plan. State action plan for operationalizing AMR listing implementation steps, timelines and budget developed and approved. Approval by the DAHD and the State Department of Health. Notified will include official notification of the plan by the state government and public disclosure.</p>
Data source/ Agency	DLR 1.1: MoFAHD DLR 1.2: MoFAHD DLR 1.3: MoFAHD DLR 1.4: MoFAHD / State Government
Verification Entity	IVA-TBC
Procedure	<p>DLR 1.1: i) Central Government publishes notification of committee mandate, membership, roles and responsibilities and operational procedures; committee will include membership of representatives from human health (ICMR or NCDC), wildlife (MOEFCC or subsidiary institute), food safety (FSSAI) and animal health (DAHD); (ii) Notification by committee of data sharing protocol and periodicity of data sharing by DAHD (iii) Copy of agreement laying out protocol for sharing of wildlife disease diagnostics and surveillance covering Participating States.</p> <p>DLR 1.2: Copy of minutes of PSC; and (ii) copy of approved SSP.</p> <p>DLR 1.3: Copy of formal notification of national standards by MoFAHD</p> <p>DLR 1.4: Copy of approved AMR state action plan (ii) Minutes of state One Health Committee / formal notification of State</p>



	Government adopting the plan.
DLI 2	Strengthening diagnostic capacity
Description	Diagnostic laboratories at regional, state, district and below levels in Participating States get certified against relevant certification standard. ISO 17025 or equivalent for regional and state labs and Quality Assurance Quality Control (QAQC) or equivalent at district level and below.
Data source/ Agency	State Animal Husbandry Department /MoFAHD.
Verification Entity	IVA-TBC
Procedure	Copy of assessment and certification granted to diagnostic facilities in Participating States.
DLI 3	Strengthening veterinary service provision.
Description	DLR 3.1 Veterinary hospitals, veterinary clinics and veterinary dispensaries have been upgraded to meet National Standards. Veterinary facilities upgraded through program support. Veterinary facilities: refers to veterinary hospitals, clinics facilities where veterinary services are provided to livestock farmers to treat and examine animal diseases/ailments. An assessment will be conducted in participating states to identify proposed facilities that need to be upgraded, and the required renovations and upgradation areas to improve veterinary service delivery. Upgradation will be considered satisfactory if it meets the proposed required renovations and upgrading as laid out in the SSPs or separate assessment report. DLR 3.2. Increase of livestock farmers who received animal health services through MVUs. Percentage increase in the number of farmers being provided support through MVUs in Participating States. An MVU is a customized fabricated vehicle fitted with equipment for diagnosis, treatment and minor surgery, audio visual aids and other basic requirements for treatment of animals as part of veterinary healthcare services to farmers. Receiving animal health services means that MVUs are operating per national guideline notified by DAHD and treatment, care, advice or guidance, or other services, or supplies, related to the health or death of an animal or to animal populations was provided to the farmer through the MVU.
Data source/ Agency	DLR 3.1 State AHDs and MoFAHD DLR 3.2 State AHDs /DAHD
Verification Entity	IVA - TBC
Procedure	DLR 3.1 Assessments of facilities and upgradations needed included in SSPs or separate document approved by the PSC. Information on veterinary facilities in participating states that have upgraded facilities to be shared by states. Quarterly report compiled by MoFAHD and approved by PSC shared. DLR 3.2 Gender disaggregated data on service provision by MVUs to be captured by State AHD and shared with MoFAHD,



	reviewed and approved by the PSC.
DLI 4	Scaling up integrated disease surveillance.
Description	Number of unique animal disease reports logged on the digital surveillance platform. Digital surveillance system refers to the NDLM - a computerized disease surveillance system which will record and monitor livestock disease situation in the country.
Data source/ Agency	State and national digital disease surveillance platform data.
Verification Entity	IVA - TBC
Procedure	Participating States and MoFAHD will share disease reporting data from the digital surveillance platform and provide access to the platform to verify.
DLI 5	Increasing community level animal health management.
Description	Training delivered to livestock rearers and personnel based on training modules developed by DAHD / affiliated institutions on biosafety, biosecurity and disease reporting protocols for farmers/rearers and community paraprofessionals; wildlife disease surveillance and reporting protocols for FMC members; and disease surveillance and safe food handling practices for animal product value chain actors (e.g., animal markets and abattoirs). Identification details of Program trainees will be captured to enable verification of those completing the training.
Data source/ Agency	State AHDs, MoFAHD
Verification Entity	IVA - TBC
Procedure	Training and extension support records for farmers/rearers from State AHD compiled by MoFAHD. For community paraprofessionals and workers, training and assessment records from State AHD compiled by MoFAHD.



ANNEX 3. (SUMMARY) TECHNICAL ASSESSMENT

The Context

1. **India has one of the largest livestock populations in the world, and it is a hotspot for animal disease outbreaks.** India has the largest buffalo population, the second largest cattle and goat populations, and one of the largest poultry markets in the world. The livestock sector contributes about 27 percent to agricultural GDP (US\$ 91.66 billion in 2019) and employs 50 percent of the agricultural workforce. As such, it plays a significant role in the livelihoods of millions of people in the rural economy. The increased interaction between livestock, humans and wildlife poses risks of disease outbreaks. Animal disease outbreak pose significant economic burden, and FMD outbreaks alone are estimated to result in about US\$3.3 billion in annual losses.

2. **The PDO of the Program is to increase the quality and coverage of animal health services for livestock farmers and improve One Health coordination in participating states.** The Program will support five Results Areas (RAs), including: (i) Strengthening Institutional Capacity for Implementation and Coordination of the One Health framework; (ii) Enhancing Diagnostic Capacity for Effective and Timely Disease Diagnosis; (iii) Increasing Access to Quality Veterinary Services; (iv) Enhancing Surveillance Capacity for Effective Disease Reporting and Monitoring; and (v) Increasing Community Awareness of Animal Disease Management Practices and Zoonoses.

Geographic Boundary

3. **The geographic boundary of the Program is appropriate. The Participating States represent a sizable proportion of India's livestock population.** The Participating States represent about 26 percent of India's total livestock population. With 40.6 million livestock, Madhya Pradesh is the third leading state in terms of India's total livestock population. Assam, Odisha, and Maharashtra are among the top ten cattle population states, comprising a total of 34.8 million cattle. Maharashtra is a major poultry producing state. Together with Assam, Karnataka, and Odisha, they are among the top ten poultry states, comprising a 207.9 million poultry population. Assam has the highest number of pigs. Karnataka, Maharashtra, and Odisha are among the top ten small ruminant producing states. The Participating States comprise about 31 percent of India's dog population of 9.4 million.

4. **The five Participating States also comprise about 29 percent of India's forest cover,** with Odisha having the highest forest cover (51,619 sq. km) among the states and about 39 percent forest cover. Over 30 percent of Madhya Pradesh is covered with forest. The Participating State contain a sizable wildlife population. Karnataka has the highest tiger population (472). Assam and Karnataka have the highest number of wild elephants. Maharashtra and Assam have among the highest cases of poaching, and illegal trafficking of wild animals is high in Odisha.

5. **The Participating States ranked among the highest disease incidences reported for the last five years.** Using the occurrence of nine selected priority diseases^[2] in all states reported by the Integrated Disease Surveillance Project (IDSP) in its weekly outbreak report for the years 2019 and 2020, the Participating States reported the most of these disease incidences.

6. **The technical assessment is focused on four key aspects:** (i) strategic relevance and technical soundness, (ii) the expenditure framework, (iii) M&E capacity, and (iv) economic justification for World Bank financing.



Strategic Relevance

7. Improving animal health outcomes and OH coordination aligns directly with the India CPF for FY18–FY22.

Building the capacity of livestock farmers and other value chain actors to adopt good animal husbandry practices, better animal health management and awareness of zoonotic disease reduces disease incidence, productivity losses, mortality, as well as the associated substantial economic costs accruing to rural populations will contribute to the CPF objective to promote more resource-efficient, inclusive, and diversified growth in the rural sector. With its focus on zoonoses, the Program contributes to objective 1.5 to strengthen disaster resilience by improving the detection and prevention of endemic and emerging infectious diseases.

8. The Ministry of Fisheries, Animal Husbandry and Dairying (MoFAHD) have demonstrated their commitment to improve animal disease management. Through the LHDCP, 381 million cattle have been vaccinated against FMD, and a declaration was issued stating that three states are FMD-free zones. The Government introduced an animal disease reporting system, which is now being improved to strengthen detection and response to disease outbreaks. Different schemes for immunization are being introduced against other economically important diseases (e.g., Brucellosis and PPR), as well as a program for classical swine fever in the Northeastern regions. However, gaps exist, and these achievements are constrained by key factors including a lack of integration in the implementation of schemes, a shortage of veterinary workforce, and weak diagnostic and surveillance capacity. Demonstrating its commitment, the GoI allocated approximately US\$462 million from FY17-18 to FY20-21 covering all 29 states and 8 union territories.

9. The Program's design is informed by a solid technical assessments and global best practices. The Program rests on the premise that the cost of emerging disease outbreaks and pandemics far outweighs the cost of prevention. By recognizing that strengthening the underlying challenges of animal disease and zoonoses management in an integrated manner is fundamental, the Program improves India's ability to better detect, prevent and respond to future disease outbreaks.

10. The Program is informed by strong technical assessments on the gaps in veterinary and animal disease management. These include assessments by the WOA (2018), the assessment report of the Parliamentary Standing Committee on Agriculture (2021), as well as lessons learned from similar World Bank projects. For example, the REDISSE found that coordination across multiple sectors is an effective approach to managing zoonosis and building capacity for better disease surveillance and response to outbreaks. Fundamental contributions of the PforR include building institutional capacity to strengthen animal disease management.

11. The Program has key features that will support the transformation of animal disease and zoonoses management: These include (i) a detailed data-driven diagnostic exercise and strong analysis to inform SSPs; (ii) requiring Participating States to develop strategic plans to inform investments and intervention as a basis of Program support; (iii) demonstrating One Health on the ground through forming One Health coordination mechanisms and focusing cross-sectoral collaboration on selected topics; and (iv) building capacity of relevant institutions, stakeholders and beneficiaries across the RAs. Each RA will build its technical design based on analytics, and include lessons learned from past Bank-funded programs.

12. Gender Analysis: Women face multiple barriers in accessing animal health services; thus, targeted interventions are needed to address these barriers as they are most at risk of zoonoses. The following three gender gaps were identified as relevant to the Program Boundary. *First*, rural women provide over 75 percent of production labor, which includes managing animal fodder and nutrition; milking; animal health; manure management; and overseeing pen cleaning. Yet, women face many constraints, including a lack of awareness



and access to veterinary and extension services (especially to distant veterinary facilities), as well as training interventions. *Second*, women scientists also face limited leadership opportunities. *Third*, *pregnant* women and women frontline workers are highly vulnerable to zoonoses exposure since they are in-charge of managing regular livestock activities, and face risks including miscarriages and stillbirths. These gaps and constraints highlight the need for greater capacity development, awareness, and training.

13. The Program will target women through specific RA interventions. RA 5 will target women through activities related to creating awareness campaigns and knowledge about disease management, including zoonoses; training on good animal husbandry practices, including biosafety measures; and good practices in food hygiene and food safety. RA 3 will train women as part of increasing the capacity of animal health service professionals including para-veterinarians and community health workers. For example, the Program will target women as 50 percent of the beneficiaries in the training of animal health professionals. The Program will also include women laboratory scientists under RA 2 for diagnostic capacity-building interventions. Gender-disaggregated assessments to evaluate the impact of training will also be undertaken as part of the Program. Several indicators at the PDO level will be disaggregated by gender to capture the inclusion of women. The Program also recognizes that gender includes women, men, and children. Men engage in animal slaughter activities, and children also take on livestock activities, including pen cleaning.

14. Climate Co-Benefits: The Program's contribution to reducing GHG) emissions will be derived from improving animal productivity through enhanced health and disease management, as well as the training of livestock farmers on GAHPs. The GAHPs supported through the Program will include: (i) better health management of livestock and disease management practices, which will improve animal productivity, thereby helping to reduce emissions; (ii) better manure management practices and use of manure for biogas to reduce emissions; and (iii) other climate-smart related activities that are relevant in specific areas of the Program.

15. The Program will support an animal disease management system that takes into consideration climate change challenges. This will be achieved through veterinary service delivery and disease surveillance and diagnostic capacity that would help address the climate shocks vis-a-vis animal health. Through the One Health framework adopted under RA 1, the Program will enhance collaboration and promote animal management while considering climate change risk factors. Under RA 1, the Program will support the identification and mapping of emerging disease risk hotspots, including climate-sensitive zoonotic diseases in each participating State. The Participating States expressed an interest in conducting studies concerning behavioral aspects of zoonotic diseases in response to climate change. These will contribute to the prioritization of climate-sensitive zoonotic diseases, as well as an assessment of the impact on these diseases, thus enhancing the State's capacity to further assess risk and planning. Under RA 2, the Program will strengthen the wildlife departments' access to diagnostic facilities to conduct better surveillance. In addition, integrating wildlife disease surveillance in the animal disease surveillance system will contribute to better detection and monitoring of diseases in wildlife animals, including zoonotic diseases. As India is a hotspot for zoonotic diseases — including the threat of bat viruses due to climate change — improving surveillance of wildlife and forestry departments in the Participating States will contribute to pandemic preparedness.^[3]

16. Under RA 3, the Program provides capacity-building sessions linking the impacts of climate change and animal health to relevant stakeholders. As such, it will support the deployment of solar-powered MVUs. RA 4 encourages the use of digital platforms for animal disease reporting, thus making disease surveillance more sensitive to climate change vulnerabilities. RA 5 of the Program will support the training of farmers on better



manure management, the use of manure for clean energy, as well as the provision of shade to protect animals from heat stress. RA 5 will also promote other GAHPs to support animal health and nutrition. These measures will help (i) reduce the risks of disease outbreaks and (ii) consider the impacts of climate change and will help build resilience to climate change, and (iii) improved animal productivity is expected to help reduce GHG emissions.

Implementation Arrangements

17. The Program will be implemented through the DAHD's existing institutional modalities and systems, which will also be strengthened through Program support. The Program will be implemented by the DAHD at the national level, and by the state Animal Husbandry Departments (AHDs) in each of the five Participating States. Institutional capacity building is a core focus of the Program. As such, RA 1 will conduct training and capacity building of department staff at the national and state levels. A PSC headed by the Secretary of Animal Husbandry with corresponding One Health departments and agencies (including human health, environment/wildlife, and food safety) will be established to oversee the Program at the national level. The National Project Implementation Unit) will consist of the existing staff of the DAHD, headed by the Joint Secretary of Animal Health. The existing OHSU will provide support Program at the national level. The DAHD will hire additional technical consultants to strengthen capacity in specific areas (e.g., procurement, safeguard). At the State level, a OH Coordination Committee will be established, and will correspond to the national PSC, to oversee implementation of the SSPs. A SPIU set up to support Program implementation.

Results Monitoring and Evaluation

18. The Program design supports the strengthening of data reporting and M&E systems. The Program will support building capacity of DAHD and Participating States to monitor Program implementation through hiring of technical specialists as part of the NPIU and the SPIU; development of a Program M&E plan focusing on the RAs; through scaling up adoption of the NDLM for real time data collection from the field; and through developing data dashboards to assist Participating State Governments and DAHD to monitor Program implementation.

19. Program monitoring will have the following elements: (i) Preparation of Program M&E plan, (ii) periodic progress monitoring; (iii) verification of results by an IVA; and (iv) studies and assessments for impact evaluations. DAHD will prepare an M&E plan, which specifies methodology, responsibility of data collection and reporting and sources of data. SPIUs will be responsible for implementation of the M&E plan in the Participating States. TSAs will be hired at the state level for RAs where additional capacity is needed. The NPIU will develop a monitoring information system to track implementation of activities and investments under AHSSOH. Quarterly progress reports will be compiled by the NPIU and shared with the PSC and the World Bank. The IVA will verify results against the DLIs and submit verification reports through DAHD to the WB.

Economic and Financial Assessment

20. The public provision for strengthening the core capacity of animal health systems and One Health coordination in India is justified. First, the economic burden of infectious diseases is overwhelming at the state and national levels. The costs of disease outbreaks and pandemics disproportionately affect the poor and



the most vulnerable households. Second, the benefits of strengthened disease surveillance, reporting and response at the state and district levels translates into public goods for India and the world.

21. **The Program interventions will yield enormous benefits in the long term.** These benefits include: (i) reducing the economic burden associated with animal and zoonotic disease outbreaks and the costs associated with FBDs; (ii) reducing the risks of disease spill over from animals to humans, thereby reducing the potential for future pandemic outbreaks and associated economic, social, and human losses; (iii) improving livestock productivity, which indirectly contributes to increasing incomes and the livelihoods of many, especially poor households in rural areas; (iv) reducing GHG emissions in the long term from the livestock sector through improved efficiency and animal productivity gains; and (v) public health benefits and economic gains from improved food safety and reduction in antimicrobial resistance.

22. **The economic analysis shows that the Program is economically viable.** At a 6.5 percent discount rate, the ENPV of the Program is estimated at US\$743 million and the EIRR at 131 percent (see Table 1). The cost benefit analysis conducted on the discounted incremental benefit and incremental cost amounted to 11.9. Hence the Program is economically viable. The Program has negative externalities as it yields a positive net carbon balance due to the increase in the number of animals relative to the baseline, a result of improved animal health and disease management. The cost of these externalities was evaluated using the shadow price of carbon (SPC) under two situations, but the Program remains viable.

Table 1: Summary of the economic analysis of the proposed investments in (US\$ million)

		Manure management system			
		Biodigester at 0%		Biodigester at 60%	
Indicator	No SPC	LSPC	HSPC	LSPC	HSPC
Economic Net Present Value	743.3	410.4	79.2	493.6	245.3
Economic Internal Rate of Return	131%	114.1%	88.9%	118.8%	103.4%
Discounted Cost	72.8	428.3	781.7	339.4	604.5
Discounted Benefit	868.4	868.4	868.4	868.4	868.4
Benefit-Cost Ratio	11.9	2.0	1.1	2.6	1.4

23. **The ex-ante analysis compares greenhouse emissions of the baseline (412.7 million tons CO₂-eq),** which assumes a continuation of the current situation, to the scenario situation under which the Program is implemented (416.7 million tons CO₂-eq). The difference in greenhouse emissions between the two situations is the carbon balance (4million tons CO₂-eq). Hence, under the Program there is a net increase in greenhouse emissions (situation 1 above). The net emissions would be 3 million tons CO₂-eq under the situation with an improved manure management application (situation 2 above). Hence, there is 1 million-ton CO₂-eq reduction in net contribution between the two situations. The Program remains viable under all the shadow price of carbon scenarios, indicating a strong case for the Program to be funded.

Expenditure Framework

24. **AHSSOH Expenditure Framework:** Table 2 below details the Program boundary and resultant five-year expenditure framework. The specific MoFAHD schemes and budget heads to be included in the Program boundary are listed. Table 2 below details the PforR Program boundary and resultant five-year expenditure framework. The specific MoFAHD schemes and budget heads to be included in the Program boundary are



listed below. The activities related to the RAs will be financed by DAHD through expenditure heads related to two sub-schemes: (i) ASCAD; (ii) ESVHD and through a financing window – Support to Animal Health Institutions – used to support operations of RDDs. The Program contributes 50 percent to the program.



Table 2: The PforR Program Boundary and Resultant five-year Expenditure Framework

Expenditure Framework										
Scheme	Sub-scheme	Scheme sub-heads	Project sub-head (Central Sector)	Object sub-heads mapped to the scheme	FY 22-23 (US\$ million)	FY 23-24 (US\$ million)	FY 24-25 (US\$ million)	FY 25-26 (US\$ million)	FY 26-27 (US\$ million)	Total (US\$ million)
LHDCP	ASCAD	Publicity & Awareness (IEC), Awareness	Outreach for DAHD schemes (IEC activities involving regular awareness campaigns using print, online & social media, Communication campaigns on Insurance, livestock waste mgt., community level disease management	New Budget Head created for Gol and Bank funding under AHSSOH	0.20	0.45	0.45	0.69	0.23	2.02
		Training of veterinarians, para-veterinarians, lab diagnostic specialists, mock drills for Bird flu			0.30	0.48	0.95	1.37	0.43	3.53
			Meetings and workshops & travel relating to monitoring & evaluation		0.04	0.22	0.22	0.29	0.05	0.82
			Training			1.35	1.55	1.21	0.39	4.50
		Hiring consultants, professional services	Digital infrastructure, human resources for coordination architecture, subject experts to support coordination, Agency for technical assessment (state strategic plan), subject experts to develop & execute guidelines, Epidemiologists at Central PMU, Development of traceability system in the Focus Value Chain,		1.60	2.75	2.18	2.69	0.42	9.64
		Surveillance and monitoring of important livestock and poultry diseases	IT platform for increasing access of animal health scheme, disease surveillance, develop software based solutions for disease reporting, LIMS, IT System upgradation of Labs, Upgradation of NADRS Platform, Introduction of digital diagnostic system		1.47	2.13	1.47	0.87	0.20	6.13
		Fund for strengthening of disease diagnostic laboratories	Non-recurring cost towards upgradation of existing structure, purchase of lab instruments & servicing of lab facilities		6.24	16.78	15.40	18.00	2.00	58.42
		Fund for strengthening of disease diagnostic laboratories	Recurring cost towards training, accreditation, and integration of laboratories etc.		3.40	9.46	9.43	11.61	2.53	36.43
		Monitoring & Evaluation	Central PMU		0.32	0.32	0.48	0.56	0.08	1.76
			State PMU		0.80	0.10	0.10	0.15	0.05	1.20
	ESVHD	100 percent Non-recurring fund for customization of MVUs percent assistance for MVU customization				2.98	2.98	2.62	0.00	8.58
		100 percent Non-recurring fund for upgradation of veterinary hospitals and dispensaries				4.00	4.00	3.09	0.43	11.51
		Recurring cost for operation of MVUs				1.64	3.29	8.29	3.30	16.52
	Total LHDCP				14.37	42.66	42.50	51.44	10.09	161.04
	DAHD	Program Management Cost (25 percent of Administration Cost of DAHD (2022-23) + Professional Services including project management exp)		Program Administration (34510009039 0101) Professional Services (24030010139 0028)	0.73	0.73	0.50	0.50	0.50	2.96
	AHSSOH Total				15.10	43.39	43.00	51.94	10.59	164.00



ANNEX 4. (SUMMARY) FIDUCIARY SYSTEMS ASSESSMENT

1. The FSA concludes that the Program's fiduciary systems, subject to timely implementation of proposed mitigation measures, provides reasonable assurance that financing proceeds shall be used for intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability.

Implementation Arrangements

2. **The Program will be implemented by the DAHD at the national level, and by the state Animal Husbandry Departments (AHDs) in each of the five Program Participating States.**

3. **FSA scope.** The FSA was conducted at the national level for DAHD as well as for four of the five Participating States (Assam, Karnataka, Odisha, and Maharashtra). It focused on their current FM and procurement systems, regulatory aspects, governance and anti-corruption systems and operational practices.

4. **Procurement entities.** Procurement will be carried out by the DAHD under the MoFAHD, as well as in five Participating States in accordance with their own procurement rules, state GFRs, as well as procurement-related instructions contained in the GOs, and the OMIs issued by the Government, updated regularly, following the e-procurement system. The likely procuring entities and their respective legal statuses are summarized in Table 1.

Table 1: Procurement Entities by Participating States

Procurement Implementation	Procurement Entity	Legal Status
Central	Department of Animal Health and Dairying, New Delhi.	Department under the MoFAHD
Assam	State Animal Husbandry and Veterinary Department, under the Department's Secretary and Commissioner.	Government Department
Karnataka	Commissioner, Department of Animal Husbandry and Veterinary Services. Department of Animal Husbandry and Veterinary Services.	Government Department Government Department
Odisha	(i) Director of the Animal Husbandry Department (ii) Odisha State Medical Corporation Limited.	Government Department Government Company
Maharashtra	(i) Commissioner of the Animal Husbandry Department. (ii) Maharashtra Livestock Development Board.	Government. Department Society
Madhya Pradesh	Department of Animal Husbandry and Dairying, under Secretary, Animal Husbandry Department.	Government Department

5. **Planning and Budgeting.** The budget does not serve as a reliable guide to expenditure for LHDCP. The Operational Guidelines for LH&DC scheme issued by DAHD in 2021 require submission of AAPs for each component by the Participating States. Given that timeline is not specified, these were found to be submitted in or after March for the four Participating States assessed. Not surprisingly, they did not have any linkage to the budget estimates (i) prepared for inclusion in the state budgets, and (ii) prepared by DAHD for LHDCP for any given financial year. Moreover, there is also a marked divergence in the funds requested by Participating States and the amounts finally released by DAHD during the year.



6. **Indicative Program Procurement Profile.** The likely procurement profile under the Program is summarized in Table 2.

Table 2: Potential Program Procurement Profile

Procurement Category	Likely Procurement Profile
Goods	Procurement of solar-powered MVUs, veterinary medicines and injections, medical equipment, diagnostic kits, bio-safety equipment, laboratory equipment, supplies and consumables, IT hardware, development of software/web applications, portals and outsourced IT manpower, furniture, laptops, printers and photocopying machines, equipment and material for awareness programs, vehicles, etc.
Works	The works procurement will consist of minor civil works involving renovation and maintenance of existing veterinary health facilities.
Consultancies	Procurement of consultancies, mostly at the central level and a few small consultancies at the state level. These include technical consultancies and specialists, diagnostic assessments, the procurement of MISs, including laboratory information systems. Hiring of an IVA; annual audits of BMW management; and a third-party annual procurement audit. Technical agency for assessing and developing a strategic roadmap for strengthening diagnostic capacities; a technical support agency for training various staff in accordance with requirements of standard lab operations, etc.

7. **Fund Flows and Treasury Arrangements.** At the Participating State level, funds are routed either through the state treasury system or directly to the bank accounts of the SIAs. The fund flow mechanisms are different for different components of LHDCP. Funds under ASCAD flow through the treasury in all the four Participating States covered under this FSA. In case of ESVHD, funds have been transferred directly by DAHD through PFMS into the bank accounts of the SIAs outside the state treasury for all Participating States.

8. **Accounting and Reporting.** For LHDCP, the CoA used by DAHD does not allow for budgeting and tracking of expenditure at an activity level for the funds transferred to the Participating States as these are clubbed under the head of 'grant-in-aid'. Once funds have been released to the Participating States, these are recorded as expenditure in GoI accounts. To track releases and expenditure under the various components of LHDCP to the Participating States, DAHD maintains excel spreadsheets that are manually updated on issuance of sanction orders and on receipt of utilization certificates (UCs) from the Participating States. The accounting of expenditure as per the fund flow arrangements varies across the Participating States. All four Participating States covered under the FSA reported capacity constraints in using PFMS under LHDCP.

9. **Likely procurement spending.** While it is difficult to foresee the total procurable expenditures of the Program's boundary for five years, about 62 percent of total Program expenditures are estimated from an assessment of "the Program Expenditure Framework".

10. **Procurement Exclusions.** There are no high-value contracts in the Program and a Program audit will be conducted during implementation to ensure compliance with the exclusion of high-value contracts. In accordance with the Program Procurement Risk rating of "**Substantial**", the applicable thresholds across three procurement categories are as follows: (a) Works: US\$75 million equivalent or more per contract; (b) Goods, IT, or Non-consulting Services: US\$50 million equivalent or more per contract, and (c) Consulting Services: US\$20 million equivalent or more per contract.

11. **Procurement Management Assessment.** In India, procurement is a state subject and the rules, procurement methods, and practices may differ by state. The applicable procurement methods depend on the value of the contract to be awarded and other factors, as stipulated in state's rules and GOs. Procurement under the Program is centralized at the national level and decentralized at the state level. Veterinary officers of the respective state Animal Husbandry Departments manage procurement and contract management, in



addition to their technical duties.

12. Risks and Proposed Mitigation Measures. The assessment of the existing procurement systems identified certain areas of improvement through Program support. The rules and guidelines are spread across multiple documents and circulars. As such, there is: (i) a lack of predictability in procurement planning and adherence to established standards (disclosure/transparency); (ii) a lack of a system to capture procurement information and reporting; (iii) inadequate oversight of procurement processes (e.g., procurement reviews and audits); (iv) few qualified workers with procurement capacity; (v) inefficiencies and delays in managing procurement processes; (vi) absence of an effective procurement complaint handling system; (vii) poor maintenance of records (e.g., records are not available at a centralized location) in the Department, and (viii) risk of forced labor in solar panels and solar components supply chain. Table 3 below lists proposed measures to mitigate the outlined procurement challenges.

13. Risk of forced labor in solar panels and solar component supply chains: To mitigate this risk, agencies procuring solar panels will include, in their contracts with developers and utilities, requirements that neither they, nor their solar panel suppliers have or will engage or employ forced labor.

14. Internal Controls and Audit Arrangements. Internal controls are weak across DAHD and the Participating States, as evidenced by the C&AG audit reports for various years. The internal audit function, where existing, is short of skilled staff and uses antiquated audit techniques not conducive for audit in a highly automated environment in the Participating States.

15. External Audit. In case of DAHD and the Participating States, C&AG audits are not regular and are often bunched (that is, audit for a few years is taken up in a block). Recurring observations and weak compliance to audit paras are noticed in DAHD and the Participating States.

16. Risks and Proposed Mitigation Measures. The FSA identified areas of improving procurement through Program support. The rules and guidelines are spread across multiple documents and circulars. The residual procurement risks and proposed mitigation measures addressed through the RF and PAP are summarized in Table 3.

Table 3: Risks and Mitigation Measures

Risk		Mitigation Action	Timeline	Type of Action
1	Complex funding and implementation arrangements that constrain effective and timely financial reporting and hinder targeted capacity building reforms.	All Program activities (i) will be budgeted under a separate scheme head in the annual budget of DAHD, (ii) have a uniform funding pattern of 100 percent central assistance, and (iii) flow directly into the PFMS registered bank accounts in the Participating States, i.e., are not routed through the state treasuries. There will be only one Program implementing entity in each Participating State.	At Program effectiveness.	
2	Absence of multi-year/strategic perspective in planning and unclear linkages between planning and	The SSPs will be translated into costed AAPs (which will include annual procurement plans). The AAPs for the ensuing financial year will be submitted by the Participating States latest by December. This will ensure the request for funds made by the five Participating States can suitably	For the financial year after the SSPs have been finalized and approved by	SSPs – DLI AAPs – PAP



Risk		Mitigation Action	Timeline	Type of Action
	budgeting. Budgeting, by and large, follows a top-down approach.	be incorporated in the annual budget of DAHD.	DAHD.	
3	Weak accounting practices across Participating States; inadequate detailing of accounts to capture expenditure across activities; varied usage of PFMS for recording expenditure.	Usage of the EAT module will be made mandatory for Program expenditure. A Program specific CoA will be developed and documented in the PIM. This CoA will be used by the Participating States for recording and reporting of expenditure under the Program.	Within six months of Program implementation.	PAP
4	Inefficient record keeping of procurement transactions, resulting in non-availability of records for audit and oversight.	Maintain procurement records and information centrally for each procuring entity, in a manner such that relevant data for procurement progress monitoring for overall procurement and contract management and for audits are made available accurately, easily, and promptly.	Continuous, throughout the Program implementation and beyond.	PAP
5	Non-publication of annual procurement plan and information on award of contract on the portal affecting transparency.	Each procuring entity under the Program shall prepare an annual procurement plan, based on their Annual Action Plan, and publish the same on the portal. The information about the award of contract shall also be published on the portal at least once every month.	Continuous, throughout the Program implementation and beyond.	The Head of the procuring entity shall ensure this and certify that annual procurement plans and their updates are being disclosed in public domain. The procurement auditor shall also examine and certify the same. PAP.
6	Delays in finalization of procurement decisions and issue of contracts, resulting in expiry of validity and losing an attractive bid as well as loss of time and money.	A system will be developed to ensure that the procurement decisions are taken in reasonable time and contract is awarded to the selected bidder/ consultant within the initial validity of the bids/proposals.	Continuous, throughout the Program implementation.	Submission of a report listing the procurement cases where the contract award could not be made within initial validity of bids/proposals.
7	Internal Audit arrangements are not effective and do not include procurement performance review.	An internal audit system for the Program will be established under the DAHD PMU. Internal audit will (i) follow the ToR agreed with the World Bank, (ii) be an integrated procurement and FM audit, and (iii) be conducted by private audit firms.	To be set up within the first year of Program implementation.	PAP
8	Lack of effective procurement complaint handling	Establishment of an effective complaint handling mechanism with ACG Reporting Protocol agreed	Within one year of Program	Reporting to the Bank on a bi-annual basis in agreed



Risk		Mitigation Action	Timeline	Type of Action
	mechanism at the implementing agency level.	with DAHD	effectiveness.	formats.
9	Weaknesses with respect to external audits and oversight include: (a) delays in compliance of audit observations; (b) delays in conduct of external audit; (c) absence of disclosure of annual audit reports at all levels (d) non-coverage of procurement aspects in external audit.	<p>The Program annual financial statements will be audited by the C&AG. DAHD and the Bank will work with the C&AG to strengthen the ToR to include specific aspects of a PforR operation and procurement review.</p> <p>The implementing entities will ensure that the (i) the financial statements are generated from PFMS, and (ii) annual audit reports are disclosed on their respective website.</p>	Continuous, throughout the Program implementation.	Legal Covenant.

17. In addition to these risks and proposed mitigation measures, fiduciary performance (to be shared biannually with the Bank throughout the life of the Program) will be monitored during Program implementation. This will be done through the specific KPIs (listed in the detailed FSA report) in formats agreed with the Bank.

18. **Operationalization of ACG.** An ACG Protocol covering reporting, investigations, and mechanisms to ensure the ineligibility of debarred firms/individuals on the Bank's debarment list (<https://www.worldbank.org/en/projects-operations/procurement/debarred-firms>) has been agreed with the client and will be incorporated into the PIM.

19. **Program Audit:** The World Bank will require the audit reports within nine months from close of FY over the Program implementation period. CAG will audit DAHD at the Center and the Participating State AGs will audit Implementing Agencies in the Participating States.



ANNEX 5. SUMMARY ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

1. **Environmental and Social Systems Assessment.** An ESSA was completed in accordance with the World Bank guidance for the PforR financing operations. The ESSA exercise identifies key Environment and Social (E&S) risks/impacts associated with the Program. It assesses the adequacy of the existing legal and regulatory framework, institutional mechanisms and technical capacity of the program implementing agencies to manage and mitigate anticipated E&S risks/impacts. Finally, it recommends suitable measures to address gaps with respect to meeting the core ESSA principles and improving the E&S performance of the Program. The ESSA for the Program involved desk review of key documents associated with government's program, online workshops and extensive consultations with government counterparts and their various state and field level officials from Assam, Karnataka, Maharashtra, Madhya Pradesh, and Odisha, and from other agencies. These interactions were conducted virtually due to COVID restrictions/protocols. The assessment also benefitted from resources and written submissions provided by the Participating States, as well as the Bank's ongoing experience with livestock-based livelihoods, and AH service delivery among excluded communities. Key findings of ESSA are dedicated staffing for managing environment and social risks in AH sector is absent; guidelines and SoPs on occupational/community health and safety need consolidation and systematic implementation (especially in AH facilities and waste management activities); technical capacity of staff on E&S is variable; outreach of AH services in tribal and remote areas is weak.
2. **Environment and Social Benefits.** Overall, the Program will deliver positive environmental, social, public health and safety benefits through improvements in coordination with One Health, including diagnostic infrastructure and capacity; preparedness to manage disease outbreaks; improving waste management capacity; as well as the delivery of animal health services to communities. The Program will strengthen community capacity to manage animal health issues and protect the livelihoods of smallholders and others dependent on livestock. Stakeholders who participate in the livestock value chains and consumers will benefit from reduced public health risks.
3. **Excluded Activities.** Activities causing high or substantial E&S risks and impacts are not financed under the current Program. The Program will not Finance; (i) activities that could affect physical cultural resources; (ii) convert or encroach forests, notified wetlands or eco-sensitive areas; (iii) activities that could cause large-scale submergence beyond the drainage line; (iv) the conversion of common property resources, including grazing lands; (v) activities that could restrict minimum ecological flows of rivers and rivulets; (vi) activities that could cause land acquisition and/or involuntary resettlement; (vii) activities that could engage child and forced labor; (viii) the use Class I toxic pesticides; and (ix) the use or generation of hazardous materials or chemicals beyond permissible levels, as specified in Schedule II of the Hazardous Waste Handling and Management Rules of 2016. Construction of new Biosafety Level (BSL)3 labs or upgradation of a BSL2 to a BSL3 labs will not be funded under the current Program.
4. **Environmental Risks and Impacts.** The E&S risks associated with the Program are assessed as Moderate, mainly because high or substantial risk activities are not financed under the Program, and the identified E&S risks/impacts are adequately mitigated and managed through strengthening of existing institutional mechanisms and technical capacity. The key environmental risks relate to the management of biosafety in labs and diagnostic facilities and the management of BMW (including liquid, e-waste, pharmaceutical, carcass and other hazardous waste) in the MVUs, laboratories, veterinary clinics,



slaughterhouses, and wet markets/local markets in urban and rural areas. Other environmental risks and impacts relate to the temporary construction-induced impacts during the physical upgrading of laboratories, and occupational health and safety concerns of workers/field staff in veterinary facilities and biomedical/hazardous waste management activities.

5. **Social Risks and Impacts.** Upgradation of diagnostic, veterinary and market facilities will involve civil works for repair, maintenance, and renovation. These works will be within the existing physical footprint of facilities, and land acquisition, resettlement or involuntary resettlement impacts are not expected. Adequate safeguard measures will be implemented to mitigate any health and safety risks for labor from these small-scale works. Managing workers health and safety risks in diagnostic facilities and waste management activities, as well as community health and safety risks associated with BMW management are key social risks associated with the Program. Other social risks relate to the following: poor access to quality veterinary services in remote, hilly, and difficult to reach areas, including tribal areas, migratory routes/settlements, and disaster-prone areas; lower access of women livestock farmers and small holders from vulnerable communities to AH and veterinary services; low levels of community awareness about, and engagement with, AH and zoonotic diseases; and weak capacity of frontline workers on OH/AH. Risk mitigation will include, among others: (i) occupational health and safety measures for workers, para-veterinarians, and communities; (ii) outreach to remote tribal pockets; (iii) community engagement and awareness building concerning AH/OH, including behavioral changes in communication approaches; and (iv) strengthening the coordination mechanism with other departments, Panchayati Raj Institutions (PRIs) and local governments. The overall E&S risks are rated Moderate because most of the E&S risks and effects could be effectively mitigated and managed through the strengthening the existing E&S systems.

6. **Adequacy of E&S Risk Mitigation Systems.** The existing legal and regulatory framework for environmental systems is adequate. However, it lacks effective institutional mechanisms and technical capacity required for adequate to ensure enforcement. Additional capacity-building efforts are required to enforce the provisions of the BMW Management and Handling Rules of 2016, as amended up to 2019, and the provisions of other relevant environmental Acts, such as, hazardous, solid, plastic and E-waste rules of 2016. There are significant gaps in the operational compliance of the veterinary facilities (e.g., limited authorization to the SPCBs, incomplete inventorization of the VFs in Participating States; limited registrations to a Common BMW Treatment Facility; lapses in record keeping and reporting mechanisms; noncompliance with the required barcoding system, etc.) in accordance with the requirement of the BMW Management and Handling Rules. Wastes generated by veterinary camps and MVUs are not disposed of in accordance with the recommended guidance. The management of waste in the slaughterhouses and wet markets is highly unorganized and mismanaged. Most states in India do not have any guidelines or standard SoPs pertaining to occupational and community health and safety measures.

7. The existing legislative and policy framework for community and worker health and safety, beneficiary inclusion of women, tribal and other vulnerable communities (including Scheduled castes, smallholders, people with disability), grievance redressal, access to information, and citizen engagement is adequately applied to the AH sector. The existing laws and policies aimed at protection and inclusion of vulnerable groups, and non-discrimination and access to information are in place. The BMW Rules mandate immunization and health monitoring of all workers involved in handling of bio-medical waste, including provision of personal protective equipment for accident prevention and safety. The building and other construction worker-related Acts, and the Occupational Safety, Health, and Working Conditions Code of 2020, further strengthen the protection of labor standards and working conditions. However, all these legal



and policy provisions suffer from inadequate implementation and capacity gaps in the context of AHSSOH interventions and vary across the Participating States. SOPs, core training modules and monitoring systems for worker and community health and safety are not consistent across Participating States. E&S training and advisories for frontline workers are inadequate. Communities have low awareness and preparedness about AH, waste management and zoonotic diseases, especially among women. The mechanisms for community engagement, beneficiary targeting (including outreach in tribal areas) and community awareness-building are not well defined and vary across Participating States. The GoI and the Participating State Governments, including the DAHD and its state departments, have experience in the protection of personal data through established operating procedures for data protection and complying with the existing data protection rules. This will be further strengthened by the upcoming Data Protection Bill 2021.

8. The institutional structure of the AHDs, the veterinary institutions and the MVUs is well-defined at the state, district, and block levels, and further supported by the para vets and community workers (*Gopal/Pashu Mitra, Pashas Sakhi*, etc.). However, institutional arrangements, staff responsibilities and capacity for managing E&S risks and implementing suitable risk mitigation strategies remains largely unclear. There are staff shortage in many Participating States. Outreach and service delivery in tribal and more remote areas have been reduced due to the lack of doctors, other technical staff, as well as MVUs. The institutional arrangements for the training of the AHD staff and community workers are available in all Participating States. However, dedicated training modules and calendars for E&S aspects are missing. States lack E&S monitoring and reporting systems. Animal vaccination drives and veterinary camps are the key events when community awareness-building and extension activities for AH take place in most of the Participating States. In addition, veterinarians, para vets, *Gopal Mitras*, and *Pashu sakhis* handle the communications about animal diseases and related precautions and practices. However, the use of well designed, community-facing, behavioral change communication activities is not evident.

9. **Recommended E&S measures.** The ESSA recommendations focus on strengthening the national and state level systems and processes, institutional arrangements for implementation, management, and reporting of E&S aspects. The key recommendations included in the PAP are: (i) appointment of Environment and Social Safeguards Nodal Officers in DAHD and in the five participating State AHDs; (ii) OH/AH specific E&S guidelines prepared and adopted (customized to AHD activities) for addressing measures on biosafety, biosecurity, waste management (biomedical, e-waste, liquid waste, other Hazardous wastes), occupational and community health and safety for department staffs, paraprofessionals; (iii) development of OH/AH training modules on core E&S topics, implementation of E&S trainings; (iv) Participating State diagnostics and strategy should include Environment and Social Modules/sections with a focus on (a) Sustainable Waste management in Veterinary facilities; (b) increased coverage and quality of AH/Vet services in remote/ tribal areas, pastoralist, and vulnerable communities; (c) service provision in areas cut-off due to natural disasters/flooding; (d) consultations with livestock groups, PRI representatives, women's federation; and (e) inclusive beneficiary targeting, and (v) conduct of annual audit of BMW & other waste(s) (including Liquid wastes), by a specialized agency, and compliance to recommended actions and audit observations.

10. **The recommendations included in the PIM are:** (i) Participating States to sign LoU for including summary of key ESSA actions; (ii) Participating States to coordinate with State Pollution Control boards on BMW tracking and reporting; (iii) upgradation works to be screened for incorporating E&S safeguard measures in design, construction and operation of diagnostic facilities/ laboratories and veterinary facilities, including OH/AH focused communication products and campaigns targeting key stakeholders; (iv)



awareness building on Grievance Redressal options for citizens and reporting of Program related grievances (received, resolved, pending); (v) include a dedicated section on E&S risk management in Laboratory Information Management System; (vi) strengthening data protection systems in Program activities and organizing knowledge events, workshops, trainings and exchange visits on E&S aspects; (vii) obtain contractual undertaking from vendors contracted for supplying solar panels on not employing forced labor.

11. Stakeholder Consultations and Disclosure. Multiple rounds of stakeholder consultations, workshops and meetings were held with Program officials from the Assam, Karnataka, Maharashtra, Madhya Pradesh, and Odisha States, and with officials from other agencies. The consultations and discussions focused on existing mechanisms, capacities, and practices concerning key environmental and social aspects in the AH sector. These interactions were conducted through a virtual mode, as in-person meetings were restricted due to COVID-19 travel restrictions/protocols. Two multi-stakeholder workshops were conducted during 22-24th June 2022 and included dedicated consultation with NGOs, CBOs, community resource persons (CRPs), and field level officials related to AH from all Participating States and including from tribal areas; and another one with key AHD officials and other stakeholder department officials. The consultation reconfirmed the gaps and measures identified in ESSA. The draft ESSA report was shared with the DAHD and the AHDs of the Participating States for their comments and feedback. The final ESSA report has been disclosed on the World Bank and DAHD websites.³³

12. Grievance redress mechanism. The Program's Participating States will leverage the existing country systems to receive, resolve and manage grievances, mainly through call centers and toll-free numbers. In the Participating States, Grievances are received, tracked, and resolved through online state portals as well as through departmental systems and district grievance mechanisms that vary across Participating States. Citizens can seek information from the department through the Right to Information (RTI) Act. At the national level, the CPGRAMS is an online web-enabled system (<https://pgportal.gov.in/>) in association with the Directorate of Public Grievances (DPG) and the Department of Administrative Reforms and Public Grievances (DARPG) is also available to citizens for grievance registration and redressal. Most of the beneficiary groups and community in general uses call centers, grievance portal and/or the manually written complaints at the local district offices of the AHDs. DAHD also has a separate unit to handle complaints submitted through CPGRAMS with a Joint Secretary rank officer overseeing the process. These channels – both at national level and at state level are functional and data on grievances received and resolved are tracked and reported on regular basis. While the grievance tracking, and escalation mechanisms do exist but are not well disseminated and well understood among many stakeholders. The Program will support the strengthening of GRM reporting systems and GRM related communication campaigns targeting beneficiary communities.

³³ Disclosed on World Bank website on 27 October 2022 (<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099340010272240781/p17767102f787a0b0bfbc0ddc52ddbccc26>; .; Disclosed on DAHD website on 10 April 2023 https://dahd.nic.in/sites/default/files/AHSSOH_ESSA_EnvironmentalSocialSystemAssessmentReport-forUploading.pdf.



ANNEX 6. PROGRAM ACTION PLAN

Action Description	Source	DLI#	Responsibility	Timing		Completion Measurement
Training needs assessment of diagnostic, veterinary and wildlife and human health personnel completed.	Technical		DAHD	Other	Within one year of Program effectiveness.	Technical results report submitted to the World Bank.
Implementation plan for digital disease surveillance platform with an integrated wildlife module developed for Participating States.	Technical	DLI 2	DAHD	Other	Within six months of Program effectiveness.	Approved plans shared with World Bank.
Agreement (ii) with ICAR (ii) NDDB and (iii) SRLMs for integration of modules on GAHP, farm level-biosafety and biosecurity, AMR, and disease reporting protocols into extension programs.	Technical	DLI 5	DAHD and participating states.	Other	Within six months of Program effectiveness.	Signed agreements shared with World Bank.
Each procuring entity under the AHSSOH to prepare an annual procurement plan and publish it on the procurement portal. Information on award of contract to be published on the portal monthly.	Fiduciary Systems		DAHD, IAs	Other	Within 7 working days of the date of signing of award.	Summary report on contract award information prepared and shared with the Bank every six months, after one year of Program effectiveness.
Conduct audit of biomedical waste management and worker health and safety for	Environmental and Social Systems		DAHD	Recurrent	Yearly	Audits approved and submitted to the World Bank annually.



diagnostic and veterinary facilities, and compliance with audit observations and recommendations.						
Timely submission of annual work plans based on SSPs for incorporation in DAHD's annual budget allocation requests.	Technical		DAHD, SNAs	Other	From the second year of the Program.	Reduced variance in allocations approved in annual work plans of states and budgets sanctioned by DAHD.
M&E plan for monitoring results framework of the Program developed.	Technical		DAHD	Other	Within six months of Program effectiveness.	The approved M&E plan is shared with the World Bank.
Use of PFMS for making all payments and for reporting of expenditure under the AHSSOH.	Other		DAHD, SIAs	Other	Within the first quarter after loan effectiveness.	Quarterly financial management reports submitted by SIAs to DAHD should include PFMS transaction summary statements.
LIMs is operational in Participating States.	Other		DAHD	Other	Continuous from beginning of the second year.	Reports on data submission in the LIMS shared with the World Bank.
Conduct user satisfaction surveys for veterinary facilities.	Technical		DAHD	Other	Annually from the second year.	Report submission to the World Bank.
Third party 'Annual Procurement Audit of each procuring entity to be conducted.	Fiduciary Systems		DAHD	Other	Annually, from the second year of Program effectiveness.	Procurement audit reports to be shared with the Bank, along with the replies to audit observations and the actions taken.
Appointment of Environment and Social Safeguards Nodal Officials/Experts in DAHD and Participating States AHDs.	Environmental and Social Systems		DAHD, Participating States	Other	Within six months of Program effectiveness.	Copy of hiring notification.
Notification and adoption of Environmental and Social Guidelines by	Environmental and Social Systems		DAHD, State AHDs	Other	Within six months of Program effectiveness	Copy of official circular / notification of guidelines.



state AHDs related to animal, occupational/worker, and community health and safety.					s.	
Design of core training modules and training of technicians, field workers, community workers and AH service users on animal, occupational and community health and safety.	Environmental and Social Systems		DAHD, State AHDs	Other	Ongoing	Core training modules developed and summary statistics on number of technicians, field workers, community workers and AH service users trained shared bi-annually with the World Bank.
State Diagnostic and Strategy to include Environment and Social Section (as detailed in ESSA report and PIM).	Environmental and Social Systems		DAHD	Other	Within one year of Program effectiveness.	Approved SSPs with Environmental and Social sections shared with the World Bank.
Usage of the EAT module made mandatory for program expenditure. A Program specific Chart of Account developed and documented in the PIM, to be used by Participating States for recording and reporting of Program expenditure.	Fiduciary Systems		DAHD	Recurrent	Continuous	Reporting of expenditure under the Program as per CoA.
An internal audit system will be established for the Program. Internal audit, covering both procurement performance and compliance and FM, will be based on TORs agreed with the WB.	Fiduciary Systems		DAHD	Recurrent	Yearly	Internal audit reports shared with the World Bank.