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Report No: PAD00218

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF JPY 49,566,700,000
(US\$325.10 MILLION EQUIVALENT)

TO

INDIA

FOR THE

UTTAR PRADESH AGRICULTURE GROWTH AND RURAL ENTERPRISE ECOSYSTEM STRENGTHENING PROJECT

NOVEMBER 19, 2024

Agriculture and Food
South Asia

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CURRENCY EQUIVALENTS

(Exchange Rate Effective Nov 8, 2024)

Currency Unit = INDIAN RUPEE (INR)

INR 84.19 = US\$1

JPY 152.47 = US\$1

FISCAL YEAR

April 1 - March 31

Regional Vice President: Martin Raiser

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ABBREVIATIONS AND ACRONYMS

AIF	Alternative Investment Fund
C-CRAS	Center for Climate Resilient Agriculture Systems
CERC	Contingent Emergency Response Component
CHC	Custom Hiring Center
CPIT	Cluster Planning and Implementation Teams
DPIU	District Project Implementation Unit
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
FAO	Food and Agriculture Organization
FPGs	Farmer Producer Groups
FPOs	Farmer Producer Organizations
GHG	Greenhouse Gas
GoI	Government of India
GoUP	Government of Uttar Pradesh
GRS	Grievance Redress Service
IBRD	International Bank for Reconstruction and Development
ICAR	Indian Council of Agricultural Research
IIM	Indian Institute of Management
IIT	Indian Institute of Technology
IFC	International Finance Corporation
IRRI	International Rice Research Institute
ISM	Implementation Support Mission
KCC	Kisan Credit Card
MFD	Maximize Finance for Development
ML&E	Monitoring, Learning & Evaluation
MSME	Micro Small and Medium Enterprises
PCE	Private Capital Enablement
PDO	Project Development Objective
PEC	Project Executive Committee
PIP	Project Implementation Plan
PMU	Project Management Unit
PPP	Purchasing Power Parity
PPSD	Project Procurement Strategy for Development
UP	Uttar Pradesh
UPDASP	Uttar Pradesh Diversified Agricultural Support Project



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**DATASHEET****BASIC INFORMATION**

Project Beneficiary(ies)	Operation Name		
India	Uttar Pradesh Agriculture Growth and Rural Enterprise Ecosystem Strengthening Project		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P178253	Investment Project Financing (IPF)	Moderate	

Financing & Implementation Modalities

☐ Multiphase Programmatic Approach (MPA)	☒ Contingent Emergency Response Component (CERC)
☐ Series of Projects (SOP)	☐ Fragile State(s)
☐ Performance-Based Conditions (PBCs)	☐ Small State(s)
☒ Financial Intermediaries (FI)	☐ Fragile within a non-fragile Country
☐ Project-Based Guarantee	☐ Conflict
☐ Deferred Drawdown	☐ Responding to Natural or Man-made Disaster
☐ Alternative Procurement Arrangements (APA)	☐ Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
12-Dec-2024	30-Sep-2030
Bank/IFC Collaboration	
No	

Proposed Development Objective(s)

To increase farmers' income through improved crop productivity, climate resilience, and commercialization of agrifood systems in Selected Regions of Uttar Pradesh.

**Components**

Component Name	Cost (US\$)
Productivity Enhancement	241,678,405.00
Commodity Clusters	106,297,482.00
Digital and Financial Ecosystems	64,691,043.00
Project Management, Learning, and Partnerships	50,603,104.00
Contingency Emergency Response Component	0.00

Organizations

Borrower:	India		
Contact	Title	Telephone No.	Email
Implementing Agency:	Uttar Pradesh Diversified Agriculture Support Project Society, Government of Uttar Pradesh		
Contact	Title	Telephone No.	Email
Manoj Kumar Singh	Chief Secretary	0522-2289212	csup@nic.in

PROJECT FINANCING DATA (US\$, Millions)**Maximizing Finance for Development**

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? Yes

SUMMARY

Total Operation Cost	464.08
Total Financing	464.08
of which IBRD/IDA	325.10
Financing Gap	0.00

DETAILS**World Bank Group Financing**



International Bank for Reconstruction and Development (IBRD)	325.10
Non-World Bank Group Financing	
Counterpart Funding	138.98
Borrower/Recipient	138.98

Expected Disbursements (US\$, Millions)

WB Fiscal Year	2025	2026	2027	2028	2029	2030	2031
Annual	16.58	60.32	80.61	77.81	52.62	27.75	9.39
Cumulative	16.58	76.91	157.52	235.33	287.96	315.71	325.10

PRACTICE AREA(S)

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Finance, Competitiveness and Innovation; Water

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial



6. Fiduciary	● Substantial
7. Environment and Social	● Moderate
8. Stakeholders	● Moderate
9. Overall	● Moderate

POLICY COMPLIANCE

Policy

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

☐ Yes ☒ No

Does the project require any waivers of Bank policies?

☐ Yes ☒ No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
ESS 8: Cultural Heritage	Not Currently Relevant
ESS 9: Financial Intermediaries	Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).



LEGAL

Legal Covenants

Sections and Description

The PIE shall establish by not later than six (6) months after the Effective Date, and thereafter maintain, at all times during Project implementation, the DPIUs at the district level to be responsible for day-to-day management of the Project implementation in their respective districts. (Section I.A.2(b) of the Schedule to the Project Agreement)

The PIE shall establish by not later than six (6) months after the Effective Date, or any other date as agreed to in writing between the Bank and the PIE, and thereafter maintain throughout the Project implementation period, District Coordination Committees to be responsible for monitoring Project activities at the district level (Section I.A.2(c) of the Schedule to the Project Agreement)

The PIE shall maintain, throughout Project implementation period: (1) the Project Management Unit (“PMU”) for the day-to-day management and implementation of the activities under the Project (Section I.A.2(a) of the Schedule to the Project Agreement); (2) the Project Steering Committee (“PSC”) to be responsible for, inter alia, providing oversight and guidance for the implementation of the Project (Section I.A.2(d) of the Schedule to the Project Agreement); and (2) the Project Executive Committee (“PEC”) to be responsible for, inter alia, overall implementation of the Project (Section I.A.2(e) of the Schedule to the Project Agreement).

The PIE shall: (a) prepare and adopt, by not later than two (2) months after the Effective Date, and thereafter maintain, throughout the implementation period of the Project, the Project Implementation Plan, in form and with substance satisfactory to the Bank; (b) prepare and adopt, by not later than six (6) months after the Effective Date, and thereafter maintain, throughout the implementation period of the Project, the Grants Manual in form and with substance satisfactory to the Bank; and (c) carry out the Project in accordance with the Project Implementation Plan and Grants Manual, as applicable (Section I.B.1 of the Schedule to the Project Agreement).

The State of Uttar Pradesh shall, by no later than six (6) months after the Effective Date, carry out feasibility studies, under terms of reference agreed with the Bank, to assess alternative structures for the establishment of an Alternative Investment Fund (AIF) or investing in an existing one, required documentation, managerial structure, eligible investment activities, and potential pipeline therefor. The State of Uttar Pradesh shall submit to the Bank in writing for its review and concurrence its selected structure for AIF prior to undertaking any investment activities with respect to AIF under Part 3.B(ii) of the Project. (Section I.D.1 of the Schedule to the Project Agreement)

The State of Uttar Pradesh shall, prior to making or obtaining any Capital Contribution to the AIF: (a) by no later than nine (9) months after the Effective Date, hire the services of a local counsel specialized in investment funds to provide advice to the State of Uttar Pradesh in the preparation/review of the AIF Operational Manual and the AIF legal documents/guidelines involving the establishment of the AIF or the contribution to an existing fund; (b) by no later than twelve (12) months after the Effective Date, conduct an assessment of the legal, regulatory, and taxation framework for the AIF guidelines; (c) by no later than six (6) months after the Effective Date, or any other date as agreed in writing between the Bank and the Project Implementing Entity, conduct a market study to identify the segments of the agricultural MSMEs’ financial market and appropriate instruments through which the private sector can be crowded in under the AIF; (d) by no later than twelve (12) months after the Effective Date, procure an AIF Fund Manager and sign a contract with said AIF Fund Manager with terms and conditions acceptable to the Bank; (e) by no later than eighteen (18) months after the Effective Date, complete a Technical and Fiduciary Assessment of the new or existing AIF; (f) by no later than twenty four (24) months after the Effective Date and based on the foregoing assessments, advice of the counsel and the Fund Manager, and following the Bank’s written concurrence, establish a new AIF or establish



adjustments to an existing fund as the AIF, and issue and adopt an AIF Operational Manual, satisfactory to the Bank, setting forth specific rules and procedures for the operation of the AIF; (g) by no later than twenty-eight (28) months after the Effective Date, contribute sufficient funds as required by the AIF Operational Manual to the AIF; and (h) as part of the establishment of, and contribution to, the AIF, enter into a legal agreement with the other shareholders/partners of said fund on terms and conditions acceptable to the Bank. (Section I.D.2 of the Schedule to the Project Agreement)

The AIF and the respective AIF Beneficiary shall enter into a Sub-Financing agreement (the “Sub-Financing Agreement”) on terms and conditions, acceptable to the Bank. (Section I.D.3 of the Schedule to the Project Agreement)

Prior to procurement and/or use of drones under the Project, the PIE shall: (a) Notify the Bank of such proposed procurement and/or use, and assess any risks related to such procurement and/or uses, including operational, legal and regulatory, institutional, technical, social and environmental, and fiduciary risks, and to recommend appropriate mitigation measures; and (b) Develop a risk mitigation plan for the procurement and/or use of drones in form and substance satisfactory to the Bank. No drones shall be procured/or used under the Project unless the PIE has implemented the risk mitigation measures in accordance with the paragraph 1 above, in form and manner satisfactory to the Bank (Section III of the Schedule to the Project Agreement).

Conditions

Type	Citation	Description	Financing Source
Disbursement	Section III.B.1(a)	No withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not exceed ₹3,565,126,650 may be made for payments made prior to this date but on or after January 31, 2024, for Eligible Expenditures under Category (1).	IBRD/IDA
Disbursement	Section III.B.1(b)	No withdrawal shall be made under Category (2) until and unless the PIE has furnished to the Bank evidence, satisfactory to the Bank, showing that the PIE has prepared and adopted the Grants Manual in form and with substance satisfactory to the Bank, in accordance with Section I.B.1(b) of the Schedule to the Project Agreement.	IBRD/IDA



Disbursement	Section III.B.1(c)	No withdrawal shall be made for payments made under Category (3) unless: (i) the AIF Fund Manager has been hired in a manner and under terms of reference, experience and qualifications acceptable to the Bank; (ii) the PIE has submitted evidence, in a manner satisfactory to the Bank, showing that the AIF Operational Manual has been adopted in a manner satisfactory to the Bank; and (iii) the AIF is legally established and fully operational, all in a manner acceptable to the Bank upon the completion of a Technical and Fiduciary Assessment of the AIF, by the PIE, certifying inter alia, that the governance and management of the AIF are composed of professionals who have qualifications and experience satisfactory to the Bank and have the capacity to exercise satisfactory control over the use of funds.	IBRD/IDA
Disbursement	Section III.B.1(d)	No withdrawal shall be made for Emergency Expenditures under Category (4), unless and until all of the following conditions have been met in respect of said expenditures: (i) (A) the Borrower, and/or the Project Implementing Entity, as the case may be, has/have determined that	IBRD/IDA



		an Eligible Crisis or Emergency has occurred, and has/have furnished to the Bank a request to withdraw Loan amounts under Category (4); and (B) the Bank has agreed with such determination, accepted said request and notified the Borrower, and the Project Implementing Entity, as the case may be, thereof; and (ii) the Borrower, and/or the Project Implementing Entity, as the case may be, has/have adopted its/their respective CERC Manual and Emergency Action Plan, in form and substance acceptable to the Bank.	
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I. STRATEGIC CONTEXT

A. Country Context

1. **Growth is estimated to have risen to 8.2 percent in fiscal year (FY) 23-24, and it is expected to remain robust in the medium term.** In FY23-24, India remained the fastest-growing large economy. While consumption growth is estimated to have softened and export demand moderated due to a weak global environment, strong public investment and a nascent private capex upcycle kept economic growth elevated. Going forward, consumption demand will recover gradually, thanks to declining inflation and higher rural incomes, and private capex is expected to accelerate, facilitated by healthy corporate balance sheets and strong macroeconomic fundamentals. The government's efforts to contain current spending coupled with strong revenue performance helped reduce the general government fiscal deficit to 8.5 percent of GDP in FY23-24. They should contribute to narrowing the deficit further over the medium term, with the debt-to-GDP ratio stabilizing at around 82 percent of GDP. India's external position remains favorable, with growing services exports, a narrowing merchandise trade deficit, healthy foreign portfolio inflows, and large foreign exchange reserves of more than US\$684 billion (as of October 25, 2024).

2. **India has made remarkable progress in reducing extreme poverty over the past two decades.** Extreme poverty is estimated to have declined significantly between 2011 and 2019 from 22.5 to 13.2 percent. In line with global trends, extreme poverty increased by two percentage points in 2020 on account of the pandemic. However, broad access to vaccines and government mitigation measures contributed to the return to pre-pandemic poverty levels. The extreme poverty rate is estimated to have declined to 12.9 percent in FY21-22, while the moderate poverty (US\$3.65 per person per day) rate is estimated at 44.1 percent in FY21-22. India's long-term progress in reducing extreme poverty was accompanied by a sharp decline in the incidence of multidimensional poverty, from 27.7 percent in 2015-16 to 16.4 percent in 2019-21. Inequality in consumption has remained stable over the past two decades, with a Gini index of between 32 and 35. Child stunting (under the age of 5) has been steadily declining since 2005-06, to 35.5 percent in 2019-21. Headline employment indicators have consistently improved since 2020, and unemployment rates have recovered in urban and rural areas, but concerns about job quality, youth unemployment, and female labor force participation remain.

3. **Uttar Pradesh (UP) is India's largest state in terms of population (estimated at over 240 million), the second largest state in terms of gross state domestic product (GSDP), and has potential for growth as its per capita income is far below the national average.** UP's real GSDP growth was 9.6 percent in FY21-22. A strong rebound after a 5.5 percent contraction caused by the COVID-19 pandemic in FY20-21. In the pre-pandemic period, GSDP growth averaged 6.5 percent between FY15-16 and FY19-20, close to the national average of 6.7 percent. Real per capita income in the state (INR 96,000) increased by 8.2 percent in FY21-22 but remains at around 50 percent, lower than the India average (INR 1,86,000). In 2021-22, approximately 77 percent of women in the 15-59 age group were employed in agriculture, compared to 45 percent of men. Only 13.4 percent of the total workforce was employed in regular wage / salaried employment. In terms of female labor force participation, UP has one of the lowest rates in the country, at 19.5 percent, compared to the national average of 27.2 percent.

B. Sectoral and Institutional Context

4. **The agriculture sector in UP is lagging in the key metrics of labor productivity and output growth.** The agriculture and allied sectors are important to the state's economy, accounting for 25.5 percent of the gross value add (GVA) output of the state in FY22-24. While this share has declined by about five percent since FY11-12, at the national level, the share of agriculture to total gross value addition was 15.5 percent in FY21-22. Likewise, the sector in UP accounts for half of the employed workers in the state compared to 41 percent at the national level. Despite this, the performance of the



agriculture sector has been sluggish.

5. **The contribution of UP towards national food security is well recognized. However, the productivity of major crops is well below the national average and threatened by climate change.** The state is India's largest producer of wheat and the second-largest producer of rice. It is also the largest producer of horticultural crops such as sugarcane, guava, mango, potato, peas, etc. Apart from sugarcane, the productivity of UP's major crops is below the national average. With nine agro-climatic zones in the state, UP is a microcosm of the variations in agricultural performance nationally. Variability in precipitation and temperature caused by climate change greatly impacts agricultural yields in UP. As per UP State Action Plan on Climate Change, 2014, agricultural productivity is predicted to decline by up to 25 percent in irrigated areas and as much as 50 percent in rainfed areas. Crops such as rice and sugarcane, despite requiring large amounts of water for growth, are impacted by flooding, resulting in poor root respiration, germination, and crop loss. According to the 2019 report on 'Risk and Vulnerability Assessment of Indian Agriculture to Climate Change' by Central Research Institute for Dryland Agriculture, 69 districts in UP fall between medium to very high climate risk category. Furthermore, agriculture accounts for 14 percent of India's overall greenhouse gas (GHG) emissions (mainly through methane emissions from the paddy and livestock sectors). Changing climate and extreme weather events further exacerbate the existing problems including land degradation, market volatility, rising input costs, and slowing response to added inputs, thus, risking significant losses in yields and agricultural sustainability. Therefore, it is critical to build climate resilience of the state's agricultural sector.

6. **The agriculture sector is driven by small and marginal farmers, limiting investments in the sector.** Agriculture is the primary livelihood in the state with 26 million agricultural households, accounting for 20 percent of the total agricultural households in rural India. The proportion of small and marginal farmers in the state is 95 percent and with more than 80 percent of landholdings of less than one hectare (compared to 68.5 percent nationally) the sector suffers from low investment, including in mechanization and the adoption of modern inputs and production technologies, impeding growth. Thus, despite contributing towards 31 percent of India's wheat, 13 percent of rice, and 10 percent of pulses, the income of farming households in the state (INR 8,061 per month) remains far below the national average (INR 10,218)¹. The situation is notably worse for women, as only a small proportion of landowners are women (8 percent in UP versus 14 percent nationally), while 90 percent are engaged in agriculture work as agricultural laborers. Further, over 64 percent of the self-employed women work as unpaid helpers (family workers) in the household enterprise.

7. **There is significant inter-regional disparity in the state's agriculture sector, with Eastern UP and Bundelkhand lagging on several key indicators.** The state has four distinct administrative regions, Western UP, Central UP, Eastern UP, and Bundelkhand with diverse agro-climatic zones, socio-economic conditions, and agricultural performance. While both the Eastern and Western regions of the state account for about 40 percent of the state's population, their contribution towards agricultural output varies significantly, with Western UP contributing nearly half, while Eastern UP, with the lowest per capita landholding in the state, contributes only 28 percent. Conversely, Bundelkhand, with the highest average land size, has the lowest foodgrain productivity and contributes only 5.5 percent to the state's agricultural output. Bundelkhand is marked by prolonged drought and drought-like conditions, marked by water-stress with scanty rainfall, low groundwater recharge and insufficient irrigation. The declining trend in rainfall and increase in dry spells, has affected the soil quality in the region, impacted the productivity of agricultural sector critically².

8. **The huge production volume in UP is not backed by adequate primary infrastructure, which results in lower price realization.** UP produces approximately 65,000 thousand metric tons (MT) of food grains per year, while the storage

¹ Situation Assessment Survey of Agricultural Households (2019-20)

² Directorate of Environment. Scoping Assessment Report for Climate Change Adaptation Planning in Uttar Pradesh; 2020.



capacity is only sufficient for 6,600 thousand MT of produce³. Further, only 6 percent of its produce gets processed. UP's Food Processing Policy and Prime Minister Micro Food Processing Enterprises Scheme have been launched to uplift food processing based agro-industrial development. Better adoption of post-harvest management techniques for fruit and vegetables can ensure better price realization by farmers.

9. **The inland fisheries sector in UP has considerable potential to grow and provide income opportunities.** UP has a large number of reservoirs, village ponds, and tanks which are currently underutilized for aquaculture (fish farming). The state has relatively low productivity due to inadequate extension services, inefficient management practices, and suffers from a shortage of quality fish seed and feed production. The post-harvest sector also lacks investment therefore limiting value addition, access to markets, and leading to increased food loss and waste. Protein malnutrition is a serious problem in UP with 42.3 percent of its children under five being underweight and there is an opportunity to address this by enhancing the production of fish, an affordable source of quality animal protein.

10. **Agriculture extension and service delivery in the state suffer from a lack of technology integration and the multitude of institutions with overlapping roles.** The high degree of land fragmentation poses a significant challenge to the provision of extension services as well as supply of high-quality planting materials, agrochemicals as well as other production support services. Provision of extension services and crop assistance programs continues to be delivered through largely manual systems, significantly affecting efficiency and effectiveness of *Krishi Vigyan Kendras*, which provides these agriculture extension services to farmers. The state has clearly identified lack of institutional coordination as a challenge to delivering farmer centric support services.

11. **Access to credit and other financial services is a major constraint for growth in UP's agriculture sector.** While the agriculture credit per hectare of gross cropped area has improved from INR 15,431 in 2011-12 to INR 43,718 in 2019-20, it lags states such as Andhra Pradesh (INR 1.29 Lakh), Punjab (INR 1 Lakh), and even Bihar (INR 0.52 Lakh). Further, the credit-deposit ratio for UP stands at 60, much lower than the national figure of 78.3. The issues afflicting the agri-finance sector in the state are reflected in the declining share of agricultural credit in total Priority Sector Lending (PSL) from 63.73 percent in FY09-10 to 58.47 percent in FY19-20, even as the overall PSL portfolio has grown considerably. Some of the reasons for the low agri-credit penetration includes poor awareness amongst farmers, weak banking infrastructure, lack of alternate and long-term sources of formal financing for agri-enterprises, and low interest of private sector lenders to service as they face higher risk and servicing costs.

12. **Over the past five years, the Government of UP (GoUP) has taken several steps to attract private investment.** UP has one of the highest numbers of enterprises in the Micro, Small, and Medium Enterprise (MSME) sector in India (14.2 percent of total MSMEs). However, the state underperforms in terms of agri-processing. For example, UP produces 13.5 percent of the country's paddy but only processes 7.6 percent. GoUP has taken steps such as establishing Indo-Israel Center for Excellence in Basti and Kannauj districts for fruits and vegetables, respectively. Further, for each of the agro-ecological zones in UP, the state has identified 'lead' crops, that with value addition, can respond to market demand and serve as engines of growth. The reduced logistics costs will help in growth of agri-marketing centers around the corridor such as in Varanasi, Jhansi, Prayagraj, and the National Capital Region.

13. **The government has placed a strong focus on technology to revitalize agriculture.** GoUP has initiated building of a digital agri-stack and crop acreage survey using satellite data. However, the use of digital technologies for agriculture is at an early stage with uneven progress across various regions. The Government of India (GoI) has announced a strong

³ Press Information Bureau, July 16, 2019; Statista (Food grain production in India in financial year 2023)



emphasis on integrating advanced technologies under the Agriculture 3.0 revolution⁴, such as Internet of Things (IoT), robotics, and big data analytics through Integrated Digital Ecosystem of Agriculture and agri-stack initiatives. Combining the efforts of GoI and GoUP can improve efficiency, productivity, and sustainability through precision agriculture including micro-climate advisory, standardization of data collection and analysis, reduced dependence on manual systems, and improved decision-making.

C. Relevance to Higher Level Objectives

14. **The proposed project is consistent with the World Bank Country Partnership Framework** FY18-22 discussed by the Board of Executive Directors on September 20, 2018 (Report # 126667-IN) and extended to FY25 by the corresponding Performance and Learning Review dated October 23, 2023. The project contributes to CPF Focus Area 1: Promoting Resource-Efficient Growth, and specifically Objective 1.1: Promote more resource-efficient, inclusive, and diversified growth in the rural sector, as well as CPF Focus Area 2: Enhancing competitiveness and Enabling Job Creation, and specifically to Objective 2.1: Improve the business environment and select firm capabilities, and to Objective 2.5: Enabling more quality jobs for women.

15. **The project is also aligned with India's climate strategies on adopting a climate-friendly and low-carbon economic development pathway** as articulated in the Nationally Determined Contribution–National Mission for Sustainable Agriculture, and UP State Action Plan on Climate Change 2021-2030. The project promotes investments in sustainable agriculture, builds institutional capacity and governance framework to address climate impacts, supports agricultural diversification and enhanced competitiveness, and fosters diffusion of innovative technology for enhanced climate adaptation in UP's agrifood systems.

16. **The proposed project is consistent with the Bank's agenda on maximizing finance for development and is considered private capital enabling:** The agriculture market for private investment in UP is at an early stage with a large financing gap, constraints in formalization of MSMEs in the agriculture and allied sectors, and low private sector interest due to higher risks and costs. Addressing these challenges demands calibrated public investments and solutions to attract private sector participation. There are fresh regulatory and policy measures which can be introduced (such as attracting institutional investors) to encourage private capital in the agriculture sector. The project's investments, including support for policy and regulatory reform and strengthening financial institutions to improve lending to the sector, will improve the state's agricultural investment climate and have a catalytic effect on attracting private sector financing. The project aligns with the Bank's goal of maximizing finance for development (MFD) and backs the facilitation and mobilization of commercial finance in line with strategies used in comparable initiatives in India and other regions.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

To increase farmers' income through improved crop productivity, climate resilience, and commercialization of agrifood systems in Selected Regions of Uttar Pradesh.

⁴ Agriculture Revolution 3.0 technologies refer to the integration of modern technologies, such as precision agriculture, remote sensing, and digital tools, into farming practices to improve efficiency, productivity, and sustainability.



PDO Level Indicators

- Average annual yield of select crops (Metric tons/hectare)
- People benefitting from increased resilience of livelihoods, jobs or firms (Number) (CRI)
- Increase in profitability at the producer level (Percentage)
- Private capital enabled (US\$ million)
- Increase in farmers' income (Percentage)

B. Project Components

Component 1: Productivity Enhancement

17. This component focuses on strengthening agricultural productivity and resilience against the backdrop of high levels of climate risks and variability in productivity across the project areas. The objective is to address the existing productivity challenges through improved access to climate-resilient inputs, efficient use of natural resources, and fostering innovations that promote sustainability.

Sub-Component 1A: Resource Use Efficiency

18. This sub-component focuses on achieving increases in agricultural productivity while building farmers' resilience and quantify emission reductions for the sector as an important co-benefit. Specifically, this sub-component will provide:

- (i) Technical assistance to farmers for establishing and/ or strengthening Farmer Producer Groups (FPGs)⁵, including exclusive women-led and women-owned FPGs aimed at enhancing resilience to droughts and extreme weather. Technical assistance will include mobilization, training, and development of FPG by-laws. Grants to FPGs will also be provided in the form of start-up grants for office equipment.
- (ii) Climate resilient technology and advisories to farmers through FPGs in Rice Wheat Cropping Systems in Eastern UP and Smallholder Rainfed Production Systems in Bundelkhand. These include drought resistant seeds; inputs for soil fertility; and crop, water, and soil management practices (including Direct Seeded Rice, which improves climate resilience. The project will also provide grants to FPGs for crop residue management.
- (iii) Grants and technical assistance to Farmer Producer Organizations (FPOs)⁶ for purchase and use of appropriate equipment and machinery to establish and/ or augment Custom Hiring Centers (CHCs).
- (iv) Technical assistance to farmers and FPGs to enable access to existing government schemes for micro-irrigation and fertigation.

Sub-Component 1B: Seed Systems

19. This sub-component will promote, develop, and establish an inclusive and climate-resilient seed system to enhance crop yields in the project areas. Specifically, the project will finance:

- (i) Procurement and distribution of high-quality and climate resilient seeds to improve seed / varietal replacement ratios for farmers through FPGs. This would include seeds or new varieties developed by leading global and national research institutions and private sector.
- (ii) Grants and technical assistance to FPOs for timely purchase and distribution of climate resilient seeds; and for establishing and/ or strengthening seed hubs for production of climate resilient certified seeds.
- (iii) Technical assistance to entrepreneurs to establish cluster specific high-tech seed nurseries.
- (iv) Promotion of late sowing and early maturing varieties/ short-duration varieties.

⁵ Informal association of farmers/processors that typically operate within the same village/village panchayat and has a common interest in a particular commodity, either to institute better production practices, processing, or marketing, and is organized in accordance with the criterial and procedures set forth in the Project Implementation Plan (PIP).

⁶ Legal entity formed by primary producers, which can be registered as a Farmer Producer Company, a cooperative society, or any other legal form that provides for the sharing of profits/benefits among the members, as further defined in the PIP.



Sub-Component 1C – Agri-Extension

20. This sub-component aims to promote tailored agronomic and extension services for climate resilient practices to reduce risk thresholds and improve productivity of crop systems, diversification, and value-addition. The sub-component also includes service delivery training program, which would work with women run institutions to promote climate resilient agriculture. The sub-component will finance:

- (i) Provision of climate resilient advisory services to FPGs on specific cropping systems. This will utilize the digital platform developed under sub-component 3A and will be delivered through procurement of national and global agricultural institutions.
- (ii) Technical assistance for design and establishment of a dedicated helpline to respond to queries from farmers for on-demand agronomic and financial advisory services, including advisory on sustainable agricultural practices. The existing network of Common Service Centers and Business Correspondent Agents will be leveraged to enhance access to financial services and schemes, particularly for women and youth within and outside the project areas.

Sub-Component 1D: Leveraging Climate Action Mechanisms

21. Responding to the priorities identified by the Uttar Pradesh State Action Plan on Climate Change, this sub-component will promote sustainable agricultural development by establishing the Center for Climate Resilient Agriculture Systems (C-CRAS), which will be the first such initiative in Asia. The sub-component will finance the following:

- (i) Technical assistance for design and establishment of C-CRAS to build the capacity of relevant government departments and stakeholders in Uttar Pradesh for measurement, monitoring, reporting, and verification of GHG emissions in the agriculture sector in UP. C-CRAS will facilitate establishing a digital Measurement, Reporting, and Verification (MRV) system, which, in turn, is expected to play an essential role in farmers' participation in voluntary carbon markets.
- (ii) Laboratory equipment and data acquisition to establish GHG baselines and monitor emissions.
- (iii) The necessary scientific and technical baseline studies to calculate the volume of emissions reductions and preparing the required verification protocols.
- (iv) Promoting regenerative agriculture.
- (v) Capacity building through workshops, webinars, and training programs for stakeholders in collaboration with global and local experts.
- (vi) Provision of technical assistance to provide farmers' access to voluntary carbon markets.

Component 2: Commodity Clusters

22. This component will support the integration of smallholder farmers into value chains for select high value commodities. The project will support 'commodity clusters'; networks of producers, agribusinesses, and public institutions within a defined geographic area engaged in the same agricultural subsector.

Sub-Component 2A: Crop Clusters - Agri Special Economic Zones

23. To establish market-oriented clusters for high value crops, the sub-component will finance:

- (i) Diagnostics to identify products and geographies for the clusters, based on key criteria including climate vulnerability or suitability for crops, market demand and opportunities (both for domestic and export markets), local agro-ecological conditions, and farmers' and agribusiness' willingness to invest.
- (ii) Preparation of climate sensitive Cluster Development Plans to identify activities and develop detailed implementation plans for each cluster selected under the project.
- (iii) Financing of activities under these plans, including (a) provision of technology and advisory services to farmers for increased productivity and market orientation (such as improved climate resilient seeds, production management practices, farm mechanization); (b) grants to entrepreneurs, farmers, and/or farmer collectives



for adoption of sustainable agribusiness technology and development of agribusiness facilities (such as processing facilities, energy-efficient storage, and market development). Projects involving adoption of climate resilient technologies will be prioritized; (c) technical assistance to support capacity development of FPGs; and (d) technical advisory for agribusinesses to improve marketing.

Sub-Component 2B: Fisheries

24. The sub-component will support fishery clusters including reservoir fishers, fish farmers, fish processors, and fish traders. Specifically, the project will finance:

- (i) Development and implementation of Cluster Development Plans based on diagnostics to determine market demand and post-harvest management infrastructure gaps. The plans will promote through adoption of energy-efficient and sustainable practices.
- (ii) Modernization of hatcheries for improved germplasm, development of high quality, sustainable and climate resilient fish feed, and provision of grants to fishers and Fisher Producer Groups for development of fish seed nurseries.
- (iii) Technical assistance to fishers and / or fisher producer groups to develop climate resilient fisheries management systems in reservoirs.
- (iv) Provision of innovative and climate resilient aquaculture technologies such as Recirculating Aquaculture Systems and biofloc for the efficient re-use of water and reducing the impact of climate-induced water scarcity.
- (v) Grants to entrepreneurs and fisher producer groups for enterprise development for nursery, hatchery, processing, logistics, eco-parks, and to improve energy efficiency in fisheries production and value chain.
- (vi) Grants to entrepreneurs and fisher producer groups for post-harvest and energy-efficient marketing infrastructure including landing centers, fish processing units, and linkage with existing online fish marketing platforms.
- (vii) Technical assistance for the formation and strengthening of fisher producer groups.

Sub-Component 2C: Integrated Agriculture Export Hub

25. The objective of this sub-component is to provide technical assistance for the proposed Integrated agri-export hub near Jewar Airport, Greater Noida, which is being established to address challenges faced by agriculture exporters and scale up agri-exports from UP. This hub will offer comprehensive agricultural export related services including testing, treatment, packaging, cold storage, and certification. The project will support technical assistance in developing the hub to global standards. With a focus on high-value commodities emanating from the state (especially including agro-clusters promoted under the component), the project will promote linkages for increased private sector participation to facilitate effective export facilitation to key global markets.

Component 3: Digital and Financial Ecosystems

Sub-Component 3A: Digital Architecture and Technology Services

26. The objective of the sub-component is to establish a state-wide digital agriculture ecosystem for disseminating climate resilient agricultural technologies and developing data-sharing protocols for real-time decision making for all stakeholders. The Project Implementation Plan (PIP) will include measures to ensure that the project's activities involving collection, storage, usage, and/or processing of personal data are carried out with due regard to the India's existing legal framework, including Digital Personal Data Protection Act 2023 and Electronic Consent Management Framework, and appropriate international data protection and privacy standards and practices.



27. Specifically, the sub-component will finance the following:

- (i) Digital infrastructure and solutions platform including hardware, software, and connectivity solutions necessary for development and deployment of core platform and associated applications.
- (ii) AgriTech incubation and acceleration to support start-ups and entrepreneurs in developing solutions tailored to address the challenges of the agricultural sector and provide climate resilient solutions at scale.
- (iii) Training and capacity building of farmers, government officials and other stakeholders in the ecosystem to enhance digital literacy and adoption of new technologies for implementing climate resilient agriculture.
- (iv) Development of platforms and services to connect farmers with markets, including digital marketplaces, advisory services on climate resilient technologies for adaptation, and logistical support to facilitate access to domestic and international markets.

Sub-Component 3B: Agri Finance Ecosystem

28. The objective of this sub-component is to improve per capita agri-credit from formal financial institutions to reduce farmers' exposure to climate-related risks and improve productive investments and competitiveness in the agri-allied areas. The proposed interventions will cater to the diverse needs of agri-producers and market players including small and marginal farmers, farmer collectives, and MSMEs in the agriculture and allied sectors. The sub-component will support:

- (i) Digitizing Kisan Credit Card (eKCC) through a pilot to reduce transaction costs, improve the turnaround time and the scale of financing for small and marginal farmers while enhancing transparency and portfolio quality of the lenders.
- (ii) Establishing and Operationalizing the Alternative Investment Fund (AIF) to complement the project's investments in developing select value chains, particularly for sustainable, including climate resilient agriculture practices. The AIF will be used to crowd-in long-term private sector investments in addition to providing customized financial solutions (equity-debt and hybrid) in the form of sub-financing of MSMEs in the state. Women-owned agribusinesses will be incentivized and supported to apply for AIF funding. The financial intermediary that will set-up or manage the AIF is not final at this stage. However, the broad investment themes, eligibility criteria for the selection of the financial intermediary, and the blended finance aspects of such a fund have been agreed at a broad level with the government. The financial intermediary, selected by the Project Management Unit (PMU) for the management of the AIF, would be subject to no-objection from the World Bank following a Financial Intermediary Assessment and would have to adhere to the agreed concept and guidelines.
- (iii) Establishing Agri Challenge Fund to incentivize private sector entities to provide solutions for localized challenges faced by project beneficiaries through market-based approaches. The project will establish a robust screening process and provide grant support to the selected entities, including AgriTech and AgriFinTech solutions. Projects involving adoption of climate resilient technologies will be prioritized.

Component 4: Project Management, Learning, and Partnerships

29. The objectives of this component are to develop management and monitoring systems, enhance staff capacity for effective and efficient implementation of project activities.

30. **Project Management:** The project will (i) finance consultants on financial management, procurement and environmental and social aspects; (ii) invest in refurbishing office spaces; and (iii) strengthen the Project Management Unit (PMU) with relevant staff as defined in the PIP to oversee project implementation on the field. The on-field implementation at the district and block levels will be carried out by the project staff and support organisations hired at the field level.



31. **Monitoring, Learning & Evaluation (ML&E):** The project will develop a robust ML&E system to track progress and outcomes. The project will hire agencies to carry out baseline, mid-term, annual, and project completion surveys and other studies as may be needed during project implementation. The project will also leverage the decision support system (sub-component 3A) and generate performance reports.

32. **Knowledge Building and Demonstrations:** The project will develop accredited training programs in agro-ecological farming, agribusiness management, enterprise promotion, agri-financing, and digital agriculture for project staff as well as the concerned staff of agriculture and allied departments. The project will facilitate knowledge exchange with leading institutions in India and other countries / regions (such as Latin America, East Asia, European Union, South Korea, Australia, and the United States) for demonstrating new age technologies and concepts (stress tolerant varieties, digital agriculture, low carbon rice and wheat systems) and facilitate exposure visits of at least 500 farmers to best practice sites across select countries.

Component 5: Contingent Emergency Response Component (CERC)

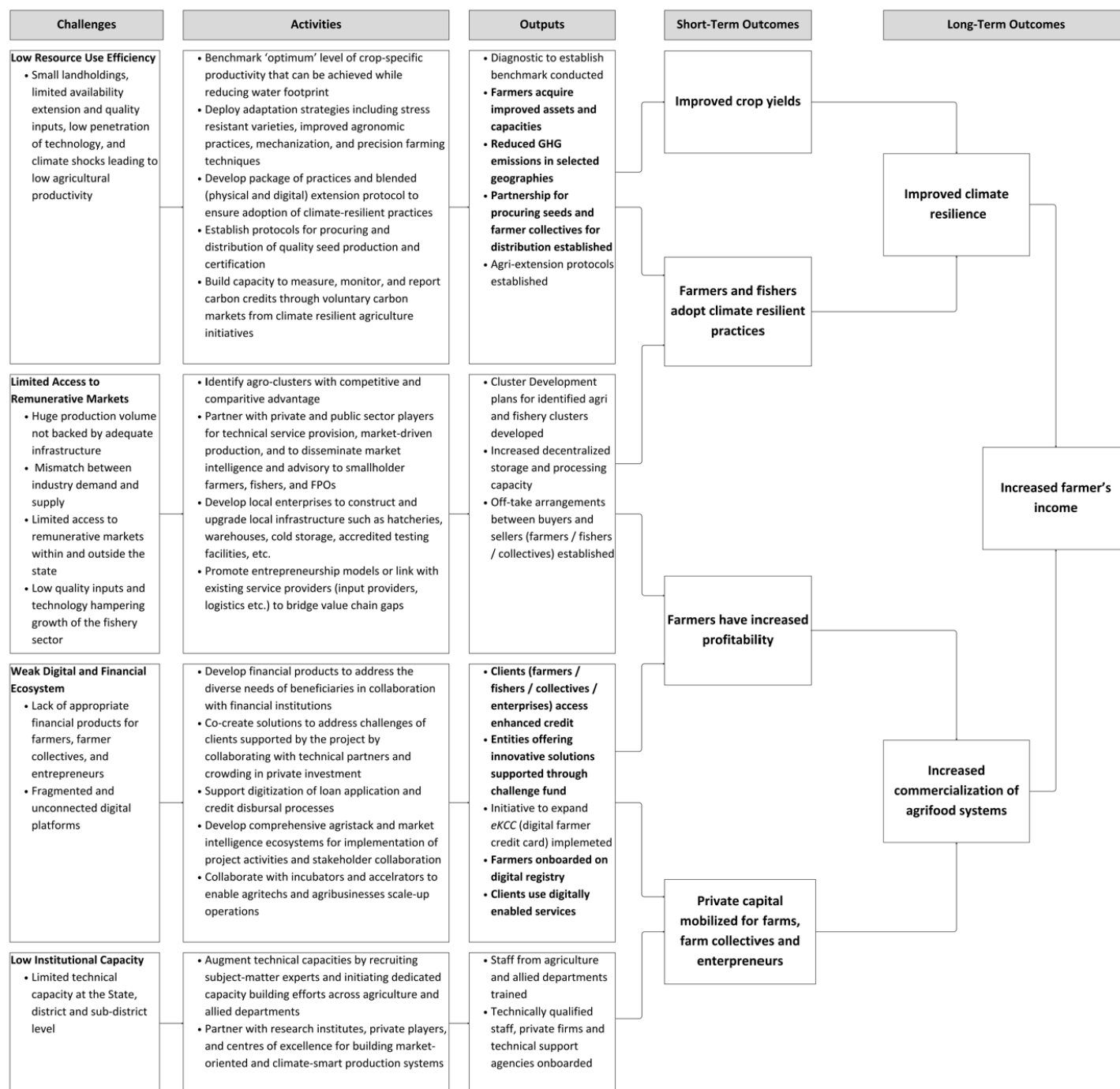
33. The project will include a CERC with a zero allocation at project approval. This arrangement will provide for an immediate response to an eligible crisis or emergency, as needed.

C. Project Beneficiaries

34. The project will be implemented in 28 districts of Eastern UP and Bundelkhand, which lag the rest of the state in poverty, resource-use efficiency, agriculture productivity, and private investment. The direct beneficiaries are (i) farmers; (ii) fishers; and (iii) entrepreneurs. The project will support one million beneficiaries in all. The project will target the participation of women across all project interventions. At least 30 percent of farmers supported by the project will be women, and 10,000 exclusive women FPGs will be supported. In addition, the project will make concerted efforts to include marginalized communities. Secondary beneficiaries include (i) farmers obtaining digital KCCs and other financial services due to project interventions, (ii) farmers accessing improved service through the digital platform; and (iii) proposed partner institutions with the mandate to promote climate resilient practices, strengthening value chains etc.



D. Results Chain



35. The key assumptions that underpin the project's results chain include: (i) GoUP's commitment to implement the project; (ii) active leadership of the concerned department(s) in GoUP to foster an enabling environment for project implementation including the onboarding of required technical human resources, research institutes, and technical agencies; (iii) smallholder interest in participation and that they see value in adoption of productivity-enhancing and



climate resilient practices; and (iv) interest of the private sector in taking up new or furthering existing entrepreneurial opportunities to set up agri-processing, storage, and logistics enterprises.

E. Rationale for Bank Involvement and Role of Partners

36. In addition to the provision of funds, the Bank brings global expertise in several areas of direct relevance to the project design, based both on the Bank's global knowledge work and on project implementation experience, in particular, these relate to: (i) establishing market linkages, and supporting the emergence of agro-clusters; (ii) improving productivity and increasing output in the agriculture sector through institutional support and technology innovation; (iii) developing sustainable agriculture systems and facilitating access to voluntary carbon markets; (iv) MSME and entrepreneurship support; (v) supporting appropriate financing mechanisms; (vi) digital agriculture; and (vii) support for farmer organisations.

37. Partners are critical to the project design and implementation. The project has partnered with the Gates Foundation, for which UP is a priority state, to receive technical assistance which will be complementary to the project. The Foundation will set up a technical support unit to provide timely and market-based inputs to the PMU and field functionaries. The technical assistance for the development of the state's Digital Agriculture Policy is financed from a trust fund from the Korea-World Bank Partnership Facility. This will create an enabling policy environment for undertaking the digital agriculture initiatives under the project. The project is also aligned with and collaborating with the 2030 Water Resources Group (WRG), a vital partnership which will enable the project to crowd in both knowledge and participation of the private sector required to reach scale. Other technical support is in place for the project to benefit from global knowledge, including with the CGIAR institutes.

F. Lessons Learned and Reflected in the Project Design

38. The approaches undertaken in the project are based on lessons and good practice drawn from both international experience and other projects within India. The implementation arrangements include a heavy emphasis on the partnerships with key technical agencies to provide continued access to local and global knowledge to enable the project to evolve in response to emerging lessons. This is important as the project engages on innovative technology topics such as digital agriculture and direct seeded rice, for which global best practice is still emerging. It is expected that the project will both learn from and inform these domestic and international agendas.

39. The role of the private sector is emphasized throughout the project design, including for the provision of farm inputs, in establishing value chains and supporting services, including digital. This represents a shift from the public sector dominated approach prevalent in UP and requires a change in the public role from provider to enabler. This is grounded in an assessment of the current conditions in the project areas which find that the private sector is highly underdeveloped, including in comparison with neighbouring states. International experience suggests that a more structured engagement with the agri-business sector, such as through productive alliances which originated in Latin America in the early 2000s, can stimulate productivity and market integration. The transformation of the sector will require a much closer engagement with the private sector, leveraging private capital, supporting farmer-agribusiness linkages and enabling a shift from a production-focused smallholder sector to production oriented to market and consumer demand, both in domestic and export markets.

40. The project design includes the selection of key crops and products to focus project interventions, under both



Components 1 and 2. The selection of crops/ products is underpinned by rigorous analysis and consultations with producers and agribusiness to limit risks of ‘picking winners’. Despite the focus on specific commodities, these will be supported through adopting a farming systems approach, understanding the farmers’ preferences, and developing production patterns to maximize the overall and sustainable benefits to small scale producers.

41. Flexibility is built into the design to avoid a ‘cookie cutter’ approach. For example, Cluster Development Plans will be tailored to each cluster to respond to specific needs, which will vary from cluster to cluster. All activities will be backed up with support for capacity development. Capacity development is most effective when it includes rigorous training needs assessments, investing in effective trainers and media for dissemination of knowledge, strong training materials, and ensuring close follow up and continuation of support. Usually, it is seen that capacity development is restricted to general, one-off, short-term trainings which are found to have limited impact. Therefore, the project would invest in a holistic approach to capacity building which will lead to addressing capacity gaps in a more efficient and effective manner.

42. The project's operational design is grounded in PCE-M principles. It recognizes that an evidence-based screening process, defining clear criteria, and employing data-driven evaluations are crucial. This approach aims to learn from previous project experiences and mitigate risks by identifying riskier MSMEs within the pool, ensuring a more targeted and effective support system. This design reflects the experience from evaluation of WBG support to MSMEs conducted in 2019 and National Program on MSME support (Raising and Accelerating MSME Performance).

III. PROJECT IMPLEMENTATION

A. Institutional and Implementation Arrangements

43. The project will be managed and implemented by the Uttar Pradesh Diversified Agricultural Support Project Society (UPDASP). UPDASP is a semi-autonomous GoUP agency with flexibility in administrative and financial procedures. At the State level, a PMU, headed by Project Director, an officer at the level of Secretary or higher, has been set-up. The PMU will be supported by technical and managerial staff, seconded to the PMU from line departments, universities / institutes, or hired on contract for the project period.

44. Project oversight will be provided by two committees that already exist at the state level, the Project Steering Committee and the Project Executive Committee (PEC). The Steering Committee is a high-level body chaired by the Chief Secretary of Uttar Pradesh and composed of Additional Chief Secretaries, Principal Secretaries, and Secretaries from key departments such as Agriculture, Horticulture, Fisheries, Planning, Finance, MSME, among others. This diverse group of top officials ensure a broad spectrum of policy decisions, expertise, and insights, vital for the strategic oversight of the project. The PEC, with the Agriculture Production Commissioner as the chairperson and Secretaries of the participating line departments as members, will approve annual work plans, and address implementation issues including resolution of inter-departmental concerns.

45. At the district level, a District Coordination Committee, headed by the District Magistrate, will be set up. Each district will have a District Project Manager, to manage the District Project Implementation Unit (DPIU). A Support Agency will be hired to assist with implementation at the block level. Both, PMU and the DPIU will be aided by a team of young professionals and research fellows from national and international universities.

46. Further, at each cluster identified in component 2, a separate commodity-specific Cluster Planning and



Implementation Team (CPIT) will be established as per the provisions of the PIP that will provide end to end support for the entire value chain development. CPIT will report to the PMU and will keep the concerned DPIUs apprised of the cluster activities.

47. The project will invest in demonstrating innovative activities for subsequent scale-up by partnering with technical and research institutions at the state, national, and global levels (such as Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), International Rice Research Institute (IRRI), Indian Council of Agriculture Research (ICAR), International Potato Center (CIP), National Agricultural Research System, National Agricultural Communication Symposium, etc.). The project will also facilitate incubation / acceleration of relevant agritech solutions for scale-up by partnering with Indian Institute of Technology. The project will also build complementarities with on-going Bank supported initiatives in such as UP Micro Irrigation Platform, Eastern Dedicated Freight Corridor etc. The project in partnership with the 2030 WRG will leverage the private sector for technical assistance and mainstream market connects.

B. Results Monitoring and Evaluation Arrangements

48. The ML&E will leverage the digital platform established under the project to track the project's performance and will additionally comprise the following activities:

- (i) **Impact Evaluation Involving Baseline Survey and Follow-Up Surveys:** The objective of the impact evaluation is to establish the 'net' contribution of the project to the farmer's profitability. The impact evaluation study will compare the 'before' and 'after' the project and between the project and control areas. In addition to capturing individual farmer-level outcomes, the impact evaluation will also assess the project's contribution to the performance of producer collectives, individual enterprises of the group-level and community-level changes brought about by the project.
- (ii) **Concurrent Process Monitoring:** The project will undertake concurrent process monitoring to identify critical deviations in the project's implementation and provide continuous feedback to the PMU.
- (iii) **Just-in-Time Assessments:** The project will collect qualitative data among beneficiaries regularly to assess whether it meets the beneficiaries' expectations, what they see as needing improvements or changes, and how the project impacts their lives beyond the PDO and intermediate indicators. In addition, the project will commission rapid assessments when needed.

C. Sustainability

49. The project design takes several approaches to both ensure the sustainability, but also to enable the approaches of the project to be replicated elsewhere in the state, but also, potentially, in other states. The design stresses the establishment of sustainable systems, including for seed provision, agriculture finance and digital agriculture, the absence of which is holding back the sector. This requires developing and strengthening institutions, public and private, to continue to deliver high quality services beyond the lifetime of the project, including farmer producer groups. This will include developing a digital agriculture platform for the state, underpinned by the Digital Agriculture Policy, which will be the first of its kind in India and will embed the approaches into the state's broader agriculture policy. To the extent possible, the project will converge activities with state-sponsored programs to increase the effectiveness of those programs in the future, for example through support investment via the Alternative Investment Fund, supporting the digital KCC. The aim is to create the enabling agriculture finance ecosystem which will not only benefit the target beneficiaries under the project, but also serve the broader agriculture sector both during and after project implementation. Field level activities are all designed to support conservation and restoration of natural resources (soils, water), through promoting increased water use efficiency, fertilizer use efficiency and soil health. Finally, by engaging with the private sector and other institutional partners in the project design and implementation, it is expected that the



capacity developed will continue to serve the sector beyond the lifetime of the project. The continued transformation of the sector requires a strong private sector, enabled by the public sector, and the project would support this through channelling support to the private sector, leveraging increased private capital flows to the sector and establishing partnerships between the private and public sector, and through creating robust mechanisms for linking small scale producers to markets. By prioritizing PCE-M principles, the project aims to ensure the sustainability rather than focusing on direct subsidies. Through the evidence-based screening process and transparent frameworks for assessing MSMEs, it strives to identify high-potential beneficiaries. This strategy not only supports these beneficiaries but also strengthens the financial system's ability to meet firms' investment needs through commercial lending, securing the initiative's resilience even after the project concludes.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

50. **The project is aligned with the goals of the Paris Agreement.** The project is consistent with Uttar Pradesh State Action Plan on Climate Change on enhancing climate resilience while transforming agriculture into a more productive, diversified, and competitive sector. With respect to mitigation risks, the project activities conform to climate resilient agriculture pillars and are universally aligned with little or no risks of the operation having any negative impact on the India's low-GHG emissions development pathway. The project promotes the adoption of low carbon agricultural operations including direct seeding in rice-wheat systems, reduced tillage, better soil management, and water conservation measures and reduced GHG emissions intensity. The operation also leverages digital technology and extension services for resource use efficiency, in addition to incentivizing adoption of climate resilient practices by facilitating smallholders access to voluntary carbon markets. With respect to adaptation risks the project design explicitly includes promoting the adoption of climate-resilient seeds and technologies, strengthening institutions and governance to address climate impacts, leveraging digital technology for climate information services and advisories, and providing farmers' access to finance to invest in modern agricultural practices and climate-resilient measures thereby addressing climate risks and reducing the risks to an acceptable level. Furthermore, the financial intermediary selected for the AIF will meet the necessary criteria for Paris Alignment specific to the Fund created through the support of the project.

51. An economic and financial analysis was conducted for the project using a cost-benefit methodology. The analysis attempted to identify quantifiable benefits that relate directly to the activities undertaken following the implementation of the project components, or that can be directly attributable to the project. The main benefits are: (i) increased productivity of selected crops due to improved seed multiplication systems and climate resilient advisory services; (ii) increase in cropped areas during the rabi and kharif seasons; (iii) increased value addition through investment in processing and post-harvest activities and cluster development of selected agro-commodities; and (iv) improved agro-finance solutions for farmers engaged in these activities.

52. Financial analysis has been carried out for the main crop models and enterprise models to be supported by the project. Detailed enterprise budgets were prepared, providing an overview of the production system including the key production parameters, investments in improved production technology and increase in capacity utilization. The main financial performance measures, including gross margin, net profit, and net profit after financing are calculated for the Without Project and With Project scenarios. It is expected that the financial analysis will be periodically updated as an integral part of the Project's ML&E system and as an input into the project evaluation at mid-term and completion stages.



53. **The project is expected to benefit the rural population in the selected districts of the state through three impact pathways.** First, the project will cover an area of 615,000 ha in 123 blocks for improving productivity and support the adoption of climate-resilient technologies in the agriculture. Second, the project will target 20,000 hectares of key value chain crops for processing and higher order value chain activities and third the project will support fisheries development in 20,000 ha of village ponds and 56,200 ha in reservoirs. The benefits will result from increased marketable surpluses of targeted commodities, stabilized production, and improved marketing, post-harvest management, and value addition. The financial benefits have been estimated based on detailed budgets for crops and typical smallholder plot sizes, providing an overview of the production systems including the key production parameters, farmer organizations, investments, and marketing channels. Similar analyses were prepared for the fishery production models and enterprise models.

54. A cost-benefit analysis after considering all these benefits yields an Internal Rate of Return (IRR) over a 20-year period for the base case, excluding benefits from greenhouse gas (GHG) emission reduction, 19 percent with a net present value (NPV) of US\$254.7 million at a discount rate of 12 percent. The total net reduction potential of carbon emissions over the 20-year period of analysis for the Project is estimated at 8.2 million tons of CO₂ equivalent (CO₂-e), equivalent to US\$534.8 million and US\$1,070.4 million for the low and high shadow price of carbon scenarios, respectively (low: US\$55-83/ton CO₂-e, high: US\$108-166/ton CO₂-e). Including these benefits from GHG emission reduction in the economic analysis, the EIRR for the base case scenario increases to 23.4 and 27.8 percent for the low and high shadow price of carbon scenarios, respectively.

55. **Greenhouse Gas Analysis.** The GHG emissions of the project were computed independently (in terms of CO₂ equivalent) for the three activity areas. Using the Food and Agriculture Organization of the United Nations (FAO) EX-ACT tool, GHG emissions were estimated for crops and typical smallholder plot sizes, as well as livestock and fishery models. The proposed interventions and proactive project support are expected to help reduce or mitigate the intensity of GHG emissions in all the value chains supported. Using the models developed for the economic analysis, carbon emission reduction estimates have been derived using the available guidelines. The annual average carbon emission reduction for the project is estimated at 413,608 tons, and 8.2 million tons over the 20-year period.

B. Fiduciary

(i) Financial Management (FM)

56. Financial Management assessment adhered to Bank Policy and Bank Directive on Investment Project Financing. FM risk is assessed as 'Substantial', attributed to the dispersed nature of FM functions across multiple offices (PMU and DPIUs of UPDASP, FPGs, fisher producer groups, and FPOs). It may cause initial delays in obtaining utilization certificates and expenditure reports, potentially affecting the submission of Interim Financial Reports (IFRs) for disbursement, annual financial statements, and timely audits. To address these risks, strategies include hiring of FM personnel, training on Bank FM requirements, implementing accounting software, drafting FM manuals for staff guidance on accounting and internal control principles as part of PIP, and engaging audit firms for internal and external audits. The FM arrangements described below are deemed sufficient for accounting and reporting of project expenditures.

57. **Budget and Flow of Funds:** A separate budget line for Externally Aided Project (EAP) has been opened by GoUP and budget provision of INR 200 crores has been provided for FY24-25 (April 2024 to March 2025) by the Finance Department in Grant no 11 of Agriculture Department. The project funds for future FYs will be annually budgeted by the Department in EAP budget line based on Budget Estimates endorsed by the PEC. UPDASP will open separate bank account



for the PMU and zero balance DPIU / child bank accounts (parent-child banking arrangements will be established between PMU and DPIUs) for efficient fund management and to ensure that no idle floats / funds are available at DPIUs. The PMU and DPIUs will operate and make electronic payments for project activities.

58. **Accounting and Financial Reporting:** Accounting firm at PMU and individual accountants at DPIUs will be hired in accordance with the provisions of the PIP, to maintain accounts in an off the shelf accounting software, with project chart of accounts mapped to this software. Training and capacity building will be provided to finance staff and project FM manual will be prepared as part of PIP to guide project staff on accounting and internal control principles.

59. **Disbursement:** PMU will prepare interim financial reports for all project components / activities, and it will be submitted to Controller of Aid Accounts and Audit in GoI and the Bank within 45 days from end of each calendar quarter. These interim financial reports will be basis of disbursement under the Loan.

60. **Retroactive Financing:** Withdrawals up to JPY 3,565,126,650 for payments made since January 31, 2024 against eligible expenditures incurred in compliance with the Bank's applicable policies, including procurement procedures, can be claimed as retroactive financing.

61. **Audits:** There is no system of internal audit at UPDASP. For the project, a firm of Chartered Accountants will be appointed by UPDASP. This audit firm will conduct internal audits and these audit reports will be shared by PMU with the Bank and project external auditor. For external audit, separate audit arrangements have been agreed with UPDASP. PMU will prepare project financial statements and it will be annually audited by firm of Chartered Accountants appointed by UPDASP. The project audit report will be submitted to the Bank within nine months from end of each financial year (i.e., December 31). This audit report will be published at the website of UPDASP.

62. **Partnerships with leading agricultural universities, national and global institutions (including CGIAR).** Service contracts / consultancy agreements will be signed, and funds will flow to these Institutions based on payment milestones specified in the signed agreements.

63. **Grants and Financial Assistance to FPGs, fisher producer groups, and FPOs** will be provided based on approved business plans and meeting grant conditions. Funds will be disbursed by the PMU into their bank accounts. The support agency hired at DPIUs will have accountants that will provide required support to the FPGs / fisher producer groups / FPOs on accounts maintenance. The FPGs /fisher producer groups / FPOs will also be provided with training in accounting and bookkeeping areas. Start-up grants given to FPG (under sub-component 1A for office equipment and crop residue management will be recognized as expenditure in project books at the time of disbursement and amounts will be reported in the interim financial reports and claimed from the Bank. Grants provided to FPOs for purchase of farm machinery to establish and/ or augment CHC (sub-component 1A), purchase of assets, creation of infrastructure and working capital support to seed producing FPOs (sub-component 1B), and Grants to registered entities (MSMEs, individual enterprises, or farmer and fisher collectives) for construction of facilities (sub-component 2A and 2B) will be treated as advance in the project books and the amounts will be claimed from the Bank in interim financial reports on receipt of Utilization Certificates (UC) from FPOs. The performance of FPO and utilization of grants will be monitored by PMU with the support of DPIUs and CPITs. The FPOs will also provide audit reports to PMU for the grants utilized. Under Sub-component 3B for agri-challenge fund, proposals will be invited from agri-allied and agri-finance market players which will be evaluated by PMU according to established selection criteria provided in the grant manual. Agreements will be signed, and funds will



flow to selected entity (e.g., agri-tech/fin-tech firms) based on signed agreements. Detailed operational procedures, contractual arrangements, and fiduciary processes for the grants are included in the Grants Manual, adoption of which will be a disbursement condition for the grants.

64. **Alternate Investment Fund (AIF) for Agribusiness MSMEs (equity/ debt/ hybrid).** The expenditure will be recognized by the PMU and will be eligible for disbursement under the loan at the time of capitalization of the AIF by the project. The capitalization will be done by the PMU in tranches based on annual budget and investment plan estimates prepared by fund manager of the AIF. The operational processes, governance, and management of funds and returns will be documented in the AIF operations manual, based on the guidelines agreed with the government. The adoption of the AIF Operational Manual, hiring of the AIF Fund Manager, and establishment of the AIF will be disbursement conditions for the AIF. The AIF will submit periodic reports and annual audit reports to the PMU based on actual utilization of funds. Any funds for capitalization that did not get invested by AIF in MSMEs in the agriculture and allied sectors at the close of the project, or the amounts funded by AIF were not in accordance with the eligibility criteria established in the AIF Operations manual, it will be refunded by the AIF to the PMU, and it will be subsequently refunded by the PMU to the Bank or will be adjusted from the final interim financial reports after agreeing with the Bank.

(ii) Procurement

65. **Procurement activities will be carried out following the World Bank's Procurement Regulations for IPF Borrowers (Fifth Edition) September 2023.** Details of procurement activities will be specified in the Project Procurement Plan. The project will be subject to the World Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and International Development Association (IDA) Credits and Grants (Anti-Corruption Guidelines). The UPDASP is nominated as the Nodal Agency for agriculture diversification in Uttar Pradesh and had implemented the Bank funded Diversified Agriculture Support Project. The UPDASP will implement the project with support from a dedicated PMU, DPIUs, and a block level support agency. The UPDASP follows the Uttar Pradesh Procurement Manual 2016 for Procurement of Goods which is largely aligned with the National Procurement Arrangements of the Bank's Procurement Regulations and uses the eProcurement System of Government of Uttar Pradesh (<https://etender.up.nic.in>) which is cleared by the Bank. The UPDASP has limited exposure to procurement of the type of consultancy services that are likely to be undertaken under this project. Support would be required, especially in the initial phase of project procurements given the likely complexities of envisaged consultancy services, compliance with environmental, social, health, and safety requirements, inappropriate market readiness and logistical issues as well as the association with strategic partners. A detailed procurement assessment of the UPDASP covering the Regulatory Framework and Management Capability, Integrity and Oversight mechanisms, Procurement Process and Market readiness was carried out and the procurement risk was rated as 'Substantial'. The Project Procurement Thresholds in the Procurement Plan are based on the Procurement Risk Assessment and will be reviewed during project implementation. The Bank's Standard Procurement Documents shall be used for all contracts subject to international competitive procurement and those contracts as specified in the Procurement Plan tables in STEP. National Competitive Procurement will comply with paragraphs 5.3 – 5.5 of Section V of Procurement Regulations and conditions in the Procurement Plan.



C. Environmental, Social and Legal Operational Policies

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No

66. **OP 7.50 is applicable to this project** because the project will finance activities that may use or risk polluting waters of tributaries of the Ganga River, which is considered an international waterway. The exception to the riparian notification requirement according to paragraph 7(a) of the Policy applies because activities are limited to upgrading and modernization of existing, small-scale schemes which will not adversely change the quantity and quality of water flows to other riparians. The exception to the notification requirement was approved by the Regional Vice President on March 13, 2024.

D. Environmental and Social

67. The environmental and social risks of the project are 'Moderate'. The project has completed a detailed environment and social assessment (ESA). Key environmental risks and impacts include: i) potential use of pesticides (hazardous materials) and other agrochemicals leading to the risk of soil and groundwater contamination; ii) wastewater and use of exotic species in fisheries sector, iii) temporary risks of minor civil works relating to construction of warehouses, processing centres etc. and iii) unsustainable use of excessive agrochemicals and irrigation water. Exclusion and / or inadequate representation of vulnerable communities, including women and restrictions on land use and involuntary resettlement (of non-titleholders) during land and parcel development activities are the potential social risks associated with the project. All proposed project interventions are expected to take place within existing footprints of smallholder farms, existing small-scale irrigation schemes, and aggregation facilities. The project will not finance pesticides banned by the GoI and the World Health Organization. Although no activities involving land clearing or land conversion are expected, planned project interventions may entail bringing more areas under controlled irrigation and agroforestry cultivation. The project may support activities that entail private entrepreneurs to set-up small-scale and localized construction or physical upgrades/improvements of aggregation facilities, warehouses and cold storage depending on need and feasibility. Aquaculture interventions may promote pen culture and cage culture in waterbodies. Traditionally, men play a predominant role in agriculture in UP while the low paying, labor intensive roles are handled by women. Almost all decisions related to investments in on-and-off farm agriculture activities are taken by men, with women having little or no voice or influence in such decisions.

68. An Environment and Social Management Framework (ESMF), Environmental and Social Commitment Plan and a Stakeholder Engagement Plan have been prepared and disclosed nationally and at the Bank's website⁷, which includes procedures for undertaking site-specific environmental and social screening as well as generic, activity specific

⁷ https://updasg.co.in/notices/Final_ESMF-UPAGREES_14-05-2024.pdf. (date of in-country disclosure May 14, 2024)
<https://projects.worldbank.org/en/projects-operations/document-detail/P178253?type=projects> (date of World Bank website disclosure November 12, 2024)



Environment and Social Management Plans that will be used for preparing site-specific ESMPs as necessary. The ESMF also includes a detailed Resettlement Policy Framework and an Indigenous People's Development Framework which will be used to guide the development of specific mitigation plans if and as ESS5 and ESS7 become relevant for specific sub-projects. The project has also developed a Labor Management Procedure (LMP). The ESMF and the LMP will be finalized and disclosed within 90 days of project effectiveness. The assessment of the Environment and Social Management Systems (ESMS) of the Financial Intermediary will be carried out prior to contracting the FIs. The World Bank Group's Environment, Health, and Safety Guidelines have been used to inform the development of the ESMF and other E&S instruments.

69. **Gender:** India's farmers are predominantly women. As per Periodic Labour Force Survey 2022-23, 78 percent working aged women in UP are employed in agriculture, yet their participation in high-value agriculture remains low. While there is no state specific data, national data shows that 66 percent of women are farm helpers, therefore unlike men who, in addition to production are present in high value agriculture including as aggregators, agri-processors, exporters, and retailers, women remain concentrated at lower levels in the value chain. Key challenges women farmers face in moving into high value agriculture include (i) lack of access to formal finance, currently only 14 percent women's enterprises avail formal loans⁸ in India and this number is likely to be much lower in UP; (ii) low access to technical know-how on high-value agriculture practices/technology; (iii) lack of access to productive assets; (iv) lack of gender-sensitive extension services; and (v) lack of access and exposure to markets. The project will improve women's participation in agriculture value chains and their profitability by enhancing women's access to capital and technical know-how to enable them to participate in high-value agricultural enterprises. The project will support women enterprises by (i) incentivizing and financing women's agri-enterprises; (ii) incentivizing and providing handholding support for women to apply for the AIF; (iii) providing women farmers with agricultural assets; and (iv) building the competitiveness of women entrepreneurs through skills training, technical support, and enterprise development services. The project will also be establishing exclusive women's FPGs to close gender gaps in agricultural decision making and support women farmers to gain access to finance and technical support. The actions will be measured by (i) women-owned MSMEs accessing credit from formal financial institutions (percent); and (ii) exclusively women FPGs formed and strengthened under the project (number).

70. **Citizen's Engagement:** Robust citizen's engagement is at the core of the project. All four components of the project have farmers and agriculture entrepreneurs as targeted beneficiaries and seek to improve their capacities, skills, productivity and ultimately, their incomes through targeted interventions including strategic partnerships and knowledge sharing with technical, scientific and management institutions, organizations, and individuals. Benefits derived by beneficiaries through project interventions will be monitored through a systematic Project MIS outlined in the M&E framework. In addition, under Component 4, the project will measure, on a sample basis, beneficiaries' satisfaction with project interventions using established Participatory Rapid Appraisal (PRA) methodologies and techniques. The feedback received from such surveys will be used to inform, and if required, refine, project design and / or interventions in the coming year(s). All of these are supported by a Stakeholder Engagement Plan that has been developed by the project.

71. **Climate Co-Benefits:** The PAD highlights the high vulnerability of Uttar Pradesh to the increasing frequency and intensity of climatic disasters leading to poorer yields and reduced income for farmers. As per UP State Action Plan for Climate Change 2021-2030, while the agriculture sector and the farmers are most impacted by climate change, the sector also contributes to greenhouse gas emissions, accounting for 14 percent of the nation's overall emissions. Subsequently, the project components have been designed to address climate vulnerabilities in the state by focusing on strengthening

⁸ Annual Report 2021-22, Department of Micro, Small and Medium Enterprises, GoI



agricultural productivity against high level of climate risks and variability in productivity across the project areas. Through component 1, there is a strong focus on promoting improved access to inputs, enhanced efficiency in the use of natural resources and low-carbon agricultural practices, including direct seeding in rice wheat systems, minimal tillage, soil management, water conservation and increased water use efficiency. Under Component 2, the project will support integration of smallholder farmers into value chains for select high value commodities thereby increasing yield, value addition, and farmers' incomes, enhance fish productivity in farm ponds and reservoirs of the state and to also improve access to market. The Integrated Agriculture Export Hub under the component will help address challenges faced by agriculture exporters and to scale up agri-exports. Thus, promoting the adaptive capacity and climate resilience of the farming community to address localized risks through adoption of climate-resilient technologies and delivering last-mile climate resilient agriculture practices. Component 3 focuses on improving per capita agri-credit from formal financial institutions to reduce farmers' exposure to climate-related risks and improve productive investments and competitiveness in the agri-allied areas by providing services like weather forecasts, crop advisories, precision agriculture guidance, and creating a state-wide digital agriculture ecosystem. It is important to note that agriculture is currently excluded from India's international climate commitments although the project will reduce emissions from agriculture as important co-benefits. There is considerable potential to reduce emissions by scaling up climate resilient practices across commodity value chains.

V. GRIEVANCE REDRESS SERVICES

72. The project has developed a Stakeholder Engagement Plan that outlines a comprehensive multi-tiered Grievance Redressal Mechanism (GRM) with protocols for receipt, acknowledgement, redressal, and post redressal feedback from complainants. The project GRM meets the requirements of ESS10. There is a separate GRM for labor which is being developed under the LMP and is aligned to the requirements of ESS2. Both GRMs are responsive to sexual exploitation and abuse/ sexual harassment related complaints.

73. Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related 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 to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, visit <https://accountability.worldbank.org>.

VI. KEY RISKS

74. **The overall project risk rating is classified as Moderate**, with substantial risks in technical design, institutional capacity, and fiduciary management. The Institutional Capacity risk is considered Substantial due to the challenges associated with implementing activities across multiple agencies and in districts with limited capacity. To address this, a



technical support unit will be established with support from the Gates Foundation to enhance the capacity of project implementation agencies. The Technical Design risk is rated Substantial, as the project includes innovative activities and new farming practices that have not been previously implemented in UP. To mitigate this, the project will collaborate with renowned organizations, including IRRI, ICAR, IITs, and IIMs, to provide the necessary technical expertise. Fiduciary risks are also rated Substantial due to the dispersed nature of financial management functions across various offices. To mitigate these risks, the project will recruit experienced professionals at appropriate levels and ensure they receive sufficient training to effectively manage fiduciary responsibilities.



VII. RESULTS FRAMEWORK

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Improved climate resilience	
Increase in average annual yield of select crops (Metric ton)	
Aug/2024	Aug/2030
0	0
➤Rice (Metric ton)	
Aug/2024	Aug/2030
2.59	3.47
➤Wheat (Metric ton)	
Aug/2024	Aug/2030
3.50	4.56
➤Maize (Metric ton)	
Aug/2024	Aug/2030
1.30	3.60
➤Gram (Metric ton)	
Aug/2024	Aug/2030
1.38	1.85
➤Mustard (Metric ton)	
Aug/2024	Aug/2030
1.17	2.02
People benefiting from increased resilience of livelihoods, jobs or firms (Number of people) ^{CR1}	
Aug/2024	Aug/2030
0	600,000
➤People benefiting from increased resilience of livelihoods, jobs or firms - Female (Number of people) ^{CR1}	
Aug/2024	Aug/2030
0	200,000



➤ People benefiting from increased resilience of livelihoods, jobs or firms - Youth (Number of people) ^{CRI}	
	Aug/2030
	0
Improve commercialization of agrifood systems	
Private Capital Enabled (Amount(USD))	
Aug/2024	Aug/2030
0	15,000,000
Increase in profitability at the producer level (Percentage)	
Aug/2024	Aug/2030
0	25
➤ Increase in profitability at the producer level (female) (Percentage)	
0	25
Increase in farmers' income	
Increase in farmers' income (Percentage)	
Aug/2024	Aug/2030
0	25

Intermediate Indicators by Components

Baseline	Period 1	Period 2	Closing Period
Productivity Enhancement			
Farmers reached with agricultural assets or services (Number)			
Aug/2024			Aug/2030
0			900,000
➤ Farmers reached with agricultural assets or services - Female (Number)			
0			300,000
Farmer Producer Groups (FPGs) supported (Number)			
Aug/2024			Aug/2030
0			30,000
➤ Exclusive women-FPGs supported (Number)			
Aug/2024			Aug/2030
0			10,000
Net GHG emissions per year (tCO₂eq/year)			



Aug/2024	Aug/2025	Aug/2027	Aug/2030
0	-50,000	-350,000	-570,000
Commodity Clusters			
Farmers supported through agri-cluster interventions (Number)			
Aug/2024			Aug/2030
0			25,000
Beneficiaries supported through fisheries interventions (Number)			
Aug/2024			Aug/2030
0			100,000
Digital and Financial Ecosystems			
People and businesses using financial services (Number of people)			
Aug/2024			Aug/2030
0			2,000,000
➤ People and businesses using financial services – Youth (Number of people)			
Aug/2024			Aug/2030
0			200,000
➤ People and businesses using financial services – Female (Number of people)			
Aug/2024			Aug/2030
0			100,000
People using digitally enabled services (enhanced services) (Number of people) ^{CRI}			
Aug/2024			Aug/2030
0			600,000
➤ People using digitally enabled services (enhanced services) - Female (Number of people) ^{CRI}			
Aug/2024			Aug/2030
0			200,000
➤ People using digitally enabled services (enhanced services) - Youth (Number of people) ^{CRI}			
			Aug/2030
			0
Adoption rate of digital marketplaces (Percentage)			
Aug/2024			Aug/2030
0			30
Farmers onboarded on the digital registry (Number)			
			Aug/2030
			1,000,000



MSMEs provided financial support through AIF intervention (Number)			
Aug/2024			Aug/2030
0			80
Women-led MSMEs access credit from formal financial institutions (Percentage)			
Aug/2024			Aug/2030
0			25
Challenge fund proposals sanctioned (Number)			
Aug/2024			Aug/2030
0			20
Project Management, Learning, and Partnerships			
Beneficiaries satisfied with project interventions (Percentage)			
Aug/2024			Aug/2030
0			80
Registered grievances addressed (Percentage)			
Aug/2024			Aug/2030
0			80
Contingency Emergency Response Component			



Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Improved climate resilience	
Increase in average annual yield of select crops (Metric ton)	
Description	This indicator measures the average productivity gain in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	This indicator measures the average productivity gain in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Data source	Annual
Methodology for Data Collection	Sample Survey
Responsibility for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Rice (Metric ton)	
Description	This indicator measures the average productivity gain of paddy in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	Annual
Data source	Sample Survey
Methodology for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Wheat (Metric ton)	
Description	This indicator measures the average productivity gain of wheat in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	Annual
Data source	Sample Survey
Methodology for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Maize (Metric ton)	
Description	This indicator measures the average productivity gain of maize in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	Annual
Data source	Sample Survey
Methodology for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Gram (Metric ton)	
Description	This indicator measures the average productivity gain of gram in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	Annual
Data source	Sample Survey
Methodology for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Mustard (Metric ton)	



Description	This indicator measures the average productivity gain of mustard in terms of the average percent increase in yield by project direct beneficiaries. Unit (Metric Tons/ year)
Frequency	Annual
Data source	Sample Survey
Methodology for Data Collection	Annual household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
People benefiting from increased resilience of livelihoods, jobs or firms (Number of people) ^{CRI}	
Description	This indicator measures the number of farmers adopting climate-resilient practices/set of climate-resilient practices introduced by the project.
Frequency	Baseline, mid-term and final assessment
Data source	Sample Survey
Methodology for Data Collection	Household surveys at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
People benefiting from increased resilience of livelihoods, jobs or firms - Female (Number of people) ^{CRI}	
Description	This indicator measures the number of women farmers adopting climate-resilient practices/set of climate-resilient practices introduced by the project.
Frequency	Baseline, mid-term and final assessment
Data source	Sample Survey
Methodology for Data Collection	Household surveys at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Improve commercialization of agrifood systems	
Increase in profitability at the producer level (Percentage)	
Description	This indicator measures the increase in profit margins at the producer level due to increase in the value of the commodities sold by the producer and/or reduction in the cost of cultivation.
Frequency	Baseline, mid-term and final assessment
Data source	Sample Survey
Methodology for Data Collection	Household survey at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Increase in profitability at the producer level (female) (Percentage)	
Description	This indicator measures the increase in profit margins at the female producer level due to increase in the value of the commodities sold by the producer and/or reduction in the cost of cultivation.
Frequency	Baseline, mid-term and final assessment
Data source	Sample Survey
Methodology for Data Collection	Household survey at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency
Private capital enabled (Amount(USD))	
Description	This indicator tracks all private investments made as a result of project interventions.
Frequency	Quarterly
Data source	Project MIS and reports shared by AIF fund manager and DPIUs
Methodology for Data	Project MIS and Reports



Collection	
Responsibility for Data Collection	PMU
Increase in farmers' income	
Increase in farmers' income (Percentage)	
Description	This indicator measures the increase in farmer households' income in project areas compared to those in control areas.
Frequency	Baseline, mid-term and final assessment
Data source	Sample Survey
Methodology for Data Collection	Household surveys including at the baseline, mid-term and end-term survey.
Responsibility for Data Collection	Survey Agency

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Productivity Enhancement	
Farmers reached with agricultural assets or services (Number)	
Description	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Farmers reached with agricultural assets or services - Female (Number)	
Description	This indicator measures the number of female farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Farmer Producer Groups (FPGs) supported (Number)	
Description	This indicator measures the number of farmer collectives established and supported through the project. Farmer



	collectives include Farmer Producer Groups (FPGs) and Farmer Producer Organizations (FPOs).
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Exclusive women-FPGs supported (Number)	
Description	This indicator measures the number of exclusive women-farmer collectives established and supported through the project. Farmer collectives include Farmer Producer Groups (FPGs) and Farmer Producer Organizations (FPOs).
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Net GHG emissions per year (tCO₂eq/year)	
Description	This indicator measures the reduced GHG emissions due to implementing Direct Seeded Rice (DSR) and Zero Tillage Wheat (ZTW) projects in select areas. The unit of analysis is tCO ₂ eq/year.
Frequency	Annual
Data source	Satellite Data, Crop Model outputs
Methodology for Data Collection	Using IPCC validated methodologies
Responsibility for Data Collection	PMU with the support of IRRI
Commodity Clusters	
Farmers supported through agri-cluster interventions (Number)	
Description	This indicator measures the number of farmers supported through the agri-cluster intervention
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Beneficiaries supported through fisheries interventions (Number)	
Description	This indicator measures the number of beneficiaries supported through the structured fishery intervention.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Digital and Financial Ecosystems	
People and businesses using financial services (Number of people)	
Description	This indicator measures the number of beneficiaries reached with financial services
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU



Collection	
People and businesses using financial services – Youth (Number of people)	
Description	This indicator measures the number of youth beneficiaries (15-29 years old) reached with financial services
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
People and businesses using financial services – Female (Number of people)	
Description	This indicator measures the number of female beneficiaries (15-29 years old) reached with financial services
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
People using digitally enabled services (enhanced services) (Number of people) ^{CRI}	
Description	This indicator measures the total count of farmers actively using digital tools and services provided by the digital platform ecosystem for agriculture-related information, advisory services, and Agriculture/Horticulture/Fishery related benefits provided by the state and central governments.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
People using digitally enabled services (enhanced services) - Female (Number of people) ^{CRI}	
Description	This indicator measures the total count of women farmers actively using digital tools and services provided by the digital platform ecosystem for agriculture-related information, advisory services, and Agriculture/Horticulture/Fishery related benefits provided by the state and central governments.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
People using digitally enabled services (enhanced services) - Youth (Number of people) ^{CRI}	
Description	This indicator measures the total count of female farmers actively using digital tools and services provided by the digital platform ecosystem for agriculture-related information, advisory services, and Agriculture/Horticulture/Fishery related benefits provided by the state and central governments.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Adoption rate of digital marketplaces (Percentage)	
Description	This indicator measures the proportion of farmers utilizing digital platforms for buying inputs and selling produce out of the total targeted farmer population.



Frequency	Annual
Data source	Sample Surveys
Methodology for Data Collection	Annual surveys including baseline, midline and end-term surveys
Responsibility for Data Collection	PMU
Farmers onboarded on the digital registry (Number)	
Description	The indicator tracks the number of farmers added to the data registry of AgriStack (comprising farmer ID, GIS-based farm details, bank account details, and crop sown)
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
MSMEs provided financial support through AIF intervention (Number)	
Description	This indicator measures the number of MSMEs provided financial support through AIF intervention
Frequency	Quarterly
Data source	Project MIS, Reports from AIF Fund Manager
Methodology for Data Collection	Project MIS, Report
Responsibility for Data Collection	Fund Manager, PMU
Women-led MSMEs access credit from formal financial institutions (Percentage)	
Description	This indicator measures the percentage of women-led MSMEs access credit from formal financial institutions
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Challenge fund proposals sanctioned (Number)	
Description	This indicator measures the number of challenge fund proposals sanctioned
Frequency	Annual
Data source	Annual Reports
Methodology for Data Collection	Annual Reports
Responsibility for Data Collection	PMU
Project Management, Learning, and Partnerships	
Beneficiaries satisfied with project interventions (Percentage)	
Description	This indicator measures the proportion of beneficiaries who express satisfaction with the services provided in the project areas based on formal surveys.
Frequency	Quarterly
Data source	Project MIS
Methodology for Data Collection	Project MIS
Responsibility for Data Collection	PMU
Registered grievances addressed (Percentage)	



Description	The indicator measures the percentage of registered grievances addressed.
Frequency	Annual
Data source	Sample Surveys
Methodology for Data Collection	Annual surveys including baseline, midline and end-term surveys
Responsibility for Data Collection	Survey Agency
Contingency Emergency Response Component	



ANNEX 1: IMPLEMENTATION ARRANGEMENTS AND SUPPORT PLAN

COUNTRY: India

Uttar Pradesh Agriculture Growth and Rural Enterprise Ecosystem Strengthening Project

Implementation Arrangement

1. The project will be implemented by the Uttar Pradesh Diversified Agricultural Support Project Society, a semi-autonomous GoUP agency with flexibility in administrative and financial procedures, with the following implementation structure:

State Level:

2. **Project Steering Committee:** A high-level body chaired by the Chief Secretary of UP and composed of Additional Chief Secretaries, Principal Secretaries, and Secretaries from key departments including Agriculture, Horticulture, Fisheries, Planning, Finance, MSME, among others. This diverse group of top officials will ensure a broad spectrum of policy decisions, expertise, and insights, vital for the strategic oversight of the project. The Steering Committee will review the project activities on bi-annual basis and provide necessary guidance.

3. **Project Executive Committee:** This committee will be chaired by the Agriculture Production Commissioner. The Secretaries of the participating line departments will be the members. The committee will approve annual work plans, and address implementation issues including resolution of inter-departmental concerns.

4. **Project Management Unit (PMU):** The PMU, established under the project, will be headed by the 'Project Director', a senior level officer from All India Administrative Service or an expert from the private sector with significant experience, as set forth in the PIP. The overall direction and guidance to the project will be provided by the Project Director.

District and Block Levels:

5. **District Project Implementation Unit (DPIU):** The DPIU will be managed by the District Project Manager. A District Coordination Committee, headed by the District Magistrate, will be set up to monitor the project activities at the district level and to facilitate linkages and convergence with other government schemes. A Support Agency will be hired to assist with implementation at the block level. Both, PMU and the DPIU will be aided by a team of young professionals and research fellows from national and international universities.

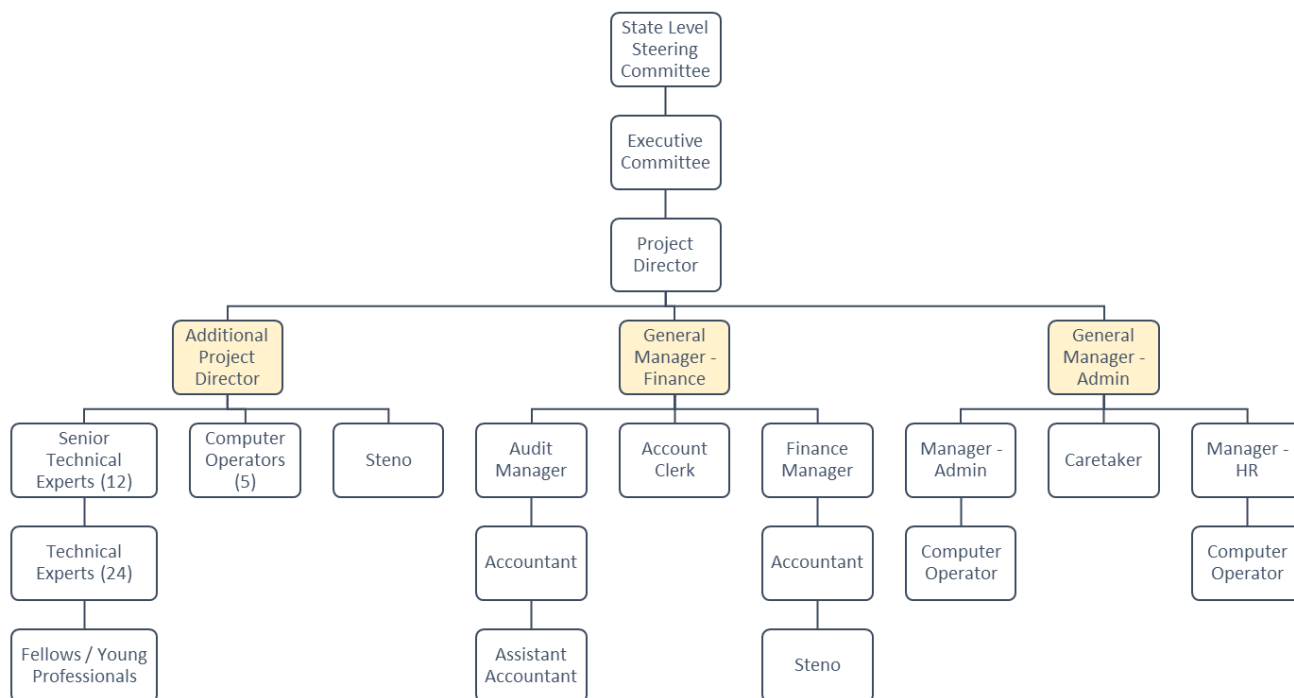
Cluster Level:

6. **Cluster Planning and Implementation Team (CPIT):** At each cluster identified in component 2, a separate commodity specific Cluster Planning and Implementation Team (CPIT) will be deployed that will provide end to end support for the entire value chain development. CPIT will report to the PMU and will keep the concerned DPIUs apprised of the cluster activities.

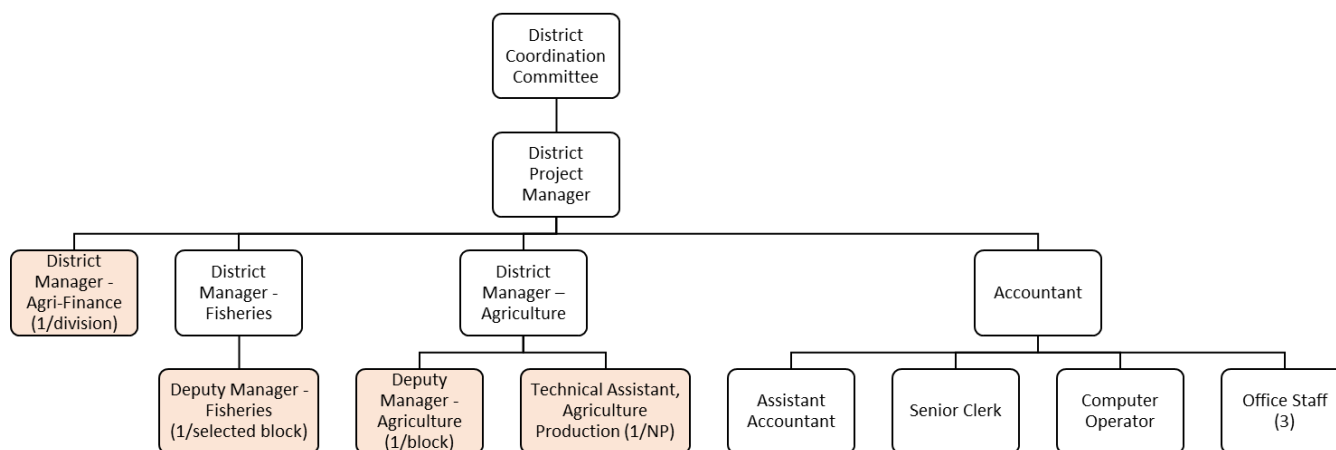
The organogram of the institution structure is appended below:



State Project Management Unit



District Project Implementation Units





Implementation Support Plan

7. The World Bank's implementation support plan primarily involves (i) bi-annual Implementation Support Missions (ISMs), (ii) short thematic technical reviews as needed, (iii) desk reviews, (iv) a Midterm Review, and, if necessary, (v) short missions for fiduciary and safeguard aspects. ISM activities encompass (i) field visits to priority sites, (ii) meetings with various stakeholders, and (iii) comprehensive review and feedback on project progress and monitoring and evaluation reports. The World Bank's technical support team will comprise a diverse mix of skills and expertise drawn from various World Bank Global Practices and IFC as needed to meet the project's requirements.

8. **Fiduciary support** includes regular interactions, ISMs, and thematic reviews, if necessary. ISMs will assess the project's financial management systems, internal controls, and actions taken to address any issues. Additionally, the World Bank's Environment and Social Safeguard team will monitor compliance with the Bank's operational policies and procedures applicable to the project. Safeguard support will be delivered through regular interactions, ISMs, and thematic reviews as needed.

Resources required for various implementation support activities

Time	Focus	Skills needed	No. of staff weeks	No. of trips
First 12 months	- Supporting the completion of procurement for key contracts, including review of TOR and designs, and initiating selected procurements and studies. - Undertaking the baseline survey. - Rolling out activities in selected locations. - Mobilizing project beneficiaries and building their capacity.	- Project management - Procurement - Financial management - Environmental specialist - Social development and Gender - Monitoring and evaluation, management information systems - Technical expertise	15–20 team lead weeks per year 3–4 staff weeks per year	3–4 trips
12–60 months	Offering operational assistance, gathering lessons, and supporting project expansion (scale-up) in later stages.	In addition to the above, technical expertise will be needed from in the second year.	15–20 team lead week/year 3–4 staff weeks/year	2 trips annually