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Report No: PAD1898

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$200 MILLION

TO THE

REPUBLIC OF INDIA

FOR A

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT

August 8, 2017

Agriculture Global Practice  
South Asia Region

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CURRENCY EQUIVALENTS  
(Exchange Rate Effective June 30, 2017)

Currency Unit = INR  
INR 64.62 = US\$1

FISCAL YEAR  
April 1 – March 31

ABBREVIATIONS AND ACRONYMS

AACP	Assam Agricultural Competitiveness Project
AAU	Assam Agricultural University
ABIP	Assam Bureau of Investment Promotion
AHVD	Animal Husbandry and Veterinary Department
AIDP	Agro Industrial Development Plans
APART	Assam Agribusiness And Rural Transformation Project
APMC	Agriculture Produce Market Committees
ARIASS	Assam Rural Infrastructure and Agriculture Services Society
ASAMB	Assam State Agriculture Marketing Board
ASWC	Assam State Warehousing Corporation
ATMA	Agricultural Technology Management Agency
CFT	Cluster Facilitation Team
CGIAR	Consultative Group on International Agricultural Research
CMSGUY	Chief Minister's Samagra Gramya Unnayan Yojana (Rural Investment Program)
DLCC	District Level Coordination Committee
EA	Environmental Assessment
EDPF	Enterprise Development and Promotion Facility
EIRR	Economical Internal Rate of Return
EMF	Environment Management Framework
ENPV	Economic Net Present Value
EODB	Ease of Doing Business
ESMF	Environmental and Social Management Framework
FIRR	Financial Internal Rate of Return
FPIC	Free Prior and Informed Consultation
FPO	Farmer Producer Organizations
GoA	Government of Assam
GoI	Government of India
GRS	Grievance Redress Service
GSDP	Gross State Domestic Product
I&E	Department of Industries and Commerce
IA	Industry Association

ILRI	International Livestock Research Institute
IPF	Indigenous People Development Framework
IRR	Internal Rate of Return
IRRI	International Rice Research Institute
KVK	Krishi Vigyan Kendra (Farm Advisory Centres)
MSME	Micro, Small and Medium Enterprises
NDDB	National Dairy Development Board
NWR	Negotiable Warehouse Receipt
P&RD	Panchayat and Rural Development
PCU	Project Coordination Unit
PDO	Project Development Objective
PGC	Project Guidance Council
PIP	Project Implementation Plan
PIU	Project Implementation Unit
PPSD	Project Procurement Strategy for Development
PWRD	Public Works Roads Department
SA	Social Assessment
SMF	Social Management Framework
SORT	Systematic Operations Risk-rating Tool
SP	Service Provider
SPV	Special Purpose Vehicle
STEP	Systematic Tracking of Exchanges in Procurement
VCDP	Value Chain Development Plan
WAMUL	West Assam Milk Union Limited
WDRA	Warehousing Development and Regulatory Authority
WFC	World Fish Center
WVC	World Vegetable Center

Regional Vice President:	Annette Dixon
Country Director:	Junaid Kamal Ahmad
Senior Global Practice Director:	Juergen Voegelé

Practice Manager:	Martien Van Nieuwkoop
Task Team Leader:	Manivannan Pathy, Ajai Nair, Soujanya Krishna Chodavarapu

## PAD DATA SHEET

*India*

*Assam Agribusiness and Rural Transformation Project (P155617)*

### PROJECT APPRAISAL DOCUMENT

*SOUTH ASIA*

*0000009246*

Report No.: PAD1898

Basic Information			
Project ID P155617	EA Category B - Partial Assessment	Team Leader(s) Manivannan Pathy, Ajai Nair, Soujanya Krishna Chodavarapu	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ]		
	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 01-Oct-2017	Project Implementation End Date 30-Sep-2024		
Expected Effectiveness Date 01-Nov-2017	Expected Closing Date 30-Sep-2024		
Joint IFC Yes	Joint Level Joint Project - involving co financing with IFC (loan, equity, budget, other) or staffing		
Practice Manager/Manager Martien Van Nieuwkoop	Senior Global Practice Director Juergen Voegelé	Country Director Junaid Kamal Ahmad	Regional Vice President Annette Dixon
Borrower: The Republic of India			
Responsible Agency: Assam Rural Infrastructure and Agricultural Services (ARIAS) Society.			
Contact: Telephone No.: 91-361-2332125	Siddharth Singh	Title: Email:	State Project Director spd@arias.in
Project Financing Data (in USD Million)			
[X] Loan	[ ] IDA Grant	[ ] Guarantee	

[ ] Credit		[ ] Grant		[ ] Other						
Total Project Cost:		262.40			Total Bank Financing:		200.00			
Financing Gap:		0.00								
Financing Source					Amount					
Borrower					50.80					
International Bank for Reconstruction and Development					200.00					
Local Beneficiaries					11.60					
Total					262.40					
Expected Disbursements (in USD Million)										
Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025		
Annual	2.00	10.00	25.00	25.00	40.00	40.00	40.00	18.00		
Cumulative	2.00	12.00	37.00	62.00	102.00	142.00	182.00	200.0		
Institutional Data										
Practice Area (Lead)										
Agriculture										
Contributing Practice Areas										
Finance & Markets, Trade & Competitiveness, Transport & ICT										
Proposed Development Objective(s)										
The Project Development Objective (PDO) is to “add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in targeted districts of Assam”.										
Components										
Component Name								Cost (USD Millions)		
Component A: Enabling Agri Enterprise Development								36.80		
Component B: Facilitating Agro Cluster Development								74.60		
Component C: Fostering Market-led Production and Resilience Enhancement								132.80		
Component D: Project Management, Monitoring and Learning								17.70		
Systematic Operations Risk- Rating Tool (SORT)										
Risk Category								Rating		
1. Political and Governance								Low		
2. Macroeconomic								Low		
3. Sector Strategies and Policies								Moderate		
4. Technical Design of Project or Program								Substantial		

5. Institutional Capacity for Implementation and Sustainability	Substantial		
6. Fiduciary	Moderate		
7. Environment and Social	Moderate		
8. Stakeholders	Low		
9. Other	Low		
<b>OVERALL</b>	Substantial		
<b>Compliance</b>			
<b>Policy</b>			
Does the project depart from the CAS in content or in other significant respects?	Yes [ ] No [X]		
Does the project require any waivers of Bank policies?	Yes [ ] No [X]		
Have these been approved by Bank management?	Yes [ ] No [X]		
Is approval for any policy waiver sought from the Board?	Yes [ ] No [X]		
Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]		
<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>	
Environmental Assessment OP/BP 4.01	X		
Natural Habitats OP/BP 4.04	X		
Forests OP/BP 4.36		X	
Pest Management OP 4.09	X		
Physical Cultural Resources OP/BP 4.11		X	
Indigenous Peoples OP/BP 4.10	X		
Involuntary Resettlement OP/BP 4.12	X		
Safety of Dams OP/BP 4.37		X	
Projects on International Waterways OP/BP 7.50		X	
Projects in Disputed Areas OP/BP 7.60		X	
<b>Legal Covenants</b>			
<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Project Implementation Arrangements	X		CONTINUOUS
<b>Description of Covenant</b>			
State of Assam to vest the overall responsibility for implementation of Project activities in ARIAS Society.			
At the State level, State of Assam to: (i) maintain, at all times during Project implementation, a Project Coordination Unit (PCU) (led by a full time State Project Director and assisted by adequate professional			

and administrative staff) within the ARIAS Society, controlled by a Project Guidance Council (PGC) chaired by the Chief Secretary, and a Governing Body (GB) chaired by the Agriculture Production Commissioner; and (ii) maintain at all times during Project implementation, Project Implementing Units (PIUs) established within each of the Participating Implementing Agencies, each headed by the senior most Secretary of the agency and vested with the responsibility of overseeing the implementation of their respective activities under the Project.

At the District level, State of Assam to: (i) maintain a District Level Coordination Committee (DLCC) headed by the Deputy Commissioner and comprising all district level implementing departments and agencies, vested with the responsibility to ensure coordination, and review of the Project progress; (ii) maintain the respective Agricultural Technology Management Agency (ATMA) vested with the responsibility of implementation of Project activities at the District level, in collaboration with participating district offices of the implementing agencies, producer communities and entrepreneurs, NGOs, and private sector entities.

State of Assam to hire qualified service providers, as needed, recruited in a competitive manner and under terms of reference satisfactory to the Bank to regularly monitor and evaluate the implementation of the activities under the Project.

State of Assam to ensure that all civil works under the Project shall be executed by the Public Works (Roads) of Assam or any other agency of the State of Assam agreed by the Bank, in accordance with the requirements of the Safeguards Documents and the PIP.

Name	Recurrent	Due Date	Frequency
Sector Stewardship Council Grants, IA Grants, CIG Grants, and FPO Grants	X		CONTINUOUS

#### Description of Covenant

The State of Assam to make grants available to Grant Beneficiaries to carry out Sub-projects under Parts A.4 (Sector Stewardship Council Grants), B.1 (IA Grants), C.1 (CIG Grants) and C.2 (FPO Grants) of the Project, in accordance with the procedures set forth in the Project Implementation Plan (PIP), and for purposes of each Sub-project and through the concerned Participating Implementing Agency, to enter into a Sub-project Agreement with the relevant Grant Beneficiary on terms and conditions acceptable to the Bank and spelled out in the PIP.

Name	Recurrent	Due Date	Frequency
Agribusiness Investment Fund (AIF) – Feasibility Studies		01-May-2018	

#### Description of Covenant

The State of Assam to: no later than six (06) months after the Effective Date, carry out feasibility studies, under terms of reference agreed with the Bank, to assess structures for the establishing of an AIF or investing in an existing one, required documentation, managerial structure, eligible investment activities, and potential pipeline; and submit to the Bank for its review and concurrence, its selected structure for AIF prior to undertaking any investment activities with respect to AIF under Part A.3 of the Project.

Name	Recurrent	Due Date	Frequency
Agribusiness Investment Fund – Prior to making/obtaining any Capital Contribution	N/A	Several deadlines as	N/A

		described below	
<b>Description of Covenant</b>			
State of Assam, prior to making or obtaining any Capital Contribution to the AIF, shall: (i) by no later than nine (09) months after the Effective Date, hire the services of local counsel specialized on investment funds to provide in the preparation/review of the AIF Operational Manual of the AIF and legal documents involving the establishment of the AIF or the contribution to an existing fund meeting all of the requirements of the AIF Operational Manual; (ii) by no later than twelve (12) months after the Effective Date, procure a AIF Fund Manager and sign a contract with said AIF Fund Manager with terms and conditions acceptable to the Bank; (iii) by no later than eighteen (18) months after the Effective Date, complete a Technical and Fiduciary Assessment of the new or existing fund; (iv) by no later than twenty-four (24) months after the Effective Date and based on the foregoing assessments/advice and with written concurrence from the Bank, establish a new AIF or establish adjustments to an existing fund as the AIF, and adopt an AIF Operational Manual; (v) by no later than twenty-eight (28) months after the Effective Date, contribute sufficient funds to AIF to provide financial support to promising agribusiness SMEs all in accordance with the Operational Manual; (vi) 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.			
<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Agribusiness Investment Fund (AIF) - Sub financing	X		CONTINUOUS
<b>Description of Covenant</b>			
The AIF and the respective AIF Beneficiary shall enter into Sub-financing agreement (the “Sub-Financing Agreement”) on terms and conditions, acceptable to the Bank.			
<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
Safeguards	X		CONTINUOUS
<b>Description of Covenant</b>			
The State of Assam to ensure, and cause ARIAS Society, the Participating Implementing Agencies, the Grant Beneficiaries, and the AIF Beneficiaries to ensure, that the Project activities are carried out in accordance with: (i) the EMF; (ii) the EMP(s); (iii) the SMF (which includes the RPF and the IPDF); (iv) the RAP(s); and/or the (v) the IPDP(s); (all collectively referred to as the “Safeguard Documents”).			
The State of Assam to ensure that ARIAS Society, the Participating Implementing Agencies maintain, throughout the period of implementation of the Project, qualified and experienced environment and social specialists under terms of reference agreed with the Bank.			
<b>Conditions</b>			
<b>Source Of Fund</b>	<b>Name</b>		<b>Type</b>
IBRD	Condition of Disbursement		Disbursement
<b>Description of Condition</b>			
No withdrawal shall be made:			
(a) for payments made prior to the date of the signature of the Loan Agreement, except that withdrawals up to an aggregate amount not to exceed \$40,000,000 (forty million Dollars) for payments			



made up to twelve months prior to the date of this Agreement for Eligible Expenditures under the Project; and

(b) for payments made under Category (2) 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 State of Assam 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; (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.

### Team Composition

#### Bank Staff

Name	Role	Title	Specialization	Unit
Manivannan Pathy	Team Leader (ADM Responsible)	Sr. Agricultural Specialist	Agribusiness	GFA12
Ajai Nair	Team Leader	Program Coordinator	Financial Inclusion	GFM2B
Soujanya Krishna Chodavarapu	Team Leader	Sr. Private Sector Specialist	Enterprise Development	GTCSA
A. K. Kalesh Kumar	Procurement Specialist (ADM Responsible)	Programs and Capacity Building Coordinator	Procurement	GGO06
Mohan Gopalakrishnan	Financial Management Specialist	Sr. Financial Management Specialist	Financial Management	GGO24
Adarsh Kumar	Team Member	Sr. Agribusiness Specialist	Agribusiness	GFA06
Ademola Braimoh	Team Member	Sr. Natural Resources Mgmt. Spec.	Climate Smart Agriculture and GHG accounting	GFA13
Animesh Shrivastava	Team Member	Program Leader	Rural-Urban Transformation	ECCU8
Anupam Joshi	Safeguards Specialist	Sr. Environmental Specialist	Safeguard and Environment	GEN06
Arvind Jhamb	Team Member	Consultant	Value chain	GFA12
Ashok Kumar	Team Member	Sr. Highway Engineer	Road & Transport	GTI06
Carolina V. Figueroa-Geron	Team Member	Lead Rural Development Specialist	Peer Reviewer	GFA02
Chakib Jenane	Team Member	Sr. Agribusiness Specialist	Peer Reviewer	GFA01

Garima Sahai	Team Member	Consultant	Economist and M&E	GFADR
Gunnar Larson	Team Member	Operations Analyst	Operations	GFA12
Hanif Anilmohamed Rahemtulla	Team Member	Sr. Operations Officer	Monitoring & Evaluation	EACPF
Jacqueline Julian	Team Member	Operations Analyst	Cost Tables	GFA06
Jeevanandhan Duraisamy	Team Member	Consultant	Climate Resilient Agriculture	GWA06
Juan Buchenau Hoth	Team Member	Sr. Financial Sector Specialist	Peer Reviewer	GFM3A
Leena Malhotra	Team Member	Program Assistant	Operations	SACIN
Loraine Ronchi	Team Member	Lead Economist	Peer Reviewer	GTCCS
Martin M. Serrano	Team Member	Sr. Counsel	Legal	LEGES
Mridula Singh	Safeguards Specialist	Sr. Social Development Specialist	Safeguard and Social Development	GSU06
Omar Lyasse	Team Member	Sr. Agriculture Economist	Cluster Development and Food Safety	GFA12
Parth Shri Tewari	Team Member	Lead Private Sector Specialist	Agro Clusters	GTCCS
Patrick Verissimo	Team Member	Lead Agriculture Economist	Agriculture Economist	GFA12
Paul Singh Sidhu	Team Member	Consultant	Agriculturist	GFA06
Priti Kumar	Team Member	Sr. Agricultural Specialist	Climate Resilient Agriculture	GFA06
Ravishankar Natarajan	Team Member	Consultant	E-Auction and Virtual Market	GFA12
Rocio Mariela Malpica Valera	Team Member	Sr. Counsel	Legal	LEGES
Shanthi Divakaran	Team Member	Sr. Financial Sector Specialist	Access to Finance	GFM3A
Sampath Varadarajan	Team Member	Consultant	Fisheries Expert	GFA12
Saumya Srivastava	Team Member	Consultant	Operations	GFADR
Shashank Ojha	Team Member	Sr. e-Government Specialist	ICT and e-Governance	GTI09
Toshiaki Ono	Team Member	Financial Sector Specialist	Access to Finance	GFM3A
Vanitha Kommu	Team Member	Consultant	Environment & Safeguards	GEN06

Venkatakrishnan Ramachandran	Team Member	Program Assistant	Operations	GFA12
Victor Manuel Ordonez Conde	Team Member	Sr. Finance Officer	Loan Operations	WFALA
Vikas Choudhary	Team Member	Sr. Economist	Agribusiness	GFAGE
Vinayak Narayan Ghatate	Team Member	Sr. Rural Development Spl	Rural Development	GFA06

#### Extended Team

Name	Title	Office Phone	Location
Anura Herath	Sr. Project Economist	91 1146532374	Ottawa
Helen Leitch	Sr. Livestock Specialist	91 9650961452	Rome
Steven Watkins	Value Chain Specialist	+39-06 5705 6851	Rome

#### Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
India	Assam	Sivasagar	X		
India	Assam	Lakhimpur	X		
India	Assam	Karbianglong	X		
India	Assam	Kamrup	X		
India	Assam	Goalpara	X		
India	Assam	Darrang	X		
India	Assam	Cachar	X		
India	Assam	Barpeta	X		
India	Assam	Dhubri	X		
India	Assam	Golaghat	X		
India	Assam	Jorhat	X		
India	Assam	Kokrajhar	X		
India	Assam	Nalbari	X		
India	Assam	Sonitpur	X		
India	Assam	Morigaon	X		
India	Assam	Nagaon	X		

#### Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required?    Consultants will be required

**INDIA**  
**Assam Agribusiness & Rural Transformation Project**

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## STRATEGIC CONTEXT

### A. Country Context

1. **Agriculture remains the largest sector of Indian economy as a source of livelihood.** Its share in GDP decreased from 19 percent in 2004-05 to 14 percent in 2013-14. However, with about 68 percent of India's rural labor force dependent on agriculture for livelihood, the sector continues to play a vital role through its multiplier impact on the economy. Growth in agricultural output is characterized by strong fluctuations. The annual average growth rate of the agriculture sector was 5 per cent between 2004-05 and 2007-08, but fell to 3 per cent between 2008-09 and 2013-14. During the same periods, the economy grew at an annual average of 9 per cent and 7 per cent, respectively.<sup>1</sup>

2. **Agriculture has resurfaced as one of the top concerns of the Government of India (GoI), as reflected in recent initiatives by the government.** These include emphasis on doubling farm incomes, maximizing efficiency in the use of water and other natural resources, a more integrated and efficient national agriculture market, and crop insurance, all indicative of the government's focus on farmer welfare. The Government recognizes that transforming Indian agriculture from a traditional food security orientation to a modern food system requires four inter-related and strategic shifts, namely: (i) a shift away from food grain production targets towards diversification into high value horticulture and livestock products; (ii) a shift away from focus on physical productivity (yields) towards resilience and stability of agriculture production to deal with the effects of climate change and short term weather anomalies; (iii) a shift from a focus on on-farm production towards value addition in the post-harvest segments of the food value chains; and (iv) a shift away from a calorie focused production structure towards nutrition sensitive agriculture. Towards this, GoI has launched a number of initiatives and programs to revitalize the agriculture sector. These include the launch of the National Mission for Sustainable Agriculture (NMSA) with the aim to put Indian agriculture on a more climate resilient footing; setting up the National Agriculture Market (NAM) through the Agri-Tech Infrastructure Fund (ATIF); promotion of agribusiness development through Venture Capital Assistance (VCA); and creation of modern infrastructure and efficient processing facilities through mega food parks and integrated cold chain facilities. These changes are expected to contribute to the development of efficient agriculture commodity value chains; help move people from farm jobs to near-farm jobs; and enable farmers to realize better returns for their produce.<sup>2</sup>

3. **Led by the changes in consumers' food baskets, India's agri-food marketing system is poised for a profound transformation, and food processing is emerging as a "sunrise sector".** The agri-food marketing system is changing from ad hoc transactions towards coordinated systems like cooperatives, producers' associations and contract farming. Public policy has been proactive in facilitating this transformation. To foster the growth of the food processing sector, the central and state governments have taken important policy initiatives, such as de-regulation of the food industry, enactment of an integrated food law, de-monopolization of agricultural markets, reduction in excise duties on manufactured food products, and priority sector

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<sup>1</sup>Raising Agricultural Productivity and Making Farming Remunerative for Farmers, NITI Aayog, and State of Indian Agriculture 2015-16, GoI.

<sup>2</sup>State of Indian Agriculture 2015-16, GoI.

lending to food industry to strengthen agriculture–industry linkages. These proactive facilitations have seen the food processing sector grow at a compound annual growth rate of 8.4 percent.

## **B. Sectoral and Institutional Context**

4. **In Assam, agriculture is the principal occupation of the vast majority of the rural population in terms of employment and livelihood.** About 90 percent of the state’s population lives in rural areas and is mostly dependent on agriculture for their livelihoods. Agriculture directly or indirectly supports more than 75 percent of the population, providing employment to about 50 percent of the workforce. While the average operational holding in India is 1.10 hectare, Assam’s farming families are predominantly small and marginal (85 percent) with an average land holding of only 0.63 hectare<sup>3</sup>.

5. **The recently concluded Assam Agricultural Competitiveness Project (AACP) was instrumental in increasing on-farm productivity and diversification of agriculture in the state.**<sup>4</sup> AACP has laid the foundation for the transformation of Assam agriculture by shifting the focus from rice production towards diversification into high value agriculture production (vegetables, spices, fish, dairy). IEG’s review of the projects’ ICR concluded the project outcome as Satisfactory and the risk to development outcomes as Negligible. The EIRR of the project was estimated at 24.7 percent, which is a significant achievement as the project was implemented when the agricultural sector in Assam passed through a stagnant phase during the first half of implementation. Supported by AACP and other initiatives by Government of Assam (GoA), high value horticulture has seen significant growth. The annual growth rate of the production of fruits, spices and vegetables was 19.2, 6.4 and 72.2 percent respectively in the last decade, with Assam contributing significantly to national production in commodities like ginger, banana, pineapple, eggplant, etc. This shift towards higher value products offers significant opportunities to increase the contribution of agriculture to Assam’s growth and job creation.

6. **Diversification to high value commodities (vegetables, spices, fish, dairy) opens up significant opportunities to the farming communities of Assam, along with associated challenges for this transformation.** There is a need to reorient policies and institutions to support a shift from production targets to income growth through diversification to high value agriculture, higher productivity of crops and livestock through technology and innovation, better post-harvest management and higher value addition. To achieve this, Assam would need to: (i) promote greater infusion of technology, good supply chain practices and market intelligence to enhance efficiency; (ii) harmonize agriculture marketing regime in the state and support development of alternative marketing options for farmers; (iii) facilitate development of organized Micro, Small and Medium Enterprises (MSMEs), both for value addition and job creation; and (iv) address the growing food safety concern that is exposing consumers and producers, to food safety and human health risks.

7. **The financial sector in Assam is less developed than other parts of India and focused efforts are needed to support development and access to financial services, for farmers and agribusiness MSMEs, particularly for medium and long-term financial capital.** Assam’s

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<sup>3</sup> Economic Survey, Assam, 2015-16, GoA.

<sup>4</sup> IEG’s review of AACP concluded the project outcome as Satisfactory and the risk to development outcomes as Negligible.

Credit-Deposit ratio in the banking sector is 50.5 percent compared to the national average of 77.9 percent. The share of agriculture sector in the total credit portfolio of the banking sector is substantial at nearly 22 percent but with a relatively high gross non-performing loan ratio of 8 percent.<sup>5</sup> Likewise, while the Indian private equity/venture capital (PE/VC) industry is large and has rapidly grown in the past decade, it is barely active in Assam; only four investments PE/VC, including two in agribusiness could be identified.<sup>6</sup>

8. **Assam's agriculture sector is highly vulnerable to climate variability and the sustainability of agriculture in the state will require improved and long term resilience against climate change risks.** Assam, given its unique physiography and climate vis-à-vis its location in the North Eastern Himalayas with *Brahmaputra* flowing through the state, experiences recurrent floods and droughts. Currently more than 50 percent of the paddy growing areas are prone to various abiotic stresses, including flooding, submergence and drought. Exacerbation of climate change induced hazards is likely to increase uncertainty of agriculture production system in the state, and needs to be addressed within the developmental plans of the state.<sup>7</sup>

9. **Food safety remains a critical issue with potential impact on public health, food security, and trade competitiveness.** Food safety risks impact the whole food supply chain starting from input supply to the farm to the consumer. The present underdeveloped value chains, in Assam are not only long and inefficient, but also expose consumers and producers, to food safety and human health risks. A survey of milk in Guwahati revealed that 88.6 percent of samples contained antibiotic residues. Addressing food safety concerns will require: (i) strengthening the capacity of relevant agencies to enforce food safety rules and standards; (ii) promoting adoption of good agricultural, manufacturing and hygiene practices (from production to distribution); (iii) greater collective actions; and (iv) targeted investments in consumer awareness, laboratories etc.

10. **Assam has a strong tradition of women's involvement in agriculture, especially their participation in the prioritized value chains of the project.** While their participation is high in the on-farm sectors (i.e. production), their participation in post-harvest, and value addition activities is lower. Women's access to opportunities in post-harvest segments of the value chain would help mainstream gender across the value chain, promote women friendly technologies, evolve appropriate new or modify existing technologies for farm women, and through women focused technology dissemination.

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<sup>5</sup> State Level Bankers Committee. September 2016.

<sup>6</sup> The existing PE/VC funds include four funds focusing on agribusiness, five on MSMEs, and three region/state-focused funds (two of which have the State of Maharashtra and the State of West Bengal as lead investors). The agribusiness investments identified are by Omnivore and ICCO Invest in Arohan, a pork integrator and processor. In a recent initiative, the North Eastern Development Finance Corporation (NEDFi), in collaboration with the Ministry of Development of North Eastern Region (MDONER), has announced plans to set up a sector neutral fund focusing on the North Eastern states.

<sup>7</sup> The draft Assam State Action Plan on Climate Change (2015-2020), September 2015, indicate that: (i) there is likely to be an increase in extreme rainfall events by 5 percent to 38 percent over baseline; (ii) floods are projected to increase by more than 25 percent in the southern parts of Assam; (iii) drought weeks are expected to rise, with southern districts showing marginal reduction in drought weeks but other districts showing an increase by more than 75 percent over baseline; and (iv) temperatures will continue to rise and may increase by 1.7°C -2.0°C with respect to the base line.

11. **Assam is pursuing a multiple-pronged strategy of promoting policy reforms, institutional changes, and investment programs, to address these challenges.** The GoA recognizes that creating conditions for agriculture based rural transformation in the long term would require: (i) a shift away from a focus on on-farm production towards value addition in the post-harvest segments of agriculture value-chains; (ii) a focus on productivity towards resilience of agriculture production systems in order to deal with the effects of climate change; and (iii) creating the necessary conditions for the emergence of a dynamic, gender sensitive agri-business and enterprise sector in Assam.

12. **To encourage the growth of the agriculture sector, Assam recently launched a transformative agricultural development strategy, namely the Chief Minister's *Samagra Gramya Unnayan Yojana* (CMMSGUY).** The CMMSGUY aims to double farm incomes in the state, thus transforming the sector into a stable source of growth and broad-based economic development. The CMMSGUY primarily focuses on specific agriculture and allied sectors including high value agriculture, livestock, fish, silk, food processing, and logistics; thus making this project the nucleus of a much larger government agribusiness and rural transformation program.

13. **Assam has made significant policy and regulatory changes.** These include, enacting the Assam Ease of Doing Business Act, 2016 for simplifying regulatory processes for business which makes it easy and cheaper for firms to comply with procedures; delisting of fruits and vegetables from the Assam State Agriculture Produce Marketing (APM) Act, thus paving way for the development of alternative marketing arrangements in the state. The state is in the process of further amending the APM Act to enhance and expand available marketing channels and outlets to farmers. Furthermore, GoA is working to strengthen the existing legal framework in the fisheries sector to provide an enabling environment for the fishing communities to gain long-term leased access to their local water bodies and amending the Fish Seed Act and its rules in line with the guidelines issued by the Ministry of Agriculture, GoI, for fish seed certification and hatchery accreditation. Also, the National Dairy Development Board (NDDB), at the request of GoA, has completed the management takeover of two defunct milk unions in the state for its rehabilitation and revival.

14. **Three World Bank Global Practices – Agriculture, Trade and Competitiveness, and Finance and Market – are collaborating on the Agribusiness and Rural Transformation Project to ensure that the GoA's initiatives benefit from global innovations and knowledge.** During implementation, this collaboration would be further strengthened to support GoA's initiatives on creating an enabling investment climate for agribusinesses and other enterprises; and using IFC's "Business Edge" tool kits for agribusiness MSMEs. Furthermore, the project is collaborating with the Consultative Group on International Agricultural Research (CGIAR) centers, namely *International Rice Research Institute (IRRI)*, *WorldFish (WFC)*, *International Livestock Research Institute (ILRI)*, and *World Vegetable Center (AVRDC/WVC)*, as well as *Wageningen University and Research Center* (as part of the MoU signed between the Government of the Netherlands and the World Bank).

### **C. Higher Level Objectives to which the Project Contributes**

15. **The project is fully aligned with the World Bank Group's goal of reducing poverty and promoting shared prosperity, and with India's Country Partnership Strategy (CPS)**



**2013-2017 (Report No. 76176-IN) priority of supporting low-income states and its three themes: integration, transformation, and inclusion.** The project is aligned with at least two of these three pillars – transformation, and integration. *Under transformation*, the project will directly help achieve one of the intended outcomes of the CPS, which is increase investor confidence and inward financial flows into the agriculture sector (CPS para 43). The broader objective would be to instill a collective entrepreneurial spirit where producers shift from being “price takers” of primary produce, with no or very little influence over the market to being more business and value focused. A key project thrust will be on enhancing agglomeration of producers to improve economies of scale in producing, processing and marketing. In parallel with this, the project will support agriculture and livestock productivity (including value and incomes) through essential technology transfer in production and improved post-harvest and market operations, and support financing modalities to support entrepreneurship and agri-business (CPS outcome 2.4 para 86 and 89). Overall, the project support to the development of higher value commodities and more efficient supply chains will underpin ongoing structural transformation of the economy (CPS para 34). *Under integration*, the project offers the opportunity to increase gross state domestic product (GSDP) growth by stimulating private sector investment and agri-enterprise development in Assam, a special category state. (CPS, Outcome 1.4). The project will also leverage the pent-up demand and natural resource advantages of the state as well as improve the investment climate (CPS para 72). In particular, the focus will be on processed food, agribusiness, logistics and infrastructure, and MSME finance. The project will establish a new standard of excellence for entrepreneurship and business skills training by improving skills and knowledge transfer from trainers to MSMEs (CPS, Outcome 1.3). Also, the project is aligned with the Agriculture Global Practice key priority areas of value chains, jobs, linkages with the private sector and resilience.

**16. Furthermore, the project will also support GoA<sup>8</sup> in achieving four out of 17 United Nations’ Sustainable Development Goals, namely:**

- (a) Goal 2 – End hunger, achieve food security and improved nutrition and promote sustainable agriculture, by enhancing income, food security, and nutrition of large number of rural population, where the majority of Assam’s poor people reside.
- (b) Goal 8 – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all by promoting a broad-based agriculture growth and employment in rural areas, where more than two-third of state’s population is employed.
- (c) Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation by rehabilitating and modernizing rural roads, common service centers, agro-processing units and farm structures with enhanced resilience features of flood protection.
- (d) Goal 13 – Take urgent action to combat climate change and its impacts and reduce greenhouse gas (GHG) effects of agriculture production by promoting a wide range of water saving technologies and agricultural practices expanding areas for high value crops with less water, improved livestock and fish rearing practices, and by enhancing awareness, and human and institutional capacity on climate change mitigation, adaptation, and impact reduction.

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<sup>8</sup> The GoA gives high priority on Sustainable Development Goals (SDGs) and has launched an initiative “Assam 2030 in light of SDG” to implement SDGs as Single Holistic Synergized Initiative (SHSI).

## **II PROJECT DEVELOPMENT OBJECTIVES**

### **A. PDO**

17. The Project Development Objective (PDO) is to “add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in targeted districts of Assam”.

18. The project would achieve the PDO by: (i) enabling investments in agri-enterprises, improving the investment environment and investment promotion, and facilitating access to finance for agribusiness enterprise; (ii) facilitating the growth of agri-enterprise clusters to increase competitiveness, revenue and employment growth, and supporting development of a modern supply chain; and (iii) fostering the development of climate resilient production clusters, and improving producer access to knowledge, technologies, markets, and infrastructure so that they are able to respond to market opportunities and climate variability.

### **B. Project Beneficiaries**

19. Project beneficiaries will include farmers, farmer producer organizations, and entrepreneurs, especially in the MSME segment in the targeted districts. Smallholder farmers account for over 70 percent of the rural population and make up for the vast majority of state’s poor. It is estimated that about 500,000 farming household will directly benefit from project activities. Indirect beneficiaries will include those who benefit from technologies demonstrated by the project, farmers whose produce goes through rehabilitated markets, and farmers accessing negotiable warehouse receipt financing, etc.

20. The project will promote gender mainstreaming and women’s empowerment to ensure that a significant proportion of project beneficiaries includes women. Building on the Bank funded AACP, at least 30 percent women participation in project activities is expected. Special emphasis will be given to women participation in farmer producer organization, value chain development, and cluster development. The project would: promote entrepreneurial development through training, skill development and market linkages with specific focus on women led enterprises and support participation of women in the decision making structure of farmer producer organizations. Staff of the participating line departments and autonomous institutions will be among the indirect beneficiaries of technical and institutional capacity building interventions.

21. The project will be implemented over seven years in the targeted districts of Assam <sup>9</sup>, namely Nagaon, Sonitpur, Barpeta, Karbi Anglong, Kamrup, Dhubri, Golaghat, Kokrajhar, Lakhimpur, Darrang, Cachar, Sivasagar, Jorhat, Goalpara, Morigaon and Nalbari.

### **C. PDO Level Results Indicators**

22. The Key Project Indicators (KPIs) will be:

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<sup>9</sup> Undivided districts as on April 1, 2016.

- (a) Farmers reached with agricultural assets or services (number), of which female (number). (*Corporate Results Indicators*)

Value added is measured by:

- (b) Increase in price premium of commodities sold by beneficiaries in the selected value chains (percent);
- (c) Share of selected commodities sold through new marketing channels (percent).

Resilience is measured by:

- (d) Farmers adopting improved agricultural technology<sup>10</sup> (number), of which female (number). (*Corporate Results Indicators*)

### III PROJECT DESCRIPTION

23. The project would support value addition in production and post-harvest segments of selected agriculture value chains; stimulate establishment of new small and medium agri-enterprises; facilitate agribusiness investments through inclusive business models that provide opportunities to small holder farmers to actively participate in the value chains, and support resilience of agriculture production systems in order to better manage increasing production and commercial risks associated with climate change in the targeted districts. The project would adopt a production and enterprise cluster strategy within the targeted value chains, to generate economies of scale, promote vertical and horizontal links between local agricultural enterprises, enable diffusion of innovations, leverage network externalities, and channelize public support for services and infrastructure. By adopting a production and enterprise cluster approach, the project would enable all the value chain participants to develop competitive and innovative products that meet market demands rapidly and successfully. By simultaneously intervening along multiple dimensions of the growth nexus (business environment, key infrastructure, access to basic services, and markets, local governance), the project aims to remove key constraints to business development and strengthen the platform for growth in agriculture and allied sectors.

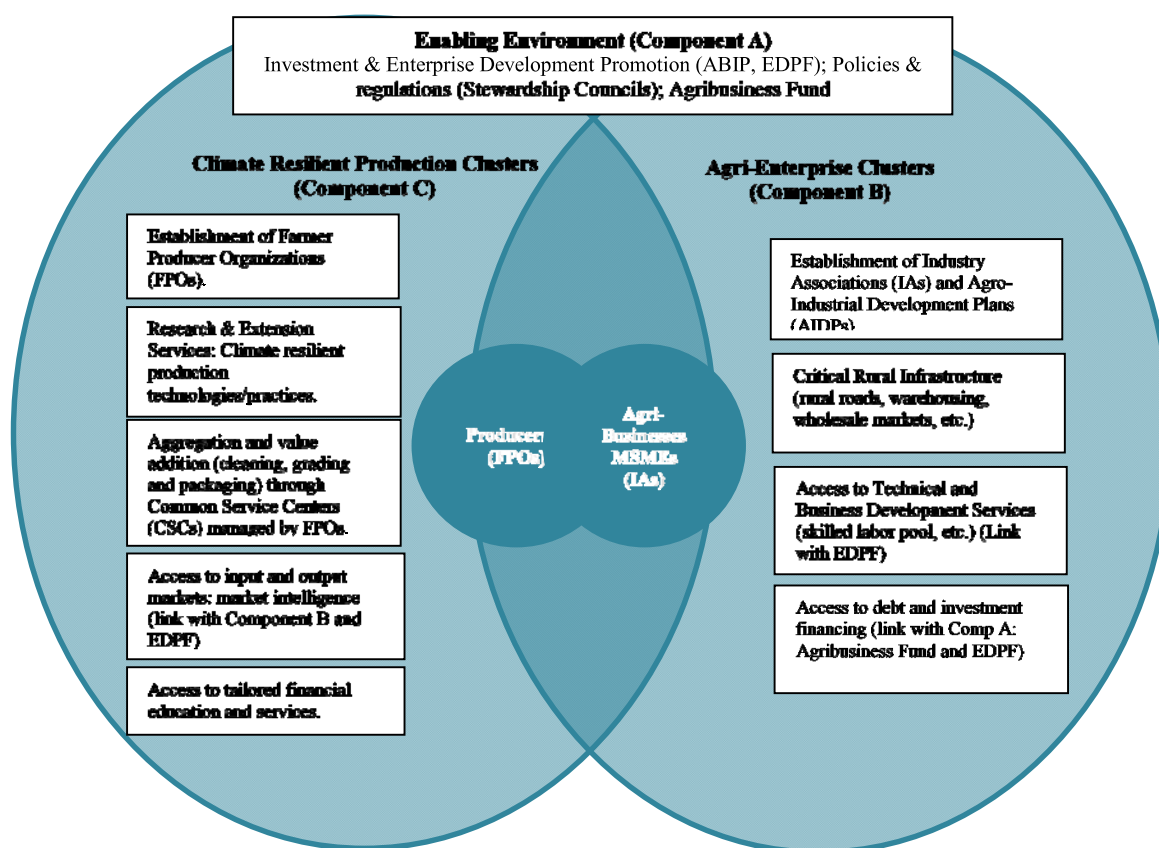
24. **The production and enterprise cluster approach adopted is based on the twin principles of integration of actions/interventions, and cooperation of actors within different segments of the targeted value chains for mutual benefit.** It is expected that the cluster benefits will be realized at three levels: individual (producer, agri-enterprise), commodity/value chain, and the wider economic development in Assam, which is closely intertwined with the development of the State's agriculture sector. At the level of the individual producers and agri-enterprises, clustering will help take advantage of existing and future market opportunities that they could not necessarily achieve alone. Clusters can also be beneficial for lowering cost and risk involved when adapting to newly introduced rules and standards in terms of food safety and evolving food quality requirements as demanded by the market. Indeed, in order to maintain pace with innovation, technological development and evolving consumer expectations, different actors within the targeted value chains will need to develop ability to adjust quickly and appropriately respond to market signals. The cluster approach will allow for combining efforts, making use of synergies, and pooling resources to increase competitive advantage while at the same time sharing the risks involved in introducing improved products or entering previously untapped markets. In addition, clustering opens up avenues for concerted capacity building by offering opportunities for inter-

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<sup>10</sup> Agricultural technology refers to climate resilient technologies and practices.

company experiential learning, and attracting specialized know-how using pooled resources. It is anticipated that the establishment of joint sales and marketing channels will augment the sales network of each individual cluster member. At the value chain level, the expected benefits from clustering stem from the ability of a cluster to raise the profile of a commodity in a specific sub-region locally, the State of Assam, and India's North East Region (NER) as a whole. This is expected to ameliorate the "investment readiness" perception of Assam and NER, as it provides a good indicator of a 'business friendly' environment in the State with the requisite policy, regulatory, and governance systems in place.

25. At the level of the wider economic development of Assam, agri-clustering will add value to the growth of agriculture economy by creating groups of networked agri-enterprises and improving business capabilities through the provision of tailored support to all actors within the targeted value chains. Clusters will improve competitiveness for the sector as a whole, as successful cluster development is closely associated with continuous innovation and adoption of 'best practices' across the value chains. They enable economic specialization of a particular sub-region within the state, in a range of related activities, whilst allowing for a differentiated approach, targeted at a wide range of agro-economic activities, which takes into account the variation in agro-industrial structures and agri-business needs. The production clusters supported through the project are expected to contribute to an increase in economy wide competitiveness by facilitating policy reform, fostering private-public dialogue and becoming a catalyst for wider private sector development initiatives beyond the agriculture sector. A schematic representation of the cluster approach and the interdependency between the three components in the project is as follows



26. **The project will adopt a phased approach and take into account the anticipated implementation capacities.** During the first two years of implementation, the project will focus on the critical activities namely finalizing the service providers for various interventions (year 1); capacity building and mobilization of project beneficiaries to farmer producer organization and industry associations; implementation of improved climate resilient solutions; supply chain reorganization; and institutional strengthening. The second phase of project implementation (years 3 to 6), would establish well-functioning and coordinated production and enterprise clusters; support MSMEs with financial and non-financial services; and institute and strengthen market linkages and offtake arrangements with agribusiness. The final phase of the project (year 7) would consolidate the project interventions, leverage the lessons learned, and mainstream innovations within GoA policy framework.

27. **Resilience is multi-dimensional in nature reflecting the dynamics and interplay between human, natural, social and financial capital deeply embedded and reflective of the global policy environment.** In this context, resilience is interwoven into the various components and facets of the project to contribute to strengthening farming systems to better prepare to manage and cope with shocks and changes; support government and institutions across scales to effectively prepare to respond; and build the capacity of communities to adapt and re-organize. This will be achieved through several interventions including fostering the development of climate resilient production clusters; improving producer access to knowledge, technologies, markets; and environmentally optimized and climate resilient designs of the supply infrastructure supported under the project.

#### **A. Project Components**

28. **Component A: Enabling Agri-Enterprise Development (US\$36.80 million).** The objective of this component is to enable investments in agri-enterprises, improve investment environment and promote investment, reduce business and transaction costs, facilitate access to finance for agribusiness MSMEs, and, where appropriate, facilitate process and regulatory changes. This would be achieved by: strengthening the newly established Assam Bureau of Investment Promotion (ABIP) to identify and market investment opportunities, and provide facilitation and aftercare services; setting up Enterprise Development and Promotion Facility (EDPF) to foster and accelerate growth of agro-processing sector, with specific focus on MSMEs; to provide risk capital and technical assistance to agribusiness SMEs with high growth potential; and setting up sector stewardship councils to anchor the development of coherent policy framework and effective support measures for the development of select value chains. The key activities to be financed include, among others: (i) investor outreach programs (road shows, investor meets), sector scan and resource mapping studies, value chain studies, organizing trainings, workshops, and exposure visits; (ii) hiring services of consulting firms to assist MSMEs in preparing business plans, establishing mentor networks, and post investment incubation services; (iii) contributing capital to an Agribusiness Fund which will provide risk capital to agribusiness SMEs, financing a technical assistance facility for these SMEs, and contributing to the costs of the facility responsible for managing the risk capital and the related technical assistance; and (iv) technical assistance to sector stewardship councils to improve overall value chain management and to develop a market based vision and strategic action plan for each value chain. The expected results are an increase in agribusiness investments facilitated, higher number of agri-enterprises setup, and increased private sector investment leveraged.

29. **Component B: Facilitating Agro Cluster Development (US\$74.60 million).** The objective of this component is to enhance competitiveness of agri-enterprises in specific geographic clusters, and upgrade infrastructure for agricultural trade, in these clusters to enable producers and other value chain participants to access new markets. This would be achieved by: mobilizing proximate agri-enterprises, in identified geographic clusters, into Industry Associations (IAs), and building their capacity to undertake joint actions; supporting development of and financing for Agro Industrial Development Plans (AIDPs) laying out joint actions that can be undertaken by IAs to enhance competitiveness; providing a range of Business Development Services to scale up agri-enterprises in the selected clusters; and upgrading and modernizing warehouses, agricultural wholesale markets and rural periodic markets in the cluster, including link roads. The key activities to be financed include: (i) hiring the services of cluster facilitation teams for mobilizing and building the capacity of agri-enterprises into IA, and partial financing for the IAs' plans through grants; (ii) modernizing and upgrading warehouses, markets and rural roads; (iii) technical assistance for preparing detailed architectural designs and work estimates; and (iv) hiring independent field engineers for review and quality assurance of civil works. The expected results are firms mobilized into Industry Associations; joint actions undertaken by firms in a cluster; higher trading volumes; and improved access to high quality storage.

30. **Component C: Fostering Market-led Production and Resilience Enhancement (US\$132.80 million).** The objective of this component is to enable producers of the priority value chains, in the targeted clusters, to take advantage of the rapidly changing market demand, and enhance resilience of agriculture production systems for increasing production and managing risks associated with climate change. This would be achieved by: the introduction of improved production technologies, and climate resilient solutions; facilitation of collective-action by supporting the establishment of farmer producer organizations (FPOs); improving value realization at the farm level through improved cleaning, grading and packing of produce through Common Service Centers (CSCs) managed by FPOs; facilitating better input and output market linkages; and facilitating access to a broad set of financial services and their responsible use by producers. The key activities to be financed include: (i) upgrading technology, breed quality, and management practices of priority value chains, through demonstrations, training and capacity building of producers and line department staff; (ii) hiring services of consulting firms/NGOs to mobilize and organize farmers and establish FPOs as well as provide technical assistance and market linkage services to these FPOs and implement financial services activities; (iii) matching grants to finance demand-driven investments to FPOs, for establishing CSCs; and (iv) program cost for collaboration with CGIAR centers and other relevant agencies. The main outputs expected are higher productivity in agriculture, livestock, fisheries and sericulture; improved alignment of productive activities with market needs; better price terms for the producers in the clusters; and improved resilience of production systems.

31. **Component D: Project Management, Monitoring and Learning (US\$17.70 million).** This component will ensure effective implementation of the project activities, and monitor and evaluate project implementation progress, outputs and outcomes, building on implementation experience of AACCP. The component will support: (i) establishment and operations of a Project Coordination Unit (PCU), which will oversee and coordinate activities of the implementing agencies; (ii) establishment and operations of Project Implementation Units (PIUs) in the

respective implementing agencies; and (iii) setting up a monitoring and evaluation (M&E) system for the project, including a project management information system, and contracting an external M&E agency to monitor project activities and impact. This component will also finance dedicated staffing for the project activities, consultancies, training and related material, office equipment, and incremental operational costs. The project will provide investment and technical support for the establishment of a sound management information system and information and communication technology (ICT) systems and capacity strengthening of key personnel.

## B. Project Financing

32. The project will be financed through a seven-year Investment Project Financing (IPF). The total project cost is US\$262.40 million and will be funded by an IBRD loan (US\$200.00 million equivalent), the GoA (US\$50.8 million equivalent), and beneficiary contributions (US\$11.60). An IPF was selected as the lending instrument given that the investment is well defined and is to be implemented over a finite time period. The GoA is seeking retroactive financing, not exceeding US\$40 million, for project related work undertaken by the borrower during the project preparation, in advance of effectiveness. This includes procurement of civil works, consultancies for preparation studies, incremental staff and operating costs for the Project Coordination Unit (PCU), equipment and minor upgrading of project office, workshops, project-related travel, etc.

33. Project Cost and Financing. The table below details project financing by project component (in US\$ million)

Project Components	Project cost (US\$ M)	IBRD Financing (US\$ M)	% Financing
A. Enabling Agri-Enterprise Development	36.80	24.00	65.2
B. Facilitating Agro Cluster Development	74.60	57.80	77.5
C. Fostering Market-led Production and Resilience Enhancement	132.80	103.50	77.9
D. Project Management, Monitoring and Learning	17.70	14.20	80.2
Total Project Costs	261.90	199.50	76.2
Front-End Fees (0.25% of the loan amount)	0.50	0.50	
<b>Total Financing Required</b>	<b>262.40</b>	<b>200.00</b>	

## C. Series of Project Objective and Phases

34. This section is not applicable to the current project.

## D. Lessons Learned and Reflected in the Project Design

35. The project builds on the key experience and lessons gained from the previous Bank funded AACP.<sup>11</sup> These include:

- (a) **Implementing project activities through government agencies can advance major policy reforms and mainstream innovations within and throughout public sector institutions.** By effectively embedding the project activities within the operations of line departments, the project aims to promote sector-wide policy improvements and reforms, and consolidate these arrangements with strong cross-cutting thematic support for investment promotion, food quality and safety, and improved market access.

<sup>11</sup> ICRR of AACP, December 2015

- (b) **Agriculture Technology Management Agency (ATMA) has proven an effective model for developing and disseminating new agricultural technologies but its role should be extended to promoting value chain development activities.** The project would strengthen the capacities of ATMAs toward market-led, climate resilient production and post-harvest management, as growing specialized commodities would require modern technologies, quality inputs, support services, capital, and timely information.
- (c) **Identifying the most important constraints and addressing them through well-tested simple technical solutions is a key factor for project success.** Building on this, the project has undertaken detailed value chain analyses for deeper understanding of chain structure and functioning, based on which value chain development plans (VCDPs) have been prepared for upgrading the prioritized value chains. The VCDP broadly covers the project strategy towards the prioritized value chains in terms of: short term and medium term actions; and needed investments, skill development, and technical assistance.

36. Furthermore, the project design takes into account various other initiatives in India, the sub-continent, and other regions. These include:

- (a) **The project is fundamentally and strategically well-aligned to the national aims of agriculture transformation advocated by GoI institutions, such as the *Niti Aayog* and the Ministry of Agriculture.** Specifically, the project supports two key shifts in agriculture that contribute to the strategic goals of rural transformation: (i) a shift away from a focus on on-farm production towards value addition in the post-harvest segments of agriculture value chains; and (ii) shift away from a focus on productivity towards resilience of agriculture production systems for addressing the effects of climate change.
- (b) **For agri-business development, effective links between producers and their organizations (suppliers), processors, traders (buyers/market demand), and participating financial institutions (credit) are critical for success.** Successful agribusiness clusters, which allow small holder farmers and agribusinesses to raise productivity, and engage in more market-oriented value added production, share several common characteristics, including strong market connections, managerial competence, and flexibility in the face of changing circumstances, such as consumer preferences, trade opportunities, or technological innovations. As the project deliberately follows a cluster approach, the project would aim to strengthen these characteristics and enable the value chain participants to develop competitive and innovative products that meet market demands rapidly and successfully.
- (c) **Need to improve business environment.** All actors operating in agriculture and agribusiness face market failures that need to be addressed if the private sector is to develop and contribute to economic growth. MSMEs are more affected by regulation and transaction burdens than larger firms (business environment constraints), have relatively little access to credit (finance constraints), and have limited access to information, advisory services, technology, and innovation (knowledge constraints). The project aims to address these market failures by: (i) supporting policy and regulatory reform to create a conducive



environment for agribusiness; (ii) establishing sector stewardship councils which will anchor the policy reform agenda within select value chains; (iii) improving access to finance for agribusinesses; and (iv) targeted capacity building to develop technical skills and business acumen.

- (d) **Linking production, aggregation, processing, and marketing is necessary for optimum utilization of resources and maximum benefits.** Experience in many other settings (in India and globally) suggests that only investing in activities related to select segments of the value chain (e.g. production only) often leads to results that fall short of expectations. Despite the complexities, working on all aspects of the value chain - on-farm production, post-harvest handling and processing, marketing of farm products – is necessary for achieving transformative results. This view has informed the project approach and its components, and is reflected in its comprehensiveness as the interventions are at four levels of the value chains: production level at the beneficiaries' farms, product aggregation in villages or peri-urban areas, processing and value addition level, and the wholesale or retail marketing level.
- (e) **A cluster approach can be a valuable mechanism to address value chain constraints, especially those requiring transformation of stakeholder relationships.** The premise underlying both value chain and cluster approaches is that individual firms often face sector-level constraints that they cannot address alone. Therefore, any effort to increase competitiveness must do more than support individual firms, since inter-firm cooperation is important to achieving this goal. The cluster approach under the project focuses on geographic concentrations of interconnected companies and their interactions. In particular, the project concentrates on the synergies between these enterprises, including those between firms in different segments of the value chain.
- (f) **Experience from prior World Bank lending support to the Governments of Croatia and Lebanon for Investment Fund related projects point to the following lessons which have informed the design of Agribusiness Fund.** These include: focus of public sector support to investment funds should be on the early stage to support start-ups and SMEs to grow to a point where they can access commercial equity finance; private co-investors and fund manager can infuse commercial discipline for enhancing effectiveness of the Fund; ensuring that the government is not represented on the investment committee reduces the risk of political interference; and technical assistance to build SME capacity helps the Fund in efficient deployment of capital.

## **IV. IMPLEMENTATION**

### **A. Institutional and Implementation Arrangements**

37. **The project will be fully integrated in the GoA administration and implementation is designed to promote the use of existing GoA structures at state and districts level.** Where institutional capacity is limited and special skills are required, the project will acquire outside expertise, including international technical assistance and consulting services. The project will put particular efforts into institutional coordination across departments.

38. **Overall management and coordination will be the responsibility of the Assam Rural Infrastructure and Agriculture Services (ARIAS) Society.** This Society is an existing state-level registered autonomous body under the GoA, which has satisfactorily completed two World Bank financed projects<sup>12</sup>. The Society is controlled by a Project Guidance Council (PGC), chaired by the Chief Secretary, GoA; and a Governing Body (GB), chaired by the Agriculture Production Commissioner, GoA. The day-to-day executive control is with the State Project Director, who heads the Project Coordination Unit (PCU).

39. **Coordination of day-to-day project implementation, planning and scheduling, procurement management, financial control, as well as reporting and monitoring will be the responsibility of the Project Coordination Unit (PCU) of the ARIAS Society.** The PCU will be responsible for: (i) assisting the implementing agencies in preparing annual work plans and budgets; (ii) actions for approving annual work plan by GB/PGC, authorization of expenditures by implementing agencies, financial control, procurement management, monitoring progress of project components, preparing quarterly and other progress reports, evaluating performance and providing feedback to the implementing agencies; (iii) ensuring the financial reports are available, audited, and submitted to the World Bank within the stipulated time; (iv) undertaking procurement of high value and complex goods, works, non-consulting services and hiring technical experts, and key consultants, as needed, for project implementation, monitoring, and technical evaluation; and (v) providing timely and quality resources as well as technical assistance to the state-level Project Implementation Units of the implementing agencies and also to the District Level Coordination Committee.

40. **Eight Project Implementing Units (PIUs) have been setup within the project implementing departments.** These are Department of Agriculture, Industries and Commerce, Fishery, Animal Husbandry and Veterinary, Public Works (Roads), Cooperation, Handloom, Textiles and Sericulture, and Panchayat and Rural Development to oversee the implementation of their specific activities. These PIUs will be responsible for preparing, implementing and monitoring their respective annual work plans. A nodal officer has been appointed by each department to effectively liaise with the PCU. Besides the nodal officer, each PIU will be supported by procurement, finance, safeguards, and technical specialists, as needed.

41. **To ensure coordination and review of project implementation progress at the district level, a District Level Coordination Committee (DLCC), has been established.** The DLCC is headed by the Deputy Commissioner, with Additional Deputy Commissioner (Development) as member secretary, and comprises all district level implementing agencies, and lead bank, as members along with two or three support staff. The DLCC supported by the project, will have the responsibility to: (i) ensure that the project beneficiary selection criteria is consistently adhered to by all the implementing agencies; (ii) monitor progress of project activities at the district level; (iii) resolve cross cutting implementation issues; (iv) avoid duplicity of project activities with other schemes; and (v) maximize convergence of complementary activities.

42. **Implementation capacity will be strengthened by effective collaboration and technical assistance.** The project will collaborate with both national and international institutions for

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<sup>12</sup>Assam Rural Infrastructure and Agricultural Services Project (ARIASP), closed in June 2004; and Assam Agricultural Competitiveness Project (AACP) (including an Additional Financing) closed in March 2015.

training, technical backstopping and setting up Centers of Excellence. As part of the collaboration, the project is collaborating with the Consultative Group on International Agricultural Research (CGIAR) centers namely the International Rice Research Institute (IRRI), the WorldFish (WFC), the International Livestock Research Institute (ILRI), the World Vegetable Center (AVRDC/WVC), Wageningen University and Research Center, and the National Research Centre on Pig. Furthermore, the project would partner with the Korean World Bank Partnership Facility (KWPF) for piloting automated sensor applications for improving water use efficiency in rice production.

## **B. Results Monitoring and Evaluation**

43. **Given the crosscutting and interconnected nature of components under the project, monitoring and evaluation (M&E) forms an integral part of project design.** The M&E results-chain provides a comprehensive and detailed outline of the expected outcomes of each project intervention along with a results framework and accompanying monitoring indicators to measure progress over time. Given the synergy of the project to the global agenda on climate resilience, female participation and financial inclusion the results framework is aligned to inform progress in relation to the Sustainable Development Goals as well. The M&E of the project will be supported by a lightweight and scalable web-based MIS platform adopting both online as well as offline mechanisms of reporting from block level to state headquarters, aligned with the implementation structure of the project. The MIS will serve as a citizen engagement platform, including an interface to the public providing regular updates on activities supported by the project. The MIS will also support a suite of online mechanisms to enable beneficiaries to report any issues encountered under the program through a Grievance Redress System. In addition, the project will introduce ICT-based tools to capture beneficiary feedback; assess changes in the performance of beneficiaries over time; and real time monitoring and evaluation of all the activities carried out under various components of the project. The project will also leverage the potential of geographical information system for evidence based monitoring and planning. It will enable tracking of small and marginal farmer inclusion in project investments, interventions, and community institutions. It will also monitor gender inclusion and impact, and facilitate gender disaggregated analysis.

44. **The PCU will have the operational responsibility for planning and coordinating M&E activities of the project.** These include, among others, (i) analysis of all project level M and E information and generation of regular semiannual M&E reports; (ii) updating key performance indicators by consolidating the information provided by different implementing agencies and the external M&E agency; (iii) conducting independent field visits to monitor implementation and outputs of selected project activities; (iv) commissioning special studies as needed; (v) maintaining the project MIS; (vi) identifying bottlenecks and corrective actions, if needed; (vii) documenting success stories; (viii) regular reporting to the Project Guidance Council and the Governing Body; and (ix) semiannual reporting to the World Bank on the project status. To support the M&E system, the project would hire an external M&E consultancy agency throughout the duration of the project. This agency will conduct six monthly progress monitoring studies alongside the baseline, mid-term and end of project impact evaluations. The progress studies will provide information on the project's physical and financial progress alongside providing insights into the operational design and implementation of the project including recommendations on specific areas of refinement within the project aligned to the overarching strategic objectives as stated in the PDO.

## C. Sustainability

45. **The Project’s sustainability is predicated on a number of key considerations.** First, the project will benefit from the Government of India and Assam’s strong commitment to the objectives of the project, as evidenced by the Government’s clear focus on fostering agriculture development through sustainable productivity growth and diversification towards high value food, and shifting focus beyond farming towards development of agriculture value chains. Second, the Project will contribute to the creation of a conducive environment for agribusinesses to develop and thrive through the provision of targeted technical assistance for investment promotion, business development services, facilitating access to finance to complement and consolidate investments, business skill development for budding entrepreneurs to accelerate their growth trajectory, and access to improved technologies from production to markets. Third, the project will provide investments to develop critical rural infrastructure (roads, markets) that will improve connectivity between production basins and markets. It is expected that these investments will instill confidence in potential investors in the sector by alleviating some of the key connectivity and marketing constraints they currently face. Fourth, the project will be implemented using existing systems, as was done during the successful predecessor project AACP, and build on and consolidate the achievements of AACP, further strengthening the sustainability of the expected outcomes. The project will thus anchor project implementation within the government departments and agencies and give them full responsibility for project implementation and management, thereby not only improving public sector service delivery, but also building capacity and experience within these departments and agencies. Lastly, the project has been designed following intensive consultations with all stakeholders, and its interventions are geared towards attracting private investors and promoting further professionalization of producer organizations, aggregators, processors, and marketing systems.

46. **As with other recent initiatives in the country, this project includes several additional features to promote sustainability.** In India’s rapidly changing agricultural landscape, this operation aims to enable all actors in the targeted value chains to be better prepared to respond to these changes by supporting: (i) the adoption of resilient productivity enhancing and innovative technologies (including climate smart agriculture); and (ii) improved market access and adherence to food safety and quality requirements. The project is also investing in business development and market intelligence services, providing all actors across the value chains with the signals for adjusting to changing market conditions, and facilitating access to and use of financial services. These are essential for sustainably increasing incomes, and creating remunerative employment opportunities, particularly in post-production segments of the value chains, thereby catalyzing further growth and investments in the sector.

## V. KEY RISKS

### A. Overall Risk Rating and Explanation of Key Risks

47. The overall risk rating of the project is Substantial as the rankings in the Table below indicate.

Systematic Operations Risk-rating Tool (SORT): Risk Ratings Summary Table

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

48. The most critical risks and proposed mitigating measures associated with the project are summarized as follows:

49. *Risks related to project technical design are rated as Substantial.* This rating is due to the comprehensive scope of the project, the temporal and spatial synchronization of the diverse project activities, and the apparent complexity of the agri-enterprise promotion and financing schemes, including the Enterprise Development and Promotion Facility and the Agribusiness Fund. To mitigate these risks, the project implementation plan has established clear criteria for the eligibility of beneficiaries, the determination of financial terms, and the prioritization of investment-ready areas of intervention. The project design and the component structure has been purposefully streamlined and simplified as much as possible to ensure consistency with the KPIs. In common with other projects which aims to support policy/institutional reform agenda, it is conceivable that the pace of key changes in policy aspects may lag the physical ‘harder’ investments. Such delays may negatively impact the timely creation of an enabling environment for private sector participation and investments, which is one of the key factors for successful attainment of the PDO. Such risks have been addressed in part by the strong commitment shown thus far by GoA to proactively undertake policy and institutional reforms like amending the APM Act, setting up of the Assam Bureau of Investment Promotion (ABIP), management takeover of two defunct milk by NDDDB, and initiating a number of activities relating to project readiness (e.g. initiating procurement of key consultancies, including international technical assistance consultancy).

50. *Institutional capacity for implementation and sustainability risks are rated as Substantial.* Targeting several value chains in the same project is a challenge for implementation as different value chains are spread over diverse agro-ecological zones in the state and require different technical expertise. To mitigate these risks, the project will provide strong and tailored (adapted to each value chain needs) technical support to the targeted beneficiaries within the value chains. In addition, the project will strengthen institutional capacity through targeted training to carry out its core responsibilities. In addition, coordination among multiple departments is an institutional capacity risk. To mitigate this risk, the project will use the ARIAS Society, which very successfully implemented the earlier Bank funded projects. Also, the GoA is well versed with the Bank’s fiduciary and safeguard policies, as it has, successfully implemented Bank funded projects. Notwithstanding the strong commitment underpinning the project and experience of implementing

Bank funded projects, the overall capacity of key participating institutions will need to be further strengthened to provide the necessary oversight functions necessary under the project. The extensive consultations during preparation have confirmed that there is a strong interest and enthusiasm among the key stakeholders (public servants, producers, private sector, and market intermediaries) in systematically developing agriculture and allied industries in the state through this project. The project is viewed as an important vehicle to catalyze transformation of agriculture sector in the state, particularly in view of the fact that the GoA can draw from the international knowledge and expertise on best international practices to strengthen its implementation capacity, through targeted collaborations with CGIAR and other relevant institutions.

## **VI. APPRAISAL SUMMARY**

### **A. Economic and Financial Analysis**

51. **Project benefits:** Increased production of crops and livestock; and enhanced business efficiency of aggregators, processors, and marketers of eight value chains (VC) representing cereals, pulses, oil crops, fruits and vegetables, dairy, piggyery, and fish represent' the project's direct benefits. The incremental production of VC products at full development is: paddy 229,652 metric tons (mt) (6% increase); maize 623 mt (57%); black gram 1,685 mt (34%); mustard seeds 1,448 mt (18%); 70 thousand liters of mustard oil and 1,412 oil cake; banana, 5,180 mt (21%); milk, 85 million liters (528%); pork, 2.7 million mt (18%); and fish, 15,450 mt (116%). Production at farm level and all other VC activities are expected to generate about 4.2 million additional person labor days per year at full development, which is 21,257 additional full-time employees assuming 2001 person labor days per year is one full-time employee.

52. **Financial analysis:** All farm models generate positive incremental net revenues. The financial internal rate of return (FIRR) of each of the eight VCs varies from 25 percent (for mustard) to over 50 percent (for rice) over the project benefit horizon of 20 years. Common service centers (CSC) that slaughter pigs earn an undiscounted annual net income of INR 90.8 million or US\$ 1,336 thousand with FIRR of 18 percent. WAMUL, as a milk processor earns INR 11,615 million or US\$ 23.7 million with 33 percent FIRR. Mustard seed processing small enterprise generates INR 3.9 million or US\$ 6 thousand with 14 percent FIRR. The project assisted multipurpose warehouses generates INR 2.4 million or US\$ 6 thousand with 11 percent FIRR. The wholesale markets with a capacity of about 80,000 mt per year with 2 percent user fees generate INR 7.8 million or US\$ 11.5 thousand with 19 percent FIRR. A CSC with a capacity of 5000 mt earns INR 0.865 million or US\$ 13,100 with 32 percent FIRR by keeping commissions for farm input supply and by selling farm produces. A typical MSME producing pellet feed with a capacity of 300 mt generates INR 3.8 million or US\$ 57,575 with 12 percent FIRR. The undiscounted annual incremental net financial benefits of the project at full development are estimated at INR 11.8 billion or US\$ 173.8 million. The FIRR of the project is 31 percent with a NPV of INR 60 billion or US\$ 885 million with 6 percent discount rate for a period of 20 years.

53. **Economic analysis:** The economic analysis, with appropriate adjustments to financial prices, shows an EIRR of 28 percent for the project. The Economic NPV for the project, using a social discount rate of 10 percent as the base case (following the SD guidelines for discount rate, this is twice the historical 20 year per capita GDP growth rate in India of 4.95 percent, which is slightly higher than average of 3.6 percent of middle income countries and deemed more

appropriate for this project) is estimated at INR 29 billion or US\$ 428 million for a 20-year period without counting the GHG benefits. The GHG balance calculation shows that the project has a positive impact leading to a decrease in of GHG emissions of a total of 4.91 million tons equivalent CO<sub>2</sub> (tCO<sub>2</sub>eq) during project life, corresponding to an annual decrease of about 0.10 million tCO<sub>2</sub>eq. The sensitivity analysis shows that the project economic benefits are resilient to cost escalations of 10 percent to 20 percent, benefits reduction of 10 percent to 20 percent, and delays in realizing benefits (of 1 to 2 years period), with the EIRR remaining above 12 percent and Economic NPV above US\$ 89 million. With GHG benefits at the lower bound of the price (US\$ 30/t of CO<sub>2</sub>), the EIRR is estimated at 31 percent and ENPV is US\$ 480 million; and at the higher bound of the price (US \$ 65/t of CO<sub>2</sub>) the EIRR is 35 percent and ENPV is US\$ 596 million.

## **B. Technical**

54. The demand for high value agricultural commodities is seen both in rural and urban areas, and is projected to increase significantly in the medium to long term driven by economic growth, a growing middle class of consumers with higher disposable incomes and greater awareness of the quality and health benefits. In India, the potential of domestic production to meet the current and projected demand for quality produce, however, remains severely limited due to a number of supply side constraints, including *inter alia* the nature and scale of production, low productivity, poor market integration, a poor enabling (policy and regulatory) environment, and extremely low private sector engagement. The project would support Assam with the requisite capacity, know-how and forethought to tap into this growing demand and develop a sustainable and competitive industry. As indicated earlier, the project would contribute to the consolidation and expansion of local production and the move towards higher value products. This offers opportunity to increase the contribution of agriculture to Assam's growth, while also contributing to creating conducive conditions for the emergence of a dynamic agri-business sector in Assam. The project will support the development of competitive value chains and access to markets, leveraging private investment and supporting agri-enterprises, while strengthening critical rural infrastructure. It will also contribute to significant job creation, including for women, by removing physical, regulatory and organizational bottlenecks to stimulate private investments keeping in mind the established fact of very high labor coefficient in food industry, which is also notable for employing more women. A critical mass of complementary interventions will provide increased market driven agriculture outputs and enterprise growth in the targeted districts.

## **C. Financial Management**

55. The financial management arrangements are considered to be adequate to account for and report on project expenditures. The financial management arrangements of the project are built on the existing arrangements of the recently closed AACP, with modifications and enhancements related to the new activities, departments and entities which are proposed to be included in the project.

56. **Budget and Funds Flow:** Based on learnings from the earlier project, the funds required for the project would be reflected in the State Budget under the demand for Grants of one Department (Agriculture). This will simplify withdrawal of funds from the treasury and submission of utilization reports. The existing parent-child banking arrangement, established under AACP will be continued and extended to the new entities, which will make funds

management efficient and ensure that there is no idle float/ funds in the various implementing agencies. GoA has made a budget provision of INR 1500 million in FY 2017-18 in the State Budget for the project.

57. **Accounting and Internal Controls:** The existing project financial management (FM) manual has been updated to factor in the new activities and implementing agencies, responsibilities for financial management. A revised chart of accounts has also been developed to reflect the proposed project components/ sub-components and activities. Based on the assessment some of the key agreements on financial management include:

- (a) Responsibility for civil works: A desk review of some of the new entities, (Assam State Agriculture Marketing Board (ASAMB), and Assam State Warehousing Corporation (ASWC), both state public sector entities), has identified that the financial position and capacity are weak. Accordingly, it has been agreed that all civil works related to these entities will be executed by the Public Works (Roads) Department with ASAMB and ASWC managing small value contracts.
- (b) WAMUL, which was the implementing entity in AACP and is a relatively well functioning milk union and managed by NDDDB, will also take implementation responsibility for the Eastern and Upper Assam Milk Unions, which are the new entities.
- (c) In respect of grants to farmers groups, farmer producer organizations, industry associations, and stewardship councils, consistent with the earlier project (AACP), grants provided will be initially recognized as grant advance and on receipt of utilization report, it will be recognized as expenditure.
- (d) In respect of the Agribusiness Investment Fund (AIF), which will be partially funded/capitalized by the project and will provide seed capital/subordinate debt to business enterprises, expenditure will be recognized (and eligible for reimbursement) at the time of capitalization of the investment fund by the project. The capitalization will be in tranches based on specific 'call for funds drawdown' based on investment proposals approved by the fund.

58. **Finance Staffing:** The project has the finance staff in place in the Society along with a Chief Finance Controller (CFC) deputed from the government. The project is hiring a qualified Chartered Accountant on a full time basis to head the financial management function with the official from the state finance services playing an advisory role. The finance head will be supported by senior and junior finance consultants in the PCU and sixteen District Accounts Managers and accountants in ATMA, replicating the successful arrangements under the previous Bank funded AACP.

59. **Financial Reporting:** The financial reporting (interim financial reports-IUFR's) under the project would be by the project components broken down by activities. The finance unit in the PCU will consolidate the monthly expenditure reports from the PIUs to prepare the consolidated interim and annual financial reports. The IUFR's would be the basis for disbursement.

60. **External Audit:** A private firm of Chartered Accountants appointed in a manner acceptable to the Bank will carry out the external audit of the project financial statements. The



audits will be carried out as per the terms of reference for audit acceptable to the Bank. The audit report will be submitted to the Bank within nine months of the close of each financial year.

61. **Disbursement Arrangements:** Funds from the Bank will be made available to GoA (through the GoI) under the standard terms of on-lending between GoI and the States. The applicable disbursement method will be 'Reimbursement' with GoA pre-financing the project expenditures. The disbursements will be made on the basis of expenditures reported in the quarterly IUFR.

#### **D. Procurement**

62. Procurement for the project will be carried out in accordance with the Bank's Procurement Regulations for Borrowers for Goods, Works, Non-Consulting and Consulting Services dated July 1, 2016 and applicable to Investment Project Financing (IPF) here in after referred to as "Regulations". The project will be subject to the Bank's Anticorruption Guidelines, dated October 15, 2006, and revised in January 2011 and as of July 1, 2016. Out of US\$262.40 million proposed for the project, predominant items of procurement are medium to low value civil works for roads and markets, high value consultancy contracts for setting up Investment Fund and support agencies and community based procurement of agricultural items and implements. Most of the civil works would involve open and limited National Competition (NC), but a few packages may also involve the use of International Competitive Bidding (ICB). The project will use the e-procurement system (NIC platform) for procurement. The project uses the online tool STEP (Systematic Tracking of Exchanges in Procurement).

63. **Procurement Risk Assessment.** Given the past experience and the core capacity created in the PCU, implementation of the procurement program will be mainly led by the ARIAS Society with all works contracts delegated to the PIU (PWRD), and procurement up to US\$50,000 delegated to other implementing agencies. The Project will continue with its successful experience with community based procurement and an innovative mobile based application is being developed for providing appropriate market and item details to the community groups. However, as this project involves many new and innovative aspects, this will be more challenging than the previous World Bank funded projects in this sector.

64. **Project Procurement Strategy Development.** As per the requirement of the Regulations, a Project Procurement Strategy Document (PPSD) has been developed and finalized after review by the Bank. Extensive market analysis has been carried out for different packages of procurement and based on the findings, decisions on packages and lots are finalized for civil works to ensure adequate participation of bidders. Consultancy contracts are also framed based on market research and packaging of the same in terms of scope of services and period are decided. Based on the market experience, the project has also decided to implement Framework Agreements for various community procurement items. Based on the PPSD, the procurement plan has been prepared to set out the selection methods to be followed by the Borrower during project implementation in the procurement of goods, works, non-consulting and consulting services financed by the Bank.

## **E. Social (including Safeguards)**

65. **Assam has undertaken a Social Assessment (SA) study to assess and address the key social issues, impacts and risks related with the project, and prepared a Social Management Framework (SMF) to comply with national, state and Bank's safeguard policies and on principles of social inclusion, participation, transparency, accountability and land requirement.** The Social Management Framework specifically includes: (i) legal policy framework to enhance social development outcomes, (ii) Resettlement and Rehabilitation (R&R) entitlement framework, (iii) screening mechanism to identify and screen sub-projects having adverse social impacts, (iv) indigenous peoples / tribal development framework, (v) consultation and communication framework, (vi) gender development strategy, (vii) scheme cycle, (viii) citizen feedback system, (ix) a social audit manual, (x) a monitoring and evaluation mechanism, and (xi) implementation of labor standards provisions. SMF activities would be integrated with the overall project cycle to ensure that social aspects are systematically identified and addressed during all phases of project implementation.

66. **The key issues highlighted by the SA and relevant for the project are:** mobilization and inclusion of progressive farmers, specifically scheduled tribes, scheduled castes and women farmers in: (i) planning, preparation and implementation of cluster development plans for various project interventions in agriculture, dairy, fishery, piggy, sericulture, handloom and textiles focusing on value chains and business development; (ii) formation of common interest groups (CIGs) which will be later federated into farmer producer organizations (FPOs); (iii) accessing project benefits on prioritized and reasonable criteria; and (iv) capacity building and training interventions.

67. **No major adverse social safeguard impacts and risks are envisaged.** OP 4.10 on Indigenous Peoples is applicable, as project districts Karbi Anglong and Kokrajhar are under Sixth Schedule Area and Goalpara, Lakhimpur, Jorhat, Golaghat, Morigaon and Sivasagar have significant tribal population. The project investments will have positive impact and the Indigenous People Development Framework (IPF) includes measures to ensure access to project benefits. Acquisition of private lands or physical displacement is not anticipated. However, OP 4.12 is applicable due to the potential for minor adverse impacts from improvements of rural road (intra-cluster and cluster to market). A Resettlement Policy Framework (RPF) has been developed to help prepare resettlement plan, where required. The basic premise of the RPF entitlement framework is that wherever adverse impacts resulting from the proposed project interventions appear inevitable, those affected will be helped to at least restore their livelihood level.

68. **As part of the SA, stakeholders' consultations were held with local communities and other relevant stakeholders to inform them about the project and its likely impacts (both positive as well as adverse impacts).** Participants in these consultations included, members from co-operative societies, members of Farm Management Committees, farmers, women and other vulnerable groups, representatives of Panchayat Raj institutions, line departments, personnel from agricultural universities and research stations, and others. Feedback from these consultations was used in preparing the SMF, including the RPF entitlement framework, and tribal development and gender strategies. The process of stakeholder consultations would continue during project implementation in preparing and implementing mitigation plans, where required.

69. **Social inclusion and gender mainstreaming.** The SMF includes an action plan for continuous engagement with women and vulnerable groups to ensure their participation in the formation of CIGs and FPOs. Screening criteria to target women, scheduled tribes and schedule castes and other vulnerable groups as project beneficiaries; and access to common service centers and technical knowhow are also included in the SMF. Field based training on management of livestock, agriculture produce, handloom, and other value chain commodities will be provided through the project period. The project will support civil works to rehabilitate rural markets, rural roads, warehouses, milk processing plants, etc. All civil works will be carried out by contractors resulting in movement of contract labor that increases the risks related to health and safety hazards of host community and conflicts. Recognizing the risk associated with the influx of labor at construction sites, a study will be undertaken to identify vulnerable areas at proposed locations and develop action plan for preventive measures, monitoring and reporting mechanism within twelve months of project effectiveness. The ARIAS Society has augmented its capacity in this respect with the recruitment of a Social Development Specialist at the PCU who will be responsible for coordinating and guiding field level teams to implement the SMF. In addition, a communication specialist will be hired. District social sector coordinators will be hired at project districts and will work with ATMAS to ensure compliance with IPF and SMF.

70. **Citizen Engagement. The SMF includes an on-going consultation plan to engage with stakeholders to ensure regular feedback from citizens.** The citizen engagement plan including beneficiary feedback will enable citizen to participate during implementation and integrate their voice in development of investment plans. Citizen feedback mechanism in the project is solicited through three-structured platform to disseminate information, consult and respond on the actions taken to complete the cycle of citizen engagement. This includes (i) workshops with identified producer groups; (ii) website based and off-line systems for citizen to register their suggestions; and (iii) outreach program for the beneficiaries and social auditing of performance of FPOs on inclusion, participation and transparency.

71. **The Grievance Redress Mechanism (GRM) is a critical tool for promoting both transparency and accountability into the project operations.** The GRM is interwoven and embedded into the various components and facets of the project following international best practices (World Bank, Governance and Anti-Corruption Policy Note, 2010). From an operational perspective, the project recognizes the role of the GRM as critical towards enhancing operational efficiency and ensuring beneficiary and citizen awareness/engagement in the project. The project will provide multiple channels for GRM including both on-line, and offline / manual, underpinned by pre-defined procedures related to performance metrics and service delivery standards. A communication strategy across the lifecycle of the project will raise and maintain the awareness of the GRM, including to serve as a platform to reach women, ethnic minorities and the youth. The GRM will serve as a mechanism to provide feedback to strengthen the operational objectives and deter malpractices while underscoring the project foundation as one that is accountable, transparent and responsive to beneficiaries.

#### **F. Environment (including Safeguards)**

72. **The project is classified as Category ‘B’ as project interventions in the production and post-harvest segments of agriculture value chains, especially support for agri-infrastructure development are likely to have adverse impacts on the surrounding**

**environment if not executed and managed appropriately.** Consequently, environmental safeguard policies on Environmental Assessment (OP4.01), Natural habitats (OP4.04) and Pest Management (OP4.09) are triggered. The Borrower has completed an Environment Assessment (EA), which identified the applicable legal and regulatory framework, potential impacts of proposed interventions and explored the scope for strengthening and supporting climate resilient production. Based on the EA, an Environment Management Framework (EMF) was prepared to guide ARIAS and the respective government Departments under the project in the selection; screening, categorization and environmental appraisal of proposed interventions. The primary focus of the EMF is to integrate the management of environmental risks into overall operations. The EMF provides guidance on environmental appraisal, preparation, implementation and monitoring of Environmental Management Plans (EMPs), wherever required. The EMF also presents a Pest Management Plan as per the requirement of OP 4.09 and an aquatic management plan as per the requirement of OP 4.04. Sector specific environment guidelines (best practice guidelines) are also included as part of EMF. The EMF duly addresses environmental concerns through planning, allocation of human and financial resources, assignment of responsibilities for implementation, evaluation of the effectiveness, and focuses on enhancement of the environment management system.

**73. The EMF provides detailed guidance on the environmental screening and appraisal exercises with procedures and formats to be followed for better addressing the potential adverse impacts of project interventions.** The EMF provides a negative list of activities that cannot be funded under the project. For the identified environmental impacts and issues arising from civil works (upgradation of roads, warehouses, market yards, and construction of common service centres), during planning, designing, construction and operation phase, a generic environmental management plan (sector wise) is also developed. The EMF suggests criteria to identify the level of environmental appraisal required (detailed or limited) for the project interventions, and environmental guidelines to prepare EMPs. The EMF suggests mechanisms to prepare and implement EMPs, appropriate institutional mechanisms and specific training / capacity building needs etc. It further includes requirements and processes for supervising, monitoring and auditing of the various mitigation measures during project implementation. Specific indicators for evaluation have been developed to ascertain the sustainability of the sector wise project interventions. The frequency, and scope of the audit have been detailed and the audit protocols would define the operations to be audited and aspects to be reviewed. Proposed mitigation measures, monitoring, capacity building and training as well as human resource requirements have been budgeted.

**74. Applicability of OP 7.50.** The project is not financing any irrigation or drainage activities, and will not have any impact on international waterways.

**75. Disclosure.** The Borrower disclosed the draft EMF, SMF and translated version of the executive summary on its website on November 30, 2016. The safeguard documents, as requested by the Borrower were also disclosed at the Bank's Infoshop. The social safeguard documents were disclosed on December 5, 2016 and the environmental safeguard documents were disclosed on December 6, 2016. Further an in-country disclosure workshop with representatives from relevant departments, NGOs, and other relevant stakeholders, was organized on December 21, 2016. The outputs from the consultations helped to finalize the documents. The final SMF was re-disclosed

on January 3, 2017 and IPF on January 5, 2017. Similarly, EMF was re-disclosed on May 5, 2017 and the executive summary in English and Assamese was re-disclosed on May 12, 2017. These final safeguard documents were re-disclosed on Bank's Infoshop on July 13, 2017.

76. **A Green House Gas (GHG) analysis for the proposed project was carried out which quantifies the net carbon balance, that is GHGs emitted or sequestered, as a result of the project compared to the without project scenario.** The project is likely to have a net positive impact on carbon sequestration, primarily led by converting flooded rice area to maize, pulses, oilseeds, fruits and vegetables. This would be complemented by demonstration and use of climate resilient agricultural practices like improved soil nutrient management, targeted fertilization, pesticide management and energy-efficient post-harvest infrastructure. With regards to the GHG from livestock, the project will demonstrate and support adoption of existing best practices and technologies in feeding, health and husbandry, and manure management – as well as greater use of currently underutilized technologies such as biogas generators and energy-saving devices, where applicable.

#### **G. Other Safeguards Policies Triggered** *(if required)*

77. N/A

#### **H. World Bank Grievance Redress**

78. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB'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 complaints to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit [www.inspectionpanel.org](http://www.inspectionpanel.org).

**Annex 1: Results Framework and Monitoring**  
**INDIA: ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT**

**Results Framework**

**Project Development Objectives**

The Project Development Objective (PDO) is to “add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in targeted districts of Assam”.

**These results are at** Project Level

**Project Development Objective Indicators**

Indicator Name	Baseline	Cumulative Target Values						
		YR1	YR2	YR3	YR4	YR5	YR6	End Target = YR 7
Farmers reached with agricultural assets or services (number) <b>(CRI)</b>	0	50,000	100,000	200,000	300,000	400,000	500,000	500,000
<i>Of which female beneficiaries (number)</i>	0	15,000	30,000	60,000	90,000	120,000	150,000	150,000
Increase in price premium of commodities sold by beneficiaries in the selected value chains (%)	0	0	5	10	15	20	20	25
Share of selected commodities sold through new marketing channels (%)	0	0	5	10	15	20	20	25
Farmers adopting improved agricultural	0	0	30,000	80,000	108,000	240,000	360,000	360,000

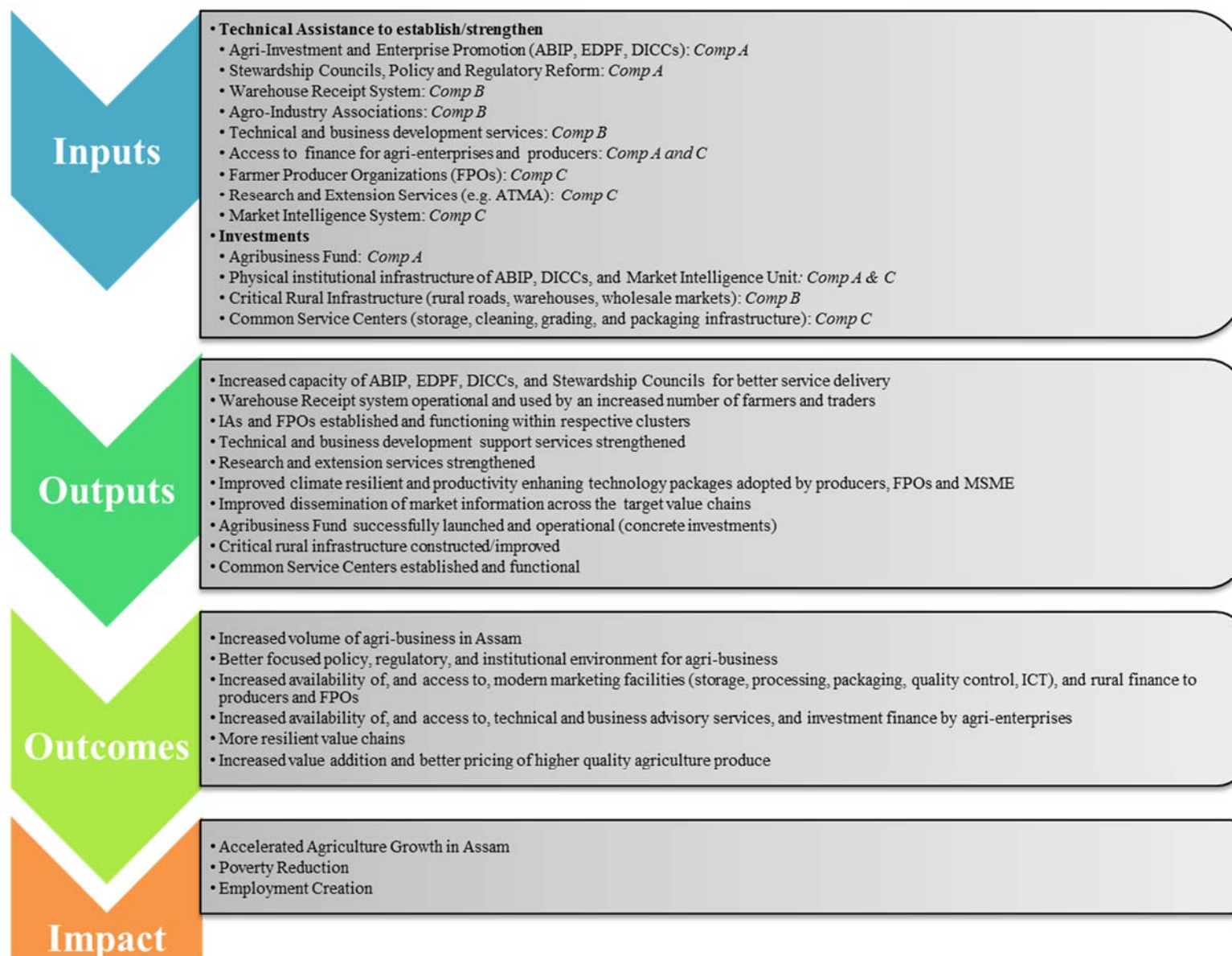
technology (number) (CRI)								
<i>Of which female beneficiaries (number)</i>	0	0	9,000	24,000	32,400	72,000	108,000	108,000
Intermediate Results Indicators								
Indicator Name	Baseline	Cumulative Target Values						
		YR1	YR2	YR3	YR4	YR5	YR6	End Target
Component A: Enabling Agri Enterprise Development								
Agribusiness investment leads facilitated through the Assam Bureau of Investment Promotion (ABIP) (number)	0	0	20	60	100	200	250	300
Enterprises set up with the support of Enterprise Development and Promotion Facility (EDPF) (number)	0	0	0	200	400	800	1000	1500
Investment made and leveraged by the Agribusiness Fund (amount in USD M)	0	0	0	5	10	15	20	30
Component B: Facilitating Agro Cluster Development								
Joint actions undertaken by firms in a cluster (number)	0	0	28	96	164	232	300	300
Agro-industrial development plans developed (number)	0	0	7	17	17	17	17	17

Firms mobilized into industry associations (number)	0	0	700	1700	1700	1700	1700	1700
Negotiable warehouse receipts issued to project beneficiaries (number)	15	15	1,000	5,000	10,000	15,000	20,000	25,000
Trading volume through improved markets (%)	0	5	5	10	15	15	20	20
Rural roads upgraded with climate resilient technologies (KM)	0	0	50	100	100	100	100	100
<b>Component C: Fostering Market Led Production and Resilience Enhancement</b>								
Climate resilient technologies demonstrated in the project areas (Number)	0	7	15	25	25	25	25	25
Farmer Producer Organizations (FPOs) supported by the Project								
FPOs (Number)	0	0	0	30	50	90	100	100
Members (Number)	0	0	0	12,000	20,000	36,000	40,000	40,000
Volume throughput of the Common Service Centers (CSCs) (tons per annum)								
Pork	0	0	700	3,200	6,300	9,700	12,750	12,850



Fish	0	0	0	2,000	3,500	5,500	6,000	10,000
Milk	22	30	45	90	175	315	500	790
Agricultural Commodities	0	0	0	40,000	45,000	53,000	60,000	70,000
Producers provided financial education / counselling.	0	2,500	10,000	30,000	70,000	150,000	200,000	250,000
Producers with increased access to financial services (number), of which at least 30% are female.	0	0	5000	15,000	35,000	75,000	100,000	125,000
<b>Component D: Project Management, Monitoring and Learning</b>								
Grievances registered related to delivery of project benefits that are actually addressed (Percentage).(CRI)	0	70	80	80	100	100	100	100

## APART Results Chain



### Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Farmers reached with agricultural assets or services (number) <b>CRI</b>	This <i>Corporate Results Indicator</i> measures the number of farmers (defined here as people engaged in farming activities or members of a farming business) provided with agricultural assets or services by the project (disaggregated by gender). The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Increase in price premium of commodities sold by beneficiaries in the selected value chains (%)	Price premium is measured at two stages of the value chain, namely producer level and at the wholesale level. For producer price estimation, the price received for select commodities, by the sample producers (both treatment and control) sold through various marketing channel, is estimated from the primary survey of households. For wholesale price estimation, wholesale prices for select commodities are collected, through primary survey, from wholesalers operating in the marketing channel. Weighted average price and volume is computed for sale through various channels. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Share of selected commodities sold through new marketing channels (%)	This indicator captures the proportion of total production accessing new marketing channels supported by or made accessible because of policy reforms supported by the project. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Farmers adopting improved agricultural technology (number) <b>CRI</b>	This <i>Corporate Results Indicator</i> measures the number of farmers (defined here as people engaged in farming activities or members of a farming business) of the project who have adopted an improved agricultural technology (specifically climate resilient technologies and practices), promoted by the project (disaggregated by gender). The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU

### Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Agribusiness investments leads facilitated through the Assam Bureau of Investment Promotion (ABIP) (number)	This indicator measures the number of firms (defined as both new and existing firms) which have formally expressed an intent to invest in the state through ABIP services. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU

Enterprises set up with the support of Enterprise Development and Promotion Facility (EDPF) (number)	This indicator measures the number of firms (defined as both new and existing enterprises) which have established or expanded operations due to support of the EDPF. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Investment made and leveraged by the Agribusiness Fund (amount in USD M)	Total investment in Agribusiness SMEs supported by the Agribusiness Fund, including investment made by the Fund, and any follow-on investments made by other investors directly into the SME or by the entrepreneur. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Data reported from investment fund manager upon validation	PIUs aggregated by the PCU
Joint actions undertaken by firms in a cluster (number)	This indicator captures the number of joint actions (defined here as trade fair participation, joint marketing materials, exposure visits, and technical service delivery workshops) undertaken by firms in a cluster. It is expected that firms will undertake 4 joint actions per cluster per year. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU
Agro-industrial development plans developed (number)	This indicator measures the number of Agro Industrial Development Plans developed by the industry associations. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU
Firms mobilized into industry associations (number)	This measures the number of firms (defined as new and existing enterprises) in each cluster mobilized into industry associations over the project period. The baseline value of this indicator will be zero. (Assumption, an average of 100 firms in each cluster mobilized over the project period).	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU
Negotiable warehouse receipts issued to project beneficiaries (number)	Warehouse capacity upgraded is about 60,000 mt in 33 warehouses. It is assumed that the primary commodities stored would be paddy, maize and other field crops. Capacity utilization assumed at 70% (about 42,000 mt). Average lot size for storage is assumed at about 1.7 mt per warehouse receipt (combination of farmer, FPO, trader and millers). Hence, number of NWR issued is about 25,000.	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU
Trading volume through improved markets (%)	This indicator captures the percentage increase in the volume of all commodities that are traded in the improved markets supported by the project. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Rural roads upgraded with climate resilient technologies (KM)	This indicator captures the length of rural roads rehabilitated under the project using climate resilient technologies.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU

Climate resilient technologies demonstrated in the project areas (number)	This indicator measures the number of unique climate resilient technologies demonstrated by the project. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS	PIUs aggregated by the PCU
Farmer Producer Organizations (FPOs) supported by the Project	This indicator measures the number of FPOs created or supported under the project. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU
Volume throughput of the Common Service Centers (CSCs) (tons per annum)	This indicator measures the quantity of commodities handled at the CSC for post-harvest treatment. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline and end line surveys)	PCU
Producers provided financial education / counselling.	This indicator measures the number of producers in Common Interest Groups (CIGs) provided with financial education and counseling, disaggregated by gender. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PCU
Producers with increased access to financial services (number), of which at least 30% are female.	This indicator measures the number of producers with increased access to financial services supported by the project, disaggregated by gender. The baseline value of this indicator will be zero.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PCU
Grievances registered related to delivery of project benefits that are actually addressed (Percentage). <b>CRI</b>	This <i>Corporate Results Indicator</i> measures the transparency and accountability mechanisms established by the project so that the target beneficiaries have trust in the processes and are willing to participate, and feel that their grievances are attended to promptly. Thus the project monitoring system should provide information on the number of complaints received against the number actually resolved.	Annual, Mid-term and Final Review	Project MIS and field surveys (incl. baseline, midterm, and end line surveys)	PIUs aggregated by the PCU

## Annex 2: Detailed Project Description

### INDIA: Assam Agribusiness And Rural Transformation Project

1. The Project Development Objective (PDO) is to “add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in targeted districts of Assam”.
2. The project would support value addition in production and post-harvest segments of selected agriculture value chains, stimulate establishment of new small and medium agri-enterprises; facilitate agribusiness investments through inclusive business models that provide opportunities to small holder farmers to actively participate in the value chains, and support resilience of agriculture production systems in order to better manage increasing production and commercial risks associated with climate change in the targeted districts. The project would adopt a cluster strategy within the targeted value chain, to generate economies of scale, promote vertical and horizontal links between local agricultural enterprises, enable diffusion of innovations, leverage network externalities, and channelize public support for services and infrastructure. By adopting a cluster approach, the project would enable all the value chain participants to develop competitive and innovative products that meet market demands rapidly and successfully. By simultaneously intervening along multiple dimensions of the growth nexus (business environment, key infrastructure, access to basic services, local governance), the project aims to remove key constraints to business development and strengthen the platform for growth in agriculture and allied sectors.
3. **Project districts.** The project will be implemented over seven years in the identified districts. Concentration of industrial activities, and agriculture production were analyzed to identify the project districts by using two criteria, namely: (i) contribution of the district to the agriculture GSDP of the state; and (ii) number of MSME units in the district as a proxy for industrial activity at the district level. All the 33 districts of Assam were ranked, based on these criteria, and the top 16 districts<sup>13</sup> were selected, namely: Nagaon, Sonitpur, Barpeta, Karbi Anglong, Kamrup, Dhubri, Golaghat, Kokrajhar, Lakhimpur, Darrang, Cachar, Sivasagar, Jorhat, Goalpara, Morigaon and Nalbari.
4. **Prioritized value chains.** Since it was difficult to find indicators that were both comparable and available for different types of agriculture and allied value chains, the project team constructed a set of indicators, both quantitative and qualitative, for identifying priority commodities in agriculture and allied sectors. The indicators include: (i) relevance of the commodity for the domestic market (Assam and other north eastern states), and the potential for import substitution (including from mainland states of India); (ii) commodities that have proven comparative advantage, and where market dynamics indicate strong investment and poverty reduction potential; (iii) synergy potential between commodities (e.g. maize and mustard byproducts are critical for unlocking the feed requirement of livestock and fish sectors); (iv) commodities with significant volume and prospect for value addition; (v) scope for private sector-producer linkages; and (vi) participation of wider beneficiaries. Field investigations, consisting of interviews and observations, were carried out for a comprehensive assessment of the identified

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<sup>13</sup> Undivided districts as on April 1, 2016.

commodities. Also, the project team involved different stakeholders through wide ranging consultations to validate findings from the desk study and field investigation, and fill in any missing gaps. This extensive process resulted in arriving at a well-informed decision that is supported by value chain stakeholders. Based on the above process, the prioritized value chains are: Fruits and vegetables (tomato, cucurbits, banana, potato); Livestock and Fisheries (pork, milk, fish); Pulses (lentil, black gram); Spices and Condiments (ginger, turmeric, mustard); Cereals (rice, maize); Specialty products (*muga*, *eri* silk)

5. **Value chain analysis (VCA) and value chain development plan (VCDP).** Once the commodities were prioritized, detailed value chain analyses were undertaken for deeper understanding of chain structure and functioning. The VCA focused on: (i) mapping value chains to obtain a clear understanding of the sequence of activities and the key actors and relationships involved in the value chain; (ii) target markets for the particular value chain; (iii) technological capacities of key actors across the value chains; (iv) analyzing the margins and profits within the chain; (v) identifying the constraints that prevent growth of the value chain; and (vi) policy and regulatory framework of the given chain. Based on VCA, the project has prepared detailed VCDP for implementing the upgrading strategy of the prioritized value chains. The VCDP broadly covers the project strategy towards the prioritized value chains in terms of short term and medium term actions, and the investments, skill development, and technical assistance needed.

6. **Agri-enterprise clusters.** The project seeks to promote clusters i.e. area of geographic concentration of agricultural enterprises in project districts to increase competitiveness, revenue and employment growth. The project is adopting a cluster-based approach so as to enhance the competitiveness of enterprises, especially small and medium enterprises (MSMEs), through enabling economies of scale and scope, which are typically enjoyed by much larger firms. Examples of economies of scale benefits include access to skilled labor pool; sharing of common services around functions such as research and development, information networks, marketing and branding efforts; and sharing of common infrastructure such as effluent treatment plants, and warehousing facilities. Examples of economies of scale include sharing of business functions and costs, such as cooperation between firms in marketing; cross-selling related products; and the outputs of one business being used as the inputs into another. The objective of cluster-based interventions under the project is to increase the number and scale of operations of agribusiness enterprises in selected geographic locations that are already exhibiting economic growth and increase in enterprise formation. The project has undertaken a data collection exercise in project districts and identified existing agri-enterprises – both registered and unregistered; identified the sub-sectoral breakup of agri-enterprises; and geo-spatial of mapping these enterprises.

7. **Climate resilient production clusters.** The project will also support integrated development of climate resilient production clusters of the priority value chains in the project districts. Climate resilient production cluster development will broadly focus on following aspects: (i) strengthening the seed systems and adoption of stress-tolerant varieties; (ii) developing and promoting extrapolation domains of suitable cultivars and cropping systems for efficient targeting of technologies in stress-prone areas; (iii) increasing productivity and resource use efficiencies by climate smart inputs; and (iv) improved post-harvest management, value addition and marketing of produce. These interventions in climate resilient production clusters would be supplemented by information and advisory support in technical areas, market trends and intelligence, and weather-

related information services. The project has identified climate resilient production clusters in the project districts and is in the process of geo-spatial mapping these clusters. Component C investments support the development of climate resilient production clusters of prioritized value chains.

8. The Project adopts a geographically targeted approach to support cluster development, not necessarily limited to a single value chain, as this will be a very constraining factor. The production clusters and agri-enterprise clusters are inherently linked since proximity to production provenance is useful for increasing the chances of successfully developing agri enterprise clusters. The production clusters were identified first and then enterprise clusters in the same project districts were mapped with the objectives on the production side of increasing marketable surplus, and on the enterprise side of increasing uptake from production clusters and enhancing value added in those commodities. This resulted in these two clusters being located adjacent to each other, in the process reducing ‘road miles’ between production and enterprise clusters.

### **A. Components’ Description**

9. The project activities are grouped into four components, including: (i) Enabling Enterprise Development; (ii) Facilitating Agro Cluster Development; (iii) Fostering Market-led Production and Resilience Enhancement; and (iv) Project Management, Monitoring and Learning. The individual components are described in detail below.

#### **Component A: Enabling Agri-Enterprise Development (US\$36.80 million).**

10. The objective of this component is to enable investments in agri-enterprises, improving the investment environment and investment promotion, reducing business and transaction costs, facilitating access to finance for agribusiness entrepreneurs, and, where appropriate, facilitate process, and regulatory changes. This would be achieved by: (i) strengthening the newly established Assam Bureau of Investment Promotion (ABIP) to market investment opportunities in the state and provide promotion, facilitation and aftercare services, in collaboration with other relevant entities, for stimulating investment in agribusiness; (ii) setting up Enterprise Development and Promotion Facility (EDPF) to foster and accelerate growth of agro-processing sector, with specific focus on MSMEs; (iii) facilitating the establishment of an Agribusiness Fund<sup>14</sup> to provide risk capital (equity/quasi-equity financing); and (iv) establishing sector stewardship councils to anchor the development of coherent policy framework and effective support measures for the development of select value chains. This component has following four sub components. Subcomponent A1 targets large and medium enterprises while other sub-components are focused on micro and small enterprises.

11. **Subcomponent A1. Enhancing state capacity to attract private investments:** Investment promotion is proactive attraction of new foreign and mobile domestic investments by marketing a location’s potential to investors, and then working with the interested investors to convert that interest into actual investments. Recognizing this, GoA has recently introduced the Ease of Doing Business Act, 2016, with the aim to streamline the processes for simplifying and speedy processing of procedures pertaining to business entry, operations and exit. Under this newly

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<sup>14</sup> Under SEBI’s 2012 Alternative Investment Fund regulation



enacted Act, the GoA has setup the Assam Bureau of Investment Promotion (ABIP) for the purpose of overall supervision and administration of the speedy processing of applications, and issue of various clearances required to be issued by various competent authority or authorities of the State Government under various state enactments, for setting up of industrial or service sector undertakings in the State of Assam. It will also proactively promote private sector investments in the state. The project will strengthen the ABIP and these will include, among others: (i) sector scan for prioritization of competitive sectors and identifying agribusiness opportunities in the state; (ii) preparing state level pitches and disseminating to potential investors; (iii) conducting market outreach activities like business to business meets, roadshows, etc.; and (iv) providing investor aftercare services which include guidance on expansion and diversification of businesses. The ABIP would proactively target, facilitate, and nurture new investments, including agribusiness sector, by leveraging the Ease of Doing Business (EoDB) Act.

12. The project will strengthen District Industries and Commerce Centers (DICC) to implement investment facilitation related services, including new business registrations, regulatory compliance related assistance, and handholding support to enterprises in the district. As part of project preparation, an assessment of human resource and operational capacity of DICC in project districts has been carried out, based on which, the key activities to be financed include, among others: upgrading of DICC premises, hiring and training of personnel to achieve full staff strength, and strengthening outreach to existing and potential enterprises in the district.

13. **Subcomponent A2. Setting up Enterprise Development and Promotion Facility (EDPF):** This subcomponent aims to promote an enabling agriculture enterprise ecosystem in the state. Towards this, the project will establish an Enterprise Development and Promotion Facility (EDPF) to foster and accelerate growth of agro-processing sector, thereby promoting commercialization of agricultural production, increasing value addition and agricultural incomes. The EDPF will identify growth oriented entrepreneurs, who are pursuing business opportunities related to postharvest value addition in agriculture and allied sectors, and provide these entrepreneurs with a holistic service offering that accelerates their growth and promotes sustainability. It is expected that EDPF will have a catalytic effect, encouraging a new generation of entrepreneurs to enter, expand, and advance the industry. The EDPF will provide technical assistance for agri-entrepreneurs. This will include, among others, market scanning for business opportunities; conducting market and value chain studies of identified commodities; establishing and operating mentorship programs; scouting new technologies, including climate resilient technologies; assisting small and medium entrepreneurs to prepare business and financial proposals; providing business readiness and business planning support to MSMEs; and providing incubation services to emerging agri- entrepreneurs. It will also organize agriculture policy seminars, thereby providing a forum for relevant stakeholders to discuss improvements in the agribusiness investment climate.

14. **Subcomponent A3. Agribusiness Investment Fund support:** This subcomponent will contribute capital to an existing or a new Agribusiness Investment Fund (AIF), which would in turn provide risk capital to 10 to 15 agribusiness SMEs with high growth potential and with a locus of activity in Assam, through investments ranging from an estimated \$100K - \$2 million. Access to risk capital along with capacity building from a professional fund manager is expected to allow some of the investees to contribute to improved productivity and job growth in the sector. Key

features of the Fund are expected to be: (i) managed by a private fund manager; (ii) co investment by other investors including private investors; (iii) have no government participation on the investment committee or on Board of Directors of fund manager; (iv) fund life of 10 years extendable to 12 or 15 years; (v) allow for a broad definition of agribusiness, including sub sectors like agri warehousing/logistics etc.; and (vi) provide technical assistance to SMEs to relieve capacity constraints. In addition, the fund manager and the Fund will need to commit to using the project funds in a manner that complies with the World Bank's fiduciary as well as environmental and social safeguards.

15. Further deep dive analysis would inform the potential pipeline, and provide key parameters on the design of the investment, which will be used as reference to evaluate bidding fund managers. The Fund would be expected to exit its investments through strategic sponsors, financial sponsors, or in rarer cases, through Initial Public Offerings (IPOs), and would be dissolved at the end of the Fund period. Capital gains and dividends/income will be returned to investors per the agreed investment documents. Activities to be financed are expected to include, among others: (i) feasibility study /deep dive analyses and ongoing technical/legal advice as needed; (ii) capital contributions to the Fund for investment in SMEs; (iii) contribution to management costs of the Fund; and (iv) technical assistance to support SMEs. Given the project will close earlier than the life of the Fund, the GoA will be expected to fulfill its residual financial obligations to the Fund/ Fund Manager (such as management fees) after the project closes.

16. The sequence of key steps before the project would make capital contributions to the Fund are as follows: (i) completion of the feasibility study; (ii) issuance of expression of interest that reflects the findings of the feasibility study and, the policy requirements of the World Bank; (iii) evaluation and contracting of the Fund Manager following a competitive process and based on advice of expert panel and legal counsel; (iv) Fund documents are reviewed by GoA (on advice of legal counsel) that detail, to the World Bank's satisfaction, Fund terms and conditions, governance and operation arrangements, adherence to World Bank fiduciary and safeguards standards, and reporting, among others; (v) retention of technical/investment expertise and legal counsel by the GoA to advice on disbursement, monitoring the investment portfolio, and fulfilling the GoA's role as an investor.

17. **Subcomponent A4: Establishing Stewardship Councils:** This subcomponent will support the setting up, and establishment of stewardship councils in select value chains and will be implemented by ARIAS Society. The Stewardship Council will act as a platform for engaging industry leaders and stakeholders of the given value chain to act in concert to develop and implement sustainable strategies for their value chain. The aim is to strengthen information, coordination and linkages in the targeted value chains and institute a sustainable mechanism for effective public-private sector dialogue. It is expected that these Councils, will identify constraints (policy, institutional, etc.) and workforce development, skill gaps that needed to be bridged to raise productivity and competitiveness of the respective value chain. Activities to be funded among others, include: (i) preparation of detailed action plans and, feasibility studies, for sustainable growth of the identified value chains, (ii) providing technical assistance to develop a market based vision and strategic action plan for each value chain, and (iii) providing need based matching grants (Sector Stewardships Council Grants) on the basis of business plans prepared by them.

**Component B: Facilitating Agro Cluster Development (US\$74.60 million).**

18. The objective of this component is to enhance competitiveness of agri-enterprises in specific geographic clusters, and upgrade infrastructure for agricultural trade, in these clusters to enable producers and other value chain participants to access new markets. The component will use a geographically targeted approach by focusing project interventions on clusters of agri-enterprises so as to enable an increase both in the number of such enterprises and in their scale of operations. Interventions under the component will include (i) mobilizing proximate agri-enterprises in identified geographic clusters into Industry Associations; (ii) supporting development of and financing for Agro Industrial Development Plans (AIDPs) laying out joint actions that can be undertaken by IAs to enhance competitiveness; (iii) providing a range of Business Development Services to scale up agri-enterprises in the selected clusters; and (iv) upgrading and modernizing warehouses, agricultural wholesale markets and rural periodic markets in the cluster, including improving link roads. This component has the following two subcomponents:

19. **Subcomponent B1. Support establishment of cluster level Industry Association:** The objective of this subcomponent is to enhance competitiveness of agri-enterprises in specific geographic clusters. This subcomponent, implemented by the Department of Industries, will seek to impact approximately 2,000 enterprises across about 20 geographic clusters by mobilizing them into Industries Associations (IAs) at the cluster level; strengthening the capacity of such IAs to develop Agro Industrial Development Plans (AIDPs) laying out an action plan for addressing cluster level obstacles to enterprise growth over the project period; and enhancing access of agri-enterprises to needed technical and Business Development Services (BDSs) including entrepreneurship development training programs. On the basis of the AIDPs, this subcomponent will finance, through matching grants (IA Grants), implementation of activities as listed in the AIDPs. Illustrative list of activities, include among others, enhancing availability of a skilled labor pool through skills training initiatives; increasing efficiencies and reducing business costs through developing and sharing of business functions such as information networks, common infrastructure, and joint marketing and branding efforts; and enhancing efficiencies through linkages to specialized technical and BDS such as assistance with developing business plans, introduction of improved technologies, fostering linkages to input suppliers and linkages to debt and investment financing. Interventions with broadly shared benefits across cluster firms and actors – such as common infrastructure, new technology demonstration workshops and skills training initiatives – will be fully financed under this subcomponent. Interventions with benefits to specific actors, such as joint marketing and branding efforts by cluster firms and delivery of BDS to firms will be financed on a partial basis, with user fees and community contributions accounting for part of the financing. Required community contributions for these activities increase over the life of the project - starting from 10 percent in year 1 and increasing to 70 percent by the end of the project - so as to ensure sustainability post-project period. BDS to cluster enterprises will be provided through the EDPF – under Component A – and through other specialist technical service organizations as needed. Entrepreneurship training will be provided through IFC's Business Edge program and through other similar entrepreneur-development training programs.

20. **Subcomponent B2. Supply chain support:** The objective of this subcomponent is to upgrade infrastructure for agricultural trade, which reduces wastage and value erosion in these clusters and to enable producers, agri entrepreneurs, and other value chain participants to access

new markets. The activities to be financed include: (i) improving rural access roads to the clusters; (ii) modernizing and upgrading warehouses, including issuing of warehouse receipts; (iii) upgrading and modernizing of regulated wholesale markets; and (iv) piloting e-marketing platforms. As a design principle, this subcomponent will support climate resilient and environmentally optimized road, market and warehouse designs such as use of alternative materials (e.g. flood accumulated local sand deposits, fly ash, etc.), renewable energy sources (e.g. solar), and bio-engineering measures for erosion control so as to provide green cover and serve as carbon sinks to mitigate the emissions from the project.

21. **Rehabilitation of access roads:** The focus of this activity would be on upgrading rural access roads<sup>15</sup> that are connected to the enterprise and production clusters, thereby providing connectivity and market access to the project beneficiaries. During project preparation, about 100 km of rural access roads have been identified. The investments in these roads would be complemented by piloting and upscaling innovative design, and low cost climate resilient construction. Activities to be financed include, among others, cost of road construction, consultancy services, and training of PWRD personnel – especially on climate resilient design and construction.

22. **Warehouse and warehouse receipts development:** The focus of this activity is to provide producers and agri-entrepreneurs, with high quality storage, access to finance through warehouse receipts, and option to sell via commodity exchanges. This would be done by upgradation and modernization of about 33 warehouses of the Assam State Warehousing Corporation (ASWC) to provide scientific storage; accreditation of these warehouses with Warehousing Development and Regulatory Authority (WDRA); partnering with commercial banks and collateral management agencies for negotiable warehouse receipt (NWR) financing of the stored goods; and piloting of online trading of selected commodities which allow such warehouses to be accredited as delivery centers for national electronic commodity exchanges. The activities to be financed would include modernization and upgrading of about 33 selected ASWC warehouses, setting up of commodity testing laboratories, purchase of computers and commodity exchange ticker displays, and electronic weighing machines in these warehouses as needed. In addition, the project will also finance training and capacity building of representatives of producer associations and related implementation staff. The training will encompass price analysis; systems and procedures to aggregate produce, access financing, and trade as a group; and benefits and risks in warehouse receipt financing and e-trading. The project will also finance technical assistance for the preparation of detailed architectural designs and work estimates along with detailed project proposal for each warehouse through a specialized agency to be engaged under the project as consultants.

23. **Upgradation and modernization of agricultural wholesale markets:** The marketing of most agricultural commodities in Assam is fragmented and uncoordinated, involving layers of intermediaries and markets with inadequate infrastructure and facilities, and supply chains involving high wastage and losses. The project will upgrade and modernize selected agricultural wholesale markets, for enhancing efficiency and reducing transaction costs, enabling automation of the business processes in the selected market and opening stand-alone physical markets to

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<sup>15</sup> Rural access roads connect project supported production clusters and enterprises clusters to higher classes of road, market centres and urban centers.

distant buyers. To achieve this, the project will support upgrading and modernizing the market infrastructure in agriculture wholesale markets, including about 10 wholesale markets managed by Agriculture Produce Market Committees (APMCs); and about 65 rural periodic markets (*haats*) owned by local bodies. The precise infrastructure requirement that would be needed in these markets would emerge from the market needs assessment through participative consultation with market users. This process will be facilitated by a qualified service provider. Illustrative basic infrastructure facilities that will be provided include: (i) sales platforms (auction yards, structures); (ii) covered auction sheds; (iii) toilets, and (iv) drinking water facility. This sub-component will also support: (i) capacity building and training of market functionaries and implementing agency staff, although the detailed training needs will come from training a needs assessment, an indicative list of trainings includes planning and implementation for market improvement; preparation and implementation of operations and maintenance plans for the market, post-harvest management, marketing and market extension; (ii) technical assistance for the preparation of detailed architectural designs and work estimates along with detailed project proposal for each market through a specialized agency to be engaged under the project as consultants; (iii) review and quality assurance of civil works by independent field engineers of the project; and (iv) technical assistance for effective enforcement of provisions of the Assam Agricultural Produce Marketing Act, Rules, and the newly setup agriculture market regulator in the State.

**Component C: Fostering Market-led Production and Resilience Enhancement (US\$132.80 million)**

24. The objective of this component is to enable producers of the priority value chains, in the targeted clusters, to take advantage of the rapidly changing market demand, and enhance resilience of agriculture production systems for increasing production and managing risks associated with climate change. This would be achieved by: (i) improvements in production technologies and management practices through climate resilient solutions; (ii) facilitation of collective-action by producers by supporting the establishment of farmer producer organizations (FPOs); (iii) improving value realization at the farm level through improved cleaning, grading and packing of produce through common service centers (CSCs) managed by FPOs; (iv) facilitation of market linkages through market information and intelligence; and (v) facilitating access to a broad set of financial services and their responsible use by producers. The component will adopt a cluster-based value-chain approach for providing support to producers for sustainably increasing their production and productivity; linking the producers with emerging supply chains, modernized wholesale agriculture markets and warehouses, under component B; and facilitating partnership opportunities with strategic and potential anchor and leading firms, supported under Component A. This component has the following three subcomponents:

25. **Subcomponent C1. Promoting climate resilient technologies and their adoption:** The objective of this sub-component is to support sustainable increase in production and productivity of the priority value chains, and promote the adoption of climate resilient solutions. This would be achieved by geographically targeted approach for the integrated development of these value chains and will make key investments in the production clusters of prioritized value chains.

26. The Assam State Action Plan on Climate Change has the district level climate projections for the state. Table below shows the projected changes in various climate parameters till mid-century. Temperatures continue to rise and may increase by 1.7-2.0°C with respect to base line. Only the western part of the State will experience slight decrease in rainfall, and the rest of Assam

is projected to have increase in rainfall. There is likely to be increase in extreme rain fall event by 5 to 38 percent with respect to base line. Droughts weeks are going to rise, with Southern districts showing marginal reduction in drought weeks but rest of the district show an increase by more than 75 percent with respect to baseline. As regards floods, they are going to rise by more than 25 percent in the southern parts of Assam.

*Projected changes in climate*

<i>Attributes</i>	<b>2021-2050 with respect to baseline</b>	<b>Remarks</b>
<i>Mean temperature</i>	1.7-2.0°C	All across Assam
<i>Annual Rain fall</i>	-5 to 5%	North western districts
	5-10%	North eastern districts
	10-25%	Central, south eastern districts
	5-38%	Rainfall >25 to 150 mm
<i>Extreme rainfall days</i>	5-38%	Rainfall >25 to 150 mm
<i>Drought weeks</i>	-25% to >75%	Southern districts show marginal reduction in drought weeks but rest show an increase by more than 75% with respect to baseline
<i>Floods</i>	Stream flow <10% to >25%	Minimum in north eastern districts, and maximum in southern part of the State

27. Given this scenario, this subcomponent following the guidelines under the India: National Action Plan on Climate Change (NAPCC), would address issues regarding ‘Sustainable Agriculture’ in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies. The project would support identification and introduction of new crop varieties, including stress tolerant varieties capable of withstanding flooding, variable moisture availability, and other extreme weather events. New technologies supported under the project would be done in close collaboration with the Indian National Agriculture Research System and the project partners. Additionally, the project would develop and promote extrapolation domains of suitable cultivars and cropping systems for efficient targeting of technologies in stress prone areas. As data on climate change is limited, the project would develop smartphone application to disseminate timely weather information such as now cast, short, medium, long range weather forecasts, remote sensed GIS data, crop phenology data and water information. The project will mitigate the increased emissions by reducing use of pesticides, fertilizers, better livestock rearing, feeding and disease control. Further project will adopt green building elements in energy, construction and improved fuel efficient vehicles to transport goods to enhance the mitigation co benefits under the project. Location specific climate risks for each activity will be taken into account and suitable adaptation and mitigation measures will be incorporated.

***Key investment planned in production clusters in prioritized value chains***

28. ***Horticulture, crop, spice and condiment value chains:*** Interventions in these value chains, implemented by the district Agricultural Technology Management Agencies (ATMAs), Department of Agriculture (including Horticulture directorate), and Assam Agricultural University (AAU) in collaboration with International Rice Research Institute (IRRI) and World Vegetable Center (WVC) and private sector partners like seed, farm machinery, fertilizer and other input suppliers, will focus on: (i) increasing productivity of identified field and horticultural crops, (ii) promoting diversification to pulses, oilseeds, maize, banana and vegetables, and (iii) improving quality of produce. The first phase of project (project years 1-3) will cover about 65,000 ha, the

second (project years 3-4) and third (project years 5-6) phase will expand the coverage to another 70,000 ha and 65,000 ha, respectively. The project would promote and upscale climate resilient technologies, and processes to mitigate the short to medium term climate variability projected for Assam. Specific interventions would include: (i) identify and validate cultivation of high yielding, climate resilient, stress tolerant varieties (e.g. rice varieties with *sub 1 gene* or *scuba gene* that are tolerant to submergence, salinity and drought, grafted vegetables), (ii) demonstration and capacity building interventions for improved crop management (including direct seeding, alternate wetting and drying), (iii) matching grants (CIG Grants) to producer groups for undertaking innovative pilots; (iv) development and application of ICT based decision support system for field specific recommendations, (v) strengthening seed systems for the production of stress tolerant varieties, and (vi) piloting remote sensing – GIS tools and agro-meteorology - to improve climate resilience. The project, through appropriate resource mapping exercise, will ensure convergence of project activities/ interventions with various GoI programs as well as state, and externally funded programs so as to avoid duplicity and repetition.

29. **Milk and pork value chains:** Interventions in these value chains, which are expected to cover about 117,000 dairy and pig producers, will be implemented by the district ATMAS, Departments of Animal Husbandry and Veterinary (including Dairy directorate), West Assam Milk Union (WAMUL), in collaboration with National Research Center (NRC) on Pig, and International Livestock Research Institute (ILRI) and private sector partners, will focus on: (i) increasing production and productivity by organizing smallholder producers into producer groups to access services, inputs and markets, including matching grants (CIG Grants) for improved housing and feed management, with in kind contribution by the beneficiary groups as per the norms given in the project implementation plan (PIP) (ii) developing and equipping a service delivery network (including pig *bandhus*) for breeding including a multiplier scheme for boars and artificial insemination services, feeding and animal health; (iii) common service centres to support access to inputs, post-harvest including bulk milk chillers, small scale slaughter; (iv) capacity building through skills training, demonstrations and exposure visits; (v) enhancing market access through enterprise development and promoting aggregation and processing, with a focus on food safety and human health risks; (vi) building state capacity to implement the Food Safety Standard Act for India (FSSAI); and (vii) training and certification of small scale market actors (like milk traders, sweet makers, and butchers) and increasing consumer awareness on food safety. Dairy development and meat production is expected to increase overall methane emissions. To mitigate the increase emissions from baseline scenario, the subcomponent will integrate improved breeding through artificial insemination, vaccination of cattle, improving feeding practices with specific agents that aid digestion to reduce methane (CH<sub>4</sub>). The project will improve feeding practices by introduction of concentrates, mineral mixes adding certain oils or oil seeds to the diet and improving pasture quality. To improve digestion specific agents and dietary additives would be added to reduce CH<sub>4</sub> emissions. Further to increase productivity through breeding and better management practices such as reduction in the number of replacement heifers will be adopted.

30. Furthermore, this subcomponent will support upgrading, and modernizing the processing and supply chain infrastructure of the three milk unions, to be operated under management arrangements with National Dairy Development Board (NDDB). The key activities to be financed will include, among others, modernization and upgrading of existing dairy plant at Guwahati; setting up a new processing plant at Jorhat; collection centres; and modern retail outlets. The

project would also finance related consultancy services including feasibility studies; and capacity building activities.

31. **Fisheries value chain.** Interventions in the fish value chain, implemented by the district ATMs and Department of Fisheries, in collaboration with WorldFish and private sector partners, will focus on: (i) improving quality of the inputs such as fish seed and feed for aquaculture by establishing seed multiplication centers for quality seed production of genetically improved strains of Indian carps (*Jayanti Rohu*), *GIFT tilapia* etc., in project districts, and establishment of new hatcheries with improved brood stock management for production of high yielding carps; (ii) organizing smallholder producers into producer groups to access services, inputs and markets; (iii) matching grants (CIG Grants) to these producer groups for increasing productivity and production through adoption of better management practices, with cash contribution by the beneficiary groups as per the norms given in the project implementation plan (PIP); (iii) promoting diversification of fish species by inclusion of small indigenous fish species through carp-*mola* polyculture technology; (iv) capacity building, training, and exposure visits of producers, awareness programs, on climate resilient aquaculture and fisheries and developing and implementing supporting policies and programs; and (v) improved post-harvest management, value addition and marketing of produce. The key activities to be financed will include, among others establishment of seed multiplication centres; upgradation of hatcheries; and technology demonstration in ponds, *beel* fishery and paddy-cum-fish farming in about 3900 ha. The project would also finance related consultancy services including feasibility studies; and capacity building activities.

32. The Project support to the **Sericulture value chain** will focus on end to end interventions to strengthen sericulture sector in Assam. The planned interventions will be implemented by the ATMs, and Department of Handloom and Textiles (including Sericulture directorate) in collaboration with Central Silk Board, Central Eri and Muga Research and Training Institute, Assam Agricultural University, North East Institute of Science and Technology, National Institute of Design, National Institute of Fashion Technology, Indian Institute of Technology, and other research, academic and private institutions. The *seed to raw silk* part of the value chain will target about 16,000 producers and the *raw silk to fabric* part of the value chain will target about 10,000 weavers. The major interventions planned are: (i) organizing producers into producer groups, (ii) matching grants (CIG Grants) to these producer groups for community infrastructure such as community *jali* houses, nurseries, cocoon houses, rearing houses, cocoon drying chambers, grainage houses, and weaver workspace for collective actions; (iii) technical assistance for improved skill and design development, (iv) facilitating technology upgradation and access to finance for the value chain stakeholders; and (v) upgrading existing marketing outlets, developing market channels, and launching branding campaigns.

33. **Subcomponent C2. Facilitating market linkages through market intelligence and product aggregation:** The objective of this sub-component is to organize the producers groups, established under sub-component C1, into farmer producer organizations (FPOs), and develop and strengthen their capacity and skills to more effectively link to input and output markets. This will be achieved by developing a market intelligence system and by providing matching grants (FPO Grants) to these FPOs for establishing common service centers (CSCs). The mobilization of producer groups to FPOs and establishment of CSCs will be carried out by suitably qualified service providers hired by the project. Producer-buyer and market linkage services will be



provided by the service provider hired by the project to establish FPOs and through the EDPF and stewardship councils under component A.

34. The project will support setting up of a market intelligence unit within Assam State Agriculture Marketing Board (ASAMB). The main objectives are to increase information transparency, profitability and market access to the farming community in the project districts. The market intelligence unit, will closely work with the EDPF and stewardship councils under component A, and is expected to provide producers, enterprises and trade intermediaries with relevant information, technical knowledge, and market intelligence; and support diversification and intensification of the production, aimed at responding to market demand and climate variability. The overall aim is to create a conducive environment for direct and sustainable commercial relations between producers/FPOs, and buyers of produce from the targeted value chains. Activities to be financed would include:

- (a) *Improving the understanding of the supply and the demand of the products of the targeted value chains:* This would include, surveys and diagnostics for the identification, characterization, and mapping of producers and potential buyers; communication and dissemination campaign to inform all actors in the value chains and other potential stakeholders about the scope and rules of the project through local workshops and mass-media outlets. Its aim is to ensure that producers and producers' organizations, potential buyers and providers of goods and services become aware of the opportunities presented by the project. Successful initiatives that can be replicated, will be disseminated widely to share knowledge on promising business opportunities; and an online-based information system on markets, prices, and services, technology, affiliated FPOs, etc., will be created, that will be open to all value chain actors.
- (b) *Connecting the demand and the supply:* This would include, market studies to identify concrete business and market opportunities for FPOs and buyers at the state, national, and regional level. To enhance producers' prospects of establishing viable and durable commercial relations with buyers, the project will support the identification of buyers that have a demonstrated demand for products generated from the targeted value chains; and facilitating the dialogue with stewardship councils to inform the policy reform agenda for the targeted value chains.

35. This sub-component will also support the establishment of Common Service Centers (CSCs). The CSCs are conceived as small scale aggregation places owned, managed and operated by FPOs. The project will finance 'productive' demand-driven investments, on a grant basis (FPO Grants), to FPOs, for establishing CSCs. Project funding will be provided based on the business plans prepared by them. The grants provided under these activities will be supported at 80 percent of costs with 20 percent contribution by beneficiaries. Establishment of about 100 CSCs and corresponding FPOs will be supported by the project, primarily focusing on prioritized value chains. These CSCs will better enable FPOs to undertake various activities such as bulk purchase of inputs for sale to individual members, marketing of produce, grading and quality control, and enhancing access to distant and higher value markets and bypassing existing market inequities. The benefits to the members of FPOs are expected to be higher prices through the combination of larger critical mass of saleable produce, thereby providing economies of scale, savings in

transaction costs, and strengthened negotiation positions, coupled with the added value achieved through primary grading and packing.

**36. Subcomponent C3. Facilitating access to and responsible use of financial services<sup>16</sup>:**

This subcomponent will fund three activities: (i) data collection and diagnostics on demand and supply of financial services to farmers and the enabling environment for these services; (ii) support innovations that can help deliver financial services at scale; and (iii) financial education and counseling. These activities together are expected to facilitate access to and responsible use of financial services for the producers; and thereby help them better manage their cash flows, make productivity enhancing investments, and better manage the business and non-business risks they face. Under *the data and diagnostic activity*, the demand-side representative sample surveys will be used to estimate the level of access, use and quality of financial services received by the producers and also assess their financial capabilities.<sup>17</sup> The diagnostic study will assess the institutional capacity, policies, staff capacity, availability of products - of financial institutions and other financial service providers to meet the financial services needs of the producers; the availability, cost, and ease of using financial infrastructure (credit bureaus, collateral registries) to reduce the cost, and risk of providing financial services; constraints and opportunities in the value chains to provide financial services; and, any state policies that constrain service provision. The subcomponent will support *the use of innovative approaches to deliver financial services* at scale to farmers targeted by the project. This will be done using a call for proposal approach to competitively select and fund proposals from financial service providers (banks, value chain financiers, insurance companies, payments service providers, financial infrastructure service providers, etc.) that aim to address one or more constraints identified through the data and diagnostics activity in one or more value chains supported by the project. These constraints could include limited outreach, inadequate domain knowledge, lack of products that meet the needs of the producers, limited access to financial infrastructure such as collateral registries and credit bureaus, and, appropriate tools to assess credit risks.

37. The *financial education and counseling activity* will aim to address the financial capability constraints identified through the demand-side survey in a manner tailored to the particularities of the value chains targeted by the project and drawing on lessons learned from the recent global experience in this area. Some of the notable lessons include using ‘teachable moments’ such as acquisition of an asset or cash windfalls after a good harvest; using social networks such as producer groups; providing education over a long period (rather than through one-time ‘financial literacy camps’) complimented with personalized counseling; and use of simulation games, Interactive Voice Response and mobile text messages.

**Component D: Project Management, Monitoring and Learning (US\$17.70 million).**

38. This component will ensure effective implementation of the project activities, and monitor and evaluate project implementation progress, outputs and outcomes, building on implementation

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<sup>16</sup> Defined to include payments, savings, credit, and insurance services necessary to carry out their businesses as well as their non-business needs.

<sup>17</sup> Defined as internal capacity to act in one’s best financial interest, given socio-economic environmental conditions. It encompasses the knowledge (literacy), attitudes, skills and behaviours of consumers with regard to managing their resources, and understanding, selecting, and making use of financial services that fit their needs.

experience of AACCP. The component will support: (i) strengthening and operations of a Project Coordination Unit (PCU), which will oversee and coordinate activities of the implementing agencies of the project; (ii) establishment and operations of Project Implementation Units (PIUs) in the respective implementing agencies; and (iii) setting up a monitoring and evaluation (M&E) system for the project, including a project management information system, and contracting an external M&E agency to monitor project activities and impact. The PCU will serve as the management and coordination unit for the project and will be responsible for preparation and implementation of overall project budget, and implementation progress reports. The PCU will provide M&E, social, environmental safeguards, procurement and fiduciary oversights to the project. This component will also finance incremental staffing for the project activities, consultancies, training and related material, office equipment, and incremental operational costs. Apart from the contractual staff/consultants to be hired under the project, substantial GoA manpower resources of the participating line departments of GoA would be engaged under the project and their salaries will not be funded under the project. The project will provide investment and technical support for the establishment of a sound management information system and information and communication technology (ICT) systems and accompanying capacity strengthening of key personnel.

## **Annex 3: Implementation Arrangements**

### **INDIA: Assam Agribusiness And Rural Transformation Project**

#### **Project Institutional and Implementation Arrangements**

1. The implementation arrangements for the project cover aspects related to governance structures for the project, coordination between various implementation partners, particularly representation and participation of the implementing entities under the Department of Industries and Commerce (I&E); Agriculture; Fisheries; Animal Husbandry and Veterinary (AHVD); Cooperation; Public Works Roads (PWRD); Handloom, Textiles and Sericulture (HTS), and Panchayat and Rural Development (P&RD) and Assam Agricultural University (AAU). This also covers the details regarding fund flow and fiduciary systems. The implementation structure described below follows the state, district, cluster and community level implementation and monitoring arrangements.

#### **Project administration mechanisms**

##### ***State level***

2. Overall management and coordination will be the responsibility of the Assam Rural Infrastructure and Agriculture Services (ARIAS) Society, an existing State-level registered autonomous body under the Government of Assam (GoA), which has satisfactorily completed the recently closed, bank funded Assam Agricultural Competitiveness Project (AACP). The Society is controlled by a Project Guidance Council (PGC), chaired by the Chief Secretary, GoA; and a Governing Body, chaired by the Agriculture Production Commissioner, GoA. The day-to-day executive control is with the State Project Director, who heads the Society's Project Coordination Unit (PCU). The relevant line Departments/Directorates/autonomous bodies, will be the implementing agencies for all the project activities falling under their area of responsibilities.

3. The senior most Secretaries of the implementing Departments, Finance, Planning and Development, and nominee of Vice Chancellor, Assam Agricultural University, are members of the Project Guidance Council (PGC) chaired by the Chief Secretary, GoA, with the Agriculture Production Commissioner, GoA as the member secretary. The representatives from the sector stewardship councils will also be invited to PGC. The PGC meets at least once a year to give overall advice, policy directives for smooth implementation, and monitor implementation of the project. The Governing Body (GB) is chaired by the Agriculture Production Commissioner, GoA, and has the Commissioners and Directors from implementing agencies as its members and the State Project Director as its member secretary. The key role of the GB is to ensure a coordinated approach across different line departments and stakeholders in the project. The GB meets every quarter and has the power to approve need based changes in the design, budget, annual action plan and administrative issues involved in the implementation of APART. Representatives from partners of the project like, WorldFish, IRRI, ILRI, WVC, banking institutions, etc., will be special invitees to the meetings of PGC and GB.

4. Coordination of the day-to-day project implementation, planning and scheduling, procurement management, financial control, as well as reporting and monitoring will be the responsibility of the Project Coordination Unit (PCU), which is the Secretariat of the ARIAS Society. The PCU will be responsible for: (i) assisting the implementing agencies in preparing

annual action plans and budgets; (ii) actions for approving annual action plan by GB/PGC, authorization of expenditures by implementing agencies, financial control, procurement management, monitoring progress of project components, preparing quarterly and other progress reports, evaluating performance and providing feedback to implementing agencies; (iii) ensuring the financial reports are available, audited, and submitted to the World Bank within nine months of closing of the financial year; (iv) hiring technical experts, and key consultants, as needed, for project implementation, monitoring, and technical evaluation; and (v) providing timely and quality resources as well as technical assistance to the State-level Project Implementation Units of the implementing agencies and also to the District Implementation Units (DIUs). The PCU is staffed with a team of professional staff and support staff, including a Chief Financial Controller, Procurement Specialist, M&E and MIS Specialists, Social and Environment specialists, and other needed specialists. In addition, participating implementing agencies will depute their representatives to the PCU, to coordinate with their respective departments.

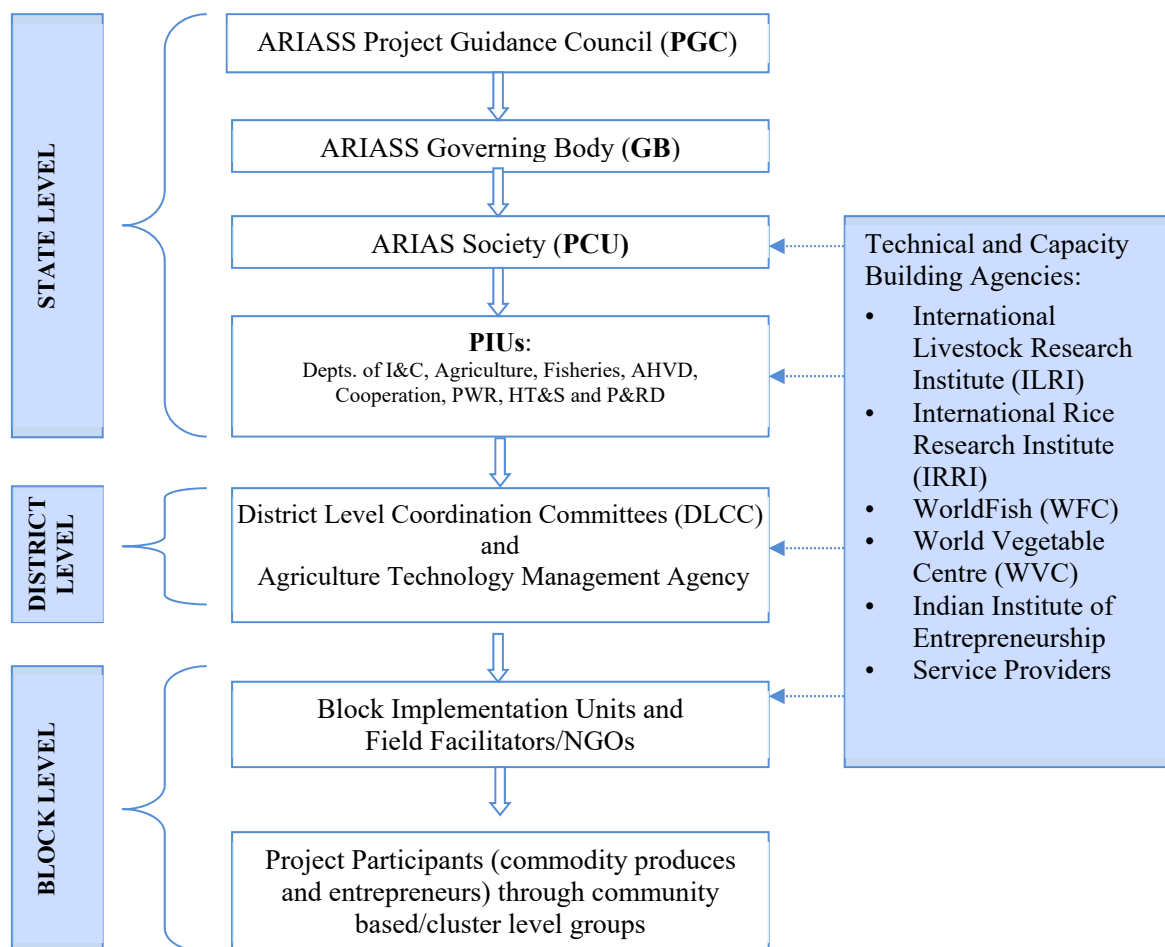
5. Eight Project Implementing Units (PIUs) have been setup within the participating line agencies - Department of Agriculture, Industries and Commerce, Fishery, Animal Husbandry and Veterinary, Public Works (Roads), Cooperation, Handloom, Textiles and Sericulture, and Panchayat and Rural Development to oversee the implementation of their specific activities. These PIUs headed by the senior most Secretary of the Department, will be responsible for coordination among the implementing agencies under it, compiling the Annual Action Plans prepared by the agencies and forwarding these to the PCU for approval, monitoring implementation of their respective annual action plans and other appropriate activities for smooth and coordinated implementation of project. A nodal officer has been designated by each of these implementing agencies to effectively liaise with the PCU. Besides the nodal officer, each of these implementing agencies will be supported by need based procurement, finance, safeguards, and technical specialists. The exact staffing of each PIU will vary and the staffing will be based on the quantum of activities undertaken by each implementing agency. Implementing agencies will make extensive use of NGOs, service providers, field facilitators, etc.

#### **District and Block level:**

6. To ensure coordination and review of the project progress at the district level, a District Level Coordination Committee (DLCC), headed by the Deputy Commissioner, with Additional Deputy Commissioner (Development) as member secretary and comprising all district level implementing agencies, lead banks, as members along with two or three support staff have been established. The DLCC supported by the project, will have the responsibility to ensure that: (i) the project beneficiary selection criteria is consistently adhered to by all the implementing agencies; (ii) progress of project activities at the district level are monitored; (iii) cross cutting implementation issues are resolved; (iv) duplicity of project activities with other schemes is avoided; and (v) convergence of complementary activities is maximized.

7. At the district level, implementation of the project activities would be coordinated by the respective Agricultural Technology Management Agency (ATMA), in collaboration with participating district offices of the implementing agencies, Krishi Vigyan Kendra (KVK), participating NGOs and private sector entities. In each district, the ATMA team will be responsible for the preparation of a Value Chain Development Plan (VCDP) of the prioritized commodities. The VCDP would be the basis for developing the Annual Action Plans for extension activities.

Training of line department staff in VCDP preparation and the technical backstopping to the preparation and implementation of VCDPs will be provided by identified resources agencies. The ATMA, along with the district offices of the implementing agencies will be responsible for: (i) implementation of project activities at district level and below; (ii) achievement of physical and financial milestones; (iii) quality assurance; and (iv) working closely with producer communities and entrepreneurs to achieve the project development objectives. The ATMA and the district offices of the implementing agencies will be supported by additional resources, including subject matter specialists, as needed. Project implementation arrangements are shown diagrammatically in **Figure 1**.



8. A Project Implementation Plan (PIP) has been prepared explaining the roles and responsibilities of district offices of line departments, and project support organizations, for all project activities, and detailing arrangements for the flow of funds down to implementing units/project participants in the field. Selection criteria for participating groups have been agreed, and are included in the PIP. The PIP will be subject to periodic reviews conducted jointly by GoA and the World Bank with stakeholder participation to address any constraints to the successful implementation of the project.

9. The project will collaborate with both national and international institutions for training, technical backstopping. The project is collaborating with the Consultative Group on International

Agricultural Research (CGIAR) centers namely the International Rice Research Institute (IRRI), the WorldFish (WFC), the International Livestock Research Institute (ILRI), the World Vegetable Center (AVRDC/WVC); Wageningen University and Research Center; and the National Research Centre on Pig. Furthermore, the project would partner with the Korean World Bank Partnership Facility (KWPF) for piloting automated sensor applications for improving water use efficiency in rice production.

### **Specific implementation arrangements for key subcomponents:**

#### **Component A: Enabling Agri-Enterprise Development.**

10. **Subcomponent A1. Enhancing state capacity to attract private investment** will be implemented by the newly established ABIP, within the Department of Industries and Commerce at the state level, and DICC's at the district level. For conducting, the sector prioritization exercise, the project would hire a qualified consultant, and prioritized sectors finalized through a well-defined criteria and in consultations with relevant stakeholders. Following the sector prioritization, the project would undertake, source market analysis to identify high potential target markets for proactive investment promotion, leading to development of the investment promotion strategy for the state. For specifically promoting the agribusiness sector, the project will support the development of unique selling proposition messages for Assam, design and production of marketing materials, conducting road shows, etc. The state level activities will be anchored by ABIP in coordination with PIU. Some of these activities along with set of specific interventions around staff training, physical upgradation of DICC office premises, etc., will be carried out at district level. The district level implementation will be taken up through development and implementation of annual action plan (in sync with activities of component B on agro industrial clusters) by respective DICC's with monitoring and coordination from PIU in the Industries Department. The PCU will ensure that the district level plans (for both components A and B) are prepared and implemented in an integrated manner covering all aspects of enterprise development.

11. **Subcomponent A2. Setting up Enterprise Development and Promotion Facility (EDPF):** The organizations involved in the implementation of EDPF are the: (i) Project Coordinating Unit (PCU) with overall responsibility for the Facility; and (ii) a service provider contracted from the private sector responsible for EDPF operations. The PCU will: ensure that EDPF remains fully aligned to and supportive of the state's economic policies and the objective of enabling agri-enterprise development in state; it will oversee the implementation of EDPF by the Service Provider including approving annual work plans and budgets; lead the process of disseminating learning arising from enterprise supported and stakeholder interactions towards creating a more conducive local business enabling environment. The contracted service provider will staff EDPF's offices and manage its on-going program of activities. The service provider will provide business development advisory and incubation services to the identified agri-enterprises and facilitate their access to financial services.

12. **Subcomponent A3. Agribusiness Fund support** will be implemented by the Department of Industries. The Department of Industries will represent GoA as the anchor Limited Partner (LP) in a new Fund sponsored by GoA or as an LP in an existing Fund. The GoA, as represented by the Department of Industries, will not have a say in investment decisions, which will be the responsibility of Fund Manager/General Partner (GP). The GP will manage the Fund in accordance

with the PIP and any additional guidelines agreed with the LPs. The Fund Manager and the Fund must be willing to comply with mandatory World Bank fiduciary, safeguards, reporting and monitoring and evaluation requirements and other requirements as described in the “AIF Operational Manual”. The Fund Manager and potential investors will be evaluated before participating in the Fund using processes that mirror the IFC’s integrity due diligence approach (IDD). Investee companies will be required to provide financial and non-financial information, as required by reporting requirements, to the Fund Manager on a regular basis.

## **Component B: Facilitating Agro Cluster Development.**

13. **Subcomponent B1. Support establishment of cluster level Industry Association:** This sub component will be implemented by the Department of Industries. A three-person Cluster Facilitation Team (CFTs) will be set up at the district level, responsible for mobilization of cluster development actors, development of AIDPs, and coordinating service delivery through interfacing with the identified technical service providers and coordinating convergence at the local level with line departments. A Cluster Facilitation Team at the state level will provide technical support to the CFTs at the district level, specifically for identifying and hiring technical partners for training of CFTs in relevant areas; developing and updating standardized cluster development processes, checklists and AIDP templates across clusters; capturing and disseminating knowledge on best practices from AIDPs across clusters; and providing handholding assistance to district teams for delivery of services at the cluster level. At the state level, the CFT will comprise of a Cluster Development Program Manager and two Assistant Managers / Coordinators, and at the district level, the CFT will comprise of a Cluster Facilitation Coordinator (CFT) and two Cluster Facilitation Coordinators (CFCs).

14. **Subcomponent B2. Supply chain support:** Implementation of: access road rehabilitation, and upgradation and modernization of agricultural wholesale markets and warehouse will be the responsibility of PWRD, in coordination with the respective line departments/agencies. Feasibility studies, and design for the market and warehouse modernization will be carried out by suitably qualified consultants, based on which the program will be implemented. Upgradation and modernization proposal will be prepared in active consultation with relevant stakeholders. The project will also support the recruitment of independent Field Engineer to ensure compliance with engineering design, technical specification and contract conditions.

## **Component C: Fostering Market-led Production and Resilience Enhancement.**

15. **Implementation of Subcomponent C1 Promoting climate resilient technologies and their adoption** will be the responsibility of district Agricultural Technology Management Agency (ATMAs) and Departments of Agriculture, Horticulture, Animal Husbandry and Veterinary, Fisheries, Sericulture, and Handloom and Textiles, WAMUL, and Assam Agricultural University with support from National Research Center on Pig, IRRI, ILRI, WFC and WVC. The Department of Agriculture, Animal Husbandry and Sericulture will be responsible for organizing farmers into producer groups and larger producer groups using service providers. Based on an analysis of selected value chains, viz., cereals (rice, maize), pulses (lentil, black gram), fruits and vegetables (tomato, cucurbits, banana, potato), spices and condiments (ginger, turmeric, mustard), and livestock and fisheries (pork, milk, fish), district wise Value Chain Development Plans (VCDPs)



will be prepared. Annual Work Plans (AWPs) will be developed based on VCDPs. Although the specific interventions will emerge from AWP, the broad generic activities will include demonstration of improved technologies related to agriculture, horticulture, animal husbandry, fisheries and sericulture, organization of farmers into producer groups, producer organizations/companies, and training of farmers, fishers and line department staff. The Nodal Officers of the participating line departments and AAU, and PCU will ensure that the VCDPs and AWP emerging from them are prepared and implemented in an integrated manner covering all aspects from production, aggregation, farm level grading, packaging and value addition, processing and marketing.

**16. Subcomponent C2 Facilitating market linkages through market intelligence and product aggregation** will be implemented by the Department of Agriculture and ARIAS society (through PCU) with support from ATMAs and Departments Horticulture, Animal Husbandry and Veterinary and Fisheries and qualified service providers, by setting up FPO operated Common Service Centers and linking FPO and its members with different marketing channels. Three private service providers will be contracted by the PCU to mobilize producer groups, and establish FPOs. They will be hired for five years to establish FPOs and handhold each FPO in their marketing arrangements, particularly identifying alternative market channels, establishing linkages with higher value markets, and altering post-harvest practices as per market need. The size and scope of a particular FPO will not be pre-determined but will allow a demand led process. Depending on the capacity, maturity and needs these FPO will be formed. The FPO is expected to be a group based federation of 15-20 producer groups, with each producer group consisting of about 15-20 farmers or a membership based federation consisting of about 350-400 farmers. Wherever possible the existing producer groups will be motivated to join the FPO. At critical stages these FPOs will be evaluated on appropriate indicators such as membership attendance, membership strength, record keeping, growth in membership, retention of members, volume and value of marketed produce to assess their maturity. The project has a clearly laid-out sequence of activities for the formation of FPOs that will guide implementation at the community level, which are detailed in the project implementation plan. The implementation cycle will have four sequential but interlinked stages, including: (i) social mobilization and producer group formation; (ii) group nurturing and capacity building; (iii) formation of FPO and establishment of CSCs (based on a business plan); and (iv) handholding of FPOs.

**17. Setting up market intelligence.** This will be implemented by ASAMB in close collaboration with PCU. For market information services, specifically the Agricultural Short Messaging Services (SMS), will be outsourced through competitive bidding to a suitably qualified and experienced private sector service provider to disseminate SMS based agricultural and market information service in local language. The ASAMB and DoA will organize trainings for producers on market and agricultural information services, which the selected service provider will deliver. For market intelligence services, project will hire a qualified service provider to staff the market intelligence cell (illustrative staffing consisting of economist, market analyst, IT expert, etc.).

**18. Subcomponent C3 Facilitating access to and responsible use of financial services** will be implemented by the PCU with the support of competitively selected technical service providers. A firm with expertise in conducting surveys will be contracted to implement the demand -side surveys, and a firm with expertise in institutional assessments and strategic analysis

will be contracted to undertake the diagnostics study. For the innovations activity, a technical service provider will be contracted to manage the challenge fund. The service provider will issue multiple rounds of calls for proposals, facilitate evaluation of the proposals by an expert panel and selection of proposals for funding, facilitate funding of the selected proposals through grants, monitor the implementation of sub-projects, and report results. The proposals will be evaluated based on criteria that assess the likelihood of maximum development impact at the least cost. A phased approach that would allow funding to be committed in multiple stages based on assessment of results will be encouraged when testing innovations. Lastly, the financial education and counseling activity will be implemented by a technical service provider with expertise in this area in close collaboration with other project entities and service providers.

### **Implementation responsibility matrix**

19. A brief overview of the various key activities, and responsible implementing agencies for these components and sub components are described below:

<b>Component and Sub components</b>	<b>Key Activities</b>	<b>Responsible Implementing Unit</b>
<b>Component A: Enabling Agri Enterprise Development</b>		
A1: Enhancing state capacity to attract private investments.	a. Strengthen Assam Bureau of Investment Promotion (ABIP), b. Capacity building and outreach, c. Strengthen District and Industries and Commerce Centers (DICC's).	a. Department of Industries and Commerce. b. Works related to upgrading of DICC premises by PWRD.
A2: Setting up Enterprise Development and Promotion Facility (EDPF)	a. Market scanning, market and value chain studies, mentorship programs; scouting new technologies; assisting small and medium entrepreneurs to prepare business and financial proposals; and providing incubation services to agri-entrepreneurs.	a. ARIAS Society, through qualified service provider hired from the market.
A3: Agribusiness Fund support	a. Conduct a Feasibility Study for the Fund b. Contract a suitable Fund Manager for the Agribusiness Fund c. Prepare and issue a AIF Operations Manual and ensure Fund operations adhere to the requirements of the manual.	a. Department of Industries and Commerce, through qualified fund manager.
A4: Establishing stewardship councils	b. Setting up and establishment of stewardship councils c. Preparation of detailed action plans and, feasibility studies, for the sustainable growth of the identified value chains, d. Technical assistance to develop a market based vision and strategic action plan for each value chain, e. Need based matching grant on the basis of business plans prepared by the councils	a. ARIAS Society, through qualified service provider hired from the market.
<b>Component B: Facilitating Agro Cluster Development</b>		
B1: Support establishment of cluster level Industry Association	a. Mobilizing agri-enterprises into Industries Associations (IAs).	a. Department of Industries and Commerce through cluster facilitation team at state and district level.

	<ul style="list-style-type: none"> <li>b. Strengthen the capacity of IAs to develop an Agro Industrial Development Plans (AIDPs) and part financing AIDP.</li> <li>c. Enhancing access of agri-enterprises to needed technical and Business Development Services (BDSs).</li> </ul>	<ul style="list-style-type: none"> <li>b. EDPF for BDS.</li> </ul>
B2. Supply chain support	<ul style="list-style-type: none"> <li>a. Rehabilitation of rural road connected to clusters,</li> <li>b. Modernizing and upgrading warehouses, including issuing of warehouse receipts,</li> <li>c. Upgrading and modernizing of regulated wholesale markets.</li> </ul>	<ul style="list-style-type: none"> <li>a. PWRD</li> <li>b. ASWC and works by PWRD</li> <li>c. ASAMB and works by PWRD</li> </ul>
<b>C: Fostering Market-led Production and Resilience Enhancement</b>		
C1. Promoting climate resilient technologies and their adoption	<ul style="list-style-type: none"> <li>a. Horticulture, crop, spices and condiments value chains.</li> <li>b. Milk and pork value chains</li> <li>c. Fisheries value chain</li> <li>d. Sericulture value chain</li> </ul>	<ul style="list-style-type: none"> <li>a. ATMA, Department of Agriculture (including Horticulture directorate), and AAU.</li> <li>b. ATMA, Department of Animal Husbandry and Veterinary (including Dairy directorate, WAMUL).</li> <li>c. ATMA and Department of Fisheries</li> <li>d. ATMA, and Department of Handloom and Textiles (including Sericulture directorate)</li> </ul>
C2. Facilitating market linkages through market intelligence and product aggregation	<ul style="list-style-type: none"> <li>a. Organize the producers groups, into farmer producer organizations (FPOs),</li> <li>b. Matching grant to these FPOs for establishing common service centers (CSCs)</li> <li>c. Setting up of market intelligence unit</li> </ul>	<ul style="list-style-type: none"> <li>a. ARIAS Society, through qualified service provider hired from the market.</li> <li>b. EDPF</li> <li>c. ASAMB</li> </ul>
C3. Facilitating access to and responsible use of financial services	<ul style="list-style-type: none"> <li>a. Provide financial education and counseling to farmers organized by project into Common Interest Groups</li> <li>b. Support innovative approaches to delivering financial services at scale to farmers in project's target value chains</li> </ul>	<ul style="list-style-type: none"> <li>a. ARIAS Society, through qualified service providers hired from the market.</li> </ul>
<b>Component D: Project Management, Monitoring and Learning</b>		
	<ul style="list-style-type: none"> <li>a. Coordination and oversight.</li> <li>b. Hiring of key service providers including M&amp;E consultants, MIS consultants, etc.</li> <li>c. Safeguards</li> </ul>	<ul style="list-style-type: none"> <li>a. ARIAS Society</li> </ul>

## **Financial Management, Disbursements and Procurement**

### *Financial Management*

20. The financial management arrangements are considered to be adequate to account for and report on the project expenditures. The financial management arrangements of the APART are built on the existing arrangements of the recently closed AACCP, with modifications and enhancements related to the new activities, departments and entities which are proposed to be included in APART.

21. **Budget:** Based on learnings from the earlier project it is proposed that the fund requirements of the project would be budgeted under the Demand for Grant of one department (Department of Agriculture) as against multiple project budget lines (Demand for Grant) of all the participating departments. This will provide a greater level of flexibility to society to manage resources, simplify withdrawal of funds from the treasury and in submission of utilization reports. The GoA had provided for budget of INR 1500 million for the project in FY 2017-18.

22. **Funds Flow:** The parent-child account banking arrangement which was successfully implemented under the closed AACP, will be extended to this project also. Under this all PIUs and district level implementing units will have zero balance child account with the same bank as in the earlier project. With implementation responsibility for most of activities under component C being vested with the ATMA's, district offices of Fishery, Handloom & Textile, Sericulture, Horticulture and Dairy will not have child accounts; instead all payments (grants to beneficiaries, suppliers, works and operating costs) for work done by these district offices will be made by respective district ATMA's on recommendations made by respective District officers of the above departments. Implementing entities with child accounts will operate and make electronic payments within fund limits approved by the PCU. The fund limits will be approved by the PCU based on PIU's annual work plan and projected fund requirement and adjusted periodically. Such an arrangement will enable the PCU to manage resources better and the benefits include: no idle funds at any of the decentralized implementing units; all payment to vendors, suppliers and beneficiaries done electronically with mobile based alerts; and customized MIS from the banks, which will enable validation of monthly financial reports from the implementing entities.

23. **Accounting and internal controls:** The existing project financial management (FM) manual has been updated to reflect the new activities and implementing agencies, responsibilities for financial management and the chart of accounts has also been updated to reflect the proposed project components/ sub-components and activities. Some of the key agreements on financial management include:

- (a) **Responsibility for civil works.** A desk review of some of the new entity's (Assam State Agriculture Marketing Board (ASAMB), and Assam State Warehousing Corporation (ASWC) both public sector entities) financial statements indicate that the financial position, financial accountability and capacity are weak with backlogs in accounts and/or audit; defaults in statutory compliances etc. Accordingly, it has been agreed that all civil works related to these sub-components will be executed by the Public Works (Roads) Department. ASAMB and ASWC will only manage small value contracts. ASAMB and ASWC will not have child account. They will not be the accounting centers for the project. Only *imprest* advance for operating cost, workshop and training will be provided to them by the project. Both ASAMB and ASWC shall report expenditure (with original bills) based on which the expenditure shall be booked by the PCU and advance adjusted. Further *imprest* shall be given based on the projected expenditure.
- (b) WAMUL, which was an implementing entity in AACP and relatively a well-functioning milk union and managed by NDDB, will also take implementation responsibility for the Eastern and Upper Assam Milk Unions, which are new entities.

- (c) **Accounting for beneficiary contribution.** In the project, beneficiary contribution shall be either in the form of cash or in kind. Similar to the earlier project (AACP), beneficiary contributions made by the user groups shall not be recorded in the books of Accounts of the project, but will be recorded in memorandum accounts by the implementing agencies as per the FMM, based on periodic financial reports submitted by the groups.
- (d) **Grants to producer groups, FPOs, IAs and stewardship councils.** The project will provide matching grants to small producer groups (CIGs), registered FPOs, registered industry associations and stewardship council, with beneficiary contributions varying from 20 percent to 50 percent. The grants will be provided in 2-3 instalments and based on approved business plans and meeting conditions for tranche releases. Such grants, consistent with the practice under AACP, will be treated as grant advance and in the books of accounts and based on receipt of utilization report, it will be recognized as expenditure and claimed as reimbursement from the Bank. Grants to small producer groups will be approved and, monitored and accounted for by ATMA's, while grants to FPO's, industry associations and stewardship councils will be approved at the state level. ATMA's will maintain memorandum records to track the beneficiary contribution.
- (e) **In respect of the Agribusiness Investment Fund (AIF),** which will be partially funded/capitalized by the project and provide seed capital/subordinate debt to business enterprises, expenditure will be recognized (and eligible for reimbursement) at the time of capitalization of the fund by the project. The capitalization will be on the basis on 'call for drawdown of funds', which in turn will be triggered by investment proposals approved by the fund. Overall operation of the Fund including its governance, operations and due diligence and management of funds and returns will be documented in the AIF Operational manual. The fund will submit periodic reports on the actual utilization (i.e. actual investment in investee companies against the capitalization, utilization of technical assistance) to the project. Any funds for capitalization, which does not get invested at the close of the project will be refunded to the project and will be adjusted from the expenditure eligible for reimbursement by the Bank.
- (f) **Partnership with international and national agencies.** The project also intends to partner international and national level agencies (IRRI, ILRI, WFC, WVC, NRC on Pig etc.). Such partners will be consultants to the project, with whom the project will sign agreements. Funds will flow to such agencies on the basis of approved annual plans and expenditure will be recognized depending on the nature of the contractual agreements i.e. input or output based agreements.

24. **Finance Staffing:** The project has updated the Human Resources (HR) manual and policy of the society. The project has the project finance staff in place along with a Chief Finance Controller. Given the enhanced complexities and new initiatives on more extensive engagement with private sector the state government has agreed and the project is hiring a qualified Chartered Accountant on a full time basis to head the financial management functions with the official from the state finance services playing an advisory role. The finance head will be supported by senior and junior finance consultants in the PCU and sixteen District Accounts Managers and accountants in the ATMAs, replicating the successful arrangements under AACP. The responsibility of the district accounts manager, who will be mobile with a laptop loaded with existing accounting system and project specific chart of accounts, will be to: (i) make monthly visit to district level implementing entities across departments to review the vouchers, carry out bank reconciliations;

and (ii) capture the transaction level details in existing accounting system from the basic cash book maintained at each implementing entity. This will be used to consolidate the accounts at the state level on a monthly basis and generate the consolidated financial statements and reports.

25. **Financial Reporting:** The financial reporting (interim financial reports) under the project would be by the project components broken down by components and activities. These are closely linked to the activity code in the project chart of accounts. The finance unit in the PCU will have the responsibility of consolidating the monthly expenditure reports from the PIUs submitting the consolidated interim and annual financial reports to the Bank. The interim financial reports would be used as the basis for disbursement.

26. **External Audit:** A private firm of Chartered Accountants (CA) appointed in a manner acceptable to the Bank will carry out the external audit of the project financial statements. The audits will be carried out as per the terms of reference for audit acceptable to the Bank. The same firm will also carry out a six monthly review of selected PIU's and selected grant beneficiaries. The financial audit report will be submitted to the Bank within nine months of the close of each financial year, and the procurement cum physical review reports within twelve months of the close of each year. While the bylaws of ARIAS society regarding external audit arrangements, provide for external audit by both Accountant General (AG) and CA firm, however, the project will rely on the audit report of the CA firm as the audit by AG is carried out with a lag. Such project audit reports will be publically disclosed on the society's website. The following audit reports will be monitored in Bank's internal systems:

Implementing Agency	Audit	Auditors
ARIAS Society	Project Audit	Firm of Chartered Accountants
CAAA	Special Account	Comptroller and Auditor General of India

### *Disbursements*

27. **Disbursement Arrangements.** Funds from the Bank will be made available to GoA (through the GoI) under the standard terms of on-lending between GoI and the States. The applicable disbursement method will be 'Reimbursement' with GoA pre-financing the project expenditures. The disbursements will be made on the basis of expenditures reported in the quarterly IUFR. The Bank will finance 80 percent of the total project expenditures excluding beneficiary contribution under the following disbursement category.

Category	Amount of the Loan Allocated (expressed in USD)	Percentage of Expenditures to be financed (inclusive of Taxes)
(1) Goods, works, non-consulting services, consulting services, Sector Stewardship Council Grants, IA Grants, FPO Grants, CIG Grants, Training, and Operating Costs for the Project	184,500,000	80%
(2) Capital Contribution to the Agribusiness Investment Fund	15,000,000	80%

(3) Front-end Fee	500,000	Amount payable pursuant to Section 2.03 of this Agreement in accordance with Section 2.07 (b) of the General Conditions
(4) Interest Rate Cap or Interest Rate Collar premium		Amount due pursuant to Section 2.08(c) of the Loan Agreement
Total amount	200,000,000	

### *Procurement*

28. **General:** Procurement would be carried out in accordance with the World Bank's Procurement Framework 2016 and "Procurement Regulations for Borrowers 2016" will be applicable for all procurement under the project. As per requirement of this, a comprehensive Project Procurement Strategy for Development (PPSD) has been prepared by the project and finalized after review by the Bank.

29. **Project Procurement Development Objectives (PPDO).** The project procurement objectives are the following:

- (a) To ensure procurement efficiency and ensure value for money that contributes to agricultural productivity and enhances market linkages in selected rural districts of Assam;
- (b) To ensure appropriate market participation in relatively low to medium value civil works that are critical for realizing project development objectives;
- (c) To facilitate strategic partnerships with select international organizations for increased value-additions and improved resilience in the production and processing of selected agriculture commodities; and
- (d) To ensure effective contract management that facilitates the market linkages for small and medium farmers in terms of technical services and physical assets procured through the project.

30. **Project Procurement Result Indicators.** The achievement of the PPDO will be measured by the following indicators:

- (a) Increase in completion rate by 50 percent for works contracts compared with the predecessor project Assam Agricultural Competitiveness Project (AACP);
- (b) Reduction in rebidding cases by 50 percent compared with the predecessor project AACP;
- (c) Timely completion of major contracts by 75%.

31. **Key procurement under the project.** The project's total value is US\$262.40 million of which about US\$44 million contributes to the procurement of works contracts for the construction of roads, warehouse, markets, etc.

- (a) *Civil Works.* There are civil works anticipated for implementation of Component B and C: and under the community driven initiatives. To implement component C, small-scale community infrastructure and technology support (minor works or repair of existing community facilities in the targeted project locations).

- (b) *Procurement of Goods and Non-Consulting Services.* Goods required under the project would include goods and non-consulting services such as office supplies, community awareness supplies, consumables, rentals, etc. As per PPSD, appropriate procurement method will be selected and mentioned in the procurement plan.
- (c) *Selection of Consultants.* Given the innovative nature of the project, the project will have significant value agreements with research agencies like WorldFish (WFC), International Livestock Research Institute (ILRI), International Rice Research Institute (IRRI), World Vegetable Centre, Wageningen University, and National Research Centre (NRC) on Pig. These agencies will be consultants to the project, with whom the project will sign agreements. Project will also have some significant and high value consultancy contracts for setting up of investment fund and EDPF. Also, there are a few high value firms and individual consultant contracts. As per PPSD, appropriate procurement method will be selected and mentioned in the procurement plan.
- (d) *Community participation in procurement.* The project will finance community level, (producer groups, FPOs, IAs and stewardship councils), activities including works such as small works and equipment for community infrastructure, activities and materials. Simplified procurement methods may be included, e.g. local shopping for goods, local shopping for works, Direct Contracting/Off the shelf purchases, etc. The PPSD has helped to identify the major items that account for about 30 percent of the project funds and for the same, framework agreements will be established.

32. **Client capability assessment.** The Project will be implemented, monitored and coordinated by the ARIAS Society, which has satisfactorily implemented two World Bank aided projects. Following SWOT analysis shows the Strengths, Weaknesses, Opportunities and Threats of this society.

Strengths	Weaknesses	Opportunities	Threats
i. The ARIAS Society has substantial experience of working with Bank funded projects and has availability of highly qualified and experienced work force for the project; ii. Existing arrangements for coordination at lower levels like districts, block and community level including NGO support and third	i. The project however, has eight implementing agencies, excluding ARIAS society, which are either the government departments or state owned agencies. All of them do not have the same level of experience of project implementation as of ARIAS Society especially with regard to the	i. The project may leverage from the rich experience it has gained about the market and supplier preferences from the implementation experience of previous two Bank funded projects in agriculture sector; ii. It is expected that Assam Public Procurement Bill, under preparation at present and other reforms expected to be effective by next Financial Year, will	i. Coordination among the implementing agencies may cause delays in decision making; ii. Unavailability of consulting firms interested in Assam based support in the innovative areas of the project (e.g. investment fund, enterprise development facility etc.) and service providers could adversely affect successful closure of contracts leading to



party monitoring arrangements act as horizontal fiduciary measures for community procurement activities; iii. The project intends to develop a mobile application for managing and mitigating risks in implementing proposed framework agreements for community procured items.	World Bank projects; ii. Complaints and Grievance Redress System needs improvement, as at present the expected resolution mechanism is limited to the administrative systems of the procurement entity	positively influence the project; iii. Limited tendering option to be adopted among registered contractors for large number of low value bids at district and sub-district levels, and the mobile application led monitoring and troubleshooting for community procurement will positively influence the early disbursement rates of the project.	rebidding which will affect the implementation of various components of the project; iii. Delay in timely availability of funds for payments to contractors may have an adverse impact on project implementation; iv. Floods and other force majeure situations for which the state is prone may affect contract completion in many project districts
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33. **Procurement risk assessment.** Given the above SWOT analysis, experience and the core capacity created in the PCU, implementation of the procurement program will be mainly lead by the ARIAS Society with all works contracts delegated to the PIU (PWRD) and procurement of routine goods and equipment up to US\$ 50,000 would be delegated to other implementing agencies and anything above this threshold the procurement will be prior reviewed by ARIAS Society. As per the latest State Government rule, all procurement above US\$30,000 (approx. equivalent of INR 20 Lakhs) will mandatorily have to go through the e-procurement portal <https://assamtenders.gov.in>. The project will also adhere to this rule. However, the State e-procurement portal does not support consultancy assignments, e.g. issuing of REOI and technical evaluation. In view of the same, all consultancy procurements will be done manually. The Project will continue with its successful experience with community based procurement, and an innovative mobile based application is being developed for providing appropriate market and item details to the community groups. However, as this project involves many new and innovative aspects, this will be more challenging than the previous World Bank funded projects in this sector. Apart from delays in procurement process, contract management delays and disputes are potential problem areas.

34. **Market analysis.** An analysis of key focus areas for procurement under the project and its market was carried out as part of the preparation of this PPSD. The same is summarized below:

Civil works	Civil works planned under the project including roads, and markets are small to medium in value and size. The market for these works contracts would be predominantly through bidders available at state and district level. Most of these bidders are registered with the State PWRD. PWRD has fully computerized the vendor/contractor registration process under the Bank supported projects, and currently about 3000 registered Class-I contractors are there. The list is available with
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	the project. The state has adequate market for raw materials for construction and the supply is assured for most of the construction periods. The Project would, however, be ensuring advance planning and scheduling of material supply as part of contract management plans. Typically, a Bank project generally get a bidder participation rate of 3-5 per bid, however the e-procurement platform, for works procurement to be used by the PWRD, is expected to generate further interest in the market.
Vaccines for livestock	Vaccines (viz., FMD, HS2BQ, Cysticercosis and Classical Swine fever) are needed for livestock interventions in the project. The market for these vaccines is limited with in very few manufacturers and suppliers. These are: Indian Immunologicals, Hyderabad, Bio – Vet Bangalore, Brilliant-Vet, Bangalore, and Indian Veterinary Biological, Bangalore.
Bulk Milk Coolers	The project would support farm level milk collection. The supplier market for this has number of players, and some of them already have Framework Agreements (FA) with National Dairy Development Board (NDDB) which is implementing another Bank funded project viz., ‘National Dairy Plan’ (NDP) across 14 major dairying states of India, excluding Assam. As per this list under the said FA, which is valid till 2017, the following vendors are included: M/s Venture Steels Pvt. Ltd, Pune; M/s Serap India Pvt. Ltd, Vadodara; M/s ISF Industries Pvt. Ltd, Chennai, M/s. Chadha Sales Pvt. Ltd., Delhi ( <a href="http://www.nddb.coop/ndpi/resources/procurement/revised-list-suppliers-supply-amcu-bmcu-ss-milk-cans-and-dpmcu">http://www.nddb.coop/ndpi/resources/procurement/revised-list-suppliers-supply-amcu-bmcu-ss-milk-cans-and-dpmcu</a> ). The Project would leverage from NDDB’s list of suppliers as the same has already been approved by the Bank.
Milk Processing Plant	There are players in India to undertake ‘milk processing’ on a turnkey basis, such as Nirmal Enterprises; Delhi; Skylark Engineers, Pune; Phoenix Dairy-tech Solutions Pvt. Ltd, Pune; GEA India, Vadodara and other similar firms. The detailed project report (DPR) will be prepared prior to the procurement of this activity. Based on the DPR, the project will initiate open competitive procurement actions.
Community Procurement	For common items to be used by producer groups, FPOs, IAs and stewardship councils, framework contracts, where applicable would be established. Assam has gained considerable experience in this area and the same would be adopted for the project needs. Based on the past experience, there are enough manufacturers for such equipment in India.
Key consultancies for components A, B and C	Consulting agencies will also be required for sub-sector scan study, setting up of Enterprise Development and Promotion Facility (EDPF), sector stewardship council, industry association, collateral management services, preparing DPRs for construction of markets, warehouses, roads; developing FPOs, market intelligence, financial education and counselling, value chain financing, M & E and Project MIS and other small value assignments. For the agribusiness fund, potential fund managers include current pan India agribusiness fund managers (e.g. SEAF, Rabo Equity, Omnivore Capital); social enterprise/impact fund managers; new fund managers aiming to build a track record. Open competition market approach will be followed.
Low value activities	Most of the procurement activities for Goods and Non-Consulting Services will follow shopping method where there are adequate number of suppliers in the local market or else go for shopping method in the international market (if required). Goods within the shopping limit will also be procured using DGS&D’s rate contract prices, wherever available.
Individual consultants	Individual consultants hired as staff for the project will follow the HR policies of the ARIAS Society. Experts required for limited inputs for the project at various intervals would be hired through Selection of Individual consultant’s process.

35. **Supply positioning analysis.** ARIAS Society's past experience in the sector and having successfully implementing agriculture projects has benefited in understanding and adopting to the new markets. With the market analysis done for high value consultancy arrangements and having PWRD to undertake the renovation and construction work, ARIAS Society has worked out its supply positioning for the project; it is very clear from the requirement that most of the procurement are high value and for long duration contracts but are low risk given the Society's experience in handling similar works and services.

36. **Procurement thresholds and prior review thresholds.** The procurement plan shall set forth those contracts which shall be subject to the World Bank's mandatory Prior Review. It is proposed to follow the procurement thresholds applicable effective July 2016, as part of the new procurement framework, which will be applied with any reduction or enhancement of the threshold levels. All other contracts shall be subject to post review by the World Bank.

Category	Procurement method threshold	Prior review threshold	
	Threshold (US \$)	Threshold (US \$)	Remarks
Goods, IT and Non-Consulting Services			
Request for Bids (RFB) using Open, International market approach	>= 4 million	• All Contract packages estimated to cost above 4 million including Direct Selection • All Framework Agreements	
Request for Bids (RFB) using the Open, National market approach	<4 million		
Request for Quotations (RFQ), Community Procurement and Commercial Practices	< 0.1 million		
Works (Turnkey, Supply & Installation of plant & Equipment and PPP) Contracts			
Request for Bids (RFB) and/or Request for Proposals (RFP) using Open, International market approach	>= 15 million	• All Contract packages estimated to cost above 15 million including Direct Selection	
Request for Bids (RFB) using the Open, National market approach	<15 million		
Request for Quotations (RFQ) , Community Procurement and Commercial Practices	< 0.1 million		
Consulting Services			
QCBS, QBS, FBS, LCS,	>= 0.3 million	• All Contract packages estimated to cost above 2 million including Direct Selection	
Using the most appropriate market approach	-		
CQS, FBS, LCS	<= 0.3 million		
Using the most appropriate market approach	-		
Individual Consultant (IC)			
Using the most appropriate market approach	depending on nature of services	• Contract packages estimated to cost above 0.4 million including Direct Selection	

*Environmental and Social (including safeguards)*

### **Environmental Safeguards**

37. **Environmental Risks/ Impacts associated with the Project interventions.** The project interventions related to value addition in the production and post-harvest segments of agriculture

value chains, especially support for agri infrastructure development could have adverse impacts on the natural environment such as wetlands, forest, etc., if not appropriately designed, executed and operated. The Environmental Assessment (EA) therefore, looked into the potential impacts in agro-enterprises, value chains and market infrastructure development interventions in terms of resource use (such as land, water, energy) and waste generation and management. The EA also explored opportunities for integrating principles of sustainable and climate resilient agriculture production, greening the value chains, creation of green infrastructure etc. Based on the EA, an Environment Management Framework (EMF) has been prepared, consulted and disclosed, which identifies measures to mitigate the adverse impacts and also provides an implementation plan. The potential impacts of the project interventions could be: (i) improper site selection for value chain infrastructure and possible environmental issues related to construction, operation and management; (ii) environmental issues related to processing including resource use (energy and water), and release of wastes into the environment; (iii) crop intensification/productivity enhancement that could result in promotion of hybrid/high yielding varieties, and increased use of agro chemicals; (iv) fish productivity enhancement interventions (especially in beels) that could result in introduction of new species, increase in chemical inputs that may threaten the aquatic biodiversity and may lead to eutrophication; and (v) unsustainable livestock management practices affecting the local fodder resources and improper manure management practices

38. **The process of EA and EMF.** The process of EA involved desk review of the relevant documents including - project implementation plan, national and state level legislations pertaining to the proposed project activities, applicable safeguard policies of the World Bank, studies and reports related to similar Bank funded projects, published and unpublished information from different Government line departments/research institutes; and extensive field consultations with the beneficiary groups, consultations with the Government Departments/Institutes, NGOs, expert resource persons etc. The field visits extensively covered sector wise activities in different agro-climatic zones of the state. The consultations helped in understanding the potential impacts of the proposed activities, current practices, mitigation measures and the support systems (schemes and programmes of line departments) that are in place for technical and extension support to the beneficiaries.

39. **The EMF includes:** A negative list of activities that will not be funded under the project (based on the legal and regulatory requirements and safeguard policies of the World Bank); compliance requirements (based on the acts, rules and regulations of the Government of India and Government of Assam); sector wise key environmental issues and mitigation measures, best practices, and environment friendly technologies; and implementation arrangements with details on Human Resource requirement, Capacity Building and Monitoring Plans, budget estimate, etc.

40. **Institutional Arrangements for Implementation of EMF.** The EMF details the institutional arrangements for effective management of the potential issues through appropriate mitigation measures, which is as follows:

- (a) The overall responsibility of the EMF implementation lies with the ARIAS Society. An Environment Expert has been recruited the PCU for supporting the EMF implementation throughout the project period. The PCU, through the Environment Expert will be responsible for implementation of the EMF, monitoring, training and capacity building,

reporting and documenting. In addition to this, provisions have been made to acquire additional human resources to meet any specific technical and/or operational requirement that may arise from time to time.

- (b) The eight PIUs will designate a 'nodal person' at the state level for integration of safeguard requirements into each activity and implementation of EMF. The nodal officers will undergo suggested training for orienting themselves and for familiarizing with the project's environmental safeguard issues, challenges, mitigation and other requirements of monitoring and reporting.
- (c) At district level 'nodal person' for safeguards will be identified from the DLCCs and ATMAAs based on the need of additional support on environmental safeguards. The PCU may contract need based additional experts for supporting the Environment Expert. The DLCC will include a discussion on the performance of safeguard provisions as an agenda item in every meeting and minute the discussions.

41. **Capacity building and monitoring:** The EMF provides the design and a detailed schedule for capacity building of the safeguard anchor persons, project functionaries and the beneficiaries with suggestions on the key content, IEC materials and tentative budget. Also, the key environmental monitoring indicators for each project intervention has been given in the EMF and would be monitored regularly through both internal and external monitoring (audit). A separate budget has been provided for these activities

### **Social Safeguards**

42. **A Social Assessment (SA) was undertaken to identify the key social impacts, risks, opportunities to access benefits and develop mitigation strategies related to investments in 16 districts.** Field consultations were held with farmers. Stakeholder consultations organized at state, district and village with focus on free prior informed consultation in tribal villages. The stakeholders included MSMEs, private entities, NGOs, women and tribal groups representing dairy, piggery, fishery, sericulture, etc. The consultative assessment helped to identify social issues and roles and responsibilities of men and women in the chain of production to marketing of each of the produce.

43. **OP 4.10 on Indigenous Peoples is applicable as there are concentrated tribal settlements in the project districts.** The project is likely to positively impact tribal communities where these families are engaged in sericulture, dairy, piggery, fishing and farming activities. The Indigenous People Framework will be implemented to identify clusters, and there is meaningful consultation, to ensure that they access project benefits that are based on Free Prior and Informed Consultation (FPIC). The framework includes training and exposure visits.

44. **OP 4.12 on involuntary resettlement is applicable.** The assessment establishes that private land will not be acquired for any infrastructure sub-project. Investments for upgradation of rural road may have limited adverse impact on squatters and encroachers and may require limited private land for geometric improvement for which a Resettlement Policy framework (RPF) has been prepared. The RPF includes formats to document the findings from screening and information on land available for any civil works. Legal document on land availability for each investment will be included in the Detailed Project Reports.

45. **A gender strategy has been prepared to facilitate inclusion of women producers in common interest groups formed across all value chains.** Participation of women will be enhanced with focused gender sensitive training program for implementing partners to engage with women at each stage of sub-project implementation. The project will support specific training and capacity building of women to avail the opportunity from project investments across the value chain of production and marketing each produce. Monitoring and evaluation indicators will enable gender dis-aggregated data analysis for all beneficiaries. *Citizen Feedback mechanism* is solicited through three-structured platform to disseminate information, consult and respond on the actions taken to complete the cycle of citizen engagement. This includes (i) workshops with identified common interest groups; (ii) website based and off-line systems for citizen to register their suggestions; and (iii) outreach program for the beneficiaries and social auditing of performance of FPOs on inclusion, participation and transparency.

46. **The Borrower disclosed the draft EMF, SMF and translated version of the executive summary on its website on November 30, 2016.** The safeguard documents, as requested by the borrower were also disclosed at the Bank's Infoshop. The social safeguard documents were disclosed on December 5, 2016 and the environmental safeguard documents were disclosed on December 6, 2016. Further an in-country disclosure workshop with representatives from relevant departments, NGOs, and other relevant stakeholders, was organized on December 21, 2016. The outputs from the consultations helped to finalize the documents. The final SMF was re-disclosed on January 3, 2017 and IPF on January 5, 2017. Similarly, EMF was re-disclosed on May 5, 2017 and the executive summary in English and Assamese was re-disclosed on May 12, 2017. These final safeguard documents were re-disclosed on Bank's Infoshop on July 13, 2017.

### *Monitoring & Evaluation*

47. **Given the crosscutting and interconnected nature of components under the project, monitoring and evaluation (M&E) forms an integral part of project design.** The M&E results-chain provides a comprehensive and detailed outline of the expected outcomes of each project intervention along with a results framework and accompanying monitoring indicators to measure progress over time. Given the synergy of the project to the global agenda - on climate resilience, female participation and financial inclusion -the results framework is aligned to inform the progress under Sustainable Development Goals. The M&E of the project will be supported by a lightweight and scalable web-based MIS platform adopting both online as well as offline mechanisms of reporting from block level to state headquarters, aligned to the implementation structure of the project. The MIS will also serve as a citizen engagement platform, including an interface to the public providing regular updates on activities supported by the project. The MIS will also support a suite of online mechanisms to enable beneficiaries to report any issues encountered under the program through a Grievance Redress System (GRS). In addition, the project will introduce ICT-based tools to capture beneficiaries' feedback; assess changes in the performance of beneficiaries over time; and real time monitoring and evaluation of all the activities carried out under various components of the project. The project will also leverage the potential of geographical information system (GIS) for evidence based monitoring and planning. It will enable tracking of small and marginal farmer inclusion in project investments, interventions, and

community institutions. It will also monitor gender inclusion and impact, and facilitate gender disaggregated analysis.

48. **The PCU will have the operational responsibility for planning and coordinating M&E activities of the project.** These include, among others, (i) analysis of all project level M and E information and generation of regular semiannual M&E reports; (ii) updating key performance indicators by consolidating the information provided by different implementing agencies and the external M&E agency; (iii) conducting independent field visits to monitor implementation and outputs of selected project activities; (iv) commissioning special studies as needed; (v) maintaining the project MIS; (vi) identifying bottlenecks and corrective actions, if needed; (vii) documenting success stories; (viii) regular reporting to the Project Guidance Council and the Governing Body; and (ix) semiannual reporting to the World Bank on the project status. Nodal officers in each of the PIUs will be responsible for process and performance monitoring of the individual activities within the purview of the respective agencies. They will be responsible for: (i) consolidating and analyzing all M&E data provided by district, block officers, and service providers, as relevant; (ii) validating M&E data in the project MIS entered at the district level and entering additional data as required; (iii) monitoring field level activities and identifying corrective actions, if needed, as well as documenting success stories; and (iv) providing monthly reports to the PCU. To support the M&E system, the project would hire an external M&E consultancy agency throughout the duration of the project. This agency will conduct six monthly progress monitoring studies alongside the baseline, mid-term and end of project impact evaluations. The progress studies will provide information on the project's physical and financial progress alongside providing insights into the operational design and implementation of the project including recommendations on specific areas of refinement within the project aligned to the overarching strategic objectives as stated in the PDO.

#### *Role of Partners*

49. The project will collaborate with both national and international institutions for technical backstopping, training, and sourcing of technologies. The international partners will be consultants to the project, with whom the project will sign agreements. Funds will flow to them on the basis of approved annual plans, and expenditure will be recognized depending on the nature of the contractual agreements. The key partners and their role is briefly given below.

Partners	Value chain/ thematic areas	Key areas of intervention
International Livestock Research Institute (ILRI)	Pork and Milk (informal sector)	<ul style="list-style-type: none"> <li>a) Facilitating transformation of informal milk sector to formal, with a focus of food safety and enterprise development,</li> <li>b) Building capacity in food safety and quality assurance under food safety regulations,</li> <li>c) Productivity improvement through better disease and reproductive health management,</li> <li>d) Training and capacity building of participating line departments,</li> <li>e) Cross cutting initiatives (gender, nutrition).</li> </ul>
International Rice Research Institute (IRRI)	Rice	<ul style="list-style-type: none"> <li>a) Strengthening the seed systems and adoption of stress-tolerant rice varieties (e.g. submergence-tolerant (SUB1) and adapted to stagnant flooding),</li> <li>b) Support in the development of seed entrepreneurship program,</li> <li>c) Developing and promoting extrapolation domains of suitable cultivars and cropping systems for efficient targeting of technologies in stress-prone areas,</li> <li>d) Productivity improvement through high yielding stress tolerant and climate resilient rice varieties, and suitable crop and nutrient management practices,</li> <li>e) Use of innovative ICT based solutions for extension (Rice Crop Manager for personalized crop and nutrient management guideline) and capacity building of DoA and AAU,</li> <li>f) Roll out of satellite based monitoring system for improving efficiency and accuracy of crop yield information,</li> <li>g) Post-harvest management at farm and market, and improving milling and processing technology (focusing on MSME sector).</li> </ul>
WorldFish (WFC)	Fish	<ul style="list-style-type: none"> <li>a) Sustainable intensification and diversification of pond and tank aquaculture,</li> <li>b) Increasing diversity and productivity of <i>beels</i>,</li> <li>c) Technical assistance for quality seed production of genetically improved strains (e.g. <i>GIFT tilapia</i>),</li> <li>d) Improving fish value chains, including food safety and post-harvest management,</li> <li>e) Training and capacity building of participating line department,</li> <li>f) Cross cutting initiatives (gender, nutrition).</li> </ul>
World Vegetable Centre (WVC)	Vegetables and field legumes	<ul style="list-style-type: none"> <li>a) Value chain support for key vegetable crops and legumes (including select indigenous vegetables),</li> <li>b) Improved seed and seedling production (including vegetable grafting),</li> <li>c) Application of crop production technologies and good agricultural practices,</li> <li>d) Postharvest management and market linkages,</li> <li>e) Training and capacity building,</li> <li>f) Cross cutting initiatives (gender, nutrition).</li> </ul>
Wageningen University and Research Center	Supply chain reorganization	<ul style="list-style-type: none"> <li>a) Pilot implementation and redesign of agri-food value chains, including identification and selection of product-market combinations,</li> <li>b) Reorganization of agro-parks and development of metropolitan food clusters.</li> </ul>



National Research Centre on Pig	Pork	<ul style="list-style-type: none"> <li>a) Swine artificial insemination technology (liquid semen) processing , production and distribution,</li> <li>b) Feed and disease management,</li> <li>c) Near farm processing technology - supply, handholding and dissemination,</li> <li>d) Food safety training and capacity building in collaboration with ILRI and participating line departments.</li> </ul>
National Dairy Development Board <sup>18</sup> (and its subsidiaries)	Milk (formal)	<ul style="list-style-type: none"> <li>a) Management takeover of Western Assam Milk Union, East Assam Milk Union and Cachar Milk Union,</li> <li>b) Support to: (i) productivity enhancement, (ii) village based milk procurement system with bulk milk cooling network, (iii) processing infrastructure, and (iv) marketing infrastructure including branding.</li> </ul>

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<sup>18</sup> Including NDDB subsidiaries, namely NDDB Dairy Services, and IDMC Ltd.

## **Annex 4: Implementation Support Plan**

### **INDIA: Assam Agribusiness and Rural Transformation Project**

#### **Strategy and Approach for Implementation Support**

1. The implementation support strategy will involve a concerted plan of technical, fiduciary, and safeguards support needed to ensure due diligence over the course of project implementation. The approach will include (a) continuous and regular review of project implementation activities to assess progress and identify potential bottlenecks in implementation, (b) timely advice and guidance, and (c) monitoring timely submission of financial and progress reports.

#### **Implementation Support Plan**

2. The Implementation support plan will comprise a number of critical and effective review mechanisms to assess progress toward achieving the PDO, overall implementation progress and, to effectively respond to issues and challenges as they arise. Such reviews will include, among others: (i) implementation support missions (ISMs) conducted semi-annually; (ii) short desk reviews at regular intervals; and (iii) a mid-term review that will include a comprehensive assessment of the progress achieved at the mid-point of project implementation and will serve as a platform for revisiting project design issues and identifying where adjustments might be needed.

3. The Bank ISM will visit randomly selected project sites to assess and physically verify the work financed by the project. These site visits will also involve interaction with project beneficiaries including farmers, farmer producer organizations, entrepreneurs, market users and non-government support organizations, assisting with community mobilization and capacity building. Areas to be visited will take into account the following criteria: (i) random selection from district-wise list of project sites under the project; and (ii) special emphasis on those project sites identified by the complaint handling system.

4. Regular feedback will be obtained on project performance through project reports prepared by the PCU and the regular monitoring reports prepared by the external M&E consultants. Key issues identified in these reports will be followed up, including through short visits to the state, as necessary. Integrated fiduciary reviews during implementation review will include, post reviews of a random sample of contracts, and spot checks of accounting records and financial reporting systems at the state, district and project site level. Reports of the auditors will be reviewed and meetings held with them to gain additional perspective. Issues identified will be recorded in aide memoires and followed up after the mission.

5. **Technical support.** To address the substantial risk associated with the technical design of the project due to its comprehensive scope and need for spatial synchronization of its diverse and complex project activities, the Bank team will assemble the appropriate technical skills mix and experience needed to support implementation that will include appropriate level of advisory support for agri-business development, enterprise promotion and the various financing schemes under the project. The Bank team will include participation of staff from other global practices of the World Bank Group, including IFC (International Finance Corporation), in particular, to address issues around policies pertaining to and support for enterprise development and value chains (VCs).

6. **Fiduciary support.** The ARIAS Society which is the Project Coordination Unit (PCU) for the project, is well versed with the Bank's fiduciary policies. Nevertheless, there would be regular

reviews to ensure that fiduciary systems and capacities remain adequate during the course of project implementation in accordance with the Bank's fiduciary requirements.

- (a) **Financial management support.** The Bank will require that quarterly Interim Financial Reports (IFRs) be submitted to the Bank as well as the audit reports for review. The Bank will review other project-related information as well, such as the internal control, oversight and reporting systems. Monitoring of actions taken on issues highlighted in the audit review of ARIAS Society, and other relevant reports will be reviewed by the Bank. FM capacity training for project staff engaged in FM tasks will be conducted during project implementation as needed.
- (b) **Procurement support.** Given the past experience and the core capacity that already exists in the PCU in handling procurement, the support plan will largely focus on areas where the PCU still needs to develop its skills, like the procurement of agribusiness fund manager.

7. **Safeguards Support** will consist of effective implementation of safeguard procedures through mainstreaming them during planning, design and implementation of project activities, with a focus on capacity building of participating line departments, consultants, and contractors through suitable training programs.

8. The various activities needed for implementation support would require the following resources:

Time	Focus	Skills Needed
First 12 months	<ul style="list-style-type: none"> <li>Completion of procurement for key contracts including review of ToRs and designs, and initiation of selected procurements and studies</li> <li>Undertaking the baseline survey</li> <li>Roll out of activities in selected clusters</li> <li>Mobilization of project beneficiaries and their capacity building</li> </ul>	<ul style="list-style-type: none"> <li>Project management</li> <li>Finance and investment</li> <li>Procurement</li> <li>FM/ Accounting</li> <li>Environmental specialist</li> <li>Social and institution development</li> <li>Agriculturist</li> <li>Fisheries</li> <li>Agri business</li> <li>M&amp;E and MIS</li> <li>Livestock expert</li> <li>Cluster development</li> </ul>
12–60 months	<ul style="list-style-type: none"> <li>Operational support in first phase of intensive investments in project locations, assist with gathering lessons learned, and ensure this information is used to support broader scaling up in the latter years of the project</li> <li>Procurement of contracts for components identified for later phases</li> <li>Review and finalization of designs</li> <li>Project Management</li> <li>Monitoring and evaluation</li> <li>Environmental and Social Safeguards Monitoring</li> </ul>	In addition to all of the above skills in Year 1, technical experts for enterprise promotion, value chain development, cluster development, private sector participation, and MIS/GIS specialist.

### **Skill Mix Required**

<b>Skills Needed</b>	<b>Number of Staff Weeks</b>	<b>Number of Trips</b>	<b>Comments</b>
Project Management (TTLs)	20 weeks per year	4-6 trips per year	Field and DC based
Procurement	6 weeks per year	2-4 trips per year	Field and DC based
Financial Management	4 weeks per year	2 trips per year	Field based
Environmental Safeguards	4 weeks per year	2 trips per year	Field based
Social Safeguards	4 weeks per year	2 trips per year	
Enterprise Promotion Expert	6 weeks per year	3 trips per year	Field based
Value Chain Expert	8 weeks per year	3 trips per year	Field based
Agri Business Development Expert	6 weeks per year	3 trips per year	Field based
Trade & Competitiveness Expert	4 weeks per year	2 trips per year	Field and DC based
Agro Cluster Expert	4 weeks per year	2 trips per year	Field and DC based
Fisheries Expert	4 weeks per year	2 trips per year	Field based
Agriculturist	4 weeks per year	2 trips per year	Field based
M&E Expert	4 weeks per year	2 trips per year	Field and DC based
Livestock Expert	4 weeks per year	2 trips per year	Field based
Food Safety Expert	4 weeks per year	2 trips per year	Field and DC based
Finance and Markets Expert	4 weeks per year	2 trips per year	DC based

## Annex 5: Financial and Economic Analysis

### INDIA: Assam Agribusiness and Rural Transformation Project

1. **Project interventions and associated benefits.** The project would support, value addition in the production and post-harvest segments of selected agriculture value-chains (VC); facilitate agribusiness investments through inclusive business models, and stimulate the establishment of new micro, small and medium agribusiness enterprises (MSME); and support resilience of agriculture production systems in order to better manage increasing production and commercial risks associated with climate change, in the targeted districts. By adopting a cluster approach, the project would enable all the value chain participants to develop competitive and innovative products that meet market demands rapidly and successfully. In line with the VC approach that the project is adopting to achieve the PDO, the Financial and Economic Analysis (FEA) is based on the same approach. Four main players operate the selected VCs namely the producers, aggregators, processors, and marketers. Many of the Micro, Small and Medium Enterprises (MSME) that would be supported by the project would be the players of VCs. The Common Service Centers (CSC), warehouses, and markets that are developed with project financial assistance would take part as aggregators, processors and marketers. Table 1 summarizes the project interventions and potential benefits of such interventions to the VC players.

**Table 1: Project components, interventions and potential benefits to the VC players**

Project components	Project interventions	Benefits to the VC players
<b>A: Enabling Agri Enterprise Development</b>		
A1. Enhancing state capacity to attract private investments	Provide investment facilitation services, new business registrations, regulatory compliance related assistance, and handholding assistance to enterprises.	Aggregators, processors, and marketers as MSME are encouraged commencing new businesses and scaling up existing business.
A2. Setting up Enterprise Development and Promotion Facility	Provide technical assistance for agri-entrepreneurs including market scanning, business mentoring, bringing new technologies, assist business proposal preparation and planning and incubation services.	Facilitate continuation of competitiveness in business of aggregators, processors, and marketers.
A 3. Agribusiness Fund Support	Provide risk capital.	Window for financing for agribusiness SMEs.
A4. Establishing stewardship councils	Provide a platform for engaging industry leaders and stakeholders of VCs to act in concert to develop and implement sustainable strategies for their VCs.	Address common issues and improvements of aggregators, processors, and marketers.
<b>B: Facilitating Agro Cluster Development</b>		
B1. Support establishment of cluster level Industry Association	Impact approximately 2,000 enterprises by clustering them and improving the business capacity and providing partial financial support for agribusiness development plans.	Enhance business efficiency of aggregators, processors, and marketers.
B2. Supply chain support	Finance improving rural access roads (100 km), modernizing and upgrading warehouses (numbering 33), wholesale markets (10), rural periodic markets (65), and e-marketing platforms.	Reduce transaction cost and business operation costs of all VC players.
<b>C: Fostering Market-led Production and Resilience Enhancement</b>		

C1. Promoting climate resilient technologies and its adoption:	Selected VCs are supported.	Productivity and marketing margin improvement in all VC players.
<i>Horticulture, crop, spices and condiments value chains (analyzed - Banana, mustard, black gram, maize)</i>	Increasing productivity by technological inputs, and improving post-harvest management, value addition and marketing through CSCs	Productivity improvements in pulses, oilseeds, maize, banana and vegetables. Farm level diversification into these crops.
<i>Pork VC (analyzed)</i>	Vaccination against endemic diseases; production of breeding boars; improvement in hygienic slaughtering methods	Productivity and margin increased of pig farms, and price premium for quality pork.
<i>Milk VC (analyzed)</i>	Organizing small farmers into Dairy Co-ops, genetic upgradation of non-descript cows, provide milking tools, enhancing market access, capacity building of farmers, developing and equipping a service delivery network and food safety issues are addressed.	Increased farm level milk productivity and quality, margin increase, and enhanced viability of other actors of the VC.
<i>Fisheries VC (analyzed)</i>	Establishment of seed multiplication centers and new hatcheries with improved brood stock management program, polyculture technology demonstration, other environmental safe technologies, post-harvest and market infrastructure facilities and capacity building	Increased fish harvest in <i>beel</i> and culture (in tanks/ponds) fisheries, price premium with quality and facilities improvement.
C2. Facilitating market linkages through market intelligence and product aggregation	Organize the producers into farmer producer organizations (FPOs); develop their capacity for marketing for accessing wider markets; and matching grant to these FPOs for establishing common service centers (100 CSC)	Higher prices for producers and increased volume of sale at organized aggregator level.
C3. Facilitating access to and responsible use of financial services	Provide financial services and related capacity improvement	VC financing for all players and through that increase in production and scale of operation.

2. **Project direct beneficiaries.** The direct project beneficiaries are small producers (farming families); agricultural, livestock and fish products aggregators; processors of these products and marketers in the project clusters. Out of the total producers in all clusters, about 334,394 small farmer families, who would adopt improved practices, would benefit from the project. Of them 225,191 are crop producers and the balance 109,203 are livestock and fishery beneficiaries. Since total number of producers are targeted, additional number for spill-over beneficiaries is not considered. As estimated based on the average capacities and with the enhanced business facilitation services, about 1,358 new aggregators and retailers, about 113 new processors and about 18 new marketers will start operating in the project areas with organized business models and would benefit by the project. In addition, more MSMEs will also benefit by the project services, which the number has not been estimated at this moment.

3. **Project Benefits.** The cluster based value chain approach is used to estimate the project benefits. All three project components and their sub-components have activities that support producers, aggregators, processors and marketers of all the VCs in the production clusters. The combined effect of all three components generates benefits along the value chains. It is not possible to isolate project benefits that are attributable to each project component or sub-component. Eight value chains in production clusters are therefore focused to estimate project benefits. In addition, the financial viability of project supported warehouses for commodity storage, Common Service

Centers (CSC) for the aggregators, wholesale markets and periodic markets to facilitate VC market functions is estimated. The small enterprises such as pellet feed mills, and mustard oil mills, are analyzed as samples of project supported MSMEs. The incremental costs and incremental benefits of eight VCs are scaled up to estimate the project level costs and benefits. The project targets in terms of cultivated extents for crops, and number of families for dairy, piggery and fisheries at each production cluster level are used for the scaling up costs and benefits to the project level. The project supported warehouses, CSCs, markets and others MSMEs are assumed to be actors of the appropriate VCs and facilitate the VC functions. The costs of their operations are therefore included at different levels of the VCs. For that reasons the cost and benefit flows of these entities, estimated as representative models, are not separately scaled up at the project level.

**4. Financial Analysis of Value Chains:** The analysis of each VC includes (i) total incremental production of the VC commodities and number of producers; (ii) farm model analysis indicating percentage of farm-gate price out of the wholesale price and the producer level incremental net income per cropping season or per year; (iii) estimated incremental net return of the market actors, presented as an average of all the market actors; (iv) employment generation; and (iv) debt financing requirement of the market actors which is presented with the highlights of each VC. The net present value (NPV) of the total VC benefits per unit of production over a period of 20-years with a 6% discount rate is also presented. This is an indicator to compare the benefits of each VC. Table 2 summarizes the expected benefits of the value chains and employment generation through each VC.

**Table 2: Results of the VC Analysis**

VC Benefit indicators	Units	Commodities representing the Value Chains							
		Rice	Maze	Gram	Mustard	Banana	Dairy	Pork	Fish
Developed units <sup>1</sup>	ha/nb	120,870	4,538	5,850	7,846	1,073	78106	41,300	4,425
Producers	Nb	151,087	15,128	29,250	26,152	3,575	39,053	41,300	28,850
Incre. Production at EOP	Mt	229,652	6,263	1,685	1,448	5,180	87,213	2,784,000	15,450
Increase from Base	%	6%	57%	34%	18%	21%	528%	18%	116%
<b>Farm Model:</b>									
Avg size <sup>2</sup>	ha/unit	0.8	0.24	0.16	0.18	0.12	2	4	1
Incre. income	INR/Yr	38,182	24,397	55,054	3,003	62,673	88,492	11,185	382,375
% increase	%	181%	163%	53%	354%	177%	500%	711%	122%
FG Price as a % of wholesale price: EOP	%	44%	59%	72%	95%	64%	87%	55%	60%
% Increase	%	3%	18%	7%	3%	8%	13%	19%	8%
<b>VC Market Actors:</b>									
Incre. avg return <sup>3</sup> :EOP	INR/mt	1,420	5,412	10,016	7,920	4,946	6,061	604	4,202
% increase	%	40%	103%	18%	57%	22%	309%	191%	233%
<b>Total VC: Additional</b>									
Jobs at EOP <sup>4</sup>	md/Yr	1,137	255	136	95	16	2,120	407	86
NPV of full VC <sup>5</sup>	INR mn	1,993	59	113	38	135	2,790	447	1,843
NPV/production unit		16	13	19	5	126	36	11	416

Notes: EOP: end of project target.

<sup>1</sup> Developed unit are the farms which have adopted new technologies at EOP; Dairy production units are cows, pork units are number of farms, and fish is ha of water bodies.

<sup>2</sup> The average size of the farm model for dairy is 2 cows, pork is 5 fatteners, and 1 ha water body for fish.

<sup>3</sup> This is the average increment for all market players (Excel sheet has details). This is INR/mt of oil for mustard.

<sup>4</sup> To convert md/yr to employment generation, md/yr is divided by 200 assuming person-days 200 is one employee.

<sup>5</sup> Estimated with 6% DR and 20-year period.

5. **Cereal Value Chain - Rice and Maize.** The project would promote and upscale climate resilient technologies in paddy and maize cultivation. Rice being the predominant crop covering 61% of the total gross cropped area of the project districts, and rice processing, mainly milling, being the main agro-processing industry (60% of total industrial units) the project supports rice production in all project area. Unlike in other crops there is no designated cluster for rice and dedicated target for paddy cultivation.

6. Rice VC: The actors of the VC are producers, small aggregators, large aggregators (retailers), processors and wholesalers. The analysis estimates the improvement in the productivity and the farm-gate prices as the premium price in a representative farm model, and the increased profitability of other VC actors attributable to expected reduction of the cost of marketing. It is expected that a total extent of 120,870 ha of paddy, which is 7% of the total area of 17 project districts, with 151,087 producers would adopt improved practices and realized productivity improvement. The results of the VC analyses are presented in Table 2. All performance indicators show that there is overall improvement along the VC. The farm level income is reporting a substantial increase which is mainly due to the expected productivity improvement of Sali paddy. The marketing agents along the VC are competitive and therefore the proportion of the farm-gate price out of the final wholesale price is expected to increase only by about 3%. About 30% of the producers who stored paddy in the project supported warehouses get a farm-gate price which is 48% of the wholesale price and it is 13% increase from the base. Market level benefits of rice VC: The average marketing capacities of the aggregators, processors and wholesale marketers at the base level has been reported as 250 mt of paddy per year; 750 mt per year and 2,680 mt per year respectively. It is expected that these three actors would increase their capacity with the support of the project by about 10% at the full development. The overall performance of the rice VC is also presented in Table 2. Credit requirement of the rice VC actors: In order to meet the cost of the improvement and higher scale of production, the VC players would invest in their infrastructure and operational management. A detailed analysis of the investment cost of a typical aggregator estimates that a loan of INR 900,000 is required in the third year of the project. The loan with a 6% interest (same as financial discount rate) can be repaid in two annual installments. Typical processor and wholesale marketer would also need debt financing to the extent of about INR one million. Repayment of such loans would take 3 and 2 years respectively.

7. Maize VC: The actors of the VC are producers, aggregators, wholesalers, processors and large marketers. The project targets a total extent of 6,928 ha of maize (23,273 producers), in the maize production cluster comprising 16 project districts, would be targeted for adopting climate resilient and other improved agronomic practices that the project is promoting. With the 65% adoption rate, it is expected that 4,538 ha will be under improved practices with a productivity of 5 mt/ha. The results of the analyses of the maize VC is presented in Table 2. A representative farm model of maize which includes summer paddy and black gram according to the cropping calendar is analyzed. The extent of farm land under maize would be increased from 0.08 to 0.24 ha as a response to demonstrations and horticulture extension interventions. About 50% of the maize producers would use warehouse facilities for one-month storage. The price that they would realize after one month of storage with storage cost is used in the analysis. Table 2 presents the improvement of the production and farm level incomes. A higher increase of 18% in comparison to paddy in the proportion of farm-fate price to wholesale price is expected because maize has good potential for quality improvement by reducing moisture, sorting and grading. Market level



benefits of maize VC: The average marketing capacities of the aggregators, processors and wholesale marketers at the base level has been reported as 200 mt of maize per year; 1200 mt per year and 1,800 mt per year respectively. It is assumed that these three actors would increase their capacity with the support of the project by about 20% at the full development. Under these and marketing cost assumptions in Table 2, the performance indicators of marketers are presented in Table 2. The debt financing would be needed as value chain financing in the case of maize. On the basis of incremental cash flow analysis, aggregators total loan requirement would be INR 2.6 million; for wholesalers, INR 2.8 million; and processors, INR 5.6 million.

8. **Black Gram VC representing pulses.** The production cluster of the project covers 180 villages in five districts targeting about 8,163 ha (40,810 producers) in black gram starting from the 2<sup>nd</sup> year of the project. At full development there will be 5,850 ha under improved practices. The maize farm model includes the farm model analysis of black gram as typical farmers grow the combination. It is expected that the extent of farm land under black gram would be increased from 0.12 to 0.16 ha under crop diversification. The productivity would be 900 kg/ha with improved practices at full development. Table 2 presents farm model analysis. The quality improvement of black gram is limited except drying and thus the potential for increasing farm gate price as proportion is limited to 7%. Market level benefits of black gram VC: The average marketing capacity of the aggregators at the base level is 150 mt/year, a processor is 800 mt/yr and wholesale marketers is 750 mt/year. On average 30% increase at full development is expected. Table 2 presents the market level performance of the black gram VC. Pulses wholesalers and marketers would need debt financing to improve the market infrastructure. The estimated total demand is about INR 24.4 million for wholesalers and INR 56.2 million for marketers. The analysis indicates that these loans could be repaid within 3-4 years with the incremental cash flows.

9. **Mustard VC representing oil seeds:** The mustard cluster that the project is covering has 12,070 ha (40,230 producers) in 267 villages. The farm model analysis of mustard is undertaken with winter paddy since it represents a typical crop mixture. The productivity increase of 50% from 600 to 900 mt (Table 2) per ha comes from improved agronomy practices, moisture conservation and fertilizer usage. With the influence of the project average farm size would increase from 0.12 ha to 0.18 ha by full development. The farm-gate price increase is limited to 3% in mustard as it does not offer opportunities for significant quality improvement, except proper drying at the farm level. The farm level income increase is mainly attributable to yield increase. There is a significant income increase in the industry, however, through the VC owing to its industrial potential of distilling mustard oil and oil cake. Table 2 summarizes the performance of the farm model. Market level benefits of mustard VC: There are five actors in the mustard VC, small aggregators who contact farmers at the farm-gate, larger aggregators, mustard oil processors, wholesalers of oil and marketers. The summary results of the market VC performance are presented in Table 2. The mustard oil processors and oil marketers operate as typical MSMEs. The analysis shows that there is a high potential in improving income at all levels of the VC by better organizing the business activities of the VC. Although the processing cost has increased marginally (7%) in with project situation, the increased scale of oil production has raised the processors income by 57%. All VC actors of mustarded VC would need debt financing. The total estimated demand is INR 4.9 million for aggregators, INR 25.0 million for processors, and INR 7.5 million for wholesalers and retailers.

10. **Banana representing fruits and vegetable VC:** The banana production cluster has 1,458 ha (4,863 producers) in 70 villages which is the project target for productivity improvement.

Climate resilient production practices, improved planting material, disease control, and staggered planting to minimize the production glut in the market are the main interventions for productivity improvement. Banana is sold as bunches and hardly any grading, or other quality improvement takes place at the farm-gate or aggregator points in the VC. The performance at the farm-gate is presented in Table 2. The VC at the market end is short with aggregators and wholesaler cum marketers in most cases. Table 2 summarizes the benefits. The analysis shows that there will be a demand for credit in the VC. This is mainly to handle the bulky commodity with better keeping quality and to change the infrastructure. The estimated total demand from the aggregators is INR 10 million; wholesalers, INR 10 million; and processors and marketers, INR 8 million. The cash flow allows the repayment of the loans within 3-4 years.

11. **Dairy Value Chain:** Dairy being one of the important commodities in Assam, the project would support farm level milk production, processing and marketing. The target is to assist 1000 district level cooperative societies (DCS) to organize milk producers, and to provide capital grant assistance to WAMUL in collecting, processing and selling milk. A total of 44,955 dairy farmers would be targeted to link up with the DCS and assisted with AI facilities, extension support for feeding and hygiene improvement. Table 2 shows an incremental analysis of a 2-cow dairy farm model which is the typical scale of production. The number of cows may increase with the maturity of the project, which will also have similar viability levels. With the management and breeding improvement, it is expected a fourfold increase in the milk production at the end of the project with 80% adoption rate. The price of milk, mainly depending on the fat content, will not change significantly. The hygiene milking methods and other limited quality improvement will contribute to an expected 13% price increase at the farm-gate. Market level benefits of dairy VC: The net incremental income of three typical VC actors of the dairy VC is summarized in Table 2. It is estimated that the volume of milk which enters into the processor level, WAMUL, would be about 60% of the total production. The marketing cost has come down substantially mainly due to the increase in the scale of milk operated and also due to the marketing infrastructure improvements. The milk pricing is competitive and therefore a margin increase cannot be expected at the VC actor level. Nevertheless, the net incremental income at each actor level is notably high.

12. The project would invest directly to revamp the infrastructure of WAMUL. The initial capital expenditure investment from the project would be INR 538 million during the first three years and the WAMUL investment in establishing milk route and processing facilities would be INR 2,887 million. It will process about 50 million liters of milk per year collected from the project beneficial. The financial analysis of WAMUL (details are in the excel sheets) estimates that it will have a net incremental income of INR 1,615 million at full development with a financial IRR of 33%. The total demand for debt financing is INR million 100 at the aggregator level and INR million 10 at the marketer level. Since WAMUL is financed by the project additional debt financing has not been assessed.

13. **Pork VC:** Pig rearing is an important activity particularly for the tribal population of Assam. It has largely remained under nomadic system of rearing with the weaker sections of the society both as a source of income and a choice of meat for consumption. There is a great economic potential, therefore, for development of the sector. The project targets to assist 59,000 pig producers in 59 pig clusters. There are three types of pig farming in terms of their output - piglet production, meat production, and a combination of both. The information indicates that a balanced proportion of the three types of farming need to be maintained to manage the industry. It is assumed that 30% of the beneficiaries (15,360 farms) would engage in piglet production, 40% (20,480

farms) in pig fattening for meat production and the balance 30% (15,360) will have both types. The overall adoption rate of improved practices is assumed at 80%. The piglet production and meat production farm model analysis is presented in Table 2. The total working capital includes marketing cost and in both cases it has increased since transporting is incurred with-project situation. The current situation (WOP) is that the aggregators visit the farm and purchase both piglet and fatteners with minimum transport cost. The main point of first transaction for both piglets and pork meat is the CSC for a majority of the producers once the project starts. The CSC will keep a small margin for selling piglets and thus there is a 2% reduction in the selling price of piglets. Quality improvement of meat is much higher than that of piglets and thus having a substantial income increase for pork meat. CSC would be playing a vital role in the aggregation, piglet selling, and slaughtering of pig fatteners with hygiene standards. The project will assist establishing 60 CSC having one modern pig slaughtering unit in each. The initial capital expenditure investment would be INR 700 thousand for each CSC. At full development these CSCs will sell 1500 thousand piglets with a commission charge of INR 49 per piglet (2% of the selling price) and will slaughter 27,840 fatteners per year at full development with a commission of INR 100 per fattener. The financial analysis of these CSCs (details are in the excel sheets) estimates that it will have a net incremental income of INR 90.8 million at full development with a financial IRR of 118%. This justifies the investment in the CSC. The demand of one-time loan is estimated at INR 135,000 per piglet producer and INR 100,000 for fattener producers. With the estimated cash flows both will be able to repay the loan within 2 years at 6% interest rate.

14. **Fish VC:** The project would invest in productivity improvement of capture and pond fishery, quality improvement and market development. The project would support 6,600 fisher families through common interest groups to fish in 2200 ha of water bodies. In addition, 22,250 fishermen would be facilitated for beel fishing. Farm model analysis of one ha fish farm, which would be the most typical system of fish production would generate a substantial incremental income which is 250% more than the current (WP) situation (Table 2). The main contributor is the introduction of better quality fingerlings, improved fish feeding practices and sustainable capture and culture fisheries management practices. The productivity improvement will be slightly lower in the *beel* production systems due to limited control in the management of fisheries. Market level benefits: The fish VC has two actors in addition to the producers, the aggregators and the marketer. The project is targeting to provide assistance to improve the infrastructure of 25 fish markets. Table 2 summarizes the benefits.

15. **All Value Chains:** The eight representative VCs that are analyzed generate about INR 11,815 million per year at full development as net additional income to the project area. Taking 500,000 as the total number of project beneficiaries and most of them are in the VC, the net annual family incremental income would be about INR 24,000.

### **Financial viability assessment of VC supportive structures**

16. The project assists several infrastructure facilities to support well-functioning of the VC activities. These include wholesale markets, CSCs, warehouses and MSME entities. Typical models representing these facilities are analyzed to demonstrate their financial viability. The benefits of these facilities are already included into the VC analysis by way of reducing marketing cost and VC operational cost. The project level benefit flow therefore will not include the benefits of these entities. The establishment cost that is financed by the project is included in the total cost flow of the project level analysis. The analysis of all the supportive structures presented below is conducted as incremental analyses.

17. **Warehouses model:** The project would rehabilitate and modernize 33 multipurpose warehouses. It can store paddy, maize and other similar non-perishable commodities over a period of one month. Investment into one such warehouse is analyzed to indicate its financial viability. While the excel sheet presents the details of the analysis, Table 3 summarizes the results. The capacity is 1800 mt of the commodities listed and it is assumed that the capacity utilization is 60% in the 1<sup>st</sup> year (2<sup>nd</sup> year of the project) and it will increase to 80% in the second year and thereafter, which is 1440 mt of produces. It is also assumed that there is a 10% loss of weight during the one-month storage period and the associated value loss is included as a cost. There is a value addition as a result of price increase of the commodities during the one-month storage. This is estimated on an average as 50% for rice and maize storage for one month. Taking the incremental price margin as the revenue to the warehouse, it generates a net income of INR 2.4 million at maturity. For a 20-year period including the depreciation cost, it generates 11% IRR. If the product storage is less than 1400 mt, the analysis indicates that the warehouse is not financially viable.

**Table 3: Financial viability assessment of warehouses**

Warehouse (one unit) level analysis	Units	Yr 2	Yr 3	Yr 4-20
1 <sup>st</sup> year capital expenditure	INR mn	16.5		
Maintenance expenses (on 80% capacity)	INR mn	1.5	1.5	1.5
Fees charged to Users - storage cost of the warehouse	INR mn	0.8	1.1	1.1
Total cost of the storage	INR mn	18.9	2.7	2.7
Value Addition to the commodities - considered as the income	INR mn	0.37	5.0	5.0
Net Income of the warehouse	INR mn	-18.4	2.4	2.4

18. **Market model:** The project would renovate 10 main markets and 65 periodic markets in the project areas. The commodities included in the VC use these markets. This would contribute to the reduction of the cost of marketing of such commodities as indicated in the VC analyses. A typical wholesale market is analyzed to demonstrate the financial viability of them. It is assumed that rice with a sale value of INR 31,800 per mt, maize (INR 16,440/mt), black gram (INR 112,358/mt), banana (INR 41,000/ mt) and pork (INR 215,000/mt) is sold at this market with a 2% cess paid to the market as the user fee. The user fee is the return. Table below summarizes the financial assessment and excel tables presents details. It generates 19% IRR for a period of 20 years which justifies the investment assistance.

**Table 4: Financial viability assessment of a market model**

Market - wholesale market level analysis	Units	Project Yr 1	Yr 2	Yr 3	Yr 4-20
Capacity utilization		0	80%	80%	90%
Total Capacity Used (crops and livestock)	Mt/ Yr	0	67,500	67,500	67,500
Revenue from user fees @ 2% of the sale value	INR mn	0	112.5	112.5	112.5
Establishment and operation cost	INR mn	3.4	104.7	104.7	104.7
Net revenue (capital cost is netted out)	INR mn	-39.7	7.8	7.8	7.8

19. **Common Service Centre Model:** The project would establish 100 CSCs for commodity aggregation, quality improvement and marketing. The involvement of the CSC will reduce the cost of market operations of many commodities as shown in the VC analyses. A typical CSC is analyzed to indicate its financial viability. CSC provides farm inputs such as fertilizer; aggregates and adds quality to commodities such as paddy, maize, banana, vegetables and pulses; and sell the quality added products. The capacity of a typical unit is about 5000 mt. The cost as indicated in

Table 5 is the capital expenditure that is provided by the project, and the working capital for operational activities. The revenue comes from two sources: (i) a commissions, which is about INR 0.1 per kg of inputs, charged when the farm inputs are sold to the producers, and; (ii) a margin of INR 0.6 per kg for selling quality added produces to the wholesalers. As summarized in Table 5, CSC can generate INR 0.86 million at the full development with a 32% IRR for a 20-year period.

**Table 5: Financial viability assessment of a Common Service Centre model**

CSC - one typical unit	Units	Proj Yr 2	Yr 3	Yr 4	Yr 5
Total cost including initial investment	INR mn	34.75	13.85	17.85	21.85
Margin for sales of farm inputs	Rs/kg	0.1			
Revenue - total input sale	INR mn	0.2	0.3	0.4	0.5
Unit charge for processing / sale	Rs / kg	0.6			
Product volume	mt	2,000	3,000	4,000	5,000
Revenue	INR mn	12	18	24	30
Total net revenue	INR mn	-22.55	4.45	6.55	8.65

**20. Representative MSME Model - Pellet Feed Mill:** The project targets to support about 100 MSMEs in the agriculture and allied sectors. The main assistance would be facilitation and providing debt financing as appropriate. A typical MSME of producing pellet feed mill is analyzed to demonstrate the financial viability of supporting such MSMEs. The capital expenditure of the feed mill includes land and infrastructure development, feed plant construction, and purchase and installation of machineries and instruments. The working capital includes labour, energy and water, purchasing raw material etc. The capacity of the mill is 300 mt of pellet feed per year and sold at INR 22,600 per mt. The details of the analysis are presented in the excel sheets and Table 6 summarizes the analysis which also shows loan financing possibility. The cash flow deficit of INR 20.8 million cannot be fully financed with a loan since the repayment would not be possible with the predicted cash flow. As such a matching grant with debt financing model should be applied where INR 10.0 million would be provided as debt financing with a four-year repayment period at 6% interest rate. The overall 12% IRR for a 20-year period indicates that this MSME is financially viable.

**Table 6: Financial viability assessment of a pellet feed mill**

Pellet Feed mill	Units	Yr 1	Yr 2	Yr 3	Yr 4-20
Capital expenditure	INR mn	24.7			
Working capital	INR mn	77.5	77.5	77.5	77.5
Gross revenue from sales	INR mn	81.4	81.4	81.4	81.4
Net return	INR mn	-20.8	3.8	3.8	3.8
IRR		12%			
Capital expenditure loan	INR mn	10			
Years for having the loan	Yrs	1	2	3	4
Annual interest rate (%)	6%				
Interest payment (%) of the loan	INR mn	-0.6	-0.5	-0.3	-0.2
Payment of principal of the loan	INR mn	-2.3	-2.4	-2.6	-2.7
Total payment for the loan	INR mn	2.9	2.9	2.9	2.9

Net cash flow after loan repay	INR mn	-23.7	1.0	1.0	1.0
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21. **Labour and employment generation:** Incremental jobs are generated through two main sources: (i) incremental activities of crops, livestock and fisheries production; (ii) market level incremental activities along the values chains. There will be increase in both family and hired labour use in production activities. The estimation does not differentiate these two types. Employment generation due to the project investments in CSC, warehouses, and markets are included in VC operations and therefore the number of new employment is estimated when the labour use at VC operator level is computed. The total labour use at the farm level for all the commodities at full development is estimated at 4.15 million labour-day units per year. Out of that 3.08 million comes from the production units and the balance from the market level operation in the VCs. The VC wise distribution of the total labour-days is presented in Table 2. The labour utilization is converted into full-time employment generation with the assumption that 200 labour units per year is one full-time employee. As such the total employment generation is estimated at 20,773 persons. The private sector employment is reported at 609,518 persons in 2013 (Statistical Hand Book, Assam, 2014, Director of Economic and Statistics, Assam). The incremental employment generation attributable to the project is therefore about 3.4%.

22. **Overall Financial Analysis:** The cash flows of the individual VC models are added and scaled up at the project level to estimate the project level financial viability. The total investment cost of the project, estimated at INR 17,891 million or US \$ 263 million is added to the total cost flow of the analysis. The direct investment on WAMUL was included at the VC level. The annual distribution of the cost is obtained from the COSTAB. All the financial analyses and market price projections in the VC analyses are based on 2016 market prices. Since all benefits of the project have a commercial nature, the analysis used a uniform discount rate of 6% that reflects the weighted average interest rates for term deposits as published by the State Bank of India. The cost and benefits for a period of 20 years are considered which reflect four production cycles of dairy and five of piggery, and annual cycle of all other products. The undiscounted annual incremental net financial benefits at full project development are estimated at INR 11.8 billion or US\$ 173.7 million. The FIRR of the project is 31% with a NPV of INR 60.1 billion or US\$ 884.8 million.

23. **Greenhouse gas analysis:** The team undertook a greenhouse gas (GHG) balance calculation using the EX-ACT tool. This calculation shows that the project has a positive impact leading to a decrease in of GHG emission of a total of -2.04 million tons equivalent CO<sub>2</sub> (tCO<sub>2</sub>eq) during project life, corresponding to an annual decrease of about 0.10 million tCO<sub>2</sub>eq. These benefits arise from improved methods in rice cultivation and its resulting carbon sink as well as improvements in crop management as consequence of the adoption of climate resilient agriculture practices, targeted fertilizer and pesticide use. They would be progressively realized through project life. Following recent (2014) World Bank guidance, these benefits have been valued at a social value of carbon that is increasing over time in real value from US\$30 per tCO<sub>2</sub>eq in 2015 to US\$65 per tCO<sub>2</sub>eq in 2040.

24. **Economic Analysis:** The economic analysis is carried out after making appropriate adjustments to financial benefits and costs. The adjustments include: (i) economic parity prices: there were computed for all fertilizers and paddy; and (ii) using Standard Conversion Factors (SCF) of 0.9 to all other inputs including labour and outputs. The economic value of the project cost without price contingencies was obtained directly from the COSTAB. The economic discount rate of 10% is used as the base case that reflects historical per capita GDP growth rate in India

(4.95%, and twice of it as per the guidelines) which is slight higher than 3.6% of middle income countries. Assam's per capita gross domestic product growth rate is 3.64% (average for 10 years) and it double 7.284% is also used as one of the sensitivity parameters to assess the project viability. The base EIRR is estimated at 28% with the Economic NPV of INR 29 billion or US\$ 428 million for a 20-year period without counting the GHG benefits. With GHG benefits at the lower bound of the price (US \$ 30/t of CO<sub>2</sub>), the EIRR is estimated at 31% and ENPV is US \$ 480 million; and at the higher bound of the price (US \$ 65/t of CO<sub>2</sub>) the EIRR is 35% and ENPV is US \$ 596 million.

25. **Sensitivity analyses:** Seven possible scenarios are analysed. The project cost escalating by 10% and 20%; project benefits decrease by 10% and 20%; project cost escalation by 10% together with benefits decrease by 10%; and benefits delay by one year and 2 years. In addition, the project net benefit flow was discounted using twice the growth rate of per capita domestic product of Assam (7.28%) to reflect the value addition of the project to the state economies in the long run. The results of the sensitivity analyses are summarized in Table 7. The sensitivity analyses show that the project economic benefits are resilient to cost escalations, benefits reductions, and delay in realizing benefits with EIRR remaining above 15% and Economic NPV above US\$ 89 million. The worst case scenario is the 2-year delays in getting benefits. The Economic NPV under the assumption of the growth rate of Assam is INR 42 billion or US\$ 621 million. The sensitivity analysis shows that the project is sensitive to delays in realizing benefits once the investment is committed. The 2-year delay in particular generates considerably low return as indicated by the NPV.

**Table 7: Results of the sensitivity analyses of economic analysis**

Sensitivity Scenario	Without GHG Benefits			With GHG Benefits			
	IRR	NPV (INR Billion)	US\$ Million	Lower (\$ 30/t)		Upper (\$ 65/t)	
				IRR	US \$ Million	IRR	US \$ Million
Base case (DR: 10%)	28%	29	428	31%	480	35%	596
10% cost escalation	23%	22	317	25%	370	30%	485
20% cost escalation	18%	12	184	21%	259	25%	375
10% benefit decrease	22%	17	254	25%	327	29%	443
20% benefit decrease	18%	14	206	19%	224	24%	289
10% cost up + 10% benefit down	18%	11	164	20%	216	25%	332
1-year delay in implementation	18%	17	251	20%	303	24%	419
2 years' delay in implementation	12%	6	89	14%	142	17%	257
Assam Per Capita Gross Domestic Product is 3.64 (avg - 10 years) and double = 7.284%	28%	42	621	31%	690	35%	841

## Annex 6: Letter of Sector Policy

### INDIA: Assam Agribusiness and Rural Transformation Project



सत्यमेव जयते

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DO No. ARIASS/APART/APIP/179/2017  
Dated Dispur the 18<sup>th</sup> July, 2017

Dear Mr Ahmed,

This letter is regarding the 'Assam Agribusiness and Rural Transformation Project' (APART) to be financed by the World Bank. This project will be a flagship program of the Government of Assam (GoA) and would contribute towards GoA's mission of doubling the farmers' income by the year 2022. To achieve this objective, the GoA is pursuing a multiple-pronged strategy of promoting policy reforms, institutional changes, and investment programs. In this context, I would like to assure you that, the GoA:

- (i) would place before the States' Legislative Assembly the new Assam Agricultural and Livestock Produce (Promotion & Facilitation) Act 2017, in the next session and frame Rules under the said Act, by March 2018.
- (ii) recognizes the importance of providing an enabling environment for the fishing communities to gain long term secured access to their local water bodies. Towards this, the state is committed to strengthen the existing legal framework, namely the Assam Fisheries Rules of 1953.
- (iii) recognizes the significance of fish seeds certification and hatchery accreditation. Accordingly, the state will endeavor to align the State's Fish Seed Act with the guidelines of Ministry of Agriculture and Farmer Welfare, Government of India.
- (iv) is committed to operationalize the Assam Bureau for Investment Promotion (ABIP) under the Department of Industries and Commerce, by establishing a functional unit with appropriate Rules of Business and decision making powers and provide adequate resources for its functioning.

These enabling policy and regulatory changes would support the transformation agenda of the agriculture and rural sector of Assam in long term.

With warm regards,

Yours sincerely,

(V.K. Pipersenia)

Mr. Junaid Kamal Ahmad  
India Country Director,  
The World Bank, New Delhi.