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Assam Rural Infrastructure and Agricultural Services Society
(An Autonomous Body of the Govt. of Assam)
Project Coordination Unit (PCU)
Assam Agribusiness and Rural Transformation Project
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THE WORLD BANK FINANCED ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT

(APART)

(IBRD LOAN NUMBER 8780-IN)

PROJECT COMPLETION REPORT

(As on 31st January, 2026)

Compiled by: ***PCU, ARIAS Society***

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT
PROJECT COMPLETION REPORT

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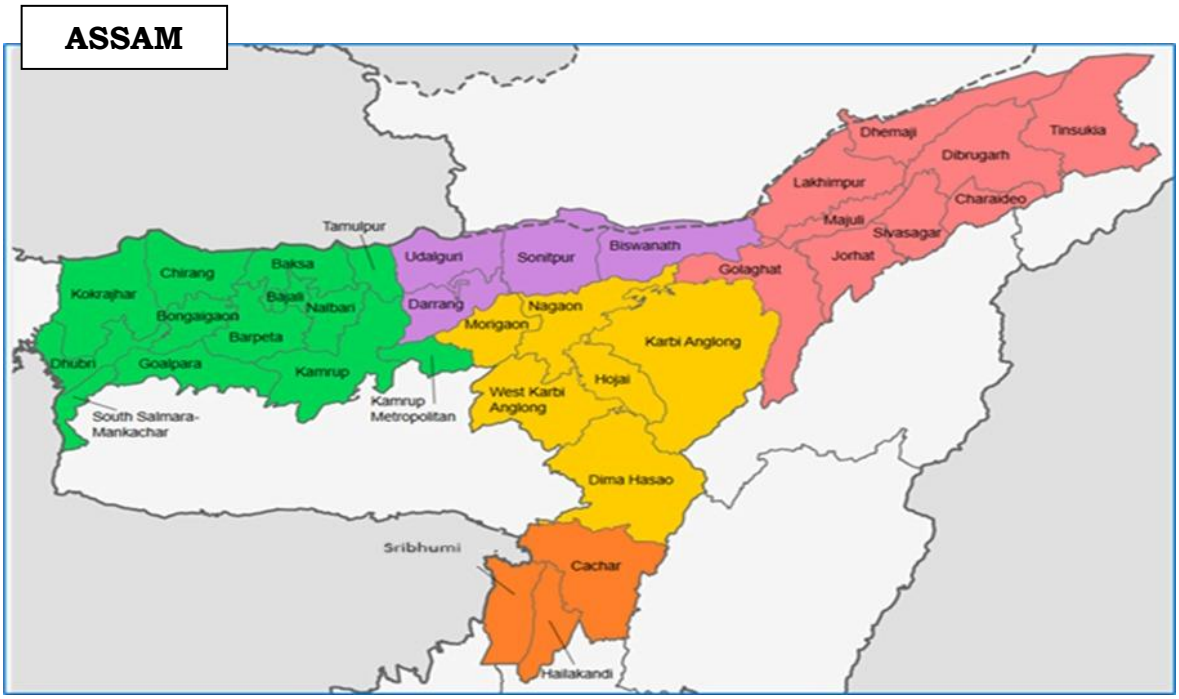
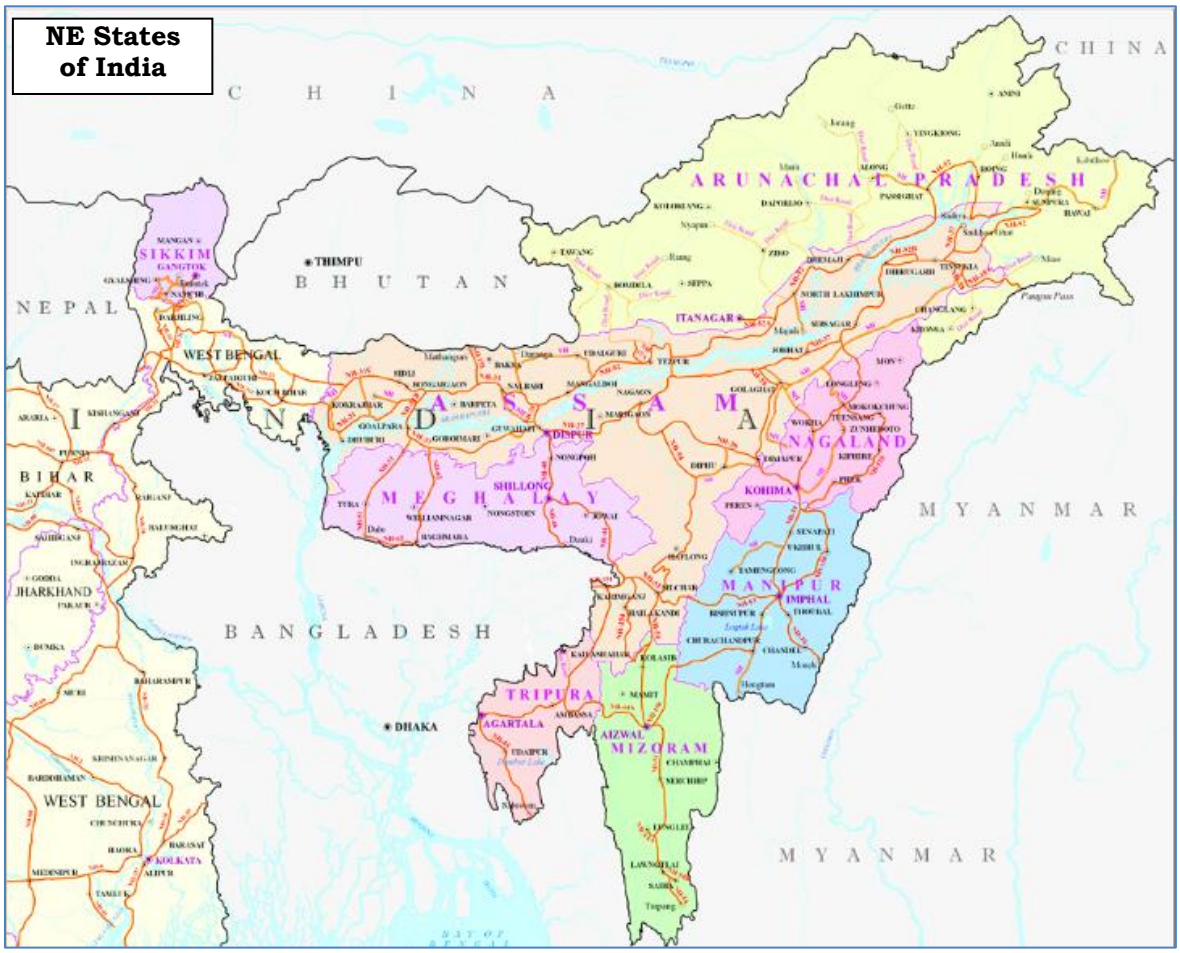
Map of Assam showing 35 Districts



North Eastern States of India with Assam



ABBREVIATIONS AND ACRONYMS

AACP	Assam Agricultural Competitiveness Project
AAU	Assam Agricultural University
AH&VD	Animal Husbandry and Veterinary Department
AI	Artificial Insemination
ALDA	Assam Livestock Development Agency
APC	Agriculture Production Commissioner
ARIASS	Assam Rural Infrastructure & Agricultural Services Society
ASRLM	Assam State Rural Livelihood Mission
ASG	Agro Service Group
ATMA	Agricultural Technology Management Agency
BDC	Beel Development Committee
BPL	Below Poverty Line
BTT	Block Technology Team
CAA&A	Comptroller of Aid, Accounts & Audit
CAS	Country Assistance Strategy
CDD	Community Driven Development
CIFRI	Central Inland Fisheries Research Institute
CIG	Common Interest Group
CIP	International Potato Centre
CSS	Central Sector Scheme
CTG	Community Tank Group
DADS	District Agricultural Development Strategy
DDD	Directorate of Dairy Development
DEA	Department of Economic Affairs
DOA	Department of Agriculture
DOEF	Department of Environment and Forests
DOF	Department of Fisheries
EA	Environmental Assessment
ECP	Environmental Codes of Practice
EDGF	Enterprise Development Grant Fund
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ERR	Economic Rate of Return
FD	Finance Department
FMTII	Farm Machinery & Tractor Technology Institute
FMM	Financial Management Manual
FRR	Financial Rate of Return
GOA	Government of Assam
GOI	Government of India
Ha/ha	hectares
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IRRI	International Rice Research Institute
ILRI	International Livesk Research Institute
KVK	Krishi Vigyan Kendra
M&E	Monitoring and Evaluation
MANAGE	National Institute of Agricultural Extension Management
MIS	Management Information System
MOU	Memorandum of Understanding
MTR	Mid Term Review
NCB	National Competitive Bidding
NDDB	National Dairy Development Board
NGO	Non Governmental Organization
NPV	Net Present Value
OM	Operational Manual
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PIU	Project Implementation Unit
PRA	Participatory Rural Apprisal
PWRD	Public Works Roads Department
REOI	Request for Expression of Interest
R&R	Resettlement and Rehabilitation
RARS	Regional Agricultural Research Station
SBI	State Bank of India
SHG	Self Help Group
SPCC	State Project Coordination Committee
SPD	State Project Director
WB	World Bank

Conversions units	***Brief profile of Assam****: (more detail at Annexure-1)*
• *3.025 Bigha = 1 Acre* • *7.45993 Bigha = 1 hectare (ha)* • *1 Quintal = 100 kilogram (kg)* • *1 Metric Tons (MT) = 1000 kg* • *Rs. 10.00 lakh = Rs.1.0 million*	• *According to the Census of India, 2011 the population of Assam stands at 3,11,69,272, of which 1,59,54,927 are males and 1,52,14,345 females (Source: Economic Survey, Assam, 2011-12)* • *Assam's geographical area is 78,438 sq. kms. i.e., about 2.4 percent of India's total geographical area.* • *Decadal growth of the State's population is 16.93 percent during decade 2001-2011 as against 17.64 percent for the country as a whole.*

Historical Exchange Rates

Approximate Indicative Historical Conversion Rate for Reference 1 US$ =	
Date	**~INR**
30/01/2026	91.89
31/12/2025	89.92
30/09/2025	88.79
02/04/2025	85.60
30/09/2024	83.79
02/04/2024	83.36
03/04/2023	82.39
12/04/2022	76.11
02/04/2021	72.85
01/04/2020	75.38
01/04/2019	69.23
03/04/2018	65.02
03/04/2017	64.91

Source: RBI

ASSAM AGRIBUSINESS AND RURAL TRANSFORMATION PROJECT
(IBRD LOAN NUMBER 8780-IN)
PROJECT COMPLETION REPORT

EXECUTIVE SUMMARY

1. Key Data Block and Performance rating

Key Data		Performance Ratings by the World Bank (Dec2023)	
Board Date	30 Oct. 2017	Overall	S
Original Loan Amount	US$200 Mil.	Development Objective	S *
Effectiveness date	18 Jan. 2018	Implementation Progress	S
Revised closing date	30 Sep.2025	Financial Management	MS
Project age	8 Years		
Project Cost	Rs.1980.00 Cr.	Procurement	MS
Loan Amount	Rs.1584.00 Cr. (US$200 Mil.)	Project Management	S
Expenditure at Financial Closing	Rs.1956.44 Cr	Monitoring & Evaluation	S
Amount Disbursed (incl. Last IUFR)	Rs.1565.15 Cr.	Social safeguards Environmental safeguards	MS
% of Loan Disbursed at Financial Closing	99%		
		* As per ISRR of 22.04.2025	

2.

The Assam Agribusiness & Rural Transformation Project (APART), financed by the World Bank and implemented by the Government of Assam (GoA) through the ARIAS Society and collaborating departments, was launched in January 2018 with the overarching aim of transforming Assam's agriculture sector from subsistence-oriented production to a more market-driven and commercially sustainable system. The project sought to address persistent challenges in Assam's agriculture - low productivity, weak post-harvest systems, limited market integration, and vulnerability to climate shocks—while promoting value addition, private sector participation, and agribusiness growth.

3. Project Development Objective (PDO):

The original PDO was to "**add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in Assam**".

Subsequently, in July-2021 the PDO was amended through a project restructuring to include support for 'Covid-19' management by the GoA and the PDO was changed to - "**add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs and to advance Assam's COVID-19 response**".

The PDO was pursued through a multi-pronged strategy encompassing productivity enhancement, market linkages strengthening, private sector participation, institutional capacity building, and climate-smart technologies.

The PDO Indicators are-

- Farmers reached with agricultural assets or services (number) [CRI]
- Increase in price premium of commodities sold by beneficiaries in the selected value chains (%)
- Share of selected commodities sold through new marketing channels (%)
- Farmers adopting improved agricultural technology (number) [CRI]

4. Project Area:

The project initially covered 16 districts of Assam and later the project was made district agnostic, and focused on key value chains such as fruits and vegetables (banana, tomato, potato, cucurbits), livestock & fisheries (pork, milk, fish), pulses (lentil, pea & blackgram), spices and condiments (ginger, turmeric, mustard), cereals (rice, maize), Specialty products (muga, eri silk) with interventions spanning production, post-harvest management, infrastructure, capacity building, and market linkages.

5. Project Implementing entities:

APART was implemented by the Assam Rural Infrastructure and Agricultural Services (ARIAS) Society, a body under the Government of Assam (GoAS) in partnership with key line departments, universities, and private sector partners, over the period 2017–2025. APART was implemented through a wide range of stakeholders, including the Departments of Agriculture, Horticulture, Fisheries, Animal Husbandry & Veterinary, PWRD, Industries & Commerce, Assam Agricultural University, and several private sector partners. Implementation was coordinated by the Project Coordination Unit (PCU) under the ARIAS Society, working through 16 Operational Project Implementing Units (OPIUs) in Directorates/ Commissionerates/ Agencies of the said departments.

6. Project Components and Sub-component wise key achievements

6.1 Component A: Enabling Agri-enterprise Ecosystem - *enabled investments in agri-enterprises, improved investment environment and investment promotion, reduced business and transaction costs, facilitated access to finance for agribusiness entrepreneurs*

A1. Enhancing State Capacity to Attract Private Investments (ABIP)

- **Institutional strengthening:** For stimulating investment in agribusiness in the State, the project strengthened the Assam Bureau of Investment Promotion (ABIP) to promote market investment opportunities in the state, facilitation and aftercare services, in collaboration with other relevant entities. Moreover, Commissionerate of Industries & Commerce and District Industries & Commerce Centres (DICCs) were also strengthened for investor facilitation, capacity building and outreach as per project design.
- **Strengthening of EoDB:** APART provided manpower support to Ease of Doing Business (EoDB) and supported implementation of Govt of India mandated Business Reforms Action Plan (BRAP).
- **Promoting Agribusiness investments:** Facilitated **65** agribusiness investments worth **Rs 4399 Cr** through augmented institutional capacity for a more conducive investment environment.

Aadhar Greens LLP

Sonapur, Kamrup Metro, Assam

Product/Services to be Rendered: **Ethanol for Biofuel**, Capacity: 100 KLPD

A2. Enterprise Development & Promotion Facility (EDPF)

- **Assam Agribusiness Growth Lab.:** Total **75** enterprises in three co-horts supported with intensive incubation and acceleration support.
- **Kshyamata Program: 1,803** enterprises supported (against a target of 1,500) with Business Development Services (BDSs) including access to finance enabling growth in agro-processing and related services.
- **Ecosystem building:** This subcomponent has supported enterprise services and cluster linkages to accelerate agri-enterprise growth.

A3. Agribusiness Investment Fund (AIF) and A4. Setting up Stewardship Councils:

These two sub-components were dropped with the concurrence of the World Bank and the details in this regard are furnished in a subsequent secion of this report.

6.2. Component B: Facilitating Agro-clusters & Value Chain Development -

enhanced competitiveness of agri-enterprises in project clusters, and upgraded various infrastructures for agricultural trade, which enabled producers and other value chain participants to access new markets.

B1. Establishment of cluster level Industry Associations

- **Diverse enterprise support**: Towards enhancing competitiveness of agri-enterprises in project clusters, APART mobilized total **2,845 entrepreneurs** *(including 952 women, 33%)* and organizing them into **18** cluster level Industries Associations (IAs) and their capacities were strengthened through extensive training for skill upgradation, increasing efficiencies, access to finance, market linkages including joint marketing and branding efforts etc.
- The IAs were supported in setting up common infrastructure in the form of **08** Common Facility Centres (CFCs) involving **204** enterprises. Total **Rs.808.39 lakh** has been mobilized by the private sector entrepreneurs through co-investments in agro-processing for setting up of the **08** CFCs under the IAs.

- **Institutional backbone**: District Industries & Commerce Centres (DICCs) have been strengthened, Industry Associations formed to develop and implement district agro-industrial development plans, and CFCs formed as Private Limited Companies to ensure continuity.

B2: Supply-Chain Support: *activities included- improving rural access roads to production clusters; modernization and upgradation of warehouses and wholesale markets; and a pilot e-marketing platform*

- **Rehabilitation of access roads:** The Project constructed/rehabilitate **213** Km of rural access roads in targeted project areas improving last mile connectivity from production clusters improving connectivity for agricultural produce.

- **Warehouse & warehouse receipts development**: Total **37 warehouses** of Assam State Warehousing Corporation (ASWC) were upgraded and modernized to Warehousing Development and Regulatory Authority (WDRA) norms with modern infrastructure (weigh bridge, computers, plastic pallets, forklifts, web connectivity etc.), to enable warehouse receipt financing. A pilot warehouse receipt financing facilitated with two FPCs for total **Rs 1.7 Cr.** against **683 tons** of stored commodities.

- **Upgradation and modernization of agricultural wholesale markets:** The project supported upgradation and modernization of 96 wholesale markets dealing in agricultural and allied commodities. The indicative list of facilities provided includes market sheds, auction yards, drying yards, shops, drinking water facilities, solar lights, toilet blocks, drainage, approach roads etc.

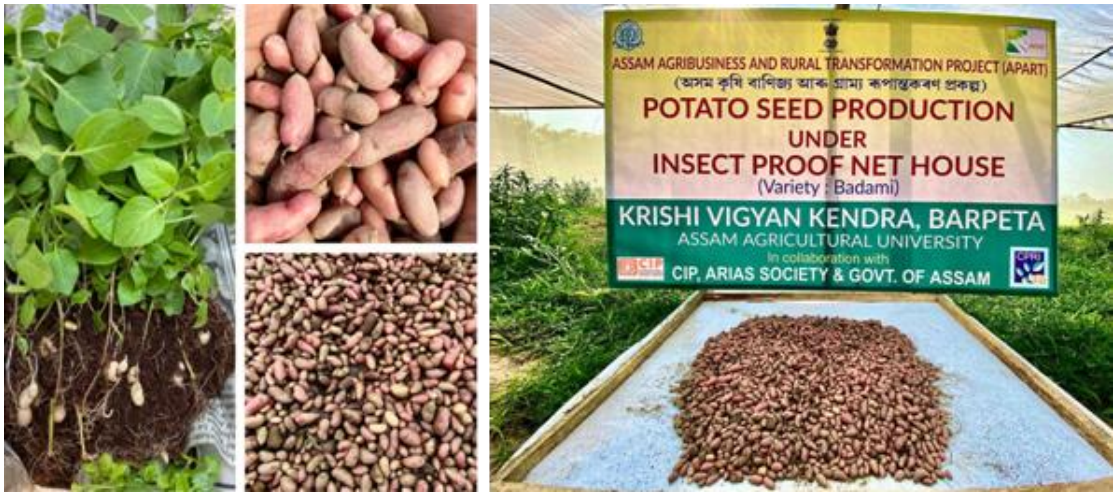
6.3 Component C: Fostering Market-led Production & Resilience - *achieved through - climate resilient solutions; establishing FPOs and Common Service Centers managed by FPOs; market intelligence; facilitating access to financial services by producers.*

C1. Promoting climate resilient technologies and their adoption (Rice, Potato, Vegetable, Fish, Dairy etc.)

- **Rice value chain:** Assisted in adoption of **Stress-Tolerant Rice Varieties (STRVs)** across flood-prone areas via IRRI and Assam Agricultural University, promoting climate resilient cultivation systems and seed supply strengthening. A 29% increase in productivity was witnessed in APART demonstrations.

- **Potato value chain:** Facilitated **quality seed production** (breeder seed & mini tubers) through net-house seed multiplication, zero-tillage climate-resilient trials, and participatory varietal selection with technical support from CIP. For the first

time processing varieties of potato were also introduced and popularized, e.g. Chipsona-3 & Lady Rosetta. A 120% increase in productivity was witnessed in APART demonstrations. **Processing companies like PepsiCo & Siddhi Vinayak have started contract farming in Assam for processing potato**.



- **Vegetable value chains:** Through WorldVeg, implemented trials on varietal performance, nursery-based enterprise development, climate-resilient demonstration plots, and IPM (Integrated Pest Management) systems to reduce pesticide dependence.
- **Climate resilient technologies:** Total **27** climate resilient technologies demonstrated in the Project areas, and the same were adopted by 3.63 lakh farmers.
- **Crop productivity enhancement achieved**
  -
- **Fisheries value chain:**
  - Fish polyculture productivity increased from 4.5 t/ha/yr to 6.3 t/ha/yr (40.62%).
  - Integrated paddy–fish systems boosted fish yield from 0.5 t/ha/yr to 1.5 t/ha/yr (100%), and increased paddy yield from 6 t/ha/yr to 7.1 t/ha/yr (18.33%).
  - Beel productivity increased from 0.65 t/ha/yr to 1.8 t/ha/yr (176.92%).
- **Milk and pork value chains:**

  Under APART, the dairy sector interventions were implemented primarily through WAMUL (West Assam Milk Producers' Cooperative Union Ltd.) and the Animal Husbandry & Veterinary Department (AHVD). The objective was to enhance productivity, quality, and market integration in Assam's milk value chain, by improving smallholder access to input and output markets, veterinary and breeding services, and formal processing and marketing channels.

  APART's interventions in the milk and pork value chains addressed upstream productivity and animal health, aggregation and cold-chain gaps, processing and food-safety, and market linkages. The interventions increased value-addition, reduced losses, improved product's food safety, and strengthen resilience of smallholder dairy and pig producers

  WAMUL, operating under the Purabi Dairy brand, played a central role as the anchor cooperative for value-chain development. Through APART's support, WAMUL significantly expanded its procurement base, processing capacity, and product portfolio, providing stable market access to thousands of small dairy farmers.

Key interventions included:

- **Dairy- Milk processing capacity scale-up along with back-end support**: With the infrastructure augmentation support provided under the project (~₹46 Cr investment, WAMUL's Milk processing capacity has been increased from **60 to 150 TLPD**)

- Expansion of the milk procurement and chilling network through the installation of Bulk Milk Coolers (BMCs), milk testing and collection equipment, and improved logistics to ensure quality and reduce spoilage.

- Capacity building and organization of dairy producer groups, enabling farmers to supply quality-assured milk on a regular basis while receiving input support, feed, and extension services.
- Support to animal breeding, feed, and veterinary services through AHVD to enhance productivity, genetic improvement, and animal health in dairy clusters linked to WAMUL's procurement system.
- Food safety and hygiene training for milk traders, sweet-makers, and small processors, aligning practices with FSSAI standards.
- **A landmark achievement was the establishment of Assam's first ice-cream manufacturing plant by WAMUL with the APART**'s **support**. The plant marked a significant diversification of the state's dairy processing capacity, introducing value-added products and creating new employment opportunities in processing, packaging, and cold-chain logistics. The launch of the ice-cream line under the **Purabi brand** not only expanded the cooperative's market presence but also demonstrated the viability of large-scale, modern dairy processing within Assam.

These interventions collectively resulted in improved milk quality, reduced post-harvest losses, increased farmer income, and a more resilient, market-linked dairy value chain in Assam. The partnership model between WAMUL, AHVD, and APART demonstrated the effectiveness of public–cooperative collaboration in transforming the rural dairy sector.

With regards to the **Pork Value Chain**, the key achievements include-

- Technical support and demonstrations activities, after being halted during 2020 due African Swine Fever (ASF), the pork value chain mostly focused on managing ASF including bio-security measures and 5 (five) pig breeding farms were provided with scientific bio-security measures.

- Climate resilient pig sty: Three types of pig housing were demonstrated in the Project. These are (i) Climate resilient pig sty for fatteners with manure management (ii) Climate resilient pig sty for breeders with manure management (iii) Low cost climate resilient Bokashi piggery.

- **Capacity Building, Post Harvest Management & Market Linkages across all valuechains under Component-C:**
  - Total **3.63** lakh individual farmers were trained on climate-resilient agriculture & allied technologies, business planning, etc. In addition, project conducted exposure visits/ workshops, enhancing knowledge of global best practices.
  - Promoted improved livestock and fisheries practices among **9398** households
  - Incubation and acceleration support provided to **75** entrepreneurs.
  - Facilitated **83** agreements between input suppliers and farmers/groups amounting to **Rs.386.50 lakh** for input supply,
  - Total **36** buyer-seller meets were organized and agreements worth **Rs.336 Lakh** signed.
  - .

C2. Facilitating market linkages through market intelligence and product aggregation

- 125 FPCs (new + existing) were supported by the Project with 60,702 shareholders (33% women) and their capacities have been built. **Farmers contributed share capital of total Rs.604 lakh** as share money towards their membership of 125 FPCs. Further, the farmers under the FPCs have contributed total **Rs.249 lakh** as their share for setting up **37** Common Service Centers (CSCs)

- 37 Common Service Centers (CSCs) established in different value chains
- 46 Custom Hiring Centers (CHCs) set up
- **For the first time in North Eastern India, an Agricultural Market Intelligence Unit (AMIU) was established in the Assam Agricultural University (AUU)** towards introducing a **digital platform** for farmer advisory, market price information. So far, the

services have been accessed by about **77,000+** farmers.

- Project facilitated pilot e-trading through an electronic transaction of **20 tons** of Maize produced by two FPCs in Sonitpur with a Kolkata based buyer at a **price 25% higher** than the local market price.

C3. Facilitating Access to & Responsible Use of Financial Services


The Assam Tribune

India's first parametric insurance for fish farmers launched in Assam

- **Parametric fishery insurance**: To provide financial protection to inland fishery farmers against risks and climate-related uncertainties, **APART launched India's first pioneering parametric insurance product for inland fisheries** in Assam in February 2024. This initiative was designed to protect the livelihoods of fish farmers by providing insurance that pays out automatically based on pre-defined, objective triggers like weather events. Unlike traditional insurance, parametric insurance pays out based on a pre-agreed index, such as rainfall, temperature, or other weather data, without the need for traditional claims assessment.
- **Financial education/counseling: 200,479** producers received financial education/counseling.
- **Xamahar Challenge Fund**: Mobilized **ten financial institutions** (through a rigorous selection process) to innovate and scale value-chain financing models, which benefited **117,259 producers** across **priority districts.**

Collaborations and Partnerships under Component C:

- A key feature of APART's implementation strategy under Component C was its extensive collaboration with leading international and national research and development institutions. These partnerships brought in global expertise, scientific rigor, and innovative technologies to strengthen Assam's agri-value chains and enhance productivity, market linkages, and farmer incomes.
- The project established productive collaborations with several CGIAR institutions, including the WorldFish Centre (Malaysia) for development of the fisheries value chain, focusing on improved aquaculture systems, feed management, and farmer training; the World Vegetable Centre (Taiwan) for strengthening vegetable value chains through varietal improvement, nursery management, and market-oriented production systems; the International Rice Research Institute (IRRI, Philippines) for rice value chain enhancement through climate-resilient varieties, mechanization, and capacity building; the International Livestock Research Institute (ILRI, Kenya) for pork and dairy value chains, focusing on breed improvement, disease management, and feed efficiency; the International Potato Centre (CIP, Peru) for potato value chain development through seed quality enhancement, storage, and market linkages; the International Fertilizer Development Centre (IFDC, USA) for promoting fertilizer deep placement (FDP) and supporting fertilizer sector reforms; and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT,

Hyderabad) for diversification through millets value chains, emphasizing climate resilience and nutritional security.

- **Complementing these, there were strong collaborations with national partners** -including ICAR–Indian Institute of Maize Research (IIMR, Punjab) for maize productivity enhancement; ICAR–National Research Centre on Pig (NRC-Pig, Assam) for genetic improvement and management in piggery; ICAR–Directorate of Rapeseed and Mustard Research (DRMR, Rajasthan) for varietal introduction and agronomic best practices in oilseeds; and CSIR–Central Institute of Medicinal and Aromatic Plants (CIMAP, Lucknow) for promoting medicinal and aromatic crops as high-value diversification options.

- Together, these partnerships enabled knowledge transfer, adaptive research, and scaling of innovative technologies, significantly contributing to the transformation of Assam's agriculture from subsistence to market orientation.

6.4 Component D: Project Management, Monitoring & Learning- This component was administered by the PCU (Project Coordination Unit) at ARIASS, M&E, third-party assessments, knowledge management etc.

- Component-D focused on ensuring effective project coordination, fiduciary management, monitoring, evaluation, and knowledge dissemination throughout the implementation of APART with the support of the specialist and experts, including support staff. The component supported the establishment and functioning of dedicated Core Project Implementation Unit (CPIUs) and Operational Project Implementation Unit (OPIUs) at the State's Department and Directorate/HQ level of the implementing entities respectively, facilitating timely decision-making, efficient fund flow, and convergence among multiple implementing agencies.
- Component-D strengthened project's Monitoring, Evaluation and Learning systems through introduction of a robust results framework, effective online in-house MIS, periodic field reviews, beneficiary feedback, and third-party assessments to track

progress & outcomes. The component also emphasized capacity building, documentation of best practices, and communication for learning and replication.

- Overall, Component-D played a critical role in maintaining implementation discipline, transparency, accountability and adaptive learning, thereby contributing significantly to the overall effectiveness and sustainability of the project.

6.5. Support for Covid-19 management by the Government of Assam:

- In response to the unprecedented challenges posed by the COVID-19 pandemic, the Project was restructured during mid-term review (MTR) to extend vital support to the Government of Assam in mitigating its management and impacts. The project played a crucial facilitative role in assisting the State's National Health Mission (NHM) with pandemic management measures, including strengthening supply chains, restoring livelihoods, and building resilience among rural communities. A total expenditure of ₹186.63 crore was incurred by NHM for COVID-19 response activities, and 80% of the eligible costs was retroactively reimbursed by the World Bank, which was processed through the PCU of ARIAS Society. This intervention exemplified APART's adaptability and relevance in addressing emergent priorities of the State during any such crisis.

7. Safeguards & Fiduciary Performance

- **Environmental**: Environmental Management Framework implemented; promoted climate resilient technologies resulting environmental sustainability. The environmental safeguards management was 93% (as per final Audit Report) compliant with the Environment Management Plans of the Project

- **Social**: Indigenous Development and Gender Action Plans successfully implemented; Around **30**% women participation in project activities achieved. The project covered 24 districts of Assam and benefitted nearly **800,000**+ farmers, with **30+% women**.

- **Procurement**: Procurement has been carried out following World Bank procurement regulations/procedures and there were no red flags.

8. Financial Management: The project diligently followed the Financial Management Manual agreed with the World Bank and financial performance of the Project has been rated moderately satisfactory. **Audits have been completed timely** and there have been **no major pending Audit observations. Project Fund utilization stands at 98.81%** (say 99%) of the the total Project Cost of Rs.1980.0 Cr. Project component wise expenditure is furnished below:

Project Component wise expenditure as on 31st January 2026		
Sl	**Component wise expenditure till 31.01.2026** *(un-audited)*	**Amount Rs. in Crore**

Project Component wise expenditure as on 31st January 2026		
Sl	**Component wise expenditure till 31.01.2026** *(un-audited)*	**Amount Rs. in Crore**
1	Enabling Agri Enterprise Development	115.25
2	Facilitate Agro Cluster Development	542.72
3	Market Led Production and Resilience Enhancement	914.92
4	Project Management, Monitoring & Learning	196.73
5	Covid19 Management by NHM	186.83
6	**Total**	**1956.44**

9. Key Outcomes & Results: PDO Level Results Indicators – Target Vvs. Achievement

The Key Project Indicators (KPIs)	Target	Achieved
(a) Farmers reached with agricultural assets or services (number), of which female (number). (Corporate Results Indicators)	700,000	671,380 195606 (29.13%)
Value added is measured by-		
(b) Increase in price premium of commodities sold by beneficiaries in the selected value chains (percent)	20%	47.49% (Gross) 14.62% (Net)
(c) Share of selected commodities sold through new marketing channels (percent)	25%	30.78%
Resilience is measured by		
(d) Farmers adopting improved agricultural technology (number), of which female (number). (Corporate Results Indicator)	360,000	363,137 80902 (22.27%)

Source: Project MIS & M&E Report

10. Theory of Change (TOC)

a) The **Theory of Change** (TOC) for the **APART project** is simple but powerful — if farmers are supported to produce better, connect to markets, and get fair prices through stronger institutions and value chains, their incomes and livelihoods will improve. The TOC was anchored in the premise that enhancing productivity, improving market linkages, and strengthening institutional capacities across the agricultural value chain will lead to increased farmers' income and rural economic growth in Assam.

The project achieved this by promoting climate-resilient and market-driven production systems/farming practices, helping farmers organize into Farmer Producer Organizations (FPOs) and facilitating aggregation and value addition through FPOs and enterprises, linking producers with markets and agribusinesses, improving access to finance and technology, and upgrading post-harvest infrastructure. These interventions transformed traditional subsistence farming into a more competitive, diversified, and commercially oriented agribusiness sector.

b) Coordinated support across production, processing, and marketing—coupled with institutional strengthening and reforms, created an enabling ecosystem for inclusive and sustainable agribusiness-led rural transformation. By connecting all the pertinent dots- from farm to market -project have been able to transform Assam's agriculture into a more productive, profitable, & resilient sector that drives rural growth

Inputs / Enablers

- World Bank financing & GoA co-funding

- Technical assistance & capacity building
- Institutional strengthening (DoA, DoH&FP, DoF, AHD, CI&C, etc.)
- Policy and regulatory support
- Partnerships with private sector, FPOs, and research institutions (AAU, GBP, CGIAR agencies like IRRI, ILRI, WorldFish, WorldVeg, ICRISAT etc, ICAR Institutes etc)

⇩

Activities / Interventions

- Promote **climate-resilient production systems** (crop, fisheries)
- Support **FPO formation and business development**
- Facilitate **market access and value chain development**
- Upgrade **post-harvest & agri-logistics infrastructure**
- Enhance **access to finance, technology, and extension services**
- Strengthen **institutional coordination and knowledge management**
-

Outputs

- Increased adoption of improved and climate-smart technologies
- Functional and commercially viable FPOs and agribusiness enterprises
- Improved market linkages and reduced post-harvest losses
- Operational collection centers, warehouses, and processing units
- Strengthened institutional capacity and service delivery mechanisms

Outcomes

- Higher productivity and profitability in key value chains
- Enhanced farmer access to markets, inputs, and information
- Increased private sector participation and investment in agribusiness
- More resilient and inclusive agriculture systems
-

Impact

- **Sustainable increase in profitability of farmers'**
- **Inclusive agribusiness-led rural transformation in Assam**
- **Resilient, diversified, and competitive agriculture sector**

The Matrix furnished furnished in next page illustrates the Theory of Change:

Theory of Change

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
Fostering Market-led Production and Resilience Enhancement					
1	Market Led Climate Resilient Demonstrations	~1.5 lakh Market Led Climate Resilient Demonstrations conducted	Increased yield at farmers' fields: Paddy: 4040 Kg/ha to 5230 Kg/ha; Maize: 5140 Kg/ha to 10940 Kg/ha; Mustard: 709 Kg/ha to 110 9 Kg/ha; Pulses: 753 Kg/ha to 982 Kg/ha; Finger millet: 792 Kg/ha to 869 Kg/ha; Foxtail millet:674 Kg/ha to 1200 Kg/ha; Potato: 10t/ ha; EOP-22 t/ha	Increased knowledge of farmers on scientific cultivation, Better quality produce and better prices	Increase in household income and better standard of living of farmers
2	Input Dealer cum farmers' interactive meet	112 Input dealer cum farmer interactive meets conducted, involving 2878 farmers, 377 dealers	83 agreements signed between farmer groups and input supplier companies at a value of Rs 3.87 Cr.	Inputs available to farmers in time and at reasonable rates	Reduced cost of cultivation & better income of farmers
3	Streamlining Agri credit including KCC & insurance	374 Credit camps conducted with 11757 participants, 348 bank officials, 160 insurance company personnel	Increased credit and KCC disbursement, revived 580 KCCs, new KCCs issued worth Rs 2.54 Cr. Also, 23317 farmers enrolled in PMFBY.	Increased investments by farmers in farming	Better savings and household income
4	Demonstration on Fodder	3000 ha of fodder demonstrations conducted	Increased knowledge level of farmers on scientific fodder cultivation, Increased milk yield of cattle	Increased quantity of milk sold by farmers in formal sector	Increased income of dairy farmers
5	District level Buyer Seller Meets (BSMs)	36 District level BSMs conducted successfully with 3935 farmers, 423 buyers	83 agreements signed between farmer groups and buyers worth Rs 3.36 Cr.	Better price realization by farmers	Increased farmer incomes and better standard of living
6	Post Harvest Mgt Demo	295 PHM demos conducted	Reduced post harvest losses	Increased shelf life of agri produce	Better realizations by farmers
7	Training on GAP	299 Trainings on GAPs conducted	Better knowledge level of farmers on scientific cultivation	Increased yield and quality of produce	Better farmer incomes and better standard of living
8	Warehouse Recipts	Trainings on WRF	Better awareness and	3 FPCs (644 farmers) availed	Farmers able to meet

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
	Training & Campaign	conducted for 1060 farmers	knowledge level of farmers on WR financing	scientific storage and WRF worth Rs 1.7 Cr. Increased turnover of FPCs, Rs 2.5 Cr turnover from procurement and market linkages	cash requirement for next crop immediately after harvest, better prices realized by farmers
9	IPM Demonstration (in Village level vegetable clusters)	2800 IPM demonstrations conducted	Better quality (low chemical) agri produce available	Better price realization by farmers	Better health of consuming population
10	Rice Knowledge Bank (RKB)	RKB website operational	RKB being accessed by farmers and other stakeholders	Better knowledge level of farmers and other stakeholders on rice	Farmer following scientific cultivation practices, better yield and quality of produce
11	Rice Doctor	Rice Doctor app functional (more than 1000 downloads from play store)	Less problems encountered in rice cultivation	Higher yield and quality of produce	Higher farmer incomes and increased standard of living
12	CHCs	46 CHCs operational, machine	Reduced cost of cultivation, labor shortage addressed	Increased realization by farmers, total revenue accrued by CHCs in 2022-23 and 2023-24 is Rs 28.68 lakh.	Increased household income and better standards of living
13	Farm Machinery Training (& Testing) Centres	One Farm Machinery Testing and Training Centre and two Farm Machinery Testing Centres have been set up under AAU.	Reduction in sale of sub-standard machines	Better farm machines available to farmers, labor shortages addressed	Reduced cost of cultivation & better income of farmers
Rehabilitation of Rural Roads					
1	Selection of roads for rehabilitation based on APART criteria; DPRs prepared for the selected roads	213 km (152 roads) rural access roads rehabilitated with climate resilient technologies	Population of 4,51,587 individuals in 86,751 households comprising of 661 villages benefitted, Production clusters better connected with markets, warehouses, processing centres, consumption centres etc., increased traffic density on rehabilitated roads	Smooth, efficient and uninterrupted movement of agri produce from production clusters to markets, warehouses, processing and consumption centres	Better price realization by farmers in production clusters and increased household incomes in the production cluster
Market Modernization and Improvement Program					
2	Identification of	Based on 20 pt criteria, DPR	96 markets modernized and	• 1,11,000 sellers benefitted,	Improvement in market

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
	existing markets	prepared for around 100 markets	improved	• Average 46% increase in trade volumes, • Average 29% increase in lease value, • Increase in male seller participation from apprx. 67,000 to 93,000 • Increase in female seller participation from apprx.14,000 to 19,000. • 9% markets doubled trading volume (>100% growth) • 15.95% markets recorded lease rental income growth >100%	operations and practices; Reduction in market malpractices; Efficient and competitive price discovery: Better price realization by farmers
Revamping of Existing Warehouses					
1	Revamping of existing warehouses (renovation)	Modernization plan and DPRs for 37 WH godowns	37 warehouse godowns with 63,000 MT of storage space upgraded to WDRA standards	Scientific storage available to farmers and traders for storing agri produce after harvest	Better price realization by farmers and traders due to delayed sale when prices are higher
2	Upgradation of warehouses (with pallets, forklift, assaying, CCTV cameras & other facilities)	37 warehouse godowns equipped with modern equipment/ accessories and testing facilities like storage racks, stacker, forklifts, dock levellers, CCTV equipment, plastic floor pallets etc.	Increased efficiency of warehouse operations	Better maintenance of quality of stored produce, increased shelf life of stored produce and better hygiene of warehouse godowns	Increased capacity and productivity of warehouse personnel
3	Training for Dept Officers	More than 50 officers trained on scientific storage and warehouse management	Increased knowledge level of ASWC officers/ employees on scientific storage and warehouse/ godown management	Improved management of warehouse godowns by application of modern scientific methods	Increased productivity, capacity and efficiency of ASWC officers
4	Pilot program on WRF including awareness campaign for farmers	More than 1497 MT of agricultural produce stored by farmers/ 3 FPCs in	Two FPCs availed over Rs 1.7 Cr WRF.	FPCs are continuing with WRF. Rs 1 Cr WRF loan has been sanctioned to Kheuj	A platform for institutionalization of WRF on large scale

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
		scientifically managed warehouse. Awareness created among 1060 farmers of FPCs on benefits of scientific storage, WRF and process of availing WRF		Nayan FPC,	created
Product Aggregation and Sale through Producer Associations					
1	Production clusters of APART commodities identified,	•163 production clusters identified •~1.5 lakh demonstrations conducted on various technologies	• Improved Production and Productivity of selected commodities in the Production Clusters • Improved knowledge and technology dissemination • Enhanced access to resources	Improved economy of scale	• Well established community based institution for development of Agri and allied sector • Increased Community cohesion • Increased Financial Linkages • Increased income of member farmers
2	Baseline Survey conducted to identify potential clusters for formation of new FPCs	80 potential clusters identified to form new FPCs	• Established foundation for formation of new FPCs • Enhanced Resources and Technology	Enhanced understanding on collective farming, aggregation , marketing etc. and created a base for collectivisation	
3	Mobilised farmers and formed Farmer Interest Gropus (FIGs) (informal groups) in identified clusters and started group activities	3071 Farmer Interest Groups (FIGs)formed in identified clusters			
4	Converting FIGs into Farmer Producer Companies (FPCs) , registration and handholding support to FPCs (new/existing)	125 FPCs with 60,702 members established	• Enhanced awareness among the farmers on benefits of collectivization • Created platform for aggregation and joint marketing (input/output) etc • Enhanced awareness and knowledge among the farmers regarding access to financial services	• Improved access to quality inputs and technology • Enhanced Market access • Better bargaining power (For inputs & outputs) • Improved access to credit and financial services	
5	Training and capacity building of FPC Board of Directors	• 600 participants comprising BoDs/FPC members/FPC staff	Enhanced capacity and skills of BoDs/members/staff regarding FPC management, Governance,	• Increased institutional capacity • Increased Farm Power	

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
	(BoDs)/members/staff on various aspects such as FPC management, compliances , accounting, technology, farm machinery operation and maintenance etc.	trained on FPC management, compliances, accounting etc. • 90 FPCs were trained on Farm Machinery operation, Post harvest management , value addition etc.	Technical aspects including farm mechanisation etc	availability • Reduced cost of production and enhanced quality of produce	
6	Common aggregation cum processing (small scale) facilities established	37 Common Service Centres (CSCs) for aggregation, better post harvest management, vaue addition (including) small-scale processing) established	• Reduced Post Harvest loss and enhanced value addition of Agri and allied commodities • Improved and better access to Markets • Increased aggregation of Agri & allied produce	Volume throughput in CSCs increased (Agri- 27016 MT/y, Fish – 10275 MT/y, Milk 56575 MT/y)	
Enabling Agri-Enterprise Development					
1	Support to investment promotion through Department of Industry and Commerce	65 investors facilitated with a cumulative investment of Rs 4399 cr in Agri and allied sector	65 units have been setup in Agri based sectors, Ethanol & Other Manufacturing	Agribusiness investors under APART has ensured increased demand for raw material, downstream units and increase in employment	• Creation of a Favourable Investment Environment with strengthened Institutional Support in both Agriculture & Non-Agriculture sectors • Strengthened MSME environment with access to better machinery, technology, access to credit and linkage with
2	Support to Ease of Doing Business (EODB) and implementation of Govt of India reforms (BRAP)	6 manpower support provided to EODB for implementation of BRAP	Coordination with EoDB team for policy incentives, Compliances and related approvals	BRAP reforms implemented successful streamlining EODB process	
3	Investor physical interface created and District Industry offices renovated	One physical interface created and 14 District Industry offices renovated	155 G2B meetings held & 466 leads generated	B2G meetings conducted in the physical interface leading to investor interests	
4	Intensive agribusiness incubation and acceleration support	75 agri enterprises graduated out of incubation and acceleration program	133 new agri/food products were launched, 106 new technologies infused in agri	• Vibrant and innovative agri-enterprise eco-	

Sl	Activity	Output	Intermediate outcome	Outcomes	Long term outcome
	to agri entrepreneurs through Assam Agribusiness Growth Lab (AAGL)	under three co-horts	businesses, Rs 21.75 Cr increase in turnover of supported enterprises, ~ Rs 21 Cr finance was mobilized and 279 persons additional employment generated	system developed in the State • Back end support strengthened in terms of bulk sourcing of raw material, supplier networks etc. • Better market access, buyer network etc.	Corporate Institutions as upstream suppliers • Better bargaining power (For both inputs and outputs)
5	Business Development, Credit and Schematic support to existing and start up agribusiness enterprises	1878 agri enterprises provided business development/credit/ schematic support	Improved business sustainability and growth, with over 70% showing operational scalability and enhanced market linkages, better off take of Govt schemes by agri MSMEs, Rs 4.69 Cr of finance mobilized	• Vibrant agri MSME & start up ecosystem developed in the State • Back end support strengthened in terms of bulk sourcing of raw material, supplier networks etc. • Better market access, buyer network etc	
Facilitating Agro Cluster Development					
1	Small enterprises collectivized to form Industry Associations	• 2845 enterprises mobilized into 18 Industry Associations • 18 Agro Industrial Development Plans developed	• IAs registered with required organizational structure • CFC value chain has been identified for each district from the Agro Industrial Plans	695 joint actions undertaken by firms in a Cluster	
2	Common Facility Centers (CFCs) established for processing agro produce	8 CFCs established involving 204 enterprises	CFCs set up in Rice, Mustard, Food Processing & Silk with required beneficiary contribution & bank finance	Increased turnover, better quality of outputs and better market linkages through CFCs	

11. Key Project Impact

- **Increased Farmer Incomes:** Household incomes in project areas increased by an average of **56.97%**, compared to control group.
- **Market Integration: 30.78**% share of selected commodities (paddy, mustard, potato, milk, etc) sold through new marketing channels.
- **Women's Empowerment:** Women accounted for around **30**% of total farmer beneficiaries, with many assuming leadership roles in FPCs. Another remarkable achievement was the formation of **four fully Women operated FPCs** (2 each on Silk & Agri/Horti.) under the Project.

- **Improved Investment Environment for Agribusiness:** Institutional support to Ease of Doing Business (EoDB) and implementation of Govt of India mandated Business Reforms Action Plan (BRAP)

- **Empowered agribusiness MSMEs:** IAs formed under APART have been designated by MoFPI, GoI as District Resource Units for scheme linkages. Moreover, around 3300 unregistered industrial units were registered which enabled them to access Govt schemes, funding etc. MSMEs were facilitated with financial linkages, capacity building leading to increased employment.

- **Infrastructure impact:** Upgraded and modernized markets have witnessed around 46% increase in arrival volumes (94% upgraded markets showed increased trading volumes) and 29% increase in lease value. Occupancy percentage increased by15% in upgraded warehouses.

- **Climate resilience: 27** new climate-resilient technologies have been demonstrated across different sectors enhanced resilience and benefiting 8 lakh+ farmers. Demonstrated technologies have been adopted by 3.63 lakh farmers.

This has enabled the Project beneficiaries to cope with the changing climate and also mitigate the ill effects of climate change.

- **Sustainability:** Capacities of the grassroots institutions (FIGs, FPCs, CSS, CFCs, CHCs etc.) and Departmental officers have been sufficiently strengthened enabling them to continue beyond the project support.

12. Challenges

- **Multiple PIUs:** APART had 16 PIUs and manging them was a challenging task. This was overcome through deeper engagement with the PIUs during Project implementation. Regular coordination/ review meetings were helpful in on-boarding & quick resolution of issues.
- **Initial Delays:** The selection and approval of roads, markets, warehouses, and other infrastructure, coupled with the need for extensive multi-departmental coordination (especially with the new Departments onboarded for an EAP) during the initial years, caused impediment in timely project roll-out.
- **COVID-19 Pandemic:** The global pandemic significantly slowed implementation during 2020–21 due to restrictions on mobility, disruptions in supply chains, and limited field-level operations.
- **Capacity Gaps:** Variations in institutional capacity across implementing agencies affected the pace and consistency of interventions during the early phase of the Project.
- **Natural Disasters:** Recurring floods and droughts also hindered the smooth progress of Project activities and restricted the working season.
- **Adaptive Response:** Project remained largely on track through adaptive implementation strategies, strengthened monitoring mechanisms, proactive stakeholder engagement, and by the end, 99% disbursement has been achieved.

13. Borrower & Bank Performance

- **Government of India:** The timely reviews through half-yearly TPRMs (Tripartite Portfolio Review Meetings), prompt disbursements, and proactive support in project extensions and restructuring provided by the Government of India significantly contributed to the achievement of the project's development objectives.
- **Government of Assam:** The State Government demonstrated strong ownership, committed leadership, and effective coordination throughout the project implementation period. Continuous monitoring and strategic guidance - particularly from the EAP Cell housed in the Hon'ble Chief Minister's Office - were instrumental in driving the project performance and ensuring accountability at all levels.
- **World Bank:** The World Bank's timely technical assistance, prompt approval for reimbursement claims, operational flexibility during the COVID-19 pandemic, and consistent implementation support through regular supervision missions greatly facilitated smooth project execution. The availability of the Bank's technical experts for guidance and troubleshooting proved invaluable in sustaining momentum and ensuring quality delivery of outcomes. Regular and structured full team mission from

Bank would have ensured better, efficient and smooth implementation of Project interventions.

14. Lessons Learned

- A key learning from APART implementation is that in comprehensive Projects like APART, having multiple PIUs & service providers, PIUs need to be involved from the Project preparation stage itself. Continuity of Departmental Nodal Officers & Coordinators in the Project Coordination Unit (PCU) is beneficial for smooth implementation. Regular meetings with OPIUs are essential in keeping the Project progress on track.
- Building the institutional strength of farmer collectives is critical for sustainability. Sustainability of FPCs depends on strong post-project support for governance, market linkages, and financial access.

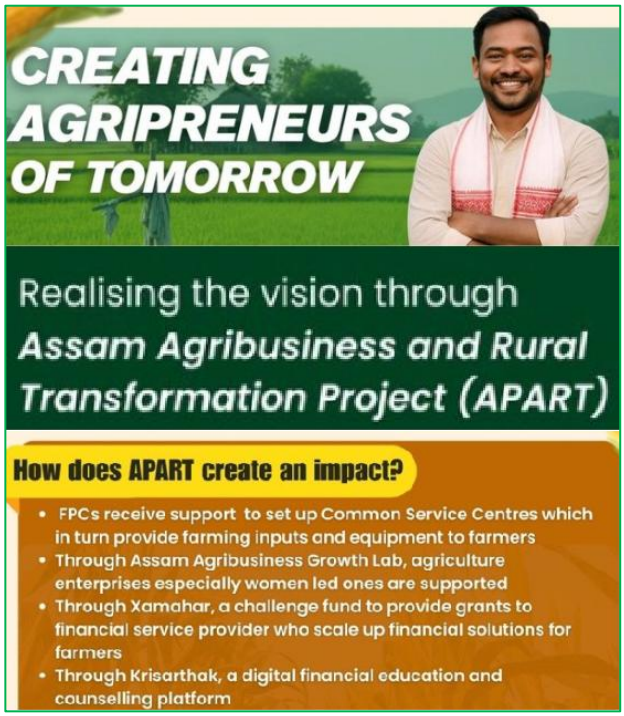
- **Climate-Resilient agriculture** to be further scaled through better technology transfer through international & national level knowledge partners to address Assam's flood and climate risksmore efforts needs to be made to minimize Post Harvest losess.
- Collaborations with International CGIAR Institutes and the National ICAR Institutes collectively catalyzed APART's vision of transforming Assam's agriculture from a subsistence-based system to a market-oriented, value chain–driven agribusiness ecosystem. However, national level institutes are equally competent to provide technical support.

- State has **potential to become self reliant in different Agri & allied commodities (e.g. maize, mustard, pulses, spices etc).**
- A dedicated Market Intelligence system significantly improves market transparency and farmer empowerment.
- **Export facilitation** requires specialized logistics, certification, and branding strategies.
- **Convergence with other schemes** enhances resource use & sustainability. Convergence with state and central government schemes also amplifies outreach and efficiency.
- Continued support for Financial Inclusion & Capacity building of Entrepreneurs, IAs & FPCs and Investment Promotion for developing a conducive investment environment and institutional capacity building is critical for agro-industrial growth
- Private sector engagement significantly enhances access to technology, finance, and markets.
- Back-end support is essential for a robust EoDB Program for time bound processing of investor applications/ proposals.

- Investor facilitation till the point of actual grounding of investment is critical to meet the requirements of the investor. Moreover, additional industrial land banks need to be developed by Govt.
- 100% Micro MSME units are not registered under Department of Industry. The registration of these units is essential to extend benefits of MSME schemes.
- Concerned line Departments particularly for setting up of Common Facilities need to be involved in the process from the beginning to ensure smooth & timely approvals and completion etc.

15. Conclusion

- The Assam Agribusiness and Rural Transformation Project (APART) has demonstrated the effectiveness of a comprehensive, multi-sectoral approach in transforming the agricultural and rural economy of Assam. Through its focus on enhancing productivity, building market linkages, promoting private sector engagement, and strengthening institutional capacities, the project has made significant contributions toward improving the competitiveness and resilience of Assam's agri-food systems. APART's interventions—spanning production, value addition, and post-harvest management—have successfully introduced climate-resilient practices, improved supply chain efficiency, and supported the emergence of Farmer Producer Organizations (FPOs) as key actors in market-led growth.



- The Project has demonstrated that with coordinated interventions—ranging from grassroots mobilization to infrastructure and private sector partnerships, entrepreneurship development, smallholder farmers can transit from subsistence to commercial agriculture.
- Women empowerment: The Project had a strong focus on gender aspects and women empowerment. Four FPCs promoted under the Project were all women FPCs. The Project also ensured at least 30 percent participation of women in all its activities across the components and value chains.
- APART's support for agribusiness based Processing Units and MSMEs has ensured increased processing of agri-produces and thereby ensured remunerative prices to the farmers of the State.
- The project's results underscore the value of convergence among government departments, the role of digital innovations in improving service delivery, and the importance of evidence-based policy reforms to sustain agribusiness growth. Implementation experience under APART has also yielded vital lessons on the need for more vigorous capacity development, timely procurement of inputs by implementing entities, and adaptive planning in large, multi-stakeholder operations. The project's inclusive design, emphasizing women's participation and the integration of smallholders into value chains, has further enhanced its developmental impact.
- As APART concluded on 30th September 2025, its outcomes highlight the potential for scaling up successful models in value chain development, climate resilience, and

institutional strengthening and also potential for making the State self-reliant in certain key commodities. The sustainability of results will depend on continued policy support, capacity retention within key institutions, and the deepening of partnerships with the private sector. Overall, APART has laid a strong foundation for Assam's transition toward a more productive, diversified, and market-driven rural economy—providing valuable insights for future World Bank–supported operations and for the state's long-term agricultural transformation agenda.

16. Way Forward for APART 2.0

With the successful completion of the World Bank-financed APART Project, there is a strong case for designing a follow-on operation (APART 2.0) to consolidate gains and scale up the transformation agenda. The first phase of APART has demonstrated tangible improvements in climate resilient technologies, productivity, value addition (primary & secondary processing), and market linkages across key agri-value chains. However, to ensure sustainability and deeper impact, a second phase perhaps should be strategically built on the institutional, infrastructural, and knowledge foundations laid under APART.

1. Consolidation and Scale-up

- Strengthen and institutionalize the producer collectives, FPOs, and cluster-based value chain models established under APART, with support for FPCs/ farmer institutions and agri-enterprises, and federating FPCs with robust MIS.
- Expand successful interventions (e.g. milk processing with backend support, horticulture, maize, mustard, pack houses, etc.) to additional districts and take up value chains with demonstrated market potential. Also take up Riverine fisheries and egg (for self sufficiency), hitherto not covered under any program.

2. Deepening Private Sector Engagement

- Foster stronger agri-business partnerships through co-investment, PPP models, and supply-chain integration with food processing and export markets.
- Introduce catalytic financing mechanisms (credit guarantees, blended finance, and venture support) for agribusiness start-ups and FPO enterprises.
- Achieving self sufficiency in key commodities through private sector involvement and focus on PHM, value addition, market linkages & exports.
- Continued support for Agribusiness Investment Promotion and MSMEs promotion including linkage to bank finance

3. Climate Resilience and Digital Transformation

- Integrate climate-smart agriculture, with need based micro-irrigation support, and carbon-resilient technologies across value chains.
- Scale up digital innovations—such as e-market platforms, digital extension, and traceability systems—for transparency and market access.

4. Institutional Strengthening and Policy Support

- Strengthen the institutional capacity of sectoral departments (especially Agriculture & Horticulture, AHVD, etc.) through targeted institutional reforms/ systems development and capacity building.
- Mainstreaming best practices of APART and instil a policy for adopting reforms initiated under EAPs into departmental operations and upgrading state agricultural and allied policy frameworks.

5. Convergence and Inclusivity

- Promote inter-departmental convergence (especially with GoA & GoI schemes) for resource optimization.
- Ensure stronger inclusion of women, youth, and smallholders in value chain enterprises and leadership roles.

6. Knowledge sharing and Learning

- Leverage APART's rich data and experience base to establish a Centre for Agribusiness Learning and Innovation (CALI) for analytical assessment, incubation, and south-south knowledge exchange *(South–South Knowledge Exchange is a mutual learning process where countries (or institutions within them) share- Best practices, Policy experiences, Technical know-how, Innovations and implementation models etc. It can take the form of study visits, workshops, joint research, twinning of institutions, expert exchanges, or virtual platforms).*

- In essence, it is expected that - APART 2.0 would be the transition from "piloting & demonstrating models" to "scaling, institutionalizing, & sustaining transformation" for positioning Assam as a national leader in climate-resilient, market-driven, inclusive agri-food systems and making the State self-reliant in a few commodities.

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The World Bank financed
Assam Agribusiness and Rural Transformation Project (APART)
(Loan No.: 8780 IN)

DETAILED PROJECT COMPLETION REPORT

1. Background

1.1 In Assam, agriculture remains the primary source of livelihood and employment for the vast majority of the rural population. Nearly 90 percent of the state's people reside in rural areas, and most depend directly or indirectly on agriculture for their sustenance. The sector provides employment to around half of the total workforce and supports over three-fourths of the state's population. However, farming in Assam is characterized by small and fragmented holdings—about 85 percent of agricultural households are small and marginal farmers, with an average operational landholding of only 0.63 hectare, compared to India's national average of 1.10 hectare.

1.2 Agriculture has long been the backbone of Assam's economy, supporting the livelihoods of nearly three-quarters of its population. Yet, the sector faced persistent challenges - fragmented value chains, limited market access, low productivity, and inadequate post-harvest infrastructure. To address these bottlenecks and unlock the state's agribusiness potential, the Assam Agribusiness and Rural Transformation Project (APART) was taken up by the Government of Assam (GoA) with the financial assistance from the World Bank.

1.3 APART aimed to transform the state's agribusiness sector and to enhance the productivity and resilience of its agricultural value chains. Conceived in alignment with Assam's vision for inclusive rural growth, APART targeted to strengthen agricultural production systems inter alia through climate resilient production technologies, promote agro-entrepreneurship, facilitate market linkages, and foster private sector participation. Envisioned as a catalyst for change, the APART project endeavoured to make Assam's agriculture more market-oriented, resilient to flood & draught, and income-enhancing for farmers, agripreneurs, and rural communities alike. Implemented across all districts of the state, the project sought to improve the livelihoods of smallholder farmers through value chain integration, improved technologies, and institutional strengthening.

1.4 **Project Development Objective (PDO):** The original PDO was to "**add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in Assam**".

Subsequently in July-2021, PDO was amended through a project formal project restructuring to include support for 'Covid-19' management by the GoAS and the PDO was changed to – "**add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs and to advance Assam's COVID-19 response**".

The PDO was pursued through a multi-pronged strategy encompassing productivity enhancement, market linkages strengthening, private sector participation, institutional capacity building, and climate-smart technologies. **The PDO Indicators are-**

a) Farmers reached with agricultural assets or services (number) [CRI]
Value added measured by **-**
b) Increase in price premium of commodities sold by beneficiaries in the selected value chains (%)
c) Share of selected commodities sold through new marketing channels (%)
Resilience measured by **-**

d) Farmers adopting improved agricultural technology (number) *[CRI]*

2. Project Components and Sub-components:

2.1. The project was structured around four interlinked components: **(A)** Enabling Agri-Enterprise Development, focusing on improving the investment climate and agribusiness ecosystem; **(B)** Facilitating Agro-Cluster Development, promoting value addition and market linkages in selected commodity clusters; **(C)** Fostering Market-Led Production and Resilience Enhancement, aimed at strengthening farm productivity and climate resilience through improved technologies and extension services; and **(D)** Project Management, Monitoring and Learning, ensuring effective coordination, fiduciary oversight, and results management. The **Sub-components** of the Components are as given below -

2.2. **Component-A: Enabling Agri-enterprise Development**

i) Subcomponent A.1: Enhancing state capacity to attract private investments

ii) Subcomponent A.2: Setting up of Enterprise Development and Promotion Facility

iii) Subcomponent A.3: Agribusiness Investment Fund support

iv) Subcomponent A.4: Establishing Stewardship Councils

2.3. **Component-B: Facilitating Agro Cluster Development**

i) Subcomponent B.1: Support Establishment of Cluster Level Industry Associations

ii) Subcomponent B.2: Supply Chain Support *(Roads, Markets, Warehouses)*

2.4. **Component-C: Fostering Market-led Production & Resilience Enhancement**

i) Subcomponent C.1: Promoting Climate Resilient Technologies & their adoption

ii) Subcomponent C.2: Facilitating market linkages through market intelligence & product aggregation

iii) Subcomponent C.3: Facilitating access to and responsible use of financial services

2.5. **Component-D: Project Management, Monitoring & Learning**

3. Project implementation arrangements:

3.1 Government of Assam entrusted the responsibility of overall management/ monitoring/coordination of the Project with Assam Rural Infrastructure and Agriculture Services (ARIAS) Society, an autonomous body of the Government of Assam. The Society has previously satisfactorily completed three World Bank financed projects[1].

3.2 **Governance structure:** Project followed a three tier governance structure at State level-

- A Project Coordination Unit (**PCU**) led by a State Project Director (SPD) was established within the ARIAS Society. A state Project Coordination Committee (SPCC) headed by the SPD with HODs of the implementing Directorates/ Commissionerates/ Agencies and their Nodal Officers, monitored and reviewed the project implementation regularly and removed cross-cutting implementation hindrances.

- The PCU was governed by two bodies viz. a Project Guidance Council (**PGC**) headed by the Chief Secretary, and a Governing Body (**GB**) chaired by the Agriculture Production Commissioner; The Senior-most Secretaries

[1] **Agri & Allied Sector:** ARIASP: 1995-2004; AACP: 2005-2011 with AACP-AF: 2012-2015 with rewards & recognitions for pioneering innovations; **Governance**: ACCSDP with highly satisfactory rating by the World Bank

of the Implementing Departments and Heads of the Directorates (HoDs)/Agencies were the members of the PGC and the GB, including representatives from Finance Department & Transformation & Development Department.

3.3 **Project Implementing Departments/Directorates/Agencies:** The project was implemented by 16 Directorates/agencies [an Operational Project Implementation Unit (**OPIU**) was established in each of the Head Quarter/Directorates and a Core Project Implementation Unit (**CPIU**) was established in each of the 9 implementing Line Departments of the Government

Sl.	Departments (CPIUs)	Sl.	Commissionerate / Directorate/Agency (OPIUs)
1	Agriculture	1	Directorate of Agriculture
		2	Directorate of Horticulture & Food Processing
		3	Assam State Marketing Board (ASAMB)
		4	Assam Agricultural University (AAU)
2	Industries & Commerce	5	Commissionerate of Industries & Commerce
3	Animal Husbandry & Veterinary	6	Directorate of Animal Husbandry & Veterinary
		7	Directorate of Dairy Development
		8	Assam Livestock & Poultry Corporation Ltd (ALPCO)
4	Cooperation	9	West Assam Milk Producers Cooperative Union Ltd. (WAMUL)
		10	Assam State Warehousing Corporation (ASWC)
5	Fisheries	11	Directorate of Fisheries
6	Handloom, Text. & Sericulture	12	Directorate of Sericulture
		13	Directorate of Handloom & Textiles
7	Public Works Roads	14	Chief Engineer (EAP), Public Works Roads Deptt.
8	Panchayat & Rural Development	15	Commissionerate of Panchayat & Rural Development
9	Government of India	16	National Dairy Development Board (NDDB) *

- The OPIUs were headed by the concerned Heads of Directorates and the CPIUs established in each of the Administrative Departments were headed by Senior most Secretaries of the Administrative Department in Assam Secretariat. Both the OPIUs and CPIUs were vested with the responsibility of overseeing the implementation of their respective activities under the Project.
- At the District level, District Level Coordination Committee (**DLCC**) headed by respective District Commissioners was established and it comprised of district level officials of the implementing departments and the agencies as members. The DLCCs were vested with the responsibility to ensure coordination, and review of the Project progress;

3.4 **Annual Work Plans, Budget & Fund Flow:** Annual Work Plans (AWPs) were prepared by the OPIUs and submitted to PCU through respective CPIUs for approval by the GB of ARIAS Society. Based on GB's approval, General Administrative Approval (AA) was accorded to the AWPs. Based on the approved AWPs, activities were implemented in the field and funds were sanctioned and released in tranches to the OPIUs in response to Sanction and Fund Release Proposals (FRPs) through a parent child account system.

3.5 **Parent Child Accounting System:** A new banking arrangement, namely the Parent–Child Account System, was institutionalized for managing bank transactions during the Additional Financing period of AACP which continued in APART as well. The objective was overcoming certain drawbacks experienced under the previous projects, particularly delays in fund clearance and to ensure that funds do not remain idle with the PIUs and could be provided promptly to needy PIUs.

Key Features of the Parent–Child Account System

a) **Opening of Accounts**

- A single Parent Account was opened for each department at the Project Coordination Unit (PCU).

- The Accounting Centres/Nodal Offices (including field-level accounting centres) opened Child Accounts with the same bank, preferably at branches convenient to their location.

b) **Deposit of Funds**

- The PCU deposited project funds into the Parent Account.

c) **Fund Release Proposal and Fixation of Limits**

- The Accounting Centres/Nodal Offices submitted a Fund Release Proposal (FRP) in the prescribed format.
- Based on the approved FRP, the PCU did not transfer funds physically to the Child Accounts; instead, the PCU fixed a financial limit for each Accounting Centre.
- The financial limit so fixed was formally communicated by the PCU to both the concerned bank and the Accounting Centre/Nodal Office.

d) **Release of Funds to Beneficiaries and Payments**

- The Accounting Centres released advances to beneficiary groups through electronic transfer to their respective bank accounts.
- For electronic transfers, beneficiary groups maintained bank accounts with banks having NEFT/RTGS facilities.
- Payments to suppliers/parties could be made through cheques or demand drafts, as per existing procedures.
- Cheques/drafts issued by an Accounting Centre within the financial limit fixed by the PCU shall be honoured by the bank.

e) **Monitoring and Viewing Rights**

- The PCU shall have view-only access to the bank account transactions of all Accounting Centres.
- The Nodal Offices shall have view-only access to the bank account transactions of all Accounting Centres under their jurisdiction.

3.6 Grants fund flow to community organizations for infrastructure activities

a) Advance and Adjustment of Payments

- Payments to the User Groups/FPCs were governed by formal agreements entered into with them for undertaking specific work/activities, with defined financial and/or physical beneficiary contributions.
- Based on these agreements and the nature of the work/activity, staggered advances shall be released at predefined milestones. The amount credited in the bank column (in case of cheque/online payments) shall be treated as an advance under the relevant head of account.

b) Release of Subsequent Advances and Adjustment of Prior Advances: Release of subsequent advances was subject to:

- Submission of adequate utilization details of the previous advance by the User Group/FPC; and
- Physical and financial verification of the work/activity by the concerned Coordinators.

Such verification included confirmation of the pre-defined beneficiary contribution of the User Group/FPC. Upon release of the subsequent advance, the previous advance

had to be adjusted as expenditure under the specified head of account, through a contra debit and credit entry recorded in the cash column.

c) Details of Payment of Tranches for Execution of the Activity/Work

- The FPC would set aside, in a dedicated bank account, an amount equivalent to 20% (including bank loan of 10%), which was a precondition for the release of subsequent project grant instalments.
- The FPC opened a separate bank account exclusively for transactions related to:
  - This project grant; and
  - Any other grants received from the PCU.
- All transactions related to the project were routed through this account until the setting up and operationalization of the CSC was complete and all project support concluded. The FPC's own contribution as well as any bank loan was to be deposited into this account. Documentary evidence of such deposits was submitted to the Second Party and the PCU.
- The FPC submitted documentary evidence of investments and beneficiary contributions mobilized from its members for the activity to the PCU, ARIAS Society / OPIU-Agri.
- The release of each subsequent tranche was contingent upon:
  - Utilization of earlier releases in accordance with approved norms;
  - Verification of physical progress and financial expenditure; and
  - Compliance with all terms and conditions of the agreement, as certified by the PCU/OPIU

3.7 **Community Cadre, deployment and role etc:** To develop Community Cadre under APART, the Board of Directors (BoDs), progressive farmer members and other farmers of the Farmer Producer Companies (FPCs) under APART have been trained and developed their capacity and skills on various aspects such as FPC management, governance, compliances, Accounting and Book keeping, community procurement, farm machinery operation and maintenance, Post Harvest management, online marketing etc. to make them as Master Trainer of the FPC.

Moreover, with the support from APART and due to capacity building and continuous handholding of the FPCs, the FPC members/BoDs were trained in such a way that they could successfully complete the procurement of various machinery/equipment/goods etc. required for CSCs/CHCs/Seed Processing etc. following the APART Community Procurement Guidelines. Further, to strengthen the community, the BoDs/progressive farmers of the FPCs were facilitated to link with various Govt. /Private Organizations so that they can strengthen their community by availing the benefit of various schemes/projects/CSR initiatives etc.

The deployment of community cadre particularly for FPCs was done by mobilizing the farmers at cluster level and then identifying the Community Leaders among the communities at the Farmer Interest Group (FIG) level. For mobilizing and identifying the Community Leaders, *Service Providers (Consultancy Agencies) engaged under APART for FPC –CSC assignments have engaged grassroots level workers such as Community Organizers at village level.*

Community Cadres/Community Leaders of FIGs/FPCs were identified based on their present influence among the community, trustworthiness and social building capacity within the community. Later on, when the FPCs were formed by federating the FIGs, the Board of Directors (BoDs) was selected/elected to manage the operations and activities of the FPCs etc. and they are the organized and formal kind of community cadre working with the FPCs.

Role of the Community Cadre/BoDs/progressive farmers of the FPC was to educate FIG/FPC members on the importance of collective action for better farming with modern and cost effective technology, to reduce post harvest losses with better post harvest management practices/farm mechanization, better marketing practices focusing on better price realization of their products by way of converging or availing the benefits various Govt. /Private schemes/projects etc. so that farmer members of the FPC will earn better income for better livelihood.

4. Overview of Project Targets, and Achievements

The component and subcomponent wise key physical targets and achievements are shown in the Executive Summary section. A summarized overview of the Physical Achievements of key project interventions as below:

Particulars	Target (EoP	Achievement
1. Agribusiness investment leads facilitated through ABIP (No.)	300	466
2. Enterprises set up with the support of EDPF (No.)	1500	1878
3. Joint actions undertaken by firms in a cluster (No.)	500	695
4. Agro Industrial Development Plans developed (No.)	17	18
5. Firms mobilized into Industry Association (AI) (No.)	1700	2845
6. Trading volume through improved markets (%)	20	45.84
7. Rural roads upgraded with climate resilient technologies (km)	200	213
8. Climate resilient technologies demonstrated in the Project area (No.)	25	27
9. FPOs supported by the Project (No.)	125	125
10. Volume throughput through Common Service Centres (CSCs) (MT/yr)		
Fish	10,000	10275
Milk	10,000	56575
Agricultural commodities	30,000	27016
11. Producers provided with financial education and counselling services (No.)	2,50,000	2,00,479
12. Producers with increased access to financial services (no.)	1,25,000	1,17,259
13. Grievances registered related to delivery of Project results that are actually addressed (%)	100	100

5. **Project Restructurings:** Three Restructurings were taken up with details as below-

A. Restructuring-1: Inclusion of NDDB as an Operational Project Implementation Unit (OPIU) (September, 2019)

i) **Why restructuring was needed:** Under the Project as per original plan, capacity of WAMUL's dairy processing plant was to be expanded from 60,000 liters per day to 1,50,000 liters per day. A proposal was received from WAMUL mentioning that they lack the expertise to execute such large scale work and wished to engage NDDB to take up the capacity expansion work on direct selection basis as NDDB had a proven expertise in carrying out such works on turnkey basis.

Accordingly, a meeting was held at New Delhi on 15th July 2019, chaired by the Chief Secretary, Assam and attended by senior officers of Govt of Assam and the World Bank, it was decided that

NDDB will be added as a new implementing entity under APART for providing technical assistance towards preparation of DPR including survey and soil investigations, architectural and engineering design, procurement actions etc. It was further decided that in order to include NDDB as an implementing agency under APART, GoA would send a restructuring request to DEA, GoI.

ii) **How restructuring was accomplished:** A restructuring request with detailed justification as mentioned above was sent from GoA to DEA and amendment to the Loan agreement and Project agreement was received in November, 2019.

iii) **Did restructuring undermine any Project factors:** NDDB was engaged for the above-mentioned work on **direct selection basis,** given its noteworthy credentials. NDDB had earlier taken up projects on turnkey consultancy basis on the request of various milk Unions and Federations wherein World Bank funds were involved. Moreover, as WAMUL is managed by NDDB, it was a **conflict of interest**. Hence, it was agreed with the World Bank that the consultancy fees shall also be waived and the project execution shall be done on pro bono basis by NDDB.

B. Restructuring-2: Utilization of exchange rate savings of USD 20 mn for advancing State's COVID-19 support (including change in PDO)

i) **Why restructuring was needed:** Like other States, the COVID-19 pandemic had hit the State badly during 2020-21. All the World Bank funded EAPs in the State were asked to spare any exchange rate savings for the cause. APART generously came forward with an offer to surrender USD 20 mn of loan amount (USD 25 mn Project amount) to be spent through State Health Society (SHS) under State Health Mission.

ii) **How restructuring was accomplished:** Based on the above, GoA's request for said restructuring was forwarded by DEA to the World Bank vide their letter no. 4/3/2015-FB.VII dated January 18, 2021. The amendment to the Loan and Project agreement was received in July 2021. This also led to change in the PDO to – to add value and improve resilience of selected value chains, focusing on smallholder farmers and agro-entrepreneurs and to advance Assam's **COVID-19 response**.

iii) **Did restructuring undermine any Project factors:** As the new activities related to support COVID-19 response were taken up out of exchange rate savings, the originally planned activities were not affected due to this restructuring.

C. Restructuring-3: Dropping of AIF & inclusion of ASF management program

i) **Why restructuring was needed:** Under subcomponent A.3 of the Project, an Agribusiness Investment Fund with around 30 million USD private investment (equivalent contribution from GoA) was to be set up through on-boarding of a professional fund manager. Due to change in SEBI regulations on-boarding of fund manager took time. Moreover, the fund manager could not mobilize the required funds for the first close in a timely manner i.e. by May 2024.

The Project was scheduled to be closed on 30th September, 2024. Although the fund manager requested for an extension in the timeline of first close, but given the prevailing scenario, it was highly unlikely that the remaining timelines could be achieved as targeted. In view of the same, under intimation to the Govt of Assam and the World Bank it was decided to drop the AIF from the Project and hence the 3rd restructuring.

ASF outbreak initially caught the State completely unprepared, significantly impacting farmer livelihoods. This critical issue became a catalyst for transforming the operations of the Animal Husbandry and Veterinary Department (AHVD). Assam's comprehensive preparatory efforts, actively involving international organizations such as FAO, ILRI, and WOAH, were commendable and provided important lessons for the rest of India. Proactive measures included establishing bio-security measures, enhancing testing capabilities, and developing Standard Operating Procedures for vulnerable communities involved in pork production.

Given the extensive changes required for effective ASF strategies, it was agreed that the new Animal Health System Support for One Health (AHSSOH) program, upon formal approval, will support the implementation of the ASF management program. Since this led to substantial higher order changes in the original Project plan, a restructuring of the Project was considered necessary. It was further agreed that the detailed implementation arrangements and bio-security measures designed for ASF under APART will thus be integrated into the new project after APART, ensuring a focused and robust response to the challenges posed by ASF in Assam.

ii) **How restructuring was accomplished:** A restructuring request was sent from GoA to DEA in February 2022. DEA forwarded the request from GoA to the World Bank in March 2022. Additional changes including dropping of AIF and support to ASF management were intimated by GoA to DEA vide letter no. 164113/438 dated 11th July 2025. The final document on amendment to the loan and Project agreement was received on 4th September, 2025.

iii) **Did restructuring undermine any Project factors:** As per original plan, AIF was an important Project activity. A feasibility study had already been undertaken. A corporate law firm had also been on-boarded to support the Project on legal aspects of fund structure and design. Although inconclusive, the efforts spent on this initiative offered valuable lessons for future projects. The competitive selection process for the fund manager, led by an independent expert panel, generated substantial private sector interest and has been documented for the benefit of similar future initiatives. The savings generated due to dropping of this activity were utilized by the Project for new activities with the approval of the World Bank.

6. Other changes during the Project (not requiring restructuring)

A. Changes in Project design: The following changes not requiring restructuring were made to the Project design-

1. **Construction of ADO offices:** 93 offices for Agriculture Development Officers (ADOs) were constructed. The State has around 385 ADOs. ADO did not have any office. ADOs are the last mile officers directly in touch with farmers for implementation of any Govt scheme in Agriculture sector. In order to ensure that ADOs are able to discharge their duties smoothly and effectively, construction of 93 ADO offices was accomplished. Each ADO office has been provided the following: (i) Conference Hall with a seating capacity of 10 persons (ii) Office chamber of ADO (iii) One room for supporting staff (iv) Toilet block separate for males and females. The estimated cost for each ADO office is around Rs 60

lakh including furniture. However, due to unavoidable reasons, only 36 ADO offices were provided furniture from the Project side.

2. **Assam Millets Mission:** In pursuance of the international year of millets 2023 and as per GoI suggestion, Assam set up Assam Millets Mission (AMM) over a period of 7 years (2022-2029), of which first two years was fully funded under APART. For the third year only part expenses were borne under APART. The Mission mainly focused on three millet crops i.e. finger millet, fox tail millet and proso millet.

   The activities encompassed: A- Market and nutrition supportive production (demonstrations, seed production, integrated cropping systems, farm mechanization/CHC etc); B - Post-harvest & value addition (PH demo (25,000 ha, with adoption 50,000 ha), machinery storage, product development etc.); C- Market linkages (FPCs, CSC, buyer seller meets, value chain schools, exhibitions etc.); D -Ensuring better nutrition, healthy & disease free Assam through millets (Mobile outlets, awareness, inclusion of millets in state nutrition schemes); E - Administration, operations, training & capacity building (Governance, Mission cells, SPMU, DLMC, staffing, training, exposure visits, millet business conclave, millet knowledge bank etc).

   The Department of Agriculture and AAU had a significant role in promoting millets in collaboration with Department of Social Welfare (POSHAN Abhiyan) and Department of School Education (PM POSHAN). The Mission was technically supported by International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) and other partner organizations.

3. **Assam Fodder Mission:** Considering the perennial deficit of fodder in the State, Govt of Assam decided to take up Assam Fodder Mission (AFM) over a period of 7 years (2022-2029), of which first two years and six months was fully funded under APART. The annual requirement of green fodder for the crossbred cattle population alone is 23,15,925 MT, but only 85,633 MT is available in the state with a deficit of 22,30,292 MT. The Directorate of Agriculture was the implementing agency of the Assam Fodder Mission (AFM) in 26 APART districts with active participation from Animal Husbandry and Vety. Dept., Dairy Development Dept. and Milk Union of Assam. The activities under Assam Fodder Mission (AFM) included: (i) Fodder seed production & distribution, (ii) Fodder production demonstration, (iii) Post Harvest Management (PHM) demonstrations, (iv) Awareness generation, training, and capacity building.

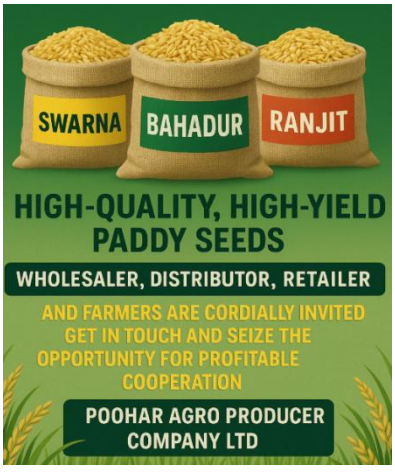
4. **State Floriculture Mission:** The total size of the flower market in Assam is around Rs.135 Crore. Assam produces flower materials worth only Rs. 15 Crore and rest comes from outside the state. The annual demand and

production gap of all commercially cultivable flower crops in Assam is approximately 3609.36 tonne. Assam's agro climate is suitable for cultivation of most flower crops. In this backdrop, the Floriculture production activities were taken up under APART in about 50 ha.

5. **Bodoland Eri Mission:** Providing support for sericulture activities in Bodoland Territorial Region (BTR), implemented by Department of Sericulture & Handloom in the Secretariat of BTC and in coordination with PCU, ARIAS Society. Activities encompassed - (a) Capacity Building & Training, (b) Support to beneficiaries for Eri perennial host plantation development, construction of rearing house, rearing and mounting equipments, prophylactic measures, certified looms to weavers and (c) Consultancy services for capacity building, training in dyeing, designing,weaving, branding, trade Fair etc.

6. **Mini Mission on Medicinal & Aromatic Plants:** Considering rich biodiversity of the state in medicinal and aromatic plants with more than 300 species having importance in pharmaceutical industries and wide scope of commercial cultivation and utilization a pilot on Medicinal & Aromatic Plant (MAP) was taken covering four crops i.e. Lemongrass, Tulsi, Vetiver & Patchouli in 7(seven) districts of Assam namely Dhubri, Kokrajhar, Goalpara, Karbi Anglong, Biswanath, Majuli & Dhemaji with the technical support of Council of Scientific and Industrial Research (CSIR) - Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow for a period of 2(two) years upto May, 2024.

As a part of the pilot, market led production demonstrations for Lemongrass, Vetiver, Tulsi & Patchouli were taken up. Post harvest/processing demonstrations were also taken up through setting up mini processing. Market linkages for processed products were fostered through Buyer-Seller Meets (BSMs), technical trainings/ exposure visits & capacity building of farmers, officers & APART staff. For smooth implementation of the pilot approach at the state and district level, necessary manpower was deployed.



7. **Seed Vertical (support to ASCL & ASOCA):** A seed vertical was set up, the activities of which were mainly led by ASC Ltd (and ASOCA & AAU) and include:

   - Foundation & certified seed production of key crops in seed farms of ASCL & DoA
   - Certified seed production of key crops involving FPCs with assured buy-back to promote local seed entrepreneurship in the state
   - IEC Activities for popularizing seed brand of ASCL

- Construction of new ASCL Office Building
- Business Process Re-engineering (BPR) study of ASCL for revamping its institutional and business structure
- Training & Capacity Building Programmes for FPCs and ASCL & ASOCA Officials
- Provisioning technical manpower support and technical collaborations
- In addition, agriculture campus roads in Khanapara serving the offices of ASCL and also ARIAS Society, Directorate of Agriculture and Directorate Horticulture &FP, etc have been rehabilitated.

8. **Agricultural Market Intelligence Unit (AMIU)** shifted from ASAMB to AAU.
9. Government electronic Marketplace (GeM) system for procurements upto US$ 10,000 in lieu of RFQ method of procurement was allowed as per need.
10. **Set up 322 vermi-compost units** to supplement soil health in perennial host plantations of Som & Kesseru.
11. **An integrated feed testing lab** has been set up at the College of Veterinary Science and Animal Husbandry, Khanapara under AAU. Further, a quality brood bank has been set up at the College of Fisheries, Raha under AAU.
12. **Introduction of new breeds of cattle:** On a pilot basis around 50 cows of Gir breed along with suitable number of bulls have been introduced from Gujarat and Rajasthan. Suitable cattle shed, feed & medicine store facility and sitting arrangement for vets and para vets has also been provided.
13. **Fishery based Integrated Farming Systems (IFS) demonstration:** A model demonstration on fishery based integrated farming systems has been set up at the College of Veterinary Sciences, Khanapara under the AAU.
14. Providing transport vehicles support to Assam Apex Cooperative Fish Marketing & Processing Federation Ltd (FISHFED)
15. **Pilot on small fish powder** in the Integrated Child Development Scheme and Lower Primary schools as a part of mid day meal in Kamrup Dist was taken up.
16. **Enhanced the number of FPCs from 99 to 125**
17. **Top up grant support to CMSGUY for combine harvesters**: The flagship program of the State Govt i.e. *Chief Minister's Samagra Gramya Unnayan Yojna* (CMSGUY) was partially supported by the Project on the mechanization component, particularly for combine harvesters given to 104 farmer groups (both APART & non-APART districts). Under this, a top up subsidy was provided from APART for 104 combine harvesters, at a total cost of Rs. 1221.00 lakh. Top-up Subsidy provision adhered to the following principle: [standard cost of machine **minus** (Govt share fixed Rs. 10.76 lakh/machine **plus** 10% beneficiary share) = Top up Subsidy from APART].

18. **Cross Border Trade (CBT):** The market linkage for the Quality Raw Material (QRM) produced by the FPOs and the primary value added commodities from the CSC was taken up under the Cross Border Trade (CBT) component. The CBT Working Group (CBTWG) comprised of the District Agriculture Marketing Coordinators (DAMCs) & the District Horticulture Coordinators (DHC) at the district level with select support staff at the PCU. CBTWG extensively took up market linkage activities targeting both the domestic and the

overseas markets. CBTWG identifies crops/commodities from the State having techno-commercial competitiveness and scope for commercial scaling up, investment & value addition. The team undertook detailed capacity building activities in the production clusters (FPO) for product and process standardization. The team travelled extensively for amassing a customer base and arranging for promotional and publicity products and activities. This intervention also focused on Chilli and Assam lemon & covered commercial production clusters across Assam.

B. Changes in Implementation Plan: The following changes were made in the Implementation Plan-

1. Following Districts were added before first restructuring - Dhemaji, Bongaigaon and Hailakandi. However in the first restructuring of the Project, geographical boundaries within the State have been removed.
2. Following Value chains were added: (i) Pineapple under Fruits & Vegetables and (ii) French-bean under Pulses (iii) Millets (iv) Floriculture (v) Medicinal and Aromatic Plants (MAPs) and (vi) Fodder Crops.
3. Target for roadshows removed and in lieu of the same the funds budgeted for roadshows was utilized for recruitment of consultants (6 nos) under Component A1, APART for implementation of Ease of Doing Business (EoDB) and Reducing Compliance Burden (RCB) reforms under Dept of Industries & Commerce.
4. The objectives of Enterprise Development and Promotion Facility (EDPF) were met under two separate strategies i.e.
    a. *Strategy I (Assam Agribusiness Growth Lab):* Incubator/ accelerator as service provider for supporting 100 enterprises- supported by a Tech. Support Agency.
    b. *Strategy II (Kshyamata):* In-house implementation arrangement for supporting 1400 entrepreneurs/ enterprises with resources available at PCU, OPIU and DICC level
5. Business plans of FPOs and IAs were reviewed by Independent Project Appraisal Experts (PAEs) hired by the Project instead of EDPF.
6. Number of IAs increased from 17 to 18 because of division of Districts.
7. A mixed approach of centralized and community procurements was followed for the procurements relating to Common Facility Centres (CFCs).
8. No. of warehouse godowns increased from 33 to 40 (around 75000 MT storage space).
9. Nursery entrepreneurs supported increased from 50 to 63
10. As a supplement to IPM, Resource Efficient Farming was promoted by the Project in an effort to ensure reduced chemical usage and encourage healthy crop production systems. This included training and capacity building of farmers and other stakeholder, developing Departmental officers as Master trainers, organizing events like Conclaves and promoting natural farming clusters etc.
11. As a part of Integrated Farming Systems (IFSs), large scale demonstration on IFS was taken up at Gorukhuti in Darrang District.
12. The sericulture value chain activities were extended to Morigoan, Bongaigoan, Darrang (Garukhuti area only) and Dhemaji in 2022-23 and to Golaghat in 2023-24.

13. Strengthened 7 Departmental Eri Seed Grainage (ESG)/ Eri Concentration Centre (ECC) to meet the demand of eri seeds (eggs) by the farmers. Similarly, established 2 nos. of Vegetative Mother Gardens (VMG) to maintain the prototype host plant quality (Som) to support the muga sector. Moreover, to address the proper storage of silkworm seeds (eggs), the existing departmental cold storage at Khanapara was strengthened.

C. Changes in Partnerships etc.: The following non-restructuring changes were made during the Project w.r.t. partnerships-

1. International Potato Centre (CIP) was roped in for technical support in potato value chain. This included introduction and popularization of promosing potoato varieties (both table and processing), in hosue seed tuber production, on farm and near farm post harvest management, linkages and models for smallholders potato based enterprises as well as training & capacity building.
2. International Fertilizer Development Centre (IFDC) was roped in mainly to support in fertilizer & soil health management initiatives as well as for introduction and popularization of Fertilizer Deep Placement (FDP) Technique towards reduced methane & other green house gas emissions etc. IFDC also provided need based policy support on fertilizer sector reforms, apart from training & capacity building.
3. International Crops Research Institute for the Semi Arid Tropics (ICRISAT) was roped in for technical support to millets value chain particularly (i) germplasm introduction (ii) training and capacity building (iii) export of millets and millet based products (iv) new recipe development.

7. Project Sub-component wise details of activities undertaken

7.1 Component-A: Enabling Agri-enterprise Ecosystem-

Original Allocation for the component as per PAD was US$36.80 Million of the total Project cost, excluding beneficiary share; Total Expenditure for the component at Financial Closing on 31.1.2026 is **Rs.115.27 Cr.**

7.1.1 **Component Objective:** The objective of this component was 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 was achieved by- strengthening Assam Bureau of Investment Promotion (ABIP) unit to 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. The key activities included, among others: **(i)** Investment Facilitation including support to Ease of Doing Business, Identification of Industrial land, Access to Industrial Schemes and Supply linkages; **(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 Investment Fund to provide risk capital to agribusiness SMEs.

7.1.2 Sub-Component-A.1: Enhancing State Capacity to attract Private Investments

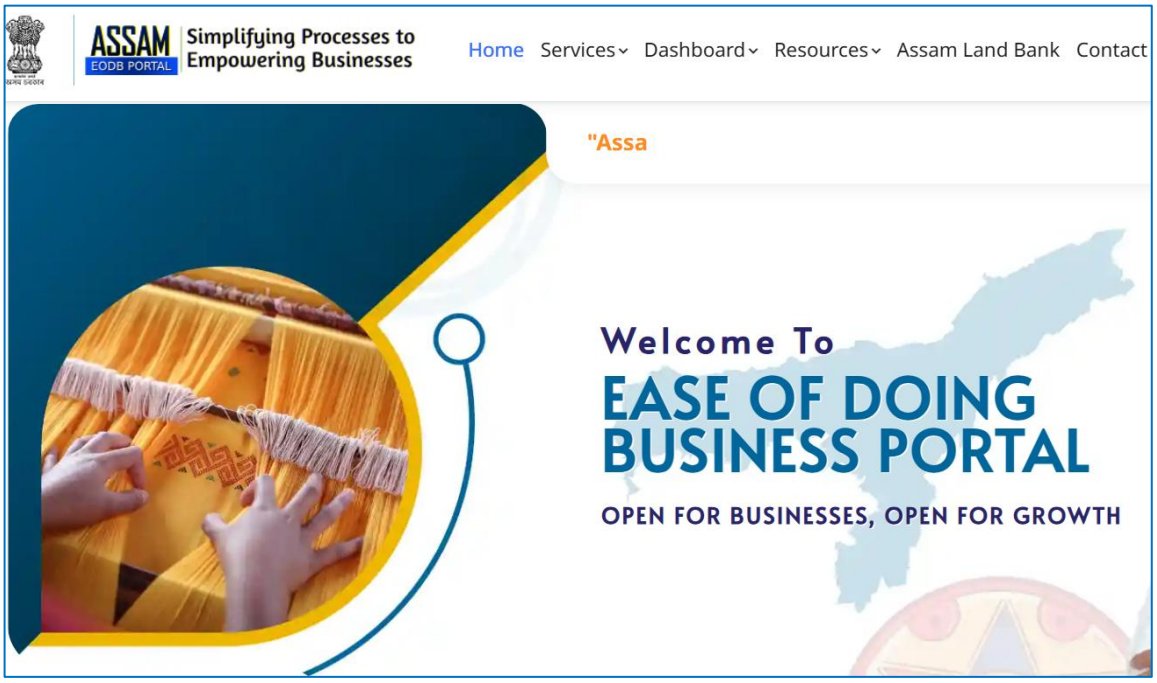
a) GoA introduced the Ease of Doing Business Act, 2016, with the aim to streamline the processes for simplifying and speedy processing of procedures pertaining to business entry, operations and exit. Under this Act, the GoA has setup the Assam Bureau of Investment Promotion (ABIP) for the purpose of 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. The project strengthened the ABIP among others through (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 proactively targeted, facilitated, and nurtured new investments, including agribusiness sector, by leveraging the Ease of Doing Business (EoDB) Act.

b) This led to (i) investment friendly and robust business climate in the State (ii) a cohesive Institutional platform to facilitate investors from pre investment stage to after care services (iii) improved climate for transparency and time bound clearances to help the investors in a hassle free business environment (iv) increased investments through streamlining and simplifying procedures (v) showcasing the state as a best investment destination highlighting resources of Assam, incentive policies, industrial infrastructure, land availability and ease of doing business (vi) increased capacity of ABIP for better service delivery and (vii) agribusiness investments facilitated through the ABIP.

c) Significant outcome of the above-mentioned interventions resulted in increased investments in agribusiness in Assam, increased jobs and increased number of enterprises established because of enhanced private investments.

d) **Support to Ease of Doing Business (EoDB):** APART provided support to EoDB in terms of six Consultants. Their key responsibilities included: leading the State's initiatives on Compliance Reduction and Deregulation (CR&D) and the Business Reform Action Plan (BRAP) at both State and District levels in alignment with the directives of the Cabinet Secretariat and DPIIT, Government of India.



The responsibilities include simplifying and eliminating redundant compliances, ensuring timely departmental coordination for reform implementation, and strengthening the State Single Window System as a unified platform for approvals, clearances, and payments. The position also entails driving Business Process Reengineering (BPR) to streamline workflows, promoting self-certification, auto-renewals, unified returns, and digital inspections to reduce regulatory burden. Additionally, the role focuses on assessing the Cost of Regulation and recommending policy measures to reduce financial and administrative overheads, thereby fostering

transparency, efficiency, and an investor-friendly business environment in the State. This team also supported in conversion of MoUs signed in investors summits (organized by Govt of Assam e.g. Advantage Assam 2.0 in 2025) into actual and faster investments. Although not in the original plan, it was included as a non-restructuring change in the Project.

e) **Sector & sub-sector scan study:** A sector scan study of all sectors of the economy and a sub-sector scan study of the agribusiness sector was taken up in the early phase of the Project to identify potential sub-sectors for attracting private investments and accordingly design a roadmap for investment promotion. The key sub-sectors emerging for potential external investments were cereals, fruits, spices and fisheries. The study also highlighted Unique Selling Propositions (USPs) of the State for showcasing to the investors.

f) **Physical interface:** A physical interface was set up in the Commissionerate of Industries and Commerce to facilitate walk in investors and address their queries.

g) **Strengthening of DICCs:** An "as is" assessment of District Industries and Commerce Centres (DICCs) was taken up through Indian Institute of Entrepreneurship (IIE). The study highlighted the need for strengthening DICCs both in terms of infrastructure and manpower resources including upgrading their skills. Accordingly, infrastructure upgradation (office renovation and refurbishment etc.) of 14 DICCs was taken up. Skill upgradation trainings for DICC staff were carried out and two contractual staff were provided from the Project in each DICC i.e. District Enterprise Development Executive (DEDE) and District Enterprise Development Coordinator (DEDC).

h) **Investment Lead Generation:** Investment lead generation is the first step in invesmtnet promotion in the State. This involves onboarding potential investors who have an intent to invest in the State. A total of 466 leads were generated against a target of 300. Some of these potential may require handholding through G2B meetings with senior officials/ minister concerned. Accordingly, a total of 155 G2B meetings were conducted during the cost of the Project.

i) **G2B Meetings:** A total of 155 G2B meetings were conducted. The objective of these one to one meetings with potential was converting "interest to invest" into "decision to invest" through responding to their queries and meeting their information needs. These meetings were conducted at senior officers/ ministerial level.

j) **Training & capacity building/ exposure visits:** 49 officials from the Department of Industries & Commerce (HQ & Districts) were sent on exposure visits to leading States in investment promotion. These included visits to:

- Sindhudurg Food Processing Cluster in Maharashtra (11 officials)
- Enterprise Clusters & Industry Associations in Tamil Nadu (one official)
- Visit to the Sahyadri Farms FPC and other FPOs in Maharashtra (20 officials)
- Govt of Telangana to learn about implementation of industrial policies (17 officials)

k) **Support for conducting Investment Summit:** The Project supported successful organization of Advantage Assam 2.0 - Investment and Infrastructure Summit. Summit secured Rs. 10,785 Crore in investment proposals in the agribusiness and allied sectors.

l) **Investment facilitated: 65** agribusiness investments have been facilitated worth **Rs.4399 Cr.** Key sub-sectors covered by these investments include:

- Agri-based sectors *(Egg, Ready to cook food, Hatcheries, Rice mill, Spices, Agarwood oil, Food processing, Cold storage, Poultry feed, Processed meat, Brewery, Stevia, Feed mill, Bamboo processing, Herbal extract, Juice, Silk)*: 45 nos / Rs 2540.96 crs

- **Ethanol & Support units: 10 nos / Rs 1198 cr**

- Other manufacturing: 10 nos / Rs 660.10 cr

Support provided to Investors for end-to-end facilitation (Investor outreach, Land identification, Site selection, Policy incentives, Coordination with EoDB team for approvals)

m) **Support to Investors:** The Project provided critical support to willing investors to successfully ground their projects in Assam. The project component provided end-to-end facilitation ranging from land identification, site selection, guidance on applicable policy incentives, coordination with EoDB team for necessary approvals. Through proactive engagement, the A1 component has helped to resolve regulatory and operational challenges faced by investors and also extends investment aftercare support by assisting in enabling smooth operationalization, expansion planning and ensuring sustained investor confidence through continued collaboration and support.

n) **Benefit provided to the State**: Interventions in this sub-component brought significant benefits to the State by catalysing industrial growth, attracting both national and international investments thereby focussing on agribusiness sector and fostering a conducive environment for business development through Global Investment Summits (2018 & 2025) in Assam. This has led to the creation of direct and indirect employment opportunities, across the State thereby contributing to balanced regional development. It has further enhanced the State's industrial infrastructure, improved the ease of doing business and increased revenue generation through taxes and duties. Additionally, by promoting sustainable and innovation-driven industries, the project supported the State's long-term economic resilience and positions it as a competitive investment destination in the national and international landscape.

o) **Implementation pace, factors affecting implementation, bottlenecks, enablers and strategy changes, if any:** Implementation pace of this sub component was slow in the beginning because of the delay in on-boarding of the Technical Agency for supporting this Component. However once the Technical Agency was on-boarded the Component execution pace increased which ensured that the stated goals were achieved.

Key bottlenecks faced in implementation of the interventions under this sub-component were (i) Requirement for strengthening the Ease of Doing Business team so that the required support to investors may be provided (ii) Development of sector specific investment policies to ensure the sector is conducive for investment (iii) Coordination between Department of Industries & Commerce and other line departments related to the Investors value chain

Key enablers for this sub-component were (i) Manpower support to the Ease of Doing Business team to ensure prompt service and a strong backend (ii) Continued follow-up and resolution of queries of prospective Investors with support from line departments (iii) Support provided to Investors for end-to-end facilitation including Investor outreach, Land identification, Site selection, Policy incentives, Coordination with EoDB

team for approvals etc (iv) Policy support to Investors including inputs on policy changes if required

No strategy changes were made during implementation of this sub component.

p) **When implementation took off?** The implementation of this sub component took off with on-boarding of the technical support agency for "Providing Technical Assistance to Dept. of Industries & Commerce for strengthening Assam Bureau of Investment Promotion (ABIP) and/or other similar bodies like Investment Facilitation Cell, Invest Assam etc" in May, 2020.

q) **Detail on impact and role of departments, community cadres, stakeholders:** The sub component was implemented by Commissionerate of Industries & Commerce. At the District level, the District Industries & Commerce Centres (DICCs) under Commisionerate of Industries & Commerce were upgraded vide physical renovation of offices and capacity building of DICC officials. Impact was felt in terms of the improved facilitation of investments in the State which lead to grounding of 65 investments with cumulative investment of Rs 4399 Cr. Community cadres including the District staff of APART. Other stakeholders included FPCs for supply linkage.

7.1.3 Sub-Component-A.2: Enterprise Development & Promotion Facility (EDPF)

(a) This subcomponent aimed to promote an enabling agriculture enterprise ecosystem in the state. Towards this, the project set up 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 identified growth oriented entrepreneurs pursuing business opportunities related to postharvest value addition in agriculture and allied sectors, and provided these entrepreneurs with a holistic service offering that accelerated their growth and promoted sustainability. The EDPF provided technical assistance for agri-entrepreneurs which included 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.

(b) The activities under this subcomponent were divided into two major heads i.e. (i) intensive incubation support to around 100 agribusiness entrepreneurs through Assam Agribusiness Growth Lab (AAGL) technically supported by the CIIE.Co, IIM, Ahmedabad and (ii) In-house Kshyamata program providing light touch support to around 1800 agribusiness entrepreneurs.

(c) **Assam Agribusiness Growth Lab:** Three cohorts of 25 entrepreneurs each on an average were completed, totalling to 75 entrepreneurs. Co-hort wise summary is provided below:

Particulars	Cohort-1	Cohort-2	Cohort-3	Total
New products launched (no.)	35	62	36	133
New technologies used (no.)	25	49	32	106
Finance Mobilized (Rs lakh)	1363	483.00	255.61	2101.6
Additional employment (no.)	145	86	48	279

(d) **Kshyamata Program:** This program was aimed at overcoming the challenges faced by MSME entrepreneurs and help manage the agribusiness ventures both existing and start ups. In other words - nurturing agri-enterprises and young firms by helping them to grow and survive when they are most vulnerable. The program entailed directly working with youth, existing agri enterprises and start-ups and facilitation of their growth through a number of services (business development, technology access, technical expertise and continuous handholding) while emphasizing building capacity, facilitating access to market, access to finance decreasing risk and increasing the sustainability of early stage enterprises. The program was mainly delivered through the District Enterprise Development Coordinators and District Enterprise Development Executives hired by the Project and placed in DICCs. The activities included-

(i) Identification of agri enterprises through a structured process including through advertisements in bilingual to seek interest from the enterprises either new or existing for enrolling into the program. All other modes of digital communication platforms were also explored to reach out to every potential enterprise and also through institutions like DICCs, ATMA, RSETIs, and academic institutions for disseminating information. **(ii)** Business Development Support (BDS) **(iii)** Facilitating access to finance including availing subsidy. This program supported 1300 agri enterprises and facilitated credit linkage for the entrepreneurs through convergence with various government schemes. The program built the capacity of the Government officials on supporting agri enterprises and provided entrepreneurs with business coaching, support in preparation of business plans, access to finance (credit) & leverage support from existing schemes, and mentoring in establishing new agri businesses, expansion, modernization and diversification of existing agribusinesses. Kshyamata Program guided enterprises on accessing finance, relationship building with financial institutions etc and ways for convergence with other ongoing schemes such as (i) Prime Ministers Employment Generation Programme (PMEGP) (ii) PM MUDRA Yojana (iii) Scheme for Fund for Regeneration of Rural Industry (SFURTI). The Agri-enterprises reported improved

business sustainability and growth, with over 70% showing operational scalability and enhanced market linkages.

7.1.4 Sub-Component-A.3: Agribusiness Investment Fund (AIF)

(a) This subcomponent aimed to contribute capital to an existing or a new Agribusiness Investment Fund (AIF), which would inturn provide risk capital to 10 to 15 agribusiness SMEs with high growth potential and with a focus of activity in Assam, through investments ranging from an estimated $100K - $2 million, clubbed with technical assistance from a professional fund manager.

(b) **Feasibility study of AIF:** A feasibility study for setting up the AIF was carried out in the initial part of the Project. As per the study, such a sector and State specific fund was found to be feasible. Based on the demand and supply side analyses the study recommended, a fund with an investible corpus of USD 15 million (INR 100 Crore), investing in 15-20 entities with an average ticket size of USD 750,000 (INR 5 Crore).

(c) **Delayed start of the Program & early closure:** After onboarding of the Fund Manager, registration of the fund took time because of change in SEBI regulations. Also, the Fund Manager could not mobilize the requisite fund timely for first close and hence the Project had to drop this sub-component under intimation to the World Bank and GoA.

(d) Although inconclusive, the efforts spent on this initiative offered valuable lessons for future projects. The competitive selection process for the fund manager, led by an independent expert panel, generated substantial private sector interest which has been documented for the benefit of similar future initiatives.

7.1.5 Sub-Component-A.4: Establishing Stewardship Councils

(a) The broad objective of this sub-component was to strengthen information, coordination and linkages in the targeted value chains and institute a sustainable mechanism for effective public-private sector dialogue bringing together stakeholders in the pork, fish, perishables and spices & condiments value chain on a common platform.

(b) **Early closure of the sub-component:** The deliverables by the Contracted agency were substantially delayed. The World Bank during 7th Implementation Mission in July 2022 advised that Value Chain Action Plans (VCAPs), included as a part of deliverables of the agency, were not required as the project crossed its mid-term by then. Accordingly, the contract with the agency was foreclosed and the sub component on Stewardship Council was also dropped.

7.2 Component-B: Facilitating Agro Cluster Development: Original Allocation for the component as per PAD was US$74.60 Million of the total Project cost, excluding beneficiary share; Total Expenditure for the component at Financial Closing on 31.01.2026 is **Rs. 542.71 Cr.**

7.2.1 **Component Objective:** The objective of this component was 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 was 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 included: (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' business plans through grants; (ii) modernizing and upgrading warehouses, markets and rural roads. Summary of the Civil Works is funished at **Annexure-4.**

7.2.2 Sub-Component-B.1: Establishing Cluster Level Industry Associations

a) The objective of this subcomponent was to enhance competitiveness of agri-enterprises in specific geographic clusters. This subcomponent, implemented by the Department of Industries & Commerce, sought 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 financed, through matching grants (IA Grants), implementation of activities as listed in the AIDPs. Illustrative list of activities, included 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.

b) **On-boarding of technical support agency:** A technical support agency was on-boarded through an open competitive selection process to provide technical support to the Office of the Commissioner of Industries & Commerce for establishment of Cluster Level IAs. The primary objectives of the technical support were: **(i)** Facilitate formation and formal registration of cluster-based industry associations across identified agro-industrial clusters **(ii)** Conduct diagnostic studies and prepare cluster-specific AIDPs outlining infrastructure needs, capacity gaps, and market strategies **(iii)** Support associations in accessing technical assistance, financial services, and business development resources **(iv)** Promote collaborative infrastructure such as Common Facility Centres (CFCs) and shared logistics to improve cluster competitiveness.


MoU Signed Between Farmer Producer Companies And Industry Associations Under APART

Feature Desk (Jan 25, 2024)

Altogether 14 MoUs were signed, to broaden the impact through the convergence of APART beneficiaries.

c) **Baseline survey of agribusiness enterprises in Project Districts:** A total 4765 agribusiness enterprises were surveyed as a part of baseline study in the project Districts. The majority 2643 (55%) enterprises were in rice milling. Others were in the areas of fruits and vegetables processing (400), bakery and confectionery (368), dairy/ milk processing (275), wheat processing (204), spices processing (191), mustard based

(182), fisheries (149), mushroom based (109), eri & muga (108), maize processing (81), piggery (41) & pulses (14).

d) **Formation of Industry Associations (IA):** 18 Industry Associations were registered in the Project Districts covering 2845 enterprises with an objective to provide various critical services to agro MSMEs in the areas of infrastructure creation, marketing, financing and human resource development of the industry. Initially to streamline the activities of the Industry Associations, two staff were provided from the Project side whose support was removed on tapering basis.

e) **Development of Agro Industrial development Plans (AIDPs):** For each IA, an Agro Industrial Development Plan (AIDP) was prepared. Thus total 18 AIDPs were prepared. AIDPs in general laid 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 as well as Common Facility Centres (CFCs) to be set up.

f) **Joint Actions by IAs:** In order to leverage economies of scale and synergies of togetherness, IAs were encouraged to participate in joint actions like participation in trade fairs, exposure visits, technical service delivery workshops, joint marketing & branding etc. Total of 695 joint actions were performed by IAs.

g) **Setting up of Common Facility Centres (CFCs):** CFCs are processing facilities jointly owned by select members of Industry Association in the form of Special Purpose Vehicle (SPV) registered as a Company. During the Project eight CFCs have been set up with 80% grant support for plant and machinery from the Project as per details provided below:

#	District	CFC name	Details	Capacity	Sanction (Rs/lacs)
1	Lakhimpur	Subanshiri Enterprises Pvt Ltd	Mustard	10MT/Day	435.11
2	Biswanath	Biswanath Mustard Oil Pvt Ltd	Mustard	6MT/Day	261.26
3	Karbi Anglong	Hamren Natural Food Processors Pvt Ltd	Food Processing	160 kg/hr	129.68
4	Morigaon	Morigaon Integrated Fruits and Vegetables Processing Pvt Ltd	Food Processing	300 kg/hr	316.54
5	Kamrup Metro	Borhomthuri Pvt Ltd	Silk	Eri yarn: 720 Kg Eri plain fabric: 3600 mtr Muga Yarn: 284.4 kg Muga plain fabric: 900 mtr	550.38

#	District	CFC name	Details	Capacity	Sanction (Rs/lacs)
6	Sonitpur	Brahmaputra Rice Cluster Pvt Ltd	Rice	4MT/hr	789.55
7	Jorhat	Jorhat Agro Pvt Ltd	Rice	4MT/hr	738.69
8	Hojai	Dimoru Valley Agro Pvt Ltd	Rice	5MT/hr	820.75
				Total	**4041.96**

h) **Implementation pace, factors affecting implementation, bottlenecks, enablers and strategy changes, if any:** Implementation pace of this sub component was slow in the beginning because of the delay in on-boarding of the Technical Agency for supporting this Component. However once the Technical Agency was on-boarded the Component was implemented effectively which ensured the establishment of the Industry Associations (IA) and Common Facility Centres (CFC).

Key bottlenecks faced in implementation of the interventions under this sub-component were- (i) Industrial Units not registered with Industry Department; (ii) Covid slowdown mobilization of Industry Units to be members of the IAs & CFCs with share contribution; and (iii) Initial coordination between Department of Industries & Commerce and other line departments related to the setting up of the CFCs.

Key enablers for this sub-component were (i) Baseline survey done under this component which identified the total number of registered & unregistered industrial units in the project districts and registration of the unregistered units to enable scheme linkage (ii) Industry Associations and CFCs where established with active participation of members with CFCs shareholder bringing in more than Rs 8 crs in shareholder contribution (iii) Effective coordination with other related departments and capacity building of the CFC members which enabled them to take necessary clearances for setting up the CFCs, ensuring compliance with regulatory requirements and effective bank linkage (iv) Ensuring continuity of IAs and CFCs through scheme tie-ups, financial linkage and commercial connectivity with FPCs. No strategy changes were made during implementation of this sub component.

i) **When implementation took off:** The implementation of this sub component took off with on-boarding of the technical support agency for "Formation of Industry Associations (IAs) & Implementation of Agro Industrial Development Plans (AIDPs): Cluster Development Technical Agency" in May, 2019.

j) **Detail on impact and role of departments, community cadres, stakeholders:** The sub component was implemented by Commissionerate of Industries & Commerce and ARIAS Society. At the District level, the District General Manager, District Industries & Commerce Centres (DICC) under Commisionerate of Industries & Commerce were responsible for monitoring of the IAs and CFCs including physical interventions which lead to formation of 18 IAs and setting up of 8 CFCs in Processing of Rice, Mustard, Food (Pickles, Spices, Banana Chips) and Silk. Community cadres including the District staff of APART and District staff of the Technical Agency. Other stakeholders included Private Processing Enterprises, Financial Institutions and Banks.

7.2.3 Sub-Component-B.2: Supply Chain Support

a) The objective of this subcomponent was 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.

b) **Rehabilitation of access roads:** 213 km of identified rural access roads were rehabilitated / upgraded based on clearly defined criteria which included- proposed road connected Project supported production clusters, enterprise clusters, next higher class of roads, urban centres, existing or upcoming Common Service Centres with FPCs, markets, warehouses and ghats. Moreover, it was ensured that only existing roads were taken up without involving any land acquisition. The investments in these roads were complemented by piloting and upscaling innovative design, and low cost climate resilient construction. Road Management Committees were formed comprising of local community members and PRI representatives for monitoring the implementation of the sub-projects.

c) **Warehouse and warehouse receipts development:** 37 warehouse godowns (about 63,000 MT of storage space) of the Assam State Warehousing Corporation (ASWC) were upgraded to WDRA standards to provide scientific storage; and piloting of warehouse receipt financing. The activities included modernization and upgrading of selected ASWC warehouses, along with provision of accessories such as weigh bridge, pallets, fork lift, computers with internet connectivity etc.

d) Based on a sample survey, upgraded warehouses have witnessed on an average **15% increase in occupancy.**

e) **Pilot on Warehouse Receipt Financing (WRF):** A pilot on Warehouse Receipt Financing (WRF) involving two FPCs in Sonitpur District has been taken up successfully for two years (2022-2024) in 1500 MT godown of Assam State Warehousing Corporation (ASWC) at its Tezpur Centre. A total of 1497 MT of crop produce was stored and a financing of Rs 1.7 Cr was mobilized (against 683 MT). WRF program is continuing even after Project support; e.g. Kheuj Nayan FPC has availed a credit of Rs 1.00 Cr from Aryadhan.

f) **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. Physical facilities in markets are lacking or exist at the minimum. In addition, functioning of markets is a mix of wholesale and retail which makes it all the more difficult to streamline the market operations and enforce the regulation.

- **Regulatory aspects:** Agricultural produce markets in Assam are controlled by three different agencies. These are: (i) Regulated markets by Regulated Market Committees coming under Assam State Agricultural Marketing Board (ASAMB); (ii) Weekly rural haats managed by Village Panchayats, Anchalik Panchayat or Zilla Parishad and (iii) Town Committees and Municipal Markets, operated and managed by Urban Local Bodies (ULBs). Moreover, a few markets are run by individual/group of individuals which may be termed as Private Markets. Such markets are fully controlled and managed by the private entities. A brief description of the relevant Acts is provided below:

- As per the provisions of **Assam Agricultural Produce Market (AAPM) Act, 1972** Govt. of Assam constituted 24 nos. of Regulated Market Committees all over the State, except the sixth schedule areas. The State Agricultural Produce Market Act aims at regulating marketing practices mainly at Assembly Market Level. The Act is under amendment to included new/ innovative provisions like single point of levy, unified single trading license and provision of electronic marketplaces.

- **The Assam Panchayat Act, 1994**: The salient features of the act pertaining to management and operation of rural haats are as follows. "Bazar, Haat or Market" means any place within administrative control of the local authority where persons assemble daily or bi-weekly or periodically for sale or purchase of articles of human or animal consumptions or of livestock or of other merchandise.

- **Assam Municipal Act, 1956:** "Municipal Market" means a market belonging to or maintained by the Municipal Board. The (Municipal) Board if decided in a meeting may use their own land or with building or land purchased, taken on lease or otherwise acquired with or without building for the purpose of establishment of a Municipal Market, Bus Stand, Truck Stand, Taxi Stand, Auto Stand and Parking yard for improving any existing Municipal Market, Bus Stand, Taxi Stand, Auto Rickshaw or Rickshaw Stand and Parking Yard.

- **Challenges in wholesale agricultural marketing in Assam:** Around 70% of the wholesale transactions of agricultural produce in Assam take place at the farm gate and in most cases the farmer receives a low price due to lack of competition. There is a set system between the traders and farmers. In some cases, traders extend advance to the farmers during/ before the cropping season and accordingly, the farmer is bound to sell to the same trader generally at throwaway prices. This also leads to distressed sale.

- There is poor price discovery. Even of the produce reaches the markets, transactions take place on the basis of one to one negotiations between the farmer and the trader. There is no system of auction or any other transparent method of efficient price discovery, leading to poor price realization by farmers.

- Also, the farmers have to sell immediately after harvest as they need immediate cash for the requirements of next crop. Lack of primary processing facilities like drying, cleaning, grading and sorting etc., is another reason for immediate sale by the farmer.

- **Market malpractices:** In most of the markets, malpractices are rampant. These include non use of electronic balances, biased weighing practices (including non ISI marked weights and stone based weights), taking large samples, using subjective methods of quality evaluation, disproportionate price cuts in relation to reduced quality. All these malpractices lead to poor price realization by the farmer. Lack of physical facilities also allows room for market malpractices.

- **Identification of Markets for Modernization and Improvement:** Out of the 1250 markets in the State, around 200 were identified as per 20 pt qualifying criteria, and of the same. Out of this **96 markets were developed** underthe project with required facilities [11 wholesale markets managed by Regulated Market Committees (RMCs) under ASAMB and; and 85 rural periodic markets (haats) and markets under Urban Local Bodies (ULBs)]. Illustrative basic infrastructure facilities provided included: (i) sales platforms (auction yards, structures); (ii) covered auction sheds; (ii) toilets, and (iv) drinking water facility (v) input shops etc. This sub-component also supported: (i) capacity building and training of market functionaries and implementing agency staff based on training needs assessment (ii) technical assistance for effective enforcement of provisions of the Assam Agricultural Produce Livestock (Promotion and Facilitation) Act 2020.

- The modernized markets have become very vibrant and bustling places of business. There has been substantial increase in buyer seller foot fall. This has increased competition among the buyers and hence better prices to the farmers. Also, better quality produce now fetches a better price. Market malpractices have reduced to a great extent. Most of the users are happy about the facilities being provided in markets. Some of the changes witnessed in the performance of the developed markets are:

  - Average annual revenue increased by 100% (from 2018-19 to 2023-24)
  - Average 46% increase in arrival volumes
  - Average 29% increase in lease value

7.3 Component-C: Original Allocation for this component as per PAD was US$132.80 Million of the total Project cost, excluding beneficiary share; Total Expenditure for the component at Financial Closing on 31.01.2026 is Rs. 912.62 Cr.

7.3.1 **Component Objective:** The objective of this component was to enable producers of the priority value chain commodities, 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. The component adopted a cluster-based value-chain approach for providing support to producers with links with Component A&B for supply and large scale processing of commodities produced in Component-C. Limiting factors responsible for keeping the productivity low include lack of or low level of mechanization, poor post harvest management, high post harvest losses, low seed

replacement rate in field crops, poor quality planting material in horticulture crops, poor genetic potential/ non descript breed of dairy animals.

Moreover, the quality of the final produce is not as per market demand. This leads to very low price realization by the farmers. Also, supply chains of most of the agri and allied commodities in the State are fragmented with layers of intermediaries leading to higher cost for consumers and lower realization for producer farmers. The main outputs expected were 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. This component was envisaged in a cluster and value chain approach. Accordingly, clusters and value chains were identified.

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

(a) The activities were implemented by the District Agricultural Technology Management Agencies (ATMAs) and Departments of Agriculture, Horticulture, Animal Husbandry and Veterinary, Fisheries, Sericulture, and Handloom and Textiles, WAMUL, and Assam Agricultural University with support from ICAR-Institutes and International knowledge partners. The Departments of Agriculture, Animal Husbandry, Fisheries and Sericulture and Handloom & Textiles were responsible for organizing farmers into producer groups and larger producer groups using service providers.

(b) **Value chains taken up:** Based on production, market potential and comparative advantages, initially selected value chains included cereals (rice, maize), pulses (lentil, pea & black gram), fruits and vegetables (tomato, cucurbits, banana, potato), spices and condiments (ginger, turmeric, mustard), and livestock and fisheries (pork, milk, fish). Accordingly, State level Value Chain Action Plans (VCAPs) were prepared. Interventions focused on: (i) increasing productivity of identified field and horticultural crops, (ii) promoting diversification to pulses, oilseeds, maize, banana and vegetables,(iii) improving quality of produce, (iv) Improving productivity of fish and livestock (v) milk processing capacity expansion (vi) technology upgradation etc. Summary of value Chain-wise achievements are funished at **Annexure-5.**

(c) Project promoted & upscaled climate resilient technologies, and processes to mitigate short to medium term climate variability projected. Specific interventions included:

- identification and cultivation of high yielding, climate resilient, stress tolerant varieties, grafted vegetables etc,
- demonstration and capacity building interventions for improved crop management (including direct seeding, alternate wetting and drying),
- matching grants (CIG Grants) to producer groups for undertaking innovative pilots;
- strengthening seed systems for the production of stress tolerant varieties,
- piloting remote sensing – GIS tools and agro-meteorology - to improve climate resilience. The project, through appropriate resource mapping exercise, ensured convergence of project activities/ interventions with various GoI programs as well as state, and externally funded programs so as to avoid duplicity and repetition.

7.3.3 **Climate Resilient Production Clusters**: In order to make the best out of Project investments, it was decided that the Project activities on production side would be taken up in specific pockets growing/ producing the prioritized commodities in a concentrated manner. The criteria for production clusters were defined in consultation with the World Bank and accordingly, production clusters were identified. For example, for agri-horti commodities, 50 ha contagious area of a commodity was taken as a climate resilient production cluster. Moreover, the Project decided to work only in 16 priority Districts (undivided as on 1st April 2016) (covering around 70% of the State's geography). The criteria for inclusion of Districts under the Project included (i) Contribution of the District to Agri GDP and (ii) MSME landscape of the District.

7.3.4 **Prioritized Value Chains**: Again in order to best economise the Project investments, it was decided to work on specified value chains based on certain criteria i.e. (i) Comparative advantage of the State in producing the commodity and (ii) sufficient quantum of the produce being available for post harvest management, processing and marketing etc. Based on these criteria, top five commodities targeted for focused Project interventions were: Paddy, Mustard, Potato, Milk and Fish.

7.3.5 Collaborations and Partnerships under Component-C1

a) One of the hallmark of the APART has been its strategic collaborations and partnerships with leading international and national agricultural research institutions. These partnerships under Component-C played a pivotal role in introducing science-led innovations, best practices, and adaptive research to improve productivity, strengthen value chains, and enhance the competitiveness of Assam's agribusiness sector.

b) Recognizing the need for specialized technical expertise across multiple commodities, APART entered into formal collaborations with several **CGIAR institutions** and **ICAR research centers**. These partnerships not only facilitated the transfer of global knowledge and technologies but also contextualized them to Assam's agro-ecological conditions and farmer realities, creating lasting institutional and community-level capacities.

c) These collaborations collectively catalyzed APART's vision of transforming Assam's agriculture from a subsistence-based system to a market-oriented, value chain–driven agribusiness ecosystem. The partnerships facilitated creation of **innovation platforms** linking producers, researchers, and markets. They also built the capacity of hundreds of extension personnel and farmer producer organizations (FPOs), ensuring sustainability of interventions beyond the project period. In essence, the multi-institutional collaboration model under APART serves as a replicable framework for future agricultural transformation programs—anchored in partnership, science, and local empowerment.

d) International Collaborations-

- **WorldFish Centre (WFC), Malaysia**

  WorldFish supported the strengthening of the **fisheries and aquaculture value chain** in Assam through the introduction of improved breeding, feed, and pond management practices. The partnership resulted in the dissemination of best practices in hatchery management, carp polyculture, and water quality maintenance. A model for decentralized seed production was piloted through Beel and community fishery systems, enhancing productivity and profitability for smallholder fish farmers.

- **World Vegetable Centre (WVC), Taiwan**

  Through collaboration with WVC, the project enhanced the **vegetable value chains** by introducing high-yielding and disease-resistant varieties, nursery technologies, and integrated pest management (IPM) practices. The partnership emphasized improved seed systems, farmer training, and demonstration of protected cultivation models. These interventions helped in diversifying cropping systems and improving income stability among smallholders, especially women farmers.

- **International Rice Research Institute (IRRI), Philippines**

  IRRI's engagement under APART focused on strengthening the **rice value chain**, a critical sector for Assam's agrarian economy. Key interventions included adaptive research on stress-tolerant rice varieties suited to flood-prone and rainfed conditions, introduction of mechanized farming equipment (such as combine harvesters and dryers), and the promotion of post-harvest technologies. The collaboration also emphasized digital tools for precision farming and capacity building of local extension workers and service providers.

- **International Livestock Research Institute (ILRI), Kenya**

  ILRI partnered with APART to support the development of **pork and milk value chains**, emphasizing genetic improvement, animal health, and feed efficiency. The partnership led to the introduction of improved pig breeds, training in biosecurity (especially for management African Swine Fever-ASF) and pig-sty/housing management, and the establishment of producer groups and service networks. ILRI also contributed to the design of value chain-based livelihood models that are now being replicated beyond the project districts.

- **International Potato Centre (CIP), Peru**

  CIP's collaboration under APART focused on the **potato value chain**, introducing innovations in seed quality improvement, disease management, and on-farm storage technologies. The partnership facilitated participatory varietal selection, training of seed producers, and the establishment of decentralized seed systems to ensure availability of quality planting materials. Efforts were also made to link producers with organized markets and food processing units.

- **International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)**

  ICRISAT contributed to promoting **millet-based value chains**, supporting the state's diversification agenda. The partnership focused on developing resilient cropping systems, promoting improved millet varieties, and fostering market

linkages for small-scale producers. In addition, ICRISAT's work emphasized the nutritional and climate resilience benefits of millets, new recipe development, contributing to the broader food systems transformation goals of APART.

- **International Fertilizer Development Centre (IFDC), USA**
  IFDC provided technical support for the introduction of **Fertilizer Deep Placement (FDP)** technology and contributed to **fertilizer sector reform initiatives** in Assam. Demonstrations on nutrient-use efficiency, balanced fertilization, and soil health management were undertaken in collaboration with the Department of Agriculture. IFDC's work helped farmers reduce fertilizer costs while improving yields and environmental outcomes.

e) National Collaborations-

APART also collaborated with prominent national research institutions under **Indian Council of Agricultural Research (ICAR)** & **CSIR**, ensuring that national scientific expertise was effectively leveraged for innovation and extension.

- **ICAR–Indian Institute of Maize Research (IIMR)**

  IIMR partnered with APART to enhance the **maize value chain** through the introduction of high-yeilding varieties, improved agronomic practices, and post-harvest management technologies. The collaboration supported demonstrations, farmer field schools, and capacity building of input dealers and service providers.

- **ICAR–National Research Centre on Pig (NRC-Pig), Assam**

  Given Assam's comparative advantage in piggery, the NRC-Pig partnership strengthened local genetic resources, feeding systems, and disease control measures. NRC-Pig's technical inputs were instrumental in designing breed improvement programs and farmer training modules for small-scale piggery enterprises, directly benefiting rural youth and women entrepreneurs.

- **ICAR–Directorate of Rapeseed and Mustard Research (DRMR), Rajasthan**

  DRMR contributed to the **rapeseed–mustard value chain**, introducing high-yielding and short-duration varieties adapted to Assam's agro-climatic conditions. The partnership also supported demonstrations on scientific PoP, including better seed rate & line sowing and value addition at the farm level.

- **CSIR–Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow**

  CIMAP's engagement opened new avenues for diversification into **medicinal and aromatic crops (MAPs)**, promoting crops like lemongrass, tulsi, and vetiver in suitable clusters. The collaboration provided technical backstopping on varietal selection, distillation technologies, and market development, offering farmers high-value crop alternatives with strong market potential.

7.3.6 Agricultural Value Chains activities:

a) **Market Led Climate Resilient Production Demonstrations:** A total of 1,76,670 Demonstrations have been conducted in paddy, maize, pea, lentil, blackgram, mustard, fodder crops, French bean and millets (finger millet and foxtail millet). The main types

of demonstrations were Minikits, Integrated Crop Management Demonstrations (ICMD), Cluster Demonstrations etc.

b) **Input Dealer cum Farmer Interactive Meets:** In order to forge deeper interaction between the input sellers (dealers/ retailers) and farmers, 112 Input Dealer cum Farmer Interactive Meets were organized.

c) **Credit camps:** In order to enhance knowledge level of farmers on financial services and support credit flow from financial institutions to farmers/ FPOs, 374 Credit camps were organized at District level in association with commercial banks.

d) **Post Harvest Management (PHM) Demonstrations:** 295 PHM Demonstrations were carried out.

e) **Buyer Seller Meets (BSMs):** In order to foster direct market linkages of farmers and farmer groups with traders, large buyers, processors etc, 36 Buyer Seller Meets (BSMs) were organized at District level at the time of harvest of crops

f) **Key outcomes:** The following were the key outcomes of the cross cutting interventions in Agriculture value chain under subcomponent C.1: *(in-house MIS data)*

(i) Increased productivity of targeted crops:

- Paddy: 4040 Kg/ha; EOP- 5230 Kg/ha (29%)
- Pulses: 753 Kg/ha; EOP-982 Kg/ha (30%)
- Maize: 5140 Kg/ha; EOP- 10940 Kg/ha (53%)
- Mustard: 709 Kg/ha; EOP-1109 Kg/ ha (56%)
- Potato: 10t/ ha; EOP- 22 t/ha (120%)
- Millets:
  - Finger millet: Baseline-792 Kg/ha; EOP-869 Kg/ha (10%)
  - Foxtail millet: Baseline-674 Kg/ha; EOP- 1200 Kg/ha (78%)

7.3.7 Rice Value Chain activities:

a) **Market Led Climate Resilient Production Demonstrations:** Two types of demonstrations were conducted by District ATMAs i.e. Integrated Crop Management Demonstrations (ICMD) and Minikit demonstrations. In the ICMD all the inputs were provided by the Project and full monitoring was carried out throughout the copping season. The objective was to introduce new STRVs to stress prone areas, to create awareness and acceptance on new STRVs, to promote self-learning through observation and experience of growing new varieties, and to trigger farmer-to-farmer informal information and seed dissemination.

ICMD included the complete package of practices from land preparation to harvesting of the crop (including use of seed of improved high yielding varieties, seed treatment, balanced nutrition including use of organic manures, bio-fertilizers, micronutrients, weed control, integrated pest and disease management including use of bio-pesticides and bio-rational pesticides) and other crop husbandry practices. At the end of season, benefits in terms of yield quantity and quality & increase in value of the harvest were demonstrated to the farmers through Crop Cutting Experiments (CCEs). In the Minikit demonstrations, farmers were given only five Kg of seed (for 0.1 ha area) & no other inputs. Farmer compares the performance of the given variety with other varieties and based on the results takes up the variety in the next season.

A total of 15750 ICMDs and a total of 63321 Minkit demonstrations were organized during the Project on paddy/ rice. A total of 17651 Minikit demonstrations were conducted by AAU in Sali season and 4349 in Boro season. The STRVs included in the minikit demonstration were *Ranjit sub1, Swarna sub1, Bahadur-sub1, Bina Dhan 11, Bina Dhan 17.* The sustained implementation over five years established a strong foundation for large-scale adoption of STRVs, thus contributing meaningfully to food security, climate adaptation, and income enhancement for small & marginal farmers.

b) **On-Farm Adaptive Demonstrations (OFAD) (AAU):** These demonstrations were aimed at evaluating new varieties under local conditions and management in farmers' fields. The area of each OFAD demonstration was 0.4 ha and 20 kg seed of STRVs was provided under each demonstration along with other agricultural inputs. The varieties included: *Ranjit sub1, Bahadur sub1, Swarna sub 1* and *Bina Dhan 11.*

A total of 544 OFADs were conducted. The in-house data revealed that average grain yields of *Ranjit-Sub1, Bahadur-Sub1,* and *Swarna Sub1* recorded without IPM were 4.85, 5.07 and 4.57 t/ha, whereas the corresponding yields with superimposed IPM were 5.40, 5.30 and 5.33 t/ha, respectively. OFADs established clear yield advantage of STRVs when combined with Integrated Pest Management (IPM) practices. Across locations, varieties like *Ranjit Sub1, Bahadur Sub1*, and *Swarna Sub1* recorded significantly higher yields with IPM compared to without, confirming the added value of integrating varietal and pest management strategies. This underscored the role of IPM in enhancing varietal performance and farm productivity.

c) **Cluster demonstrations (AAU):** Cluster demonstrations were aimed at generating evidence about the varieties on a considerable scale covering diverse geographies/ localities, sensitizing farmers for mass visibility of new STRVs, creating clusters at different localities for diffusion of STRVs among the stakeholders, encouraging adoption by farmer-to-farmer seed dissemination across neighbouring villages, creating linkages and awareness among key seed value-chain stakeholders for the new STRVs by engaging with dealers, encouraging quality seed production and strengthening the local seed system.

The area of each cluster demonstration was 5.0 ha and 250 kg seed of STRVs was provided under each demonstration along with required amount of fertilizers and agro chemicals. Varieties included: *Ranjit Sub1, Bahadur sub1, Swarna Sub1, Bina Dhan 11, Bina Dhan 17, CR Dhan 801 a*nd CR Dhan 802 and premium quality rice varieties (PQR) *viz. Keteki Joha, Bokul Joha, CR Dhan 909, Red Rice, Black Rice, RNR 15048. A total of 2299 Cluster Demonstrations were conducted over the Project period, covering 20,990 farmers.*

The average grain yields of all STRVs were higher as compared to the farmer's varieties. The in-house data revealed that The zone-wise average grain yield of all STRVs under AAU-led cluster demonstrations ranged from a minimum of 4.82 t/ha in BVZ to a maximum of 5.60 t/ha in CBVZ. The overall gain in the grain yield was 1.31 t/ha by using STRVs with IPM

d) **Dealer Network Demonstrations (AAU):** Dealer network demonstrations were aimed at (i) engaging private sector players like, seed dealers or farmer producer organisations (FPOs)/seed sellers in the varietal extension program (ii) triggering varietal promotion, and thereby better adoption by engaging agents or institutions who get direct benefit/incentive by promoting variety to farmers (level of sale-volume reflects demand) (iii) build capacity and knowledge of seed dealers /agents/institutes etc.

The individual dealer network demonstrations were conducted in 0.25 ha and seed provided for each was 10 kg. A total of 1,441 dealer network demonstrations were conducted in Sali season and 69 demonstrations in the *Boro* season (total: 1510 against a target of 1510, covering 1527 farmers).

The seed dealers who participated in the program provided valuable feedback and helped to assess and fulfil the seed demand following the demonstrations. The in-house data revealed that grain yield from the AAU-led dealer network demonstrations varied across different agro-climatic zones, ranging from 3.78 tonnes per hectare in the Hill Zone (HZ) to 5.08 tonnes per hectare in the North Bank Plains Zone (NBPZ).

e) **Head to Head (H2H) Demonstrations:** The head-to-head demonstrations were aimed at (i) enabling the farmers for comparing the performance of two varieties, *i.e.*, his/her own variety *vis-a-vis* the newly introduced STRVs (ii) testing the performance of new STRVs under available technologies, resources and constraints with the farmers (iii) enhancing the evaluation-based learning skills of the farmers.

The size of individual demonstration was 0.25 ha with a seed kit of 10 kg and these were conducted in both *Sali* and *Boro*/early *Ahu.* A total of 4,900 (target: 5396) head-to-head demonstrations were conducted covering 4,896 farmers. The STRVs used for the demonstration were- *Ranjit sub1, Bahadur Sub1, Swarna Sub1, Bina Dhan 11* and Farmer's Variety (for comparisons).

f) **Performance of stress-tolerant rice varieties (Sub1) vs farmer's varieties (non-Sub1) under submergence condition:** The average yield of Sub1 varieties and farmer's varieties (non-Sub1) under 7-15 days' submergence were 4.14 and 3.30 t/ha, respectively. The gain in net income (₹/ha) of *Ranjit-Sub1, Bahadur-Sub1, Swarna-Sub1, BINA Dhan 11*, and overall STRVs over farmer's variety was ₹19,880, ₹17,780, ₹17,500, ₹8,820 and ₹13,580, respectively.

g) **Rice Variety Cafeteria:** Rice variety cafeteria's main objective was to demonstrate diverse rice varieties and select new and potential varieties for the local region through participatory varietal evaluation by multiple stakeholders and influence key institutions and actors to adopt the variety (ies) in state agricultural plan. A diverse basket of promising varietal choices collected from different national institutes and regions were presented before multiple stakeholders to carry participatory observation, make selection based on their preferences and for the region, and influence key institutions and actors to uptake new and potential rice varieties. During the project period, sixteen (16) replicated rice variety cafeterias were laid out (including *Sali* and *Boro*) and 14 non-replicated rice variety cafeterias were conducted during *Boro*/ early *Ahu* season. Altogether 69 number of paddy varieties were tested in replicated cafeterias in different agro-climatic zones of Assam comprising of 24 stress tolerant rice varieties (STRV), 21 high yielding varieties (HYV), 16 premium quality paddy (scented, zinc rich, protein rich, low GI etc.) and 8 number of deep water paddy varieties.

h) **Multi-location testing of selected varieties from the cafeteria for systematic advancement:** As part of a strategic initiative to advance and scale new rice varieties in Assam's seed systems, selected varieties that had performed well in cafeteria evaluations but were not yet released for Assam were subjected to multi-location testing (MLT). Altogether 13 new varieties were identified from the cafeteria through participatory variety evaluation. These varieties included STRVs and PQRs. These 13 varieties were further evaluated in MLTs for their ultimate adoption in Assam. These trials were conducted across various agro-ecological zones at ZRSs and KVKs to generate scientific data for submission to the State Variety Release Committee (SVRC) for possible recommendation.

i) **Combined seed distributed through AAU and DoA** for different demonstration during the entire project period was 20,028 tons. Thus, the horizontal expansion of STRVs through APART and other govt. schemes/private companies reached a landmark of 0.5 m ha (calculated based on 40 kg/ha seed rate) during 2018-19 to 2023-24. Chronically flood affected area in Assam is also around 0.5 mha. Thus the Project was able to cover the entire chronically flood affected area through STRVs.

j) **Paddy Seed production through FPCs:** Realizing the challenge of spurious and sub-standard paddy seeds being distributed to the farmers by fly-by-night operators, in house seed production through FPCs was initiated by AAU beginning with three FPCs. The program was expanded over the years and by the third year, around 30 FPCs were roped in paddy seed production with the

support of Assam Seeds Corporation and International Rice Research Institute. More details are provided in a separate section of this report.

k) **Training & capacity building in rice value chain (AAU):** Trainings in rice value chain were organized by AAU under different heads, supported by IRRI. These trainings included: **(i)** One day training on quality seed production (232 trainings, 6033 beneficiaries), **(ii)** One day training program cum dealer meetings (24 trainings, 899 beneficiaries), **(iii)** One day awareness meetings (33 trainings, 1299 beneficiaries), **(iv)** Participatory varietal evaluation on crop cafeteria (32 trainings, 854 beneficiaries). Total 321 trainings were organized against a target of 321 covering 9081 beneficiaries.

Note: IRRI supported activities on strengthening seed systems have resulted in **(i)** enhanced resilience to climate stress **(ii)** increased productivity and incomes **(iii)** Widespread Adoption and Seed Access **(iv)** Strengthened Farmer Knowledge and Decision-Making **(v)** Strengthening of Community Seed Systems and Institutions **(vi)** Robust Linkages with Private Sector and Market Actors. These varieties have been well accepted and adopted by farmers. A land mark achievement of the Project has been inclusion of BINADhan 11 variety of rice in Package of Practices (PoP) of AAU, while another seven varieties have been approved for inclusion in the PoP 2025. These are: CR Dhan 802, DRR Dhan 44, Bina Dhan 17, CR Dhan 310, CR Dhan 311, DRR Dhan 60 and DRR Dhan 69. Seed production and distribution of these varieties would be done by AAU/ ASCL for large scale adoption by farmers.

l) **Integrated Crop Management Demonstrations (ICMDs) (AAU):** ICMD is a demonstration model in farmers' fields that integrates all key components of crop production- including variety selection, seed treatment, nutrient management, pest control, irrigation, and harvest techniques - to show the benefits of Integrated Crop Management (ICM) in a practical setting. In the *kharif* season, the ICMDs were laid on four main identified STRVs including *Swarna-sub1, Ranjit-sub1, Bahadur-sub1, Bina Dhan11* and few PQRs (*Kola Joha /Keteki Joha /Kunkuni Joha /Bokul Joha, CR Dhan 909* and *Black rice*). While in the *boro* season, the ICMDs were laid out with *BINA Dhan11* and *DRR Dhan 44*. Total of 3,099 ICMDs (3129 beneficiairies) both in *Sali* and *boro* season were conducted against a planned target of 3,098 for STRVs, and 395 against a target of 400 for PQR (400 beneficiaries). The ICMD covered a total area of 775 ha of land in the targeted districts. Based on crop-cut data in AAU-led ICMDs, the yield performance of *BINA Dhan11* during *Boro*/early *Ahu* season 2021-22 and 2022-23 was found superior to the locally

grown varieties. The yield of ICMDs varied from a minimum of 4.22 t/ha in Cachar district to the highest of 5.78 t/ha in Darrang with an average of 5.04 t/ha. The highest yield advantage of 2.17 t/ha with the ICMDs over the farmers' practice was in the Darrang district. The overall yield gain of 1.03 t/ha was recorded in ICMDs with STRVs over farmers' practice with same variety (4.01 t/ha) across different districts.

Note: *ICMD plots consistently outperformed farmer practice in terms of both grain yield and net income. On average, STRVs under ICMDs recorded a* ***yield gain of 1.03 t/ha****, with some districts like* ***Darrang*** *achieving up to* ***2.17 t/ha*** *of additional yield over farmer-managed plots. The average grain yield in ICMDs reached* ***5.04 t/ha****, compared to* ***4.01 t/ha*** *under farmer practice.*

Alongside productivity, the demonstrations also led to ***higher net returns****, strengthening the economic case for adopting ICM approaches. Beyond yield, the ICMDs helped improve farmer understanding of holistic crop management and built confidence in the use of new varieties and technologies. The visibility and hands-on experience created by these demonstrations promoted farmer-to-farmer knowledge sharing, supporting wider adoption of STRVs and quality seed production. Overall, ICMDs proved to be a highly effective tool for enhancing rice productivity, improving farm income, and accelerating the scaling of sustainable crop management practices across Assam.*

m) **Learning Centre Demonstrations (LCDs):** A Learning Center Demonstration (LCD) is a practical, field-based educational platform established to showcase comprehensive and replicable agricultural technologies or models in one location. It acts as a "living classroom" where farmers, extension workers, and other stakeholders can learn by observing and participating in real-time farming practices. Each LCD is laid out on 1 ha area. During the Project period 866 LCDs (target: 870) were conducted on STRVs and 202 (target: 205) in PQRs. The number of beneficiaries in the LCDs was 977 and 293 for STRVs and PQR, respectively. The crop-cut data as recorded with 16 AAU centres during *Boro*/early *Ahu* 2021-22 revealed that LCD-STRVs yields varied from 4.31 t/ha in the district Morigaon to 5.66 t/ha in Dhubri, with an overall average of 4.82 t/ha across the districts. The overall yield gain from HYVs/STRVs with BMPs across districts was 0.81 t/ha in comparison to the farmers' practice.

n) **Direct Seeded Rice (DSR):** DSR (both wet and dry) was demonstrated under APART with positive results. DSR saves time and resources on nursery preparation, nursery growing and transplanting as sowing is directly done in the field. This is desirable in late sown areas and post flood situation as the crop duration is reduced slightly. However, it requires careful management of weeds and water for successful establishment.

- **Wet DSR**: pre germinated rice seeds are sown directly in puddled and saturated soil (manual line sowing/broadcasting or by using drum seeder). This method provides quick germination and helps suppress weeds due to puddled soil and minimal water cover, making it suitable for heavy soils with assured water availability.

- **Dry DSR:** Pre germinated rice seeds are sown in dry (but with optimal moisture), unpuddled soil using drills or broadcasting, usually before monsoon rains or in ahu/boro season. It saves 30–50% water, reduces labour, and supports mechanization, but weed infestation, risk of uneven crop stands, and dependence on timely rainfall or assured irrigation remain major challenges.

The net income with wet DSR varied from ₹19,102 per ha in district Morigaon to ₹51,461 per ha in Kokrajhar, with an overall average of ₹32,060 per ha across districts. Also, a targeted number of 1,000 demonstrations on Wet DSR under ICMDs with STRVs/HYVs were conducted during *Sali* and *Boro* season of 2023-24 with the active involvement of 1,005 farmers at their fields. Similarly, in the *Sali* seasons, dry DSR were also conducted. Altogether 39 dry DSR demonstrations were conducted against the targeted 40 numbers with the involvement of 42 beneficiaries.

o) **Mechanical Transplanting of Rice (MTR) using mat nursery (AAU):** Manual transplanting of rice is highly cumbersome and requires lot of labor. During peak transplanting season, there is scarcity of labor and rates of labor go exorbitantly high. To address this problem APART introduced and popularized mechanical transplanting of rice using paddy transplanter and mat nursery which proved to be highly successful and well assimilated by farmers. A total of 222 demonstrations on MTPR using STRVs/HYVs were conducted in 243 farmers' fields, and 120 demonstrations on MTPR in 123 farmers' fields in *Boro/Early Ahu* season. The crop-cut data revealed that the grain yield of MTPR varied from 4.79 t/ha in Kokrajhar to 6.58 t/ha in Goalpara district,with an average yield of 5.38 t/ha across districts. The highest yield gain with the MTPR demonstration was 2.58 t/ha over the farmer's practice in the Goalpara district, followed by 2.42 and 2.30 t/ha in Morigaon and Barpeta districts, respectively.

Moreover, 800 ICMDs were done using MTR involving 812 farmers. As per in-house data, average grain yield across all sites under improved innovation (MTR) was 5.85 t/ha, being 28% higher than the farmers' practice PTR which yielded an average of 4.57 t/ha. highest grain yield (7.57 t/ha) was recorded under MTR in Golaghat district with a yield advantage of 24.5% over the farmers' practice-PTR (6.08 t/ha). Other than Golaghat, more than 6.0 t/ha grain yield was recorded with the improved innovation (MTR) against farmers' practice-PTR in five districts, namely, Jorhat (6.49 t/ha), Nagaon (6.45 t/ha), Lakhimpur (6.21 t/ha), Barpeta (6.12 t/ha) and Dhubri (6.08 t/ha). Thus, MTR displayed a wider acceptance among the farmers, with a distinct yield advantage across the locations, varieties and districts.

p) **Alternate Wetting & Drying (in water scarce areas):** Alternate Wetting and Drying (AWD) is a water-saving irrigation technique that involves periodic drying and re-flooding of rice fields, unlike Continuous Flooding (CF), which maintains a steady water level throughout the season. AWD has shown the potential to reduce water use and improve irrigation water productivity without significantly affecting grain yield.

AWD exhibited a grain yield of 4.21 t/ha, slightly lower than CF at 4.40 t/ha, but with a 25.3% reduction in water use Irrigation water productivity under AWD was 0.94 kg/m^3 compared to 0.73 kg/m^3 under CF. The benefit-cost ratio was also higher for AWD (1.84) than for CF (1.72), indicating improved economic efficiency.

In conclusion, AWD is an effective alternative to CF that conserves water, maintains comparable yields, and improves profitability when combined with proper weed management. The integration of AWD with effective herbicide application or manual weeding can significantly contribute to sustainable and water-efficient rice farming.

q) **Measurement of Greenhouse Gas (GHG) Emissions and Grain Yield in Rice:** Greenhouse gas (GHG) emissions from rice cultivation, particularly methane (CH_4) and nitrous oxide (N_2O), are influenced by several biophysical and management-related factors. These include soil organic matter (SOM) content, land-use pattern, cropping intensity, irrigation and drainage management, soil microbial dynamics, inherent soil properties, and prevailing climatic conditions. A study conducted during the Boro season of 2021–22 under the APART project, aimed to assess the impact of different crop establishment methods and best management practices (BMPs) on GHG emissions and rice grain yield.Three establishment methods were evaluated: the conventional farmers' practice of puddled transplanting (FP-PTR), mechanized transplanting of rice (MTPR), and direct seeding of rice under wet conditions using a drum seeder (wet-DSR). BMPs integrated with stress-tolerant rice varieties (STRVs) were implemented to improve resource-use efficiency and reduce emissions.

The results revealed that CH_4 emissions were significantly influenced by the method of rice establishment. Compared to FP-PTR, the wet-DSR method resulted in a 50% reduction in CH_4 emissions. BMPs also contributed to a marked reduction in CH_4 emissions relative to the farmers' traditional practices. However, there were no significant differences in N_2O and CO_2 emissions across various establishment m

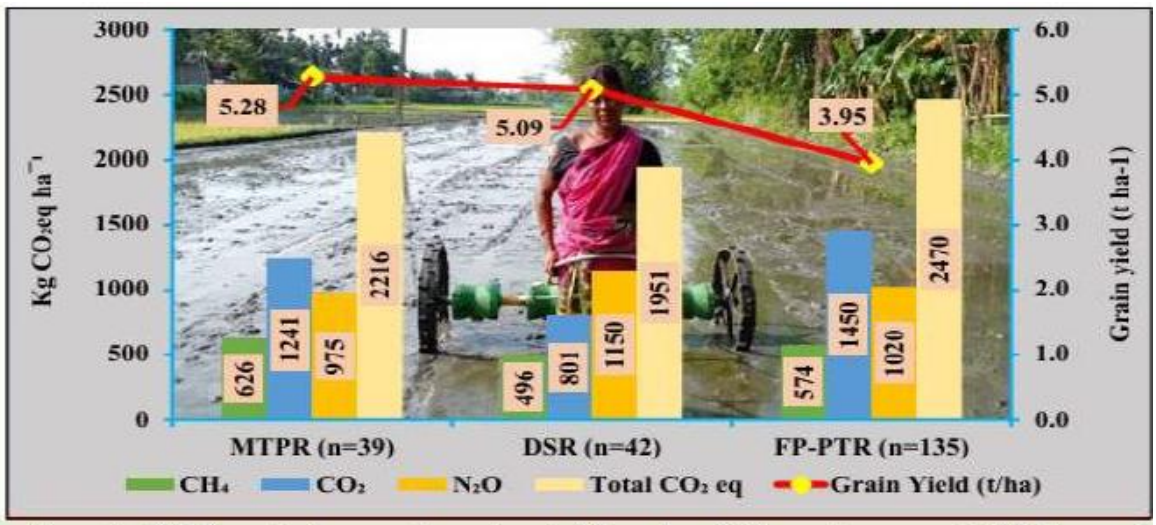


Fig. 18: GHG emission and grain yield under different crop establishment methods during Boro season 2021-22

Grain yield performance varied notably among the treatments. The highest yield (5.28 t/ha) was obtained from MTPR, attributed to improved crop establishment and better input management. In contrast, FP-PTR recorded the lowest yield, showing a yield penalty of approximately 25% when compared to MTPR, primarily due to poor crop stand and suboptimal agronomic practices.

Furthermore, the global warming potential (GWP) associated with FP-PTR was significantly higher than that observed under MTPR and wet-DSR, underscoring the environmental advantage of alternative crop establishment methods.

The study showed that the adoption of mechanized or direct-seeded rice systems, particularly when combined with BMPs and STRVs, not only enhances grain yield but also mitigates GHG emissions, offering a more sustainable approach for rice cultivation.

Note: The adoption of resource-efficient alternate crop establishment methods under the APART project from 2018 to 2022 led to substantial improvements in rice cultivation practices across Assam. These interventions introduced **mechanization-based technologies** such as **wet and dry direct seeded rice (DSR)** and **mechanical transplanted rice (MTPR),** which addressed key challenges like labour shortages and rising production costs in traditional farming systems. The demonstrations were carried out through AAU's KVKs and research stations in collaboration with Custom Hiring Centres (CHCs) and private service providers, enabling widespread field-level implementation.

r) **Integrated Pest Management in Rice (AAU)**: A total of 2650 IPM demonstrations were conducted as superimposed on other types of demonstrations. The following activities were taken up as a part of IPM demonstrations:

- Seed treatment with '*Trichoderma*' formulations @ 10g/kg of seed.
- Seedling root-dip treatment with *'Trichoderma'* or *'Pseudomonas'* (5-10%)
- Installation of pheromone traps
- Installation of trichocards
- Popularization of conventional indigenous technical knowledge (ITK)

Large scale IPM demonstrations re-iterated APART's commitment to environment and low chemical agriculture.

s) **Rice Knowledge Bank (RKB) for Assam:** AAU with the support of IRRI has developed the Rice Knowledge Bank (RKB) for Assam (www.rkbassam.in) which is a complete repository of knowledge on rice right form pre-production, production, harvest, post harvest management, marketing etc. The bank was developed with the following objectives:

- To bring together organizational training materials and synthesize institutional knowledge
- To make AAU and IRRI's knowledge available in easy, local, exchangeable, and ready-to-use formats that can be accessed and used by the extension functionaries
- To provide inclusive, easy, and quick access on rice information to all rice growing communities
- To provide a one-stop standardized source of information for the rice growing community
- To create a strong linkage between research and extension

RKB website is updated regularly. Rice being the dominant crop in Assam, farmers follow rice based cropping systems. There had been an increasing demand to develop a platform that hosts information on various crops suitable for rice-based cropping

systems in Assam. Accordingly, besides rice, it was decided to include information on additional 17 crops, namely potato, pulses (green gram, black gram, lentil, grass pea, field pea), oilseeds (linseed, rapeseed/mustard), vegetables (brinjal, tomato, cabbage, cauliflower, pumpkin), maize, millets (finger, proso, foxtail) which could suitably be grown in *sali* rice fallows. In response to farmers' and other stakeholders' demand, now the portal has been upgraded to Rice Based Cropping Systems Knowledge Bank. Moreover, the Web GIS portal and Fishery Knowledge bank developed under APART were integrated in RCSKB. Thus, RCSKB became a great information source for not only rice, but of several crops including fishery and GIS outputs and visitors could access all the information from a single digital platform. The portal has multiple knowledge materials like fact sheets, videos, photographs, maps and documentaries etc. There is a provision to provide feedback on the knowledge materials on the portal.

t) **Rice Doctor:** Rice Doctor (RD) is a mobile application developed by AAU in collaboration with International Rice Research Institute (IRRI) which can diagnose and suggest remedies for 63 problems of rice including pest & disease attack, physiological disorders, nutrient deficiencies, toxicities, agronomic issues etc. Built on the Lucid-Identic platform, the tool was designed to simplify and expedite the identification of field problems, offering instant solutions and location-specific management recommendations for Assam. The app was made available in both English and Assamese to ensure ease of use and facilitate wider dissemination. It served the dual purpose of acting as both a diagnostic tool and an educational resource for thousands of stakeholders. This development significantly contributed to reducing the cost of production while enhancing the quality and productivity of the rice crop.

u) **Mechanization and post harvest management in rice value chain:** The Project introduced mechanized harvesting and threshing operations. The following machines were introduced and popularized so as to ensure harvesting at the right time and avoid post harvest losses, leading to better yield & quality and finally better realizations to farmers.

- Combine harvestor
- Solar bubble dryer
- Superbag
- Portable rice mill
- Dry grinding machine
- Indent cylinder separator
- Rice puffing machine
- Rice flake machine

v) **Machinery repair, maintenance, and operation training to farmers/ FPCs:** A series of trainings were provided to FPCs/ farmers on operation, repair and maintenance as follows (each training was for a duration of three days):

- Series-1: Combine harvester and reaper (7 trainings, 111 beneficiaries)

- Series-2: Thresher, portable rice mill, and dry grinding machine (7 trainings, 124 beneficiaries)
- Series-3: MTR, DSR and IWM (7 trainings, 126 beneficiaries)

w) **Service economy through machinery service providers**: Private Service Providers (PSPs) are individual entrepreneurs who invest in their own machinery and offer services to small and marginal farmers on a rental basis. This model provides a flexible, decentralized, and accessible solution to farm mechanization, especially in regions where CHCs may be limited or underutilized. Since demand for these machines is very high in Assam, individual entrepreneurs have bought the machines (without any support from Govt) to provide on rental to farmers.

x) **Developing extrapolation domain of cropping systems for efficient targeting of technologies in low-productive rice-fallows and stress-prone areas:** For efficient targeting of technologies/ varieties (particularly STRVs) in low productivity areas, it was necessary to thoroughly characterize resource profiles, including biotic and abiotic stresses, and to systematically assess the opportunities and constraints within prevailing cropping systems. To achieve these goals, several key activities were undertaken:

- Identification of high-potential areas for targeting STRVs
- Land-use and decision rules for each cropping system and deploying appropriate technologies
- Disease profiling
- Mapping existing cropping systems: 2018-2022 (Kharif – Fellow, Kharif -rabi)
- Mapping abiotic stresses (Flood & Drought): 2014-2023
- Mapping areas suitable for targeting technologies
- Mapping suitable areas for improved cropping systems: Mapping for Potato, Vegetables, Mustard, Rabi Maize, Spring Maize, Summer Pulse area. (2022-23 on rice fallow)
- Demonstrations of suitable technologies (cropping sequence)
- Capacity building: 276 staff trained and 174 officials trained through stakeholder workshops.
- Data dissemination through ATLAS 2018-19,2019-20, 2020-21; Suitability Atlas 2021-22 & WebGIS Portal.
- Establishment of state-of-the-art GIS labs at multiple locations i.e. (i) AAU Jorhat (ii) SCS College of Agriculture Dhubri, (iii) CHFSR Nalbari, (iv) BNCA Biswanath.
- Service area mapping of 50 nos. of Rice based FPCs of Assam
- Business Suitability mapping for 23 FPCs.

7.3.8 Mustard Value Chain activities:

The interventions in the maize value chain were technically supported by the Indian Council of Agricultural Research (ICAR) - Directorate of Rapeseed and Mustard Research (DRMR), now Indian Institute of Rapeseed and Mustard Research (IIRMR). The activities in the mustard value chain were aimed at the following:

- Enhancing adoption of high yielding short duration rapeseed-mustard varieties

- Enhancing area and raising productivity, profitability, and resource use efficiencies of rapeseed-mustard cultivation in Assam through improved crop management and protection technologies.
- Strengthening post-harvest management, reduce losses, increase efficiency and profitability, and improve mustard value chain
- Developing knowledge materials and capacity development of various stakeholders and extension functionaries in Assam

a) **Crop demonstrations:** Two types of demonstrations were taken i.e. Minikit and Technology Demonstrations. In the Minikits, one Kg of seed only is given to beneficiary farmer and no other inputs are given. The farmer compares the performance of the variety with other farmers' varieties and based on the performance takes up the variety in the next season through his own resources. In the technology demonstration, all inputs, advisory and training are provided to the farmers in addition to a small control plot for comparing the performance of demonstrated variety practice with the farmer practice. Scientific Package of Practice (PoP) is followed in technology demonstrations. These demonstrations are carried out in a market led and climate resilient manner. Year-wise, the following number of mustard/ toria demonstrations were taken up during the Project:

Year	Minikit	Tech demo	Total
2019-20	2200	314	2514
2020-21	8860	440	9300
2021-22	9000	5000	14000
2022-23	18000	5000	23000
2023-24	18000	5000	23000
Total	**56060**	**25754**	**71814**

b) Exposure visits of Master Trainers: Exposure visit is one of the important extension tools to reinforce the confidence of the extension personnel in new technology, methods, etc. Since "seeing is believing", exposure visit of master trainers/extension functionaries were organized to ICAR-DRMR, Bharatpur along with interaction with progressive farmers and visit to farmers' fields in Bharatpur and surrounding areas, to have better knowledge and understanding of technology, methods and to improve the skills of the extension personnel/ master trainers in scientific production and protection technology of rapeseed-mustard. Total four exposure visits of Master Trainers were under taken from 2020-21 to 2023-24 covering 67 officials.

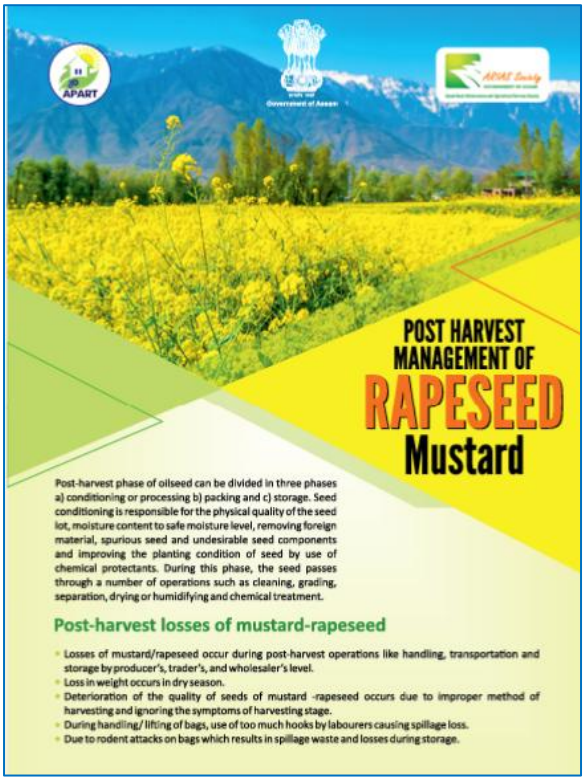
c) Exposure visits of progressive farmers: - Similarly, exposure visit of progressive farmers to ICAR-DRMR and farmers' field motivate them by showing what others have been able to achieve. During

exposure visits farmers had interactions with progressive farmers in Bharatpur and also visited the mustard farms of progressive farmers in Bharatpur & surrounding areas. It exposed them to a new and different situation which helped in changing their outlook and extend their mental horizons. Visiting farmers understood the gap in technology adoption and explored the feasibility of adopting new practices in their own situations. Total four exposure visits covering 50 farmers were organized from 2020-21 to 2023-24.

d) **Field days cum technical trainings: –** Field days cum technical training linked with crop demonstration were conducted at the rate of 10% of the demonstrations initially and later 5% when the number of crop demonstrations increased substantially. One field day cum technical training was conducted for 30 farmers. These training sessions covered all aspects of production of mustard crop from land preparation to harvesting. These provided practical exposure to the farmers about scientific production and protection technology of mustard & rapeseed. A total 718 field days cum technical trainings were organized with participation of around 23101 farmers.

e) **Farmer Fairs:** Farmers fairs were organized to make the farming community aware about mustard farming, provide updated agriculture related information, promote technologies which would be helpful in doubling the farmers' income. Farmer fairs also help in creating awareness among farmers about newly released varieties and scientific agronomic practices of mustard, integrated nutrient management, integrated weed management, integrated disease and pest management, govt. schemes for the welfare of the farmers, etc. A total four farmer fairs were organized during 2020-21 to 2023-24 (one each year), covering 546 farmers.

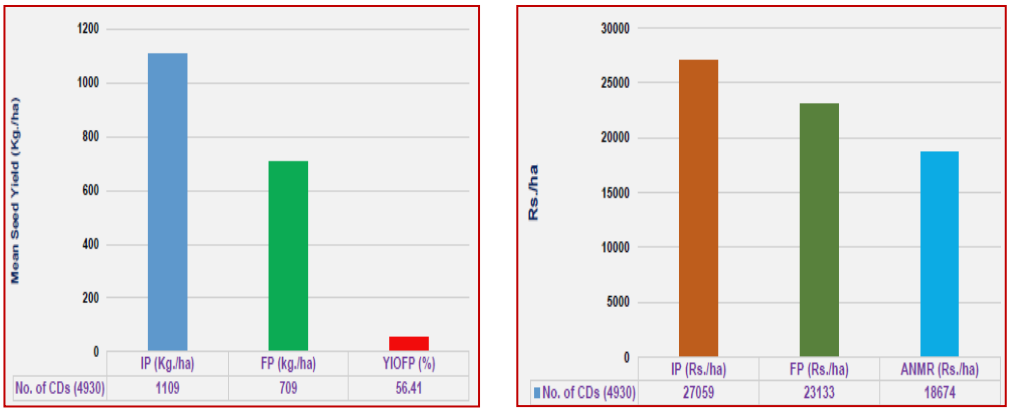
f) **PHM demonstrations:** Post Harvest Management holds critical importance in mustard mainly due to the fact that moisture content is very high at the time of harvest because of high relative humidity. Proper drying to a moisture content of about 8% before storage is utmost essential for optimal oil recovery. Accordingly 112 PHM demonstrations were carried out during the Project period.



g) **Pilot on Transplanted Mustard:** A pilot on transplanted mustard & toria was taken up in Dhubri and Bongaigaon Districts in the rabi season of 2022-23. Highly encouraging results were obtained. In case of toria average yield increased from 9.3 q/ha to 13.9 q/ha (49% increase) while in case of mustard, average yield increased from 11.5 q/ha to 19.3 q/ha (68% increase). Based on the successful results, transplanted toria and mustard could be tried at scale.

Treatments	Plant height (cm)	Primary branches/plant	Secondary branches/ plant	Number of silique/ plant	Yield (qtl/ha)
Transplanted Toria	90.5	4.25	14.0	205.3	13.9
Broadcasted Toria	81.3	3.5	10.5	163.7	9.3
Transplanted Mustard	205.5	6.1	17.3	256.0	19.3
Broadcasted Mustard	151.3	4.2	12.8	221.3	11.5
CD (P=0.05)	12.75	1.18	3.03	32.91	3.53
SEm±	4.09	0.38	0.97	10.56	1.14

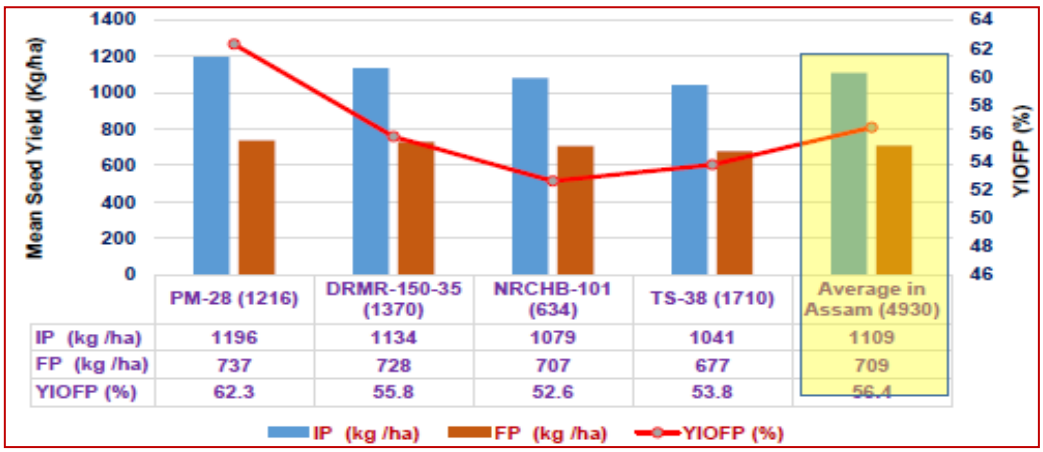
h) **Yield and economic gains in mustard:** In the demonstrations, 56% yield increase was witnessed over farmer practice. Average yield of mustard increased from 709 Kg/ha to 1109 Kg/ha. In terms of economic gains, demonstration farmers got Rs 18674/ha higher than check farmers. These results are shown in the graphs below:



IP: Improved Practice (APART demo); **FP:** Farmer Practice; **YIOFP:** Yield Increase Over Farmer Practice;

i) **Performance of four varieties demonstrated under the project -**

- **PM-28:** Pusa Mustard 28 yields 18-20 quintals per hectare. The oil content is higher, at 41.7 %, as compared to other mustard variety than (30-40 %). This variety is tolerant to Alternaria blight and more resistant to downy mildew and white rust. Crop duration is 105 -115 days. This variety yielded 1196 Kg/ha against farmer practice of 737 Kg/ha (62.3% increase).
- **DRMR 150-35:** It is a high yielding variety of mustard with a productivity of around 1800 Kg/ha. Oil recovery is 39% and duration is around 114 days. Under APART demonstrations, this variety has yielded 1134 Kg/ha against farmer practice of 728 Kg/ha (55.8% increase).
- **NRCHB 101:** This is a high yielding variety giving around 1400 Kg/ha. It has a duration of 105-135 days and oil recovery is 40%. Under APART demonstrations, this variety has yielded 1079 Kg per ha against farmer practice of 707 Kg per ha.
- **TS 38:** TS-38, a high-yielding variety of toria, is known for its impressive qualities, including 40-45% oil content, early maturity (120-130 days), yield potential of 2-3 tons per hectare, disease resistance, and adaptability to various soils and climates. Under APART demonstrations, this variety has yielded 1041 Kg per ha against farmer practice of 677 Kg per ha.



IP: Improved Practice (APART demo); **FP:** Farmer Practice; **YIOFP:** Yield Increase Over Farmer Practice;

7.3.9 Maize Value Chain activities:

a) The interventions in maize value chain were technically supported by ICAR- Indian Institute of Maize Research (IIMR). During the preparatory phase of the Project, as a part of value chain analysis, the following critical constraints were identified in maize value chain:

- Improper land preparation by farmers
- Lack of line sowing
- Absence of ridge sowing in high rainfall areas
- Low penetration of hybrid seeds
- High incidence of weeds
- Deficiency of zinc and phosphorous
- Attack of borer
- Unavailability of shellers
- Improper drying
- No fumigation during storage

b) The activities in the maize value chain were taken up with the following objectives:

- Crop diversification to maize from rice including on rice fallow areas
- Organizing adaptive and demonstration trials by AAU on new varieties
- On Farm Trials (OFTs) with the varieties and technologies that are in the pipeline of recommendation and also those which are in the advanced stage of development, by AAU

The following activities were carried out in the maize value chain:

c) **Production cum Post Harvest Demonstrations:** The on-farm demonstrations (production and post harvest) were taken up at the farmers' field for the single cross hybrid maize in participatory mode. These demonstrations were conducted at the farms of selected progressive farmers in cluster approach. These demonstrations were utilized to educate and motivate fellow farmers through organization of the field days. It was a very effective method for the technology transfer and building confidence of the farmers and extension agents by reducing the gap for adoption. During the demonstrations, the farmers' innovations and the local resources were embedded to enhance the technology adoption. Demonstrations stimulate farmers to try out innovations and best practices themselves or may even replace a test of the innovation by the farmers. They can show the causes of problems and their possible solutions without complicated technical details.

A great advantage of demonstration is seeing how an innovation works in practice. Maize crop raising demonstrations were carried out in small to larger plots (~2500 m sq) to provide practical learning situation and show the production potential of newly released varieties and best crop management (zero tillage/conservation agriculture, integrated weed management, intercropping, plant protection practices etc.) to farmers, extension personnel and other relevant stakeholders at farmers' field. Post-harvest demonstrations were carried out on the production coming out from the demonstrations for enhancing quality of produce as per industrial and market requirements. As a part of PHM, proper drying practices were demonstrated to maize farmers. A total of 1990 maize demonstrations were taken up during the Project period. All the demonstrations were market led and climate resilient in nature. Under APART demonstrations, substantial productivity enhancement from **5.14 t/ha to 10.94 t/ha** was witnessed.

d) **Setting up of silage making units and silage demos:** The demonstrations on silage making were concentrated in the areas where substantial livestock population exists and there is presence of dairy cooperative societies as well. This silage will act as source of green fodder and feed supplements to enhance the livestock productivity. This will be helpful in cutting down the expenditure incurred on livestock feed along with enhancing productivity.

Quality control is ensured in silage making as per prevailing regulatory standards as well as from animal health point of view. Based on sustainability, this model can be out scaled for supply of silage to other NE states as well as other export markets in the region. Two silage making units of capacity 35-70 bales per hour have been set up with two FPCs i.e. Mahabahu FPC in Morigaon, Kehuj Nayan FPC in Sonitpur. Both these areas are hub for maize production. The two FPCs have dairy farmers and they will also be supplying silage to other famers in the nearby areas.

e) **Mechanization in maize value chain:** At present, maize cultivation is completely mechanized in India from seed to seed which reduces drudgery and ensures all farm operations on time. Thus, beside post-harvest operation machinery, the mechanized maize cultivation machinery has been promoted for enhancing farm profitability. Some of the critical farm machinery like seed drill/ multi crop planter were provided as part of Custom Hiring Centres (CHCs) which have facilitated line sowing which facilitates better crop operations and as a result, substantial yield enhancement was witnessed.

f) **Maize value chain pilot in Sonitpur:** Sonitpur is a leading maize growing area of Assam. However, various value chain actors and support agencies were working in isolation and desired results could not be obtained. Taking cognizance of the situation APART initiated a 100 ha pilot on maize value chain bringing all stakeholders on the same platform with clearly defined roles. These included (i) District Agriculture Office (ii) Input companies like IFFCO (fertilizers), Bayer (plant protection), Pioneer (now Corteva) (seeds) (iii) India Meteorological Department (iv) local KVK (scientific PoP) (v) NERFMTTI (mechanization) (vi) Shanti Agro Vet (processor) etc.

A stakeholder meeting was organized to sensitize them about the pilot and also getting buy-in for their responsibilities. Timely to field visits were organized. Trainings for famers were organized through input companies and KVK. PHM demonstrations were also conducted. Through information on weather forecast farmers

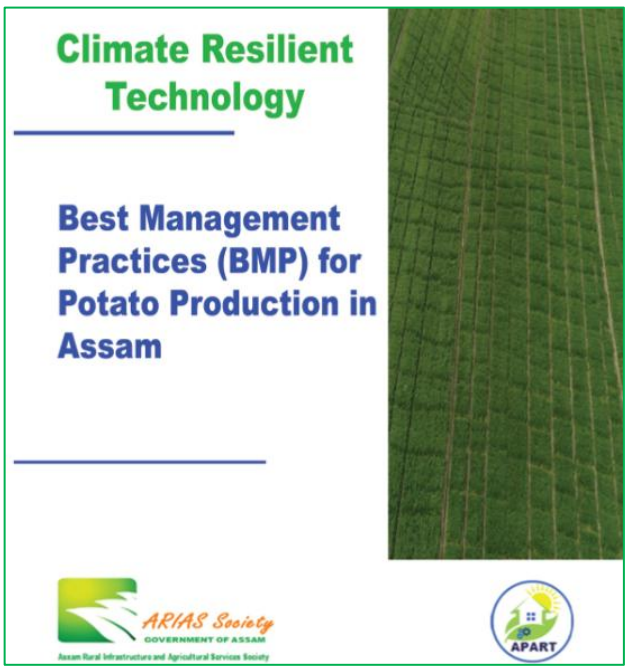
were able to take up timely sowing, harvesting and other crop operations. They could plan crop operations accordingly. Since, assured buyack guarantee was given by Bayer through agreement, farmers did not find any problem in getting a market and remunerative price for their produce.

g) **Impact:** Farmers are now following scientific Package of Practices (PoP). Mechanization has spread over the area. Inputs costs have reduced and production has increased substantially as the farmers followed scientific PoP. Grain quality has also improved.

h) **Pilot on electronic trading of maize:** For the first time ever in Assam, an electronic trading transaction in maize for a lot of 20 MT was done in Sonitpur district. The trading was conducted through the National Commodities and Derivatives Exchange (NCDEX) electronic Markets Limited (NeML) electronic trading platform and the consignment was finally headed to Bangladesh. The consignment was sold to Himalaya Trading Company of Kolkata by Nobomilan FPC, Balipara, Sonitpur and Kheuj Nayan FPC Borsola, Sonitpur. The transaction was concluded at Rs 2,425 per quintal. The FPC member farmers have expressed satisfaction with this price and hoped to sell more quantity of maize through this platform.

7.3.10 Horticulture Value Chains:

a) Interventions in Horticulture value chains were implemented by the Directorate of Horticulture and Food Processing at the State level and District ATMAs at the District level. Technically, these were supported by the International Potato Centre (CIP) for potato value chain and the World Vegetable Centre (WVC) for the vegetables value chains. The interventions focused on (i) increasing the productivity of identified horticulture crops, (ii) promoting diversification to remunerative crops like banana, pineapple and vegetables etc. and (iii) improving the quality of produce. The project promoted and upscaled climate resilient technologies to mitigate the short to medium term climate variability projected for Assam.



b) **Climate Resilient and Market Led Production demonstrations:** Extensive on-field demonstrations were conducted to promote climate-resilient and market-led production systems across key Horticulture value chains to promote sustainable intensification and diversification of high-value crops. These demonstrations showcased the adoption of stress-tolerant crop varieties, improved

water and nutrient management, integrated pest management (IPM), and climate-smart agronomic practices suited to Assam's diverse agro-ecological zones. Emphasis was also placed on market orientation, linking production planning with demand, quality standards, and post-harvest handling. Through participatory demonstrations and farmer field schools, producers gained hands-on exposure to technologies and management practices that enhanced productivity, reduced climate risks, and improved profitability. These interventions not only built resilience at the farm level but also fostered a culture of evidence-based, market-responsive agriculture in the state.

b.1. Vegetables: On-farm Climate Resilient and Market Led Production demonstration conducted on vegetable crops viz: Brinjal, Tomato, Pumpkin, Cabbage & Cauliflower by the Directorate of Horticulture and Food Processing (DoH&FP) through the Agricultural Technology Management Agency (ATMA) in the different potato-growing project districts of Assam. The production practices were on Nursery seedling tray, Enriched vermicompost, Localized application, Sticky trap, Pheromone trap, Biopesticides, Intercropping, Trap crop, Border crop, Bamboo Staking. With these practices in demonstration plots, an average 19% yield increase in tomatoes and a 20.6% increasse in case of cabbage observed in comparison to the control plots. The Cost benefit ratio of demonstration plot in comparison to control plots are as below:

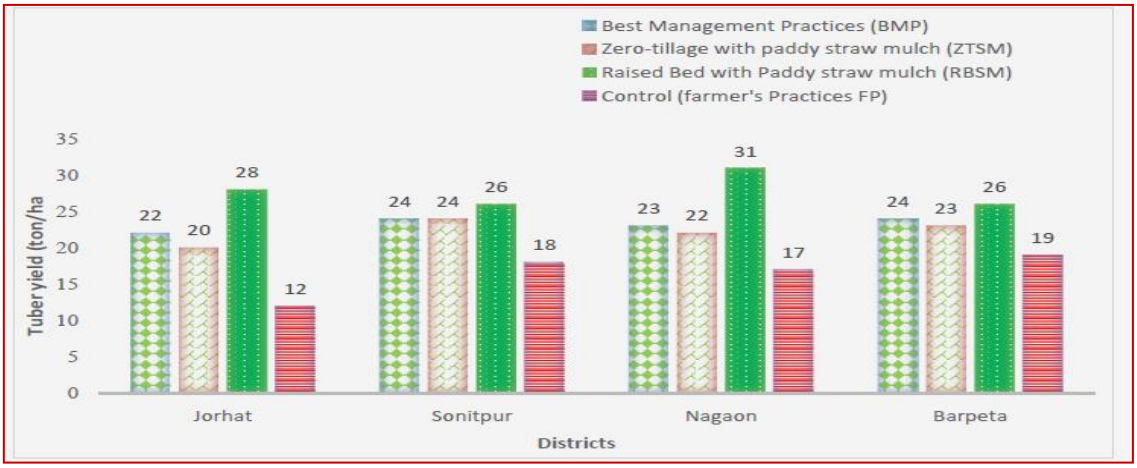
rop	Economical Justifications (Cost: Benefit)	
	Control	Demo
Tomato	2.48	3.04
Brinjal	3.76	4.39
Cabbage	3.51	4.2
Cauliflower	2.84	3.86
Pumpkin	2.11	2.91

b.2 Banana: 15 clusters were identified from nine districts to carry out different demonstrations and trainings on Banana cultivation. The cultivation practices were as per the package of practices recommended by Assam Agricultural University with proper bunch management and post harvest management practices. Cluster approach demonstrations were carried out involving FPCs with the available Progressive farmers for better aggregation and market linkages. The variety promoted was Tissue culture Grand Naine (TC G9) because of its tolerance to abiotic stress and good quality of bunches. A total of 336 numbers of demonstration conducted covering a total area 113.8 ha. An average total bunch of 2400 per ha was observed in demonstrated plots with average weight per bunch of 18 kg. Thus a total of 43.2 MT/ha. The unit cost per ha was of Rs. 2,46,256/- with a gross income of Rs. 8,64,000/- per ha and thus a cost benefit ratio of 1: 3.51. A major intervention is convergence with Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) for micro irrigation arrangement in the demonstrated plots.

b.3 Ginger: Total 5 clusters were identified from four districts to carry out different demonstrations and trainings on Ginger cultivation. The cultivation practices were as per the package of practices recommended by Assam Agricultural University with proper post harvest management practices. The variety promoted was Nadia and Rio-de-janeiro. A total of 216 numbers of demonstration conducted covering a total area 59 ha. An average production of 16 MT per ha was observed in demonstrated plots. The unit cost per ha was Rs. 1,45,400/- with a gross income of Rs. 5,60,000/- per ha and thus a cost benefit ratio of 1: 3.85.

b.4 Pineapple: Pineapple growing clusters were identified from seven districts to carry out different demonstrations and trainings on Pineapple cultivation. The cultivation practices were as per the package of practices recommended by AAU with proper post harvest management practices. The varieties promoted were Queen and Kew. A total of 64 numbers of demonstration conducted covering a total area 19 ha. An average production of 40000 numbers per ha with average weight of 1 kg per piece was observed in demonstrated plots. The unit cost per ha was of Rs. 2,72,500/- with a gross income of Rs. 8,00,000/- per ha and thus a cost benefit ratio of 1: 2.95.

b.5. Potato: A total of 2624 demonstrations were laid out in an area of about 615.60 ha. The technologies demonstrated were Best Management Practices (BMP), Zero Tillage With Paddy Straw Mulch (ZTPSM), Raised Bed With Paddy Straw Mulch (RBPSM), and Partial Root-Zone Drying (PRD). All the technologies were well adopted by the farmers except the PRD as potato crop in Assam is completed with one or two irrigations. Therefore PRD did not show significant water saving or increase in yield. Maximum tuber yield and tuber uniformity are obtained by the RBPSM. Zero tillage has become very popular among small and marginal farmers as it saves about 30% on the cost of cultivation without any reduction in productivity, thus increasing the profitability of the farmers. A maximum yield of 24.3 tons/ha was obtained in a raised bed with paddy straw mulch, followed by 23.7 t/ha with BMP and 21.4 t/ha with zero tillage. By adopting these technologies, the overall potato productivity has increased from 11 t/ha in 2018-19 to 22 t/ha in 2023-24 in the demonstration plots.



A comparison of the 4 potential potato growing districts

These technologies also reduce CO2 equivalent emissions (CO2e). The analysis showed that CO2e saved by RBPSM was 1.29 t/ha, and CO2e saved by ZTPSM was 2.59 t/ha over farmers' practices (Source: International Potato Center). The package of practices

for these technologies was developed in collaboration with AAU, Jorhat and will be included in the coming editions of the POP book by the University.

High-yielding and disease-resistant table varieties, like Kufri Surya, Kufri Himalini, Kufri Mohan and processing varieties like Chipsona-3 and Lady Rosetta, were also introduced in Assam. Processing varieties were introduced in Assam in 2018, and within four years, the area under processing varieties has increased to over **1800 ha**. Processing companies like Pepsico, Haldiram, Kishlay etc. were linked with the potato growers clusters for sale of their processing varieties produces and contract farming for assured market. Pepsico had taken contract/collaborative farming more than 500 Ha and had procured more than 5000 MT of potatoes from clusters of potato growers.

i) **Potato variety Cafeteria:** The key objective was to showcase different varieties in one plot of land to find out the suitable potato varieties both for table purpose and processing purpose in a district. The demonstration of processing varieties like Lady Rosetta, Kufri Chipsona-3 and table varieties like Kufri Mohan, Kufri Himalini, Kufri Jyoti and Kufri Surya were done in 14 districts. Each demonstration was of 0.13 ha and the site was selected near to the road so that visiting farmers could see the performance of these varieties. Crop Cafeteria provided an opportunity to witness relative performances of various varieties of potato having different maturity period, diseases resistance, purposes (table/ processing), tuber shape, size colour, uniformity along with suitable agronomic production technologies. The Cafeteria offered practical experiences based on the concept of '*seeing is believing*' and for disseminating technical know-how to the farmers and extension officials. The Assam Seed Corporation Limited had incorporated varieties like K. Surya, K. Chipsona-3, Lady Rosetta in its seed distribution program.

ii) **Growing potatos with zero tillage:** The International Potato Centre (CIP) introduced under the project an innovative potato production technology - zero tillage with Paddy Straw Mulching resulting substantial cost of production. Under this technology, the rice straw is used to cover potatoes on the soil surface and insulate them well enough to produce a good harvest in a little less than three months. Farmers thus produce more potato with little management and inputs. The potatoes require no irrigation as the roots can draw water from the residual moisture left after the rice harvest. Farmers have adopted this technology demonstrated by the project as it does not require much labor and can be performed by any member of the household. Clean tubers can be harvested simply by removing the straw. Farmers have also noted a reduction in pests such as potato tuber moths. Further, the technology enhances soil fertility and is very eco-friendly in nature (low carbon technology).

iii) **Farm Mechanization & Post Harvest Management for Potato:** Farm machines like automatic and semi-automatic potato planters, potato harvesters, ridgers, graders and sprayers were given to the farmers groups and 365 demonstrations on the use of these machines were conducted in 19 potato growing districts of Assam. All these machines reduce drudgery, saves cost and time and are being adopted by the farmers.

The return of investment of tractor operated automatic potato planter over manual is 1:5 and for potato harvester it is 1:6. Manual grading is a time-consuming, costly and labour-intensive process. With introduction of power operated potato grader, cost of grading has come down from Rs 420 per tonne to Rs 139 per tone.

Post-harvest losses were estimated to be 30-35% including during on-farm storage. 80 bamboo based Country stores (0.3-0.5 ton capacity) were built under the APART to tide

"We have always been farmers, but now we are agripreneurs with our own Company."

On a pleasant December morning, 37-year-old farmer Kamal Kumari, set out from her home to the fields bordering her village in the northeastern state of Assam. As she walked through vast paddy and mustard fields, she could see the faint outline of the majestic Himalayas in the distant horizon. Kamal was joined by other women farmers, and together they reached a large plot of land. Taking charge of the bright yellow seeder machine, Kamal climbed onto the driver's seat, while her companions filled the back of the tiller with potato seeds. Throughout the day, they ploughed through the field planting the potato seeds.

These women farmers are members of the Joyomoti Farmer Producer Company Limited, an all-women shareholder company, of 435 members from 25 villages in the Sonitpur district of Tezpur, Assam. They largely engage in cultivation, growing paddy, pumpkin, mustard, and other vegetables throughout the year.

"Previously, we would work on our individual plots of land and sell our produce after meeting our own needs. The income we earned was just enough to sustain our families," say the women farmers. *"Now that we have come together as a Company, we cultivate crops based on market demand and earn better rates and share the profits. Our incomes have also increased two to three-fold."*

In 2022, their hard work paid off when a multinational company offered them a buy-back contract to cultivate potatoes. After successfully selling the potatoes, their Farmer Producer Company (FPC) made a profit of around Rs. 20 lakhs, which was distributed among the 52 participating farmers. Kamal Kumari, the chairman of the FPC proudly states, *"We have always been farmers, but now we are agripreneurs with our own Company."*

over low price period immediately after harvest and to enhance profitability of farmers. The storage losses (rottage/shrinkage) were found to be 5%. The per kg price gain is Rs. 4-6 per kg after 2-3 months storage then the price at the time harvest.

iv) **Potato Seed Production:** In Assam, the annual potato seed required for production is 2.50 lakh MT and of which 1.95 lakh MT is sourced from outside Assam. Despite high price, good quality seed of required varieties is not available. Local seed multiplication is essential to ensure seed quality and reduce cost of cultivation.

Till 2020-21, local seed multiplication was not tried in Assam on a commercial scale. Under the technical guidance of CIP, three initiatives for local seed production were undertaken; (i) net-house seed multiplication was initiated by AAU; (ii) breeder seed multiplication to the foundation and certified seed was initiated by DOH&FP in Assam; and (iii) cleaning of local land races from viruses to improve their seed stock.

Net-house-based seed multiplication: A low-cost net house supported by bamboo skeletons for potato seed production has been successfully demonstrated under the Project. Presently 78 one bigha net-houses are being used for high-quality seed multiplication. Under DHFP, around 633 MT are in storage for multiplication of table variety- K.Surya and Processing variety- Lady Rosetta. The seed support was given to the 126 FPCs across 18 districts covering 1738 Ha area for potato production. The seed support was of G3 (generation 3 tubers)- table varieties K.Surya, K.Himalini, K.Jyoti and Lady Rosetta and Chipsona-3 of processing variety.

v) **Potato Value Addition:** Farmers' acceptances of the Potato varieties were K.Surya, K.Himalini, K.Jyoti of table varieties and Lady Rosetta and Chipsona-3 of processing variety. The produces were sold through FPCs/individuals to the local traders and processing companies like Pepsico, Haldiram, Kishlay and Siddhi Vinayak. The average production was found to 16 MT/ ha for processing variety and average price realization for processing variety is Rs. 14/kg and table variety is Rs. 12/kg.

The Project partnered with PepsiCo India to boost potato processing and enhance the livelihoods of farmers through contract farming. Based on the success of the the Contract farming promoted by the project, PepsiCo is investing ~ ₹778 crore in a processing facility near Nalbari, which is expected to be functional in March 2026. The partnership aims to facilitate market linkages for FPCs, specifically targeting the cultivation of processing-grade potatoes and sourcing 50,000 metric tons of potatoes annually from local farmers in Assam for their Lay's brand. This collaboration is part of a broader, long-term vision to make Assam self-sufficiency in potato production and create a sustainable, high-value agricultural ecosystem.

First Dispatch: In early 2024, first consignment of locally sourced, high-quality potatoes was dispatched to PepsiCo, marking the start of the supply chain from Assam.

Infrastructure Growth: The venture is driving the demand for cold storage, with plans for 60,000 metric tons of new capacity, which is planned to be taken under the follow-on project of APART in PPP mode.

Women Empowerment: PepsiCo has signed an MoU with the Assam Skill Development Mission to focus on women's employment, with a target of 75% women representation in the Nalbari plant.

c) **Nursery Enterprise Development:** Due to unfavorable climatic conditions like rain, flood, etc., farmers often lose their seedlings in the field before transplanting. Thus, nursery entrepreneurs can help bridge the requirement for seedlings. Farmers can directly plant the seedlings after procuring rather than growing from the seeds. A total of 63 nursery entrepreneur were selected and were provided residential training in Assam Agriculture University (2 days residential programme) and Daffodil Nursery (4 days residential programme) for producing saplings of vegetables, fruits and flowers. They were trained in making their business plan for year round production of different vegetables, fruits and flower.

d) **Integrated Pest Management:** On-farm community based Integrated Pest Management demonstrations were conducted on vegetable crops viz: Brinjal, Tomato, Pumpkin, Cabbage & Cauliflower. The production practices were on Nursery seedling tray, Enriched vermicompost, Localized application, Sticky trap, Pheromone trap, Biopesticides, Intercropping, Trap crop, Border crop, Bamboo Staking. In the overall analysis, individual crops exhibited positive outcomes. For Brinjal, there was a 19.00% increase in yield over the control, a 51.3% reduction in pesticide spray, and market prices ranging from Rs. 17.3 per Kg (maximum) to Rs. 15.1 per Kg (minimum). Cabbage demonstrated a 22.35% yield increase, a 62.0% reduction in pesticide spray, and market prices of Rs. 15.4 and Rs. 11.6 per quintal in the demo and control groups, respectively. Cauliflower showed an 18.32% increase in yield, an 81.7% reduction in pesticide spray, and market prices of Rs. 18.0 per Kg (maximum) and Rs. 12.0 per Kg (minimum). Pumpkin recorded a 26.68% yield increase, a 63.7% reduction in pesticide spray, and market prices ranging from Rs. 19.0 to Rs. 13.1 per quintal. Lastly, Tomato exhibited a 20.52% yield increase, a 48.4% reduction in pesticide spray, and market prices between Rs. 15.6 and Rs. 13.7 per quintal.

e) **Pilot Intervention on Medicinal and Aromatic Plant:** The pilot intervention was initiated with technical knowledge partner- CIMAP in seven districts viz. Biswanath, Golapara, Kokrajhar, Majuli, Dhemaji, Karbi Anglong and Dhubri with the crops Lemongrass, Tulsi, Vetiver. Training on Market led demonstrations on crops Lemongrass, Tulsi and Vetiver took place.The cultivation of Lemon Grass-201 Acres, Tulsi – 120 acres and Vetiver- 25.5 acres were taken up. Total 7 nos of Oil Extraction plants were installed in the districts Biswanth (one), Goalpara (two), Kokrajhar (two), Karbi Anglong (one) and Dhubri (one) under Farmer Producer Company in the

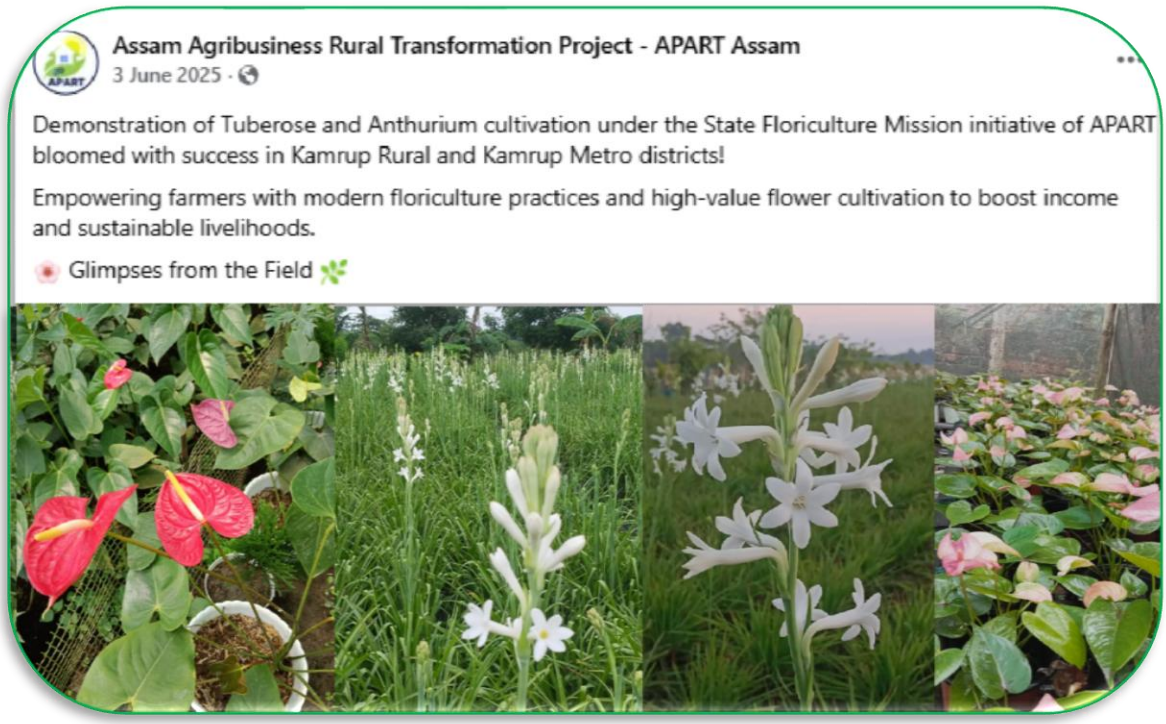
respective districts, extraction of oil is ongoing. The project with the help of CIMAP and has been able to link buyers for the oil extracted from the extraction units.

Oil extraction status and market linkages-

- All the installed units have done trial run and oil extraction percentage is around 1%, which is very encouraging.
- Tulsi seeds are being sold to adjoining farmers in Dhubri and Kokrajhar for area expansion initiative taken up by the beneficiary FPCs.
- Two successful Buyer Seller meet were organized at Goalpara and Kokrajhar with good numbers of buyers. Discussion and liaising with CIMAP officials are ongoing for effective market linkages.

District	Crop	Oil extracted	Sold to	Price realised
Goalpara	lemongrass	190 kg	Local vendors	Rs 800 per kg
K.Anglong	lemongrass	Dried leaves	Haamajang farming Co. Soc. Ltd	Rs 1000 per kg
Biswanath	Lemongrass	127.5 ltr	M/s T.B. Citronella Oil Industry	Rs 1000-1200 per ltr
Kokrajhar	Tulsi	15 litre	CSIR-CIMAP, Lucknow	Rs 1000 per ltr
Kokrajhar	Lemongrass	26 litre	Office staff and local villager	Rs 1000 per ltr
Kokrajhar	Tulsi(seed)	106 kg	Arunodoi supplier	Rs 1500 per kg

f) **Pilot Intervention on Floriculture Activities:** Floriculture is a high-income generating enterprise having potential to create employment for rural as well as urban youths. Agro-climatic conditions of Assam offer an excellent opportunity for floriculture, but it is yet to be flourished in Assam owing to various constraints. The Market size of Floriculture in Assam is around ₹135 Cr out of which only ₹ 15 Cr is being catered by local production. The total volume of flower coming from outside is around 2181.81 MT of an estimated value of ₹ 120 Cr.



20 Officers of State & District office of the Agriculture department were trained in Indian Institute of Horticulture Research, Bengaluru on cultivation and post harvest Management on different flowers. 15 Cluster level training conducted to the beneficiaries on open cultivation of tuberose as well as of protected cultivation of Anthurium. The project had supported commercial planting materials of 35,700 nos (51

units) of Tissue Culture Anthurium and 80, 84,475 nos (326 units) of Tuberose Bulbs covering 15 districts. The pattern of assistance followed is 80% project share and 20% as beneficiary share.

The project had facilitated market linkages to the flowers produced in the demonstration plots. Market linkages made for the 1st harvest are as below:

Crop	Area (Ha)	Type of cultivation	Avg production (1st harvest)	Avg Price realization
Anthurium	0.51	Protected	400 cuts	Rs. 5/ cut
Tuberose	48.9	Open	2500 spikes	Rs. 8/spike
Marigold	1.5	Open	2800 kg	Rs. 20/kg
Chrysanthemum	0.15	Open	3000 kg	Rs.25/kg

7.3.11 Cross Border Trade:

Cross Border Trade (CBT): CBT emerged as a focused strategic intervention aimed at transforming select high-value agricultural value chains from Assam by linking production clusters directly with organised trade networks across India and neighbouring countries. CBT was designed not merely as a trade facilitation exercise, but as a **value-chain strengthening intervention**, linking production clusters of Assam with organized trade networks in mainland India and beyond, while embedding capacity building and advisory support at critical nodes of the supply chain. The CBT initiative was not restricted to physical movement of commodities across borders, but rather envisaged as a **market-led agri-business development tool**.

a) **Key Objectives**

- **Efficient Evacuation:** Designing and implementing an evacuation module for agro-horticultural commercial surplus from Assam clusters.
- **Market Linkage:** Strengthening linkages between producers and organized, matured markets beyond the reach of primary producers.
- **Value-Centric Approach:** Shifting from a "volume-centric" to a "**value-centric**" **approach**, leveraging the region's near-natural cultivation practices to reach high-value markets.
- **Direct-to-Market Model:** Structuring a marketing matrix that ensures **full advance payments** and quality-assured transactions.

b) The Cross Border Trade operations conducted amongst the value chain stakeholders were of two categories-

- **Networking Support**: Connecting the commercially viable commodity production clusters in Assam with the organized trade of mainland India comprising of spices processing business houses,

merchant traders & exporters.

- **Advisory Service**: Guidance was provided on operating procedures towards improvement of post harvest management, loss reduction, quality retention and overall business efficiency. The resultant impact was reduced losses during processing, handling, storage, packing and transport.

c) The CBT module rested on **three core operational pillars** enabling to function as a value-chain efficiency enhancer, rather than a standalone trading activity:

- Trade Networking Support and Market Integration
- Aggregation-Centric Supply Chain Development
- Advisory and Capacity-Building Support

d) The **impact of APART CBT** can be summarized as:

- Improved farm-gate prices for producers
- Stimulated investments in post-harvest and processing infrastructure
- Ensured quality-assured transactions with fair payments
- Enhanced employment opportunities, particularly for women in spice value addition
- By shortening the commodity supply chains, the initiative enhances the value proposition for each stakeholder, while simultaneously promoting transparency, accountability, and profitability across the ecosystem.
- CBT has helped structure the marketing matrix for Ginger, Dry Red Chilli & Turmeric from selected clusters in Assam to organized domestic & global trade. This has led to improved farm gate prices, generating investments in processing infrastructure and ensured fair payments to the cluster farmers.
- Targeting export market and better farm level post harvest management have contributed to increased income of farmers, generating agri based employment, supported women farmers in value-added spice processing.

BT Impact Points (2023-25)	**Ginger**		**Chilli**		**Turmeric**	
	Conventional	**CBT**	**Conventional**	**CBT**	**Conventional**	**CBT**
Product Quality improvement	Fresh rhizomes, unwashed, non standardized grades, packed in used/ damaged gunnies	Dehydrated Slices - adhering to USDA/EU compliances, standard packing	Mixed grades, damaged pods, non standardized packing, high moisture content, poor storage	Sorted & graded material, damage free, standardized packing, moisture & storage	Ungraded, semi polished materail, non standardized packing, high moisture, poor storage	Polished fingers, sorted & graded, standardized packing, moisture & storage
Increased Farm Gate Price Realization (Rs/Kg)	32.33	37.67	145.00	149.67	80.00	82.17
Reduced Transaction Cost (Rs/kg)	25.00	8	7	2	18	5
Standardized Consignment Shipments	Non uniform bags, transit in common goods trucks	Uniform bags, double layered PP packing material, with tags, steel container trucks with RFID smart locks	Non standardized bags, container transit without protective inner covers	Standardized bags in fresh packaging, containerization with double pp layerings	Non standardized bags, transit in common goods trucks	Standardized bags in fresh packaging, containerization with double pp layerings
Product Quality Assurance	**Conventional Practice:** No lab assay reports generated against the samples & the consignments **APART CBT Practice**: Samples connected to NABL accredited labs for generating technical reports on product quality standards for the consignments being connected to markets (Domestic & International)					

BT Impact Points (2023-25)	Ginger		Chilli		Turmeric	
	Conventional	CBT	Conventional	CBT	Conventional	CBT
Assured Financial Transactions	Multi channel, Non uniform rates, prompting distress selling	Routed through FPC, with proper PO, part advance, GST invoicing	Advance payments depriving price parity advantage to farmers	Routed through principal aggregator, with proper PO, part advance, GST invoicing	Advance payments depriving price parity advantage to farmers	Routed through principal aggregator, with proper PO, part advance, GST invoicing

Trade Facilitation (in MT) through APART Cross Border Trade									
Crop Year	Ginger			Turmeric			Chilli		
	FTL	MT	Revenue (Cr)	FTL	MT	Revenue (Cr)	FTL	MT	Revenue (Cr)
2022-23	29	554	2.38	12	264	1.72	6	139	2.95
2023-24	32	608	2.86	16	352	3.70	11	198	4.16
2024-25	50	900	4.05	21	462	5.08	23	414	8.49

e) **Continued activities of APART CBT for impact continuum:** Building on initial successes, the CBT model envisages expanding into a structured regional export ecosystem.

- **Diversification:** Black Pepper, Bay Leaves, Pineapple and Specialty Rice.
- **Containerization:** Working towards container shipments from Assam to Gulf and South Asian countries by facilitating a Custom Registered Warehouse (CRWH) at Guwahati.
- **Traceability:** Introducing block chain based traceability components for ginger and turmeric and leveraging e-auction and corporate networks for B2B transactions.
- **Logistics Optimization:** Utilizing rail freight network (Kisan Rail) in combination with road freight to reduce transit cost
- Assured access to **variety-specific quality planting material**
- Continuous training on **quality definition and post-harvest handling**
- Infrastructure Upgradation for value added sorting, grading, storage, and dispatch
- Direct linkage with **accredited labs, packaging technology, and financial services**

7.3.12 Dairy value chain:

a) Assam's dairy sector supports millions of rural households as a source of income, nutrition and livelihood diversification. Milk value chain in the State historically suffered from low productivity (indigenous breeds, poor feeding), fragmented smallholder production, weak aggregation, limited cold-chain infrastructure, and minimal private sector investment in processing and marketing. APART intervened to address these systemic constraints using market-led, climate-sensitive approaches that aimed to raise smallholder productivity, organize producers into viable commercial entities, and link them to sustainable markets

b) The dairy sector interventions were implemented primarily through WAMUL (West Assam Milk Producers' Cooperative Union Ltd.), Dairy Development Directorate and the Animal Husbandry & Veterinary Department (AHVD)

especially for health care support. The objective was to enhance productivity, quality, and market integration in Assam's milk value chain, by improving smallholder access to input and output markets, veterinary and breeding services, and formal processing and marketing channels.

c) Project's interventions in the Dairy value chain combined targeted public-sector systems strengthening (AHVD, Directorate of Dairy Development, and related units) with strategic support to an established cooperative processor (WAMUL / Purabi Dairy). The package addressed upstream productivity and animal health, aggregation and cold-chain gaps, processing and food-safety, and market linkages - with explicit investments in Bulk Milk Coolers (BMCs), collection infrastructure, technical advisory services for dairy farmers, etc. These interventions aimed to increase value-added, reduce losses, improve product safety, and strengthen resilience of smallholder dairy producers.

d) WAMUL, operating under the Purabi Dairy brand, played a central role as the anchor cooperative for value-chain development. Through APART's support, WAMUL significantly expanded its procurement base, processing capacity, and product portfolio, providing stable market access to thousands of small dairy farmers.

e) APART's support to WAMUL is an exemplary of growth story how cooperative dairying can be made instrumental in changing the dairy scenario in Assam, especially, where production and productivity has been a challenge. Since 2008, after handing over of WMAUL's management to NDDB at aegis of the erstwhile AACP project,

Particulars	Unit	FY 08-09	FY 14-15	FY 20-21	FY 21-22	FY 22-23	FY 23-24	Sep. 2025
Functional DCS/PDCS	Nos.	65	150	359	485	606	885	1346
Functional Pourers	Nos.	1170	3466	13916	22427	28494	33680	51100
Local Milk Procurement	'000 KgPD	4.50	22.56	28.49	42.20	47.85	53.10	161.00
Milk & Milk Products Sale	'000 LPD	4.45	40.05	63.94	71.07	84.95	103.08	136.70
Sales Turnover	Rs. in crore	3.12	65.15	123.64	153.00	205.55	263.75	306.60
Net Profit / Loss (-) (PAT)	Rs. in crore	-2.36	0.61	4.50	2.31	0.20	5.12	2.15

f) *Key interventions included:*

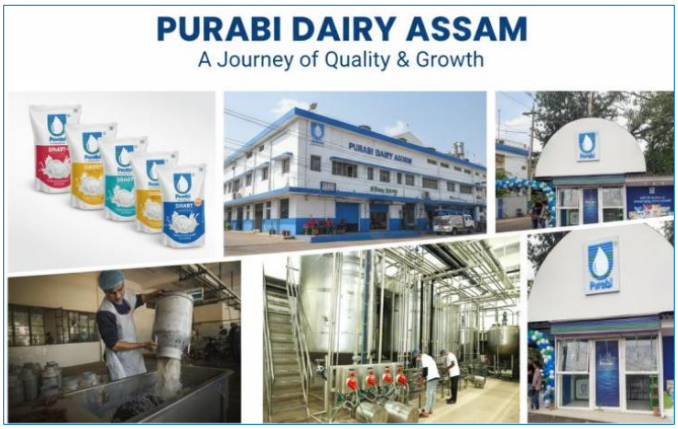
- Expansion of the milk procurement and chilling network through the installation of Bulk Milk Coolers (BMCs), milk testing and collection equipment, and improved logistics to ensure quality and reduce spoilage.
- Capacity building and organization of dairy producer groups, enabling farmers to supply quality-assured milk on a regular basis while receiving input support, feed, and extension services.
- Support to animal breeding, feed, and

veterinary services through AHVD to enhance productivity, genetic improvement, and animal health in dairy clusters linked to WAMUL's procurement system.

- Food safety and hygiene training for milk traders, sweet-makers, and small processors, aligning practices with FSSAI standards.
- Key physical progress of formal milk value chain is summarised below:

Sl.	Key deliverables	Unit	EOP target	Achievement Sep'25	% achieved
1	Artificial Insemination	Nos	11,33,000	10,84,665	96%
2	Female calves Born	Nos	2,09,000	2,12,228	102%
3	MAITs (Mobile AI Technicians)	Nos	560	373	67%
4	Villages covered	Nos	3,360	3,393	101%
5	DCS organized	Nos	1,175	1,346	115%
6	Dairy Farmers covered through DCS	Nos	53,000	50,190	94%

g) WAMUL undertook a major expansion of its milk processing capacity to meet the growing demand for safe and high-quality milk and dairy products in Assam. The processing capacity of WAMUL's main plant at Panjabari, Guwahati, has been enhanced from 60,000 litres per day (60 KLPD) to 150,000 litres per day (150 KLPD) at a project cost of Rs.47 crore. As WAMUL did not have adequate institutional capacity to execute the expansion of the plant of its own, a tripartite agreement was executed between National Dairy Development Board (NDDB), ARIAS Society and WAMUL on 14th February 2020 for commissioning the project. Towards this, NDDB (a Government of India entity) was co-opted as a project implementation unit through a Restructuring of the Project.



This expansion has significantly strengthened the milk value chain by enabling higher milk procurement from smallholder dairy farmers, improving processing efficiency, and supporting the launch of diversified dairy products under the Purabi Dairy brand. The plant modernization included installation of advanced processing and packaging equipment, expansion of chilling and storage facilities, and establishment of a new effluent treatment plant to ensure environmental compliance.

A year after its launch, Purabi Ice Cream is making a mark by expanding its footprint statewide · Purabi, a brand of the West Assam Milk Producers' Cooperative Union Ltd. (WAMUL), entered the market with six flavours of ice cream: Vanilla, Strawberry, Kesar, Pista, Chocolate, Mango, and Fruit n Nut – and quickly won over ice-cream lovers across the state. Unlike many commercial brands that sell frozen desserts under the guise of ice cream, Purabi takes pride in being an authentic dairy-based ice cream, made from pure milk sourced from Assam's farmers.

The increased capacity has not only improved market linkages for rural milk producers but has also contributed to enhanced income generation and rural employment opportunities across the value chain. With this expansion, WAMUL is now positioned as the largest dairy processing organization in the NE India, capable of sustaining rapid growth in milk

production and ensuring consistent supply of quality dairy products to urban and peri-urban consumers. WAMUL's milk procurement has crossed 160 TKgPD as on September 2025 as around 1346 functional DCS remained associated with brand "Purabi", covering over 3000 villages and over 50,000 dairy farmers in 24 districts of Assam.

h) The quality control laboratory of WAMUL has also been strengthened with installation and commissioning of high quality sensitive milk testing equipment such as FTIR technology based milk-o-scan and regular milk-o-scan. The said equipment had been leveraged under the central sector scheme National Program for Dairy Development (NPDD) and APART respectively.

i) Another landmark achievement under APART was the setting-up of the State's first ice-cream manufacturing plant by WAMUL, commissioned in 2023. The plant marked a significant diversification of the state's dairy processing capacity, introducing value-added products and creating new employment opportunities in processing, packaging, and cold-chain logistics. The launch of the ice-cream line under the Purabi brand not only expanded the cooperative's market presence but also demonstrated the viability of large-scale, modern dairy processing within Assam

j) These interventions collectively resulted in improved milk quality, reduced post-harvest losses, increased farmer income, and a more resilient, market-linked dairy value chain in Assam. The partnership model between WAMUL, AHVD, and APART demonstrated the effectiveness of public–cooperative collaboration in transforming the rural dairy sector.

7.3.13 Pork value chain:

a) Assam's Piggery sector, like the dairy sector, supports millions of rural households as a source of income, nutrition and livelihood diversification. Consumption and demand for pork in Assam are regionally significant and culturally important; yet the value chain also continues to suffer from low productivity, fragmented smallholder production, weak aggregation, and minimal private sector investment in processing and marketing. APART endeavoured to address these systemic constraints using climate-sensitive approaches.

b) The pork value chain interventions, implemented through the Animal Husbandry & Veterinary Department (AHVD) and Assam Livestock and Poultry Corporation (ALPCo), targeted smallholder pig producers and market actors to enhance productivity, health, and hygiene standards in Assam's vibrant piggery sector. APART's interventions targeted strategic support to address productivity, animal health, aggregation, food-safety, small-scale slaughter/processing for pork, technical advisory services, capacity building for smallholders, etc. The strategy was to address major constraints such as poor genetic stock, disease prevalence, and unhygienic slaughter and marketing practices. APART interventions focused on strengthening the entire value chain—from breeding to processing and market access—through technical, infrastructural, and institutional measures.

c) **However, the pork value chain interventions under the APART Project faced significant setbacks due to the outbreak of African Swine Fever (ASF) in Assam beginning in 2020**. The highly contagious and fatal disease led to large-scale mortality of pigs across the state, severely affecting the livelihoods of smallholder pig farmers and disrupting the overall piggery sector.

d) **As a result, several planned activities under the project - such as breed improvement programs, farmer training and demonstrations, genetic upgradation initiatives, and establishment of model pig breeding units etc. had to be curtailed,** delayed, or restructured. The outbreak not only caused substantial economic losses to beneficiary households but also necessitated strict bio-security and disease containment measures that restricted field-level operations for extended periods.

e) In response, APART, through the Animal Husbandry and Veterinary Department (AHVD), shifted its focus toward capacity building on bio-security management, awareness creation on ASF prevention and control, and piloting of improved housing and hygiene practices in pig-rearing. These adaptive measures helped enhance resilience among pig producers and laid the groundwork for the sector's gradual recovery post-ASF.

f) The Interventions in pork value chain were implemented by the Animal Husbandry & Veterinary Department in collaboration International Livestock research Institute (ILRI) and ICAR-NRC Pig focused on-

- Establishment of Multiplier Boar Units and promotion of improved breeding practices for enhanced productivity and better-quality piglets.
- Breed upgradation- Introduction of exotic germplasm: 200 nos. of Large White Yorkshire piglets were procured from Punjab and inducted to 6 Govt. Pig Breeding Farms. 930 piglets produced and distributed to 95 nos. of multipliers
- Developing and training a network of Pig bandus for breeding and artificial insemination services etc.
- Pork vending cubicles: In order to promote clean, hygienic and scientifically slaughtered meat vending, 55 meat vending cubicles were provided to pork sellers/ butchers.
- Animal health and biosecurity measures, including vaccination drives, deworming, and disease surveillance, implemented through AHVD field units.
- Upgradation and establishment of small-scale slaughterhouses and meat processing units, with proper sanitation, waste management, and cold-chain facilities to meet food safety standards.
- Capacity building and skill development of pig producers, traders, and butchers on improved husbandry, biosecurity, and hygienic slaughter and handling practices.
- Technical support and demonstrations activities, after being halted during 2020 due African Swine Fever (ASF), mostly focused on managing ASF including bio-security measures and 5 (five) pig breeding farms were provided with scientific bio-security measures.

- Climate resilient pig sty: Three types of pig housing were demonstrated in the Project. These are (i) Climate resilient pig sty for fatteners with manure management (ii) Climate resilient pig sty for breeders with manure management (iii) Low cost climate resilient Bokashi piggery.

These efforts improved productivity, reduced mortality, and created safer and more efficient pork marketing systems. The introduction of hygienic slaughter units represented a paradigm shift from the traditional informal slaughtering system, contributing to improved public health and consumer confidence.

7.3.14 Fisheries value chain:

a) The fish value chain under APART has been implemented by the Department of Fisheries in Technical collaboration with WorldFish Centre (WFC) and private sector partners. This sub-component has three objectives as: (i) Production of quality seed and feed, enhancement of fish production, post harvest management including value addition and entrepreneurship development through Farmers Producers Organization (ii) achieve a sustainable increase *in the production* of fish from pond aquaculture and small scale beel fisheries, (iii) facilitate fish value chain and collective entrepreneurial spirit development leading to sustainable "small farmer inclusive business enterprises. The targeted adapted farmers against Demonstrations were to be 40 % and sustainability target was to be 80%.

b) The activities focused on: (i) improving quality of the inputs such as fish seed and feed, (ii) increasing fish productivity and production from the pond/tank aquaculture systems, (iii) increasing fish production through culture-cum-capture fisheries activities in the beels, (iv) promoting diversification of fish species – particularly genetically improved strains - in combination with Indian major carps in the culture systems, (v) improved post-harvest management, value addition and marketing of produce by setting up fish farmer common service centres (CSCs).

c) As per financing plan- eighty percent (80%) cost of all production related demonstrations are borne by the project, while the beneficiaries borne 20% of the cost in the form of labour or cash

d) The subcomponent covered total 27350 direct and indirect beneficiaries in poyculture Demonstration of 1200 ha, Beel fisheries Demo for 2225 Ha, Climate resilient Paddy fish Demo 500 Ha, 500 Awareness camps for capacity building of 10,000+ farmers through Assam Agricultural University. Further, 4 (four) fish seed multiplication centre for fast growing improved strains at Departmental farm and five improved Brood stock management and up-gradation of hatcheries for quality seed production at Departmental Fish farm have been done.

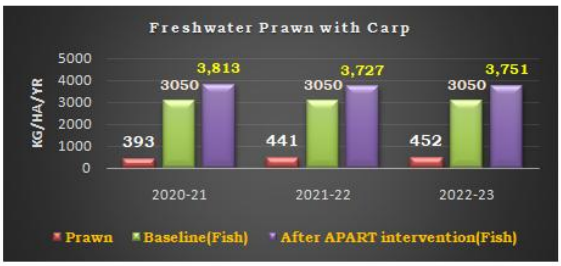
e) **Key activity wise achievements:**

- **Polyculture**: Demonstrations were done in 1500 ha for producing small indigenous fish, fresh water prawn along with carps. **Fish yeild increased from 4.5 to 6.3 t/ha/yr (40.62%)** and Fresh water Prawn growth increased from 3 to average 75 gm in 6 month.

- **Paddy-fish culture:** This integrated climate resilient practice being an excellent process for pest & weed management, demonstrations were done in 1000Ha with STVR paddy varieties and high-yielding Amur Carp & small Indigenous fish. **Paddy yield increased from 6.1 to 7t/ha/year** and **fish yield increased from 0.5 to 1.5t/ha/yr**.

- **Quality Fish seed production and management:** Ten Government Fish Farms in five agro-climatic Zones were up-graded for timely availability of quality Brood fish & quality fish seeds. So far, around 50 Cr (spawn) genetically improved quality fish seeds have been produced from these infrastructures, resulting in 18-20% higher growth in size of fish.

- **Fresh water prawn (FWP) with carps:** FWP with compatible species of carps facilitate better utilization of pond resources. Also it controls excessive algae and zooplankton. FWPs have very high market value, consumer's preference and export potential. Therefore project took up demonstrations on carp-prawn polyculture with compatible species.



- Year wise number of FPGs and Beneficiaries:

Year	Demonstration	Total No. of Beneficiaries	Total Water Area(Ha)	Total FPGs
2018-19	Polyculture	727	198.91	45
	Paddy Cum Fish Culture	91	41.00	8
2019-20	Polyculture	1345	394.38	74
	Paddy Cum Fish Culture	206	100.00	13
2020-21	Polyculture	1080	322.81	60
	Paddy Cum Fish Culture	510	264.90	32
	Freshwater Prawn with Carps	73	21.54	5
2021-22	Polyculture	695	200.00	45
	Paddy Cum Fish Culture	438	200.00	27
	Freshwater Prawn with Carps	170	49.55	10
2022-23	Polyculture	345	100.60	23
	Paddy Cum Fish Culture	228	100.00	16
	Freshwater Prawn with Carps	169	50.00	11
	High Yielding Varieties	192	50.00	14
2023-24	Polyculture	404	120.00	26
	Paddy Cum Fish Culture	628	294.00	44
	Freshwater Prawn with Carps	136	43.00	9
	High Yielding Varieties	353	100.00	24
Total (2018-2024)		**7790**	**2650.69**	**486**

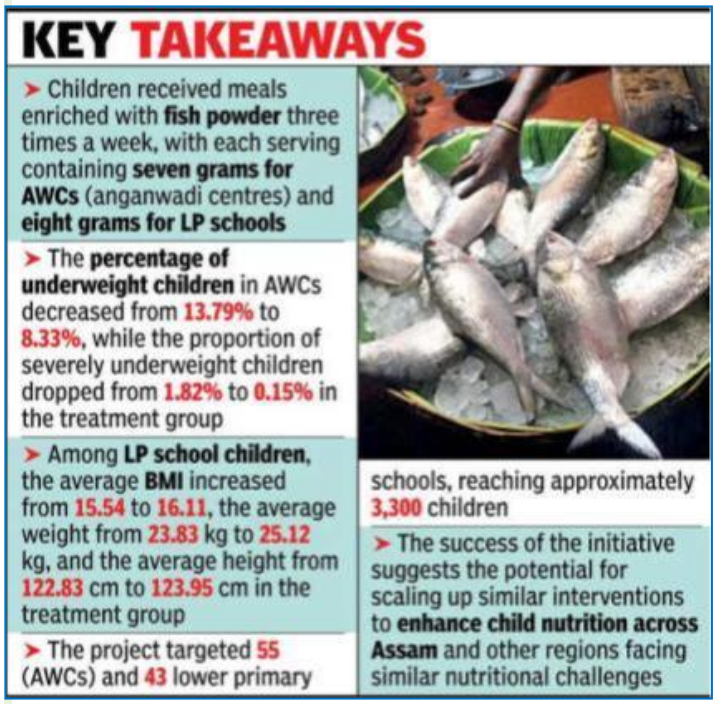
- **Beel Fisheries:** Beel fisheries development activities were taken up in 15 districts involving local communities for better governance & management. Total 1350 Ha covered under 67 beels were developed, where **Fish productivity increased from 650 kg/ha/yr to1811 kg/ha/yr**.

- **Farmers Producers Company (FPCs):** In Assam, Fishery FPCs play a crucial role in fish production and employment generation. Total 26 fishery FPCs were supported under the project, of which 22 have been provided with Common Service Centres (CSCs). The CSC were supported for establishment of Fish Seed Banks, quality Fish Seed Production Hatcheries, Fish Feed Mills using local ingredients, Aqua shops, Live Fish Carrying Vehicles (LFCV) and CSC office Building. The CSCs are engaged in production of quality fish seed and fish feed and marketing of value added fish products. The project grant was 80% and rest 20% was FPCs own contribution.

- **Pilot on Inclusion of Nutrient-Dense Small Fish Powder in Diets to combat malnutrition of children** - A pioneering pilot to integrate small fish powder into government supplementary nutrition programs, was implemented during September 2023 to March 2024 in Kamrup district, a first initiative of its kind in India. The program sought to combat malnutrition - especially among women and children - by promoting the use of nutrient-rich small indigenous fish species as a locally produced, affordable dietary supplement.

Implemented jointly by Fisheries Department, Assam, and WorldFish, Malaysia, the pilot focused on developing a standardized, safe, and hygienic process for producing fish powder from species such as Mola carplet (Amblypharyngodon mola), Punti (Puntius sophore), and Darkina (Esomus danricus). The powdered form retains high levels of protein, calcium, iron, zinc, and essential fatty acids, making it a potent source of micronutrients.

July 2024
Pilot cum scaling: Inclusion of nutrient-dense small fish powder in diets among pre-school children of Anganwadi Centers and LP School children through a partnership approach at Bongaon Block in Kamrup District of Assam, India



The fish powder was promoted as an additive to mid-day meals provided in School like rice, khichdi, porridge, and curries. Over the 7-month pilot, ~2,301 kg of fish powder was used.

The pilot covered approx. 3,300 children aged 3-10 years in 55 Anganwadi Centres (AWCs) plus 43 Lower Primary (LP).

Results & Outcomes inter alia reflected that - among AWC children: underweight decreased from 13.79 % → 8.33 %; underweight in treatment group dropped from 1.82 % → 0.15%; among LP school children: BMI increased from 15.54 → 16.11; weight rose from 23.83 kg → 25.12 kg.

The data show significant improvement in key anthropometric indicators in a relatively short period, suggesting the intervention is effective. Feedback from the pilot has been encouraging, with strong acceptance due to its taste, affordability, and visible nutritional benefits..

Subsequently, total 48 awareness programmes on importance of Fish Nutrition to Human Health was organized in the project districts involving 2650 women, school Children, ICDS officials. The success of this initiative demonstrated the potential of integrating fisheries-based nutrition interventions for large-scale replication across Assam and beyond. Other Govt. agencies are in the process to scale up the venture in a big way.

- **Fish Feed Analysis unit and fish based Integrated farming Unit:** An Automatic fish feed Testing Centre has been established for proximate analysis of fish and Animal Feed at College of Vety Science, Khanapara. Similarly, a fish based Integrated farming Unit is also established in this campus for strengthening Training & capacity building.

Harvest of prawn after six months of culture. Photo by Kashyap Borah, WorldFish.

Successful Pilot Project and its Economic Benefits

In 2023, WorldFish-India, in collaboration with the Department of Fisheries, Assam, introduced freshwater prawn cum carp polyculture under the WorldBank-funded APART project in five districts, Kamrup, Nalbari, Morigaon, Darrang, and Goalpara. This initiative involved the formation of a 'Farmer Producer Group (FPG)' in each selected district.

Each FPGs brought together 12-25 farmer members who operated in a five-hectare water area. The results were remarkable as the farmers gathered an average production of 60 kg of prawns and 500 kg of fish, driven by high market demand and efficient feeding practices which significantly increased the adopted farmers' incomes.

A Bright Future for Assam's Aquaculture

The integration of freshwater prawn culture with carp polyculture has proven to be a game-changer for Assam. This approach not only enhances aquaculture production but contributes to the economic upliftment of rural communities and promotes sustainable fishery practices. As more farmers and young aquapreneurs recognize the benefits, the high-value crop of scampi promises to transform Assam's aquaculture landscape.

  - **Fish Feed Analysis unit:** There were no feed testing facilities in the State and sub-standard feed suppliers were taking advantage of this. To address this issue, an Automatic fish feed testing laboratory has been established for proximate analysis of fish and animal feed at College of Vety Science, Khanapara under AAU.
  - **Fish based Integrated farming Unit:** In order to utilize the waste land as well from recreational (agri- tourism) & educational perspective and also towards development of a business venture, a Fish based Integrated Farming Systems (IFS) has been developed under APART at the College of Veterinary Science (AAU), Khanapara. The model is spread over an area of 5.63 ha of earlier waste land. Total waste land in the college campus is around 10 ha. Thus the model has been able put more than 50% waste land to gainful use.

- Another key achievement under project is the development of the "**Package of Practices on Fisheries and Aquaculture in Assam**" by the Assam Agricultural University (AAU) and the state's Directorate of Fisheries with the support of WorldFish, to promote climate-resilient and scientific fish farming in Assam. The document covers standard procedures for fish and fish seed farming, including pond preparation, fertilization, species selection, seed management (e.g., stocking density and size), feeding, and disease management tailored to the state's specific agro-climatic conditions.
- Further, the WorldFish, has developed and promoted **Better Management Practices (BMPs)** under the project for various aquaculture systems in Assam, including carp culture, carp-mola polyculture, beel fisheries, and paddy-fish farming. These PoP and the BMPs would sustainably intensify aquaculture by improving productivity while minimizing negative environmental & social impacts.
- Under the project two important studies viz. one on "Rapid Risk assessment of the potential Invasiveness of Genetically improved Farmed Tilapia" was done by ICAR-CIFRI

and the 2nd one on "FISHFED (Assam) revival study" was done by ICAR- CIFA. The findings have been incorporated by the Fisheries Department.

7.3.15 Sericulture value chain:

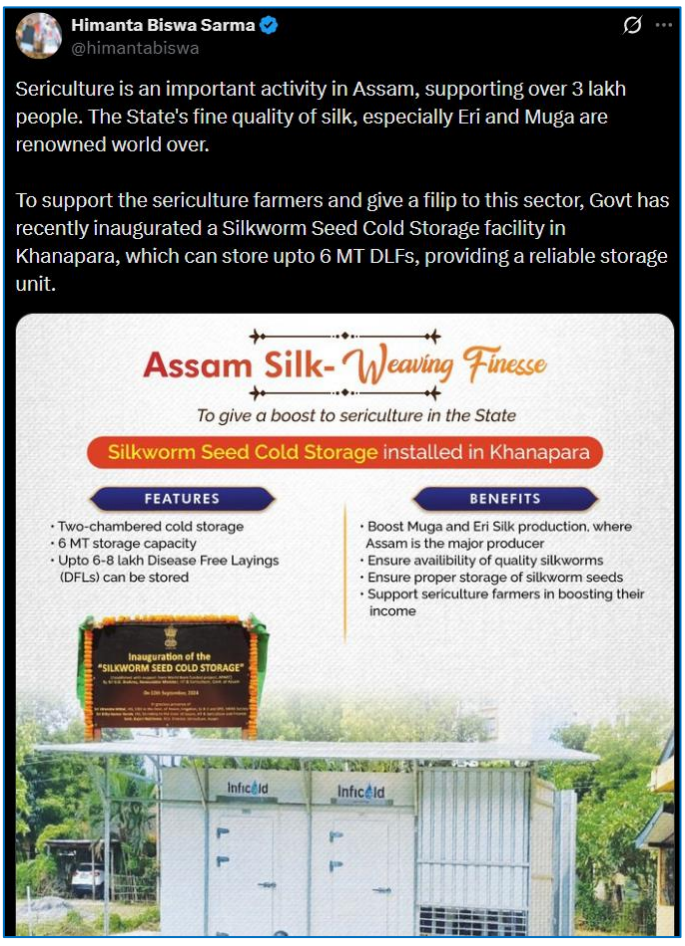
a) The Sericulture value chain of APART was implemented across **12 districts** viz. Kamrup, Lakhimpur, Biswanath, Jorhat, Majuli, Sivasagar, Charaideo, Bongaigaon, Morigaon, Darrang, Dhemaji, and Golaghat. The initiative aimed to revitalize Assam's traditional silk industry - particularly **Muga and Eri silk** -by improving productivity, quality, and market linkages while ensuring women's economic empowerment.

b) **The Objectives included** – (i) Strengthen silk value chain through improved host plant cultivation, quality seed and cocoon production, and processing infrastructure; (ii) Enhance income opportunities for sericulture farmers, spinners, and weavers; (iii) Promote entrepreneurship and skill upgradation among youth and women; and (iv) Foster institutional strengthening, sustainability, and market-led production systems.

c) Sericulture value chain interventions were implemented by the Handloom & Textiles Directorate, Sericulture Directorate in collaboration with Central Silk Board, Central Eri & Muga Research and Training Institute, AAU, 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 targeted about 16,000 producers and the raw silk to fabric part of the value chain targeted about 10,000 weavers.

d) The major interventions under the Directorate of Sericulture were:

- Organizing producers into producer groups,
- 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;
- Technical assistance for improved skill and design development, facilitating technology upgradation and access to finance for the VC stakeholders; and
- upgrading existing marketing outlets, developing market channels, and launching branding campaigns



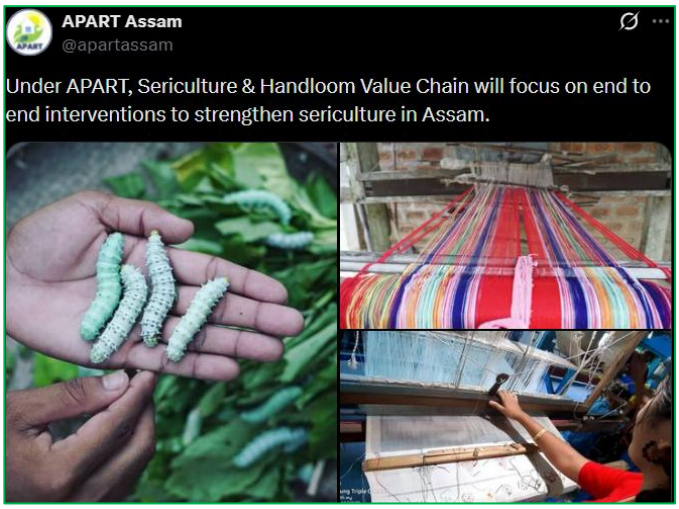
e) **Major Achievements under the Directorate of Sericulture**

- **Infrastructure Development and Modernization**
  - **Five Reshom Haats (Cocoon Market Sheds)** established in Lakhimpur, Biswanath, Jorhat, Kamrup, and Sivasagar, providing local marketing and aggregation platforms for cocoons and silk.

- **Cold Storage Facility at Khanapara** renovated and strengthened with two chambers to preserve seed cocoons and ensure year-round supply.

- **Nine Cocoon Drying Chambers** and **seven Eri Spinning/Grainage Centers (ESG/ECCs)** strengthened, enhancing post-harvest quality and reducing wastage.
- **Common Service Centre (CSC)** established at Mapakkai FPC, Kamrup, supporting collective processing and marketing by farmer groups.
- **200 Vermicompost units** constructed to promote sustainable rearing practices and utilize silkworm waste efficiently.

- **Promotion of Sustainable Silk Production**
  - **940 Eri rearing houses** supported against a target of 800, facilitating enhanced cocoon cycles and productivity.
  - **161 Adopted Seed Rearers** and **54 Private Graineurs** developed as entrepreneurs, ensuring quality seed availability.
  - **4 Departmental Muga Farms** strengthened for seed multiplication and **25 kg of parent seed** procured from the Central Silk Board (CSB).



  - Large-scale host plant development undertaken for **Som and Kesseru plantations**, securing feedstock for rearing cycles.

- **Capacity Building and Skill Development**
  - Institutional training conducted for **30 groups of farmers**, focusing on scientific rearing and post-harvest practices.
  - **Soft-skill training** imparted to **93 departmental officials** and **skill upgradation programs** organized for reelers, spinners, and entrepreneurs.
  - **Exposure visits** organized for **80 farmer groups** and **30 FPC members** outside the state, strengthening learning and market exposure.

- **Digital and Institutional Strengthening**
  - Development of a **Management Information System (MIS) platform** for monitoring field-level activities across APART districts.
  - Strengthened institutional framework of the Directorate of Sericulture, ensuring effective coordination and fund management through DBT.

- **Entrepreneurship, Market Linkages and Value Addition**
  - Distribution of **46 reeling and 150 spinning machines**, supporting small-scale entrepreneurs in Eri and Muga processing.
  - Creation of **vibrant local markets** through Reshom Haats, connecting producers directly with traders and buyers.

- Encouraged entrepreneurship models for **Muga seed production and food plantation**, promoting private sector participation.

- **Socio-Economic and Environmental Impact**

  - Substantial increase in **silk production and farmer income**, fostering employment opportunities in rural areas.
  - Promotion of **eco-friendly practices** like vermicomposting and organic host plant management, contributing to environmental sustainability.
  - Enhanced **women's participation** in rearing, spinning, and weaving, significantly improving household income and empowerment.

- **Flagship Success Stories under Sericulture Directorate**

  - The project documented **19 success stories** in a compendium titled *"Enchanting Story of Sericulture Dominance"*. Among them, **Ms. Sunsumwi Basumatary of Lakhimpur district** stands out - through APART support, she expanded her Kesseru plantation, increased her rearing cycles from two to five per year, and diversified into spinning and weaving Eri Mekhela Sadors, shawls, and stoles, becoming a role model for women entrepreneurship.

Kesseru Plantation: Sunsumwi sustained 330 Kesseru plants, which became productive after three years. Although a few plants faced mortality, she received support to plant an additional 450 Kesseru plants.

Eri Silk Production: Over the past two years, her production has averaged 200 cocoons, yielding approximately 18 kg of Eri pupae. This has resulted in an income of around Rs 61,100 (Rupees Sixty-One Thousand One Hundred) annually.

- **Research and Knowledge Sharing**

  - Conducted **three key studies** on disease management, seed production models, and Muga food plantations.
  - Supported **scientific publication** on *Eri Culture* at an international conference hosted by CSB, Bengaluru.
  - Organized state-level workshops and exposure events involving CSB, CMERTI, and the Directorate of Sericulture to disseminate learnings.

f) **Key Achievements Sericulture (Handloom & Textiles) Value Chain**

- Under the project, the Directorate of Handloom & Textiles (DH&T), Assam implemented activities for the Muga and Eri silk value chain across 11 districts—Kamrup, Sonitpur, Biswanath, Jorhat, Majuli, Sivasagar, Charaideo, Lakhimpur, Dhemaji, Morigaon, and Darrang - covering over 7,000 beneficiaries, predominantly women. **The interventions focused on enhancing productivity, design innovation, technology adoption, and**

market access for weavers and silk-based entrepreneurs. The key achievements include-

- **Institutional Strengthening:**
  - Formation and registration of 12 FPCs and establishment of 4 Common Service Centres (CSCs) as shared production and training hubs.
  - FPCs facilitated collective operations, improved governance, and enhanced bargaining power of small producers.
  - List of 12 FPC formed under the Sericulture Value Chain of APART:

Sl	District	Name of the FPC	Service Provider
1	Lakhimpur	Den Multipurpose Producer Co. Ltd	In House by PCU
2	Lakhimpur	Charikoria Muga Farmer Producer Co. Ltd	International Competence Centre for Organic Agriculture (ICCOA)
3	Dhemaji	Chaneki Farmer Producer Company Limited	Grant Thronton
4	Sivasagar	Eri Muga Farmer Producer Company Limited	Grant Thronton
5	Charaideo	Charaideo Silk and Agro Producer Co. Ltd	Sikkim State Co-operative Supply and Marketing Fedaration(SIMFED)
6	Jorhat	Titabor Paat Muga Farmer Producer Co. Ltd	Sikkim State Co-operative Supply and Marketing Fedaration(SIMFED)
7	Biswanath	Alayaron Farmer Producer Co Ltd.	International Competence Centre for Organic Agriculture (ICCOA)
8	Sonitpur	NobomilanAgro Producer Company Limited	International Competence Centre for Organic Agriculture (ICCOA)
9	Kamrup	IWA Silk Farmer Producer Co. Ltd	Grant Thronton
10	Kamrup	Sistykami FPC Ltd	PricewaterhouseCoopers (PwC)
11	Kamrup	Mapakkai agro producer company Ltd	PricewaterhouseCoopers (PwC)

- **Capacity Building and Skill Upgradation:**
  - Conducted over 180 awareness and training programmes, engaging 12,138 participants (97% women).
  - Trained more than 2,000 weavers through 51 batches of weaving, 39 batches of natural dyeing, and 26 batches of design development training.

  - Conducted exposure visits, cross-learning workshops, and Training of Trainers (ToT) to build a cadre of master trainers and departmental facilitators.
  - Upgraded 5 Handloom Training Centres and distributed 100 fly-shuttle looms and 35 Jacquard machines, enhancing production efficiency and design diversification.

- **Design and Marketing Interventions:**
  - Technical support from NEDFi enabled new design inputs, product diversification, and participation in trade fairs such as Bharat Tex, Dastkar Nature Bazaar, and SARAS Mela, generating over ₹193 lakh in sales revenue.
  - Market linkages established with TRIFED, exporters, and e-commerce platforms; a Market Intelligence Report guided product positioning.

- The “Handwoven in Assam” branding campaign prepared groundwork for improved market visibility of Assam’s silk.

- **Outcome and Impact:**
  - Eri silk production increased from 598,000 m to 923,218 m, and Muga silk from 198,000 m to 349,552 m, exceeding project targets.
  - FPCs demonstrated operational sustainability through revenue from product sales and services at CSCs.
  - Women’s participation (97%) ensured empowerment and income enhancement, with case studies showing 50–200% income rise among trained weavers.
  - Eco-friendly practices promoted through natural dyeing and low-energy technologies, aligning with environmental sustainability goals.
- **Sustainability and Legacy:** The FPCs, registered under the Companies Act, continue to function independently, managing CSCs and marketing operations. The Department plans to sustain support through convergence with State and Central schemes, ensuring continued growth of Assam’s traditional silk sector.

- **Success Stories of FPC Members under Handloom & Textiles**

The skill development and capacity-building initiatives under the project have significantly empowered women weavers across Assam by enhancing their design, dyeing, and weaving skills and linking them to market-oriented production through FPCs. Following are three exemplary success stories under the project-

- **Mrs. Baby Baruah Rajkonwari (Charaideo Silk & Agro Producer Co. Ltd.)**
  A skilled weaver from Charaideo, Mrs. Rajkonwari benefited from design development and natural dyeing training. She learned graph-based design creation and now develops over 20 original designs, including those for Muga and Tassar Mekhela Chadar. Her monthly income has increased to around ₹6,000, and she also earns by selling her card-cut and lacing designs.
- **Miss Pranati Bailung (Charaideo Silk & Agro Producer Co. Ltd.)**
  A single mother and traditional weaver, Ms. Bailung upgraded her skills through APART’s training on Drawboy and Jacquard looms. Her transition from plain yardage weaving to

producing high-quality Mekhela Chadars, scarves, and stoles has raised her monthly income from ₹4,000 to about ₹12,000. She now produces around 10 Mekhela Chadars per month, contributing to bulk production for her FPC.

- **Mrs. Rekha Moni Buragohain (Charikaria Muga Farmer Producer Co. Ltd.)**
  From a housewife to a successful entrepreneur, Mrs. Gohain's journey exemplifies women's empowerment through skill upgradation. After receiving 30 days of weaving training under APART, her creativity and business acumen helped her triple her income—from ₹10,000 to ₹30,000–₹35,000 per month—making her a leading producer within her FPC.

g) **Research and Analytical Studies Undertaken by OPIU-Handloom & Textiles:** Two key studies were undertaken to guide interventions in the Silk Value Chain:

- **Baseline/Diagnostic Study:** Conducted by IIT-Guwahati across five districts to assess the existing technology, skills, marketing systems, and infrastructure of silk weavers. The study provided a comprehensive understanding of the Eri and Muga silk sector and led to the formulation of specific plans for skill development and upgradation, establishment of design studios and a digital design bank, and system design solutions for better demand-supply alignment.
- **Market Assessment Study:** Commissioned to YES Bank (FASAR) to analyze market players, size, share, and growth trends of Eri and Muga silk in Assam and India. However, the study was discontinued mid-term due to quality issues and delayed deliverables by the service provider.

h) **Challenges and Lessons Learned**

- The sector's traditional nature posed challenge to the Directorate of Sericulture such as limited market linkages, low adoption of modern practices, and resistance to FIG formation. However, through community engagement, demonstration, and institutional support, these were effectively overcome.
- Mobilization of beneficiaries from an unorganised structure to an organised structure was a real challenge during project initiation faced by H&T Directorate. However, working with departmental offices at various levels, Service Providers and beneficiaries, the obstacles were overcome and twelve (12) FPCs were established.
- Another challenge faced by SH&T was that – as the beneficiaries were used to work in traditional country looms with limited production and design facilities and migration of the FPC members to technologically upgraded handlooms & design development devices were provided challenges. However, through training a capacity building these challenges were overcome.
- Absence of sustainable market linkage to the weavers often led to distress sell of their products. This was mitigated by providing market linkages created through various Expo, Exhibitions and Buyer-Seller meets.
- **Key lessons include:**
  - Integration of local entrepreneurship and private sector participation ensures sustainability.
  - Skill development and exposure significantly enhance productivity and adoption of innovations.

- Local market infrastructure (Reshom Haat) is critical for reducing transaction costs and ensuring fair prices.
- A Design Studio and digital design bank for Eri and Muga Silk at Strategic location, supported by IIT-G, is needed.
- Sustainable marketing channel for the micro level entrepreneurs needs to be established addressed in upcoming project.

i) **Conclusion**: The Sericulture Value Chain interventions under APART have laid a strong foundation for **reviving Assam's silk heritage through modern, sustainable, and market-oriented approaches**. The comprehensive achievements—from production to marketing—have strengthened rural livelihoods, empowered women, and positioned Assam as a vibrant hub for Muga and Eri silk. The legacy of APART will continue to guide future initiatives toward achieving **resilient, inclusive, and climate-smart sericulture growth** in the state.

7.3.16 Implementation pace, factors affecting implementation, bottlenecks, enablers and strategy changes, if any in sub component C.1

- Initially, the implementation pace was slowed down due to delays in on-boarding of the Operational Project Implementation Unit (OPIUs). Some of the OPIUs were new to ARIAS Projects as well as World Bank Projects. These OPIUs took additional time in getting acquainted with the Project systems and processes. After the initial hiccups were overcome, the State was badly hit by COVID-19 in early 2020. This stalled the field activities mainly due to lockdown and movement restrictions. After COVID-19, the implementation pace picked up and most of the Project activities could come on track by the 5th year. Also, the seed system interventions initially could take off only in rice value chain. Full fledged Seed Vertical was set up only in later part of 2021 wherein the activities were led by Assam Seeds Corporation Limited (ASCL).
- **Bottlenecks** included limited ownership by the District Departmental Offices due to innovative nature of many of the Project interventions. Difficulties were also witnessed in beneficiary selection and approval at the District level.
- **Enablers:** Key enablers in implementation of Sub-component C.1 activities included (i) detailed bottom up planning during the preparation as well as implementation phase (ii) technical support from national and international knowledge partners upto field level (iii) intensive focus on training and capacity building of the Project beneficiaries done within and outside the State.
- **Strategy chancges:** No major strategy changes were done in this sub component.
- **When implementation took off:** The Project was formally launched by the Hon'ble Chief Minister on 10th January, 2018. The Project became effective on 18th January, 2018. Initial few months were spent in on-boarding the implementing agencies, consultancies, knowledge partners etc., setting systems and processes e.g. notification of committees, accounting systems, both at District level and State level. The AWP for the FY 2017-18 was only for a period of three months with entry level activities like Project Zonal Workshops for sensitization of the District teams, awareness programs for the Govt staff, workshops etc. Full fledged implementation started with on-boarding of international agencies (as technical knowledge partners) in March 2018.
- **Detail on impact and role of departments, community cadres, stakeholders:** Key impact of the Project interventions under sub component C.1 was seen in terms of increased productivity of crops and livestock, increased adoption rates and enhanced resilience of communities in addition to strengthened value chains, market access and increased income of farmers.

7.3.17 Sub-component C-2: Facilitating market linkages through market intelligence and product aggregation:

a) The objective of this sub-component was 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 was achieved by developing **a market intelligence system** and by providing **matching grants (FPO Grants) to the FPOs** for establishing common service centers (CSCs). The mobilization of producer groups to FPOs and establishment of CSCs was carried out by suitably qualified service providers hired by the project. These Service Providers also helped in fostering producer-buyer and market linkages.

b) The project also supported setting up of a market intelligence unit within Assam State Agriculture Marketing Board (ASAMB) later shifted to Assam Agricultural University. The main objectives were to increase information transparency, profitability and market access to the farming community in the project districts. The market intelligence unit, also provided producers, enterprises and trade intermediaries with relevant information, technical knowledge, and market intelligence; and supported diversification and intensification of the production, aimed at responding to market demand and climate variability. The overall aim was to create a conducive environment for direct and sustainable commercial relations between producers/FPOs, and buyers of produce from the targeted value chains.


কৃষকৰ পাইকাৰী মূল্যৰ তথ্য
(FARMER'S WHOLESALE PRICE INFORMATION)
APART

কৃষি বিপণন অনুসন্ধান তথ্য কোষ
AGRICULTURAL MARKET INTELLIGENCE UNIT

			তাৰিখ (Date)	06/08/2025
পণ্য সামগ্ৰী (Commodity)	গড় নূন্যতম মূল্য (Avg Min Price)	গড় সৰ্বোচ্চ মূল্য (Avg Max Price)	গড় মডেল মূল্য (Avg Model Price)	গোট (Units)
ধান (Paddy)	1844	1900	1859	টকা/কুইন্টল (Rs./ Quintal)
সৰিয়হ (Mustard)	6233	6500	6500	টকা/কুইন্টল (Rs./ Quintal)
কাজি নেমু (Assam Lemon)	110	130	122	টকা/পোন (৮০টা) (Rs./ Poon)
তিতা কেৰেলা (Bitter Gourd)	1724	2009	1851	টকা/কুইন্টল (Rs./ Quintal)
জাতিলাউ (Bottle Gourd)	16	20	20	টকা প্ৰতিটোত (Rs./ Piece)
বেঙেনা (Brinjal)	1664	1952	1806	টকা/কুইন্টল (Rs./ Quintal)
বন্ধাকবি (Cabbage)	1751	2002	1925	টকা/কুইন্টল (Rs./ Quintal)
তিয়হ (Cucumber)	1736	1987	1838	টকা/কুইন্টল (Rs./ Quintal)
আদা (Ginger)	4031	4579	4372	টকা/কুইন্টল (Rs./ Quintal)
কেঁচা জলকীয়া (Green Chillies)	5120	5873	5504	টকা/কুইন্টল (Rs./ Quintal)
ভেন্দি (Okra - Bhindi)	1473	1687	1553	টকা/কুইন্টল (Rs./ Quintal)
পটল (Pointed Gourd)	1402	1597	1520	টকা/কুইন্টল (Rs./ Quintal)
পিয়াঁজ (Onion)	1862	2108	1999	টকা/কুইন্টল (Rs./ Quintal)
আলু (পশ্চিমবংগ) (Potato - W.B.)	1321	1401	1355	টকা/কুইন্টল (Rs./ Quintal)
আলু (Potato (UP)	1600	1700	1600	টকা/কুইন্টল (Rs./ Quintal)
ৰঙালাউ (Pumpkin)	975	1171	1092	টকা/কুইন্টল (Rs./ Quintal)
জিকা (Ridge Gourd)	2082	2348	2275	টকা/কুইন্টল (Rs./ Quintal)
বিলাহী (Tomato)	2239	2655	2510	টকা/কুইন্টল (Rs./ Quintal)

অধিক তথ্যৰ বাবে চাওঁক (For more information visit):
https://amiu.aau.ac.in /For Query : 18001020338

7.3.18 Sub-component C.2.1: Product aggregation and Sale through Producer Associations

a) **Implementation Arrangements: -** The activities under Sub-Component C.2.1 were implemented by the by the Directorates of Agriculture, Horticulture & Food Processing, Fisheries, Sericulture, and Handloom & Textiles in coordination with the PCU of the ARIAS Society.

Besides the Directorates and PCU, four specialized service providers agencies) were engaged by PCU to mobilize producer farmers/groups and establish FPCs and handholding of FPCs. The project followed the laid-out sequence of activities for the

formation of FPCs as detailed in the PIP. The implementation cycle had four sequential but interlinked stages, including:

i) social mobilization and producer group formation;

ii) group nurturing and capacity building;

iii) formation of FPO/FPCs and establishment of CSCs (based on an approved business plan); and

iv) handholding of FPO/FPCs.

b) Under subcomponent C2.1 activities, farmers were organized in commodity interest groups and FPCs; and the FPCs were used as focal points for technology dissemination activities through demonstrations, farmer trainings and exposure visits. As in Assam farmers are mostly small & marginal having lower land-holding, lower level of education, their organization on a common platform aided in mitigating the high cost of mechanized cultivation, aggregation, post harvest management and Agri-business activities. Also, FPCs were the platform for technology dissemination, product aggregation, financial linkages, Agro-Business linkages etc

c) **Farmer Producer Companies formed/supported**: APART supported 125 FPCs across 22 districts (Agri.-Horti: 88, Fishery: 26 and Silk:11). District- Focus Commodity wise list of 125 project FPCs. Total 60,702 Shareholders with around 33% women. Agri-Horti: 44,374 members; Fisheries: 11,872 members and Silk: 4,456 member



District and Crop/Commodity wise Break up of FPCs under APART											
		Paddy	**Maize**	**Mustard**	**Banana**	**Potato**	**Vegetables**	**Ginger & Turmeric**	**Fishery**	**Silk**	**Total**
1	Barpeta	1	0	3		1			3		8
2	Bongaigaon		1								1
3	Cachar	3							2		5
4	Charaideo									1	1
5	Darrang	1	3	2			2		2		10
6	Dhemaji									1	1
7	Dhubri	2		1							3
8	Goalpara	3			1		1		2		7
9	Golaghat	2		2			1	1			6
10	Hailakandi								1		1
11	Jorhat	1								1	2
12	Kamrup (M & Rl)	5		4	1		1		5	3	19
13	K.Anglong (E)							1			1
14	Kokrajhar	3		1			1				5
15	Lakhimpur	2		2					1	2	7
16	Majuli	1		1							2
17	Morigaon	2	2		1				1		6
18	Nagaon	4	1	1					3		9
19	Nalbari	2	1						3		6
20	Sivasagar	2								1	3
21	Sonitpur	5	5	4		1			3	2	20
22	West Karbi Anglong							2			2
TOTAL		**39**	**13**	**21**	**3**	**2**	**6**	**4**	**26**	**11**	**125**

Sector wise Break up of FPC shareholders members:

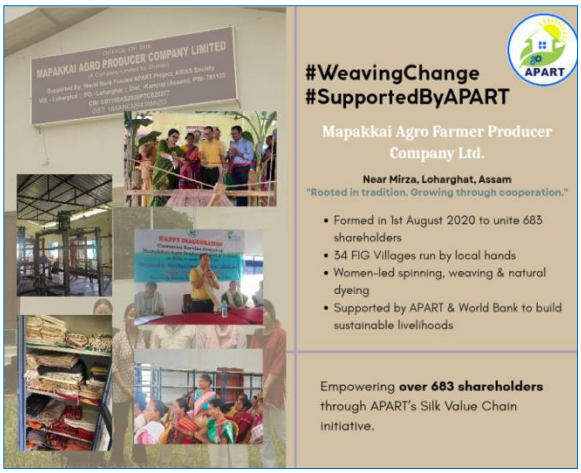
Sector	**Total Shareholders**	**Male Shareholders**	**Female Shareholders**	**% of Female Shareholders**
Agri.-Horti.	44,374	30,758	13,516	30.68
Fishery	11,872	8,377	3,495	29.44
Silk	4,456	1,393	3,063	70.96
Total	**60,702**	**40,528**	**20,174**	**33.23**

d) **Farmer Interest Groups (FIGs)** : Total 3071 FIGs were federated into 125 FPCs.

e) Another remarkable achievement was the formation of **four fully Women operated FPCs** (2 each on Silk & Agri/Horti.).

f) **Common Service Centres (CSCs):**

- Towards strengthening farmer institutions through infrastructure and market linkages CSCs were provided to 37 FPCs under the project. The **concept of providing CSCs at the Farmer Producer Company (FPC) level was introduced in Assam for the first time**. Conceived as multifunctional agri-business hubs, CSCs were designed to strengthen farmer institutions by enabling aggregation, value addition, post-harvest management, and collective marketing of produce. In addition to product aggregation and sale through FPCs, the CSCs have transformed 37 FPCs into vibrant rural enterprises. These facilities provide modern infrastructure, promote entrepreneurship, and enhance smallholder farmers' access to markets, inputs, and services—thereby increasing income and resilience.



- Activities under this subcomponent were implemented by the **Directorates of Agriculture, Horticulture & Food Processing, Fisheries, Sericulture, and Handloom & Textiles** in coordination with the **Project Coordination Unit (PCU)** of the ARIAS Society.

- The CSC **implementation cycle** focused on viable business plan of FPCs. Handholding of FPCs and support for establishment of CSCs was based on viable business plan. Based on the feasibility of business plans submitted by FPCs and evaluated by the Project, **37 CSCs** were established across sectors and districts to facilitate post-harvest operations and market-oriented services, with funding pattern of 80% Project Grant and 20%

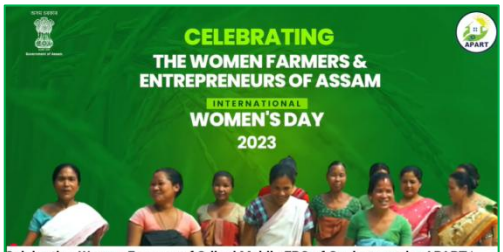
Contribution by concerned FPCs (wih the option of availing up to 10% bank loan).

- Each CSC was equipped with modern machinery & infrastructure -many of which were introduced for the first time in Assam - bringing advanced processing & storage facilities closer to producers.

- Sector wise 37 CSCs provided:

Sector	No. of CSCs	Illustrative Facilities
Agriculture	7	Rice mills, oil expellers, aggregation & drying units
Horticulture	3	Banana ripening chambers, dehydration units
Fisheries	22	Fish feed mills, hatcheries, cold chain, live fish vehicles
Silk	5	Eri & Muga reeling, spinning, weaving and garmenting units

- **Highlights of a few CSCs**
  - **Tihu Bajali Krishi Vikash & Producer Co. Ltd., Nalbari:** Established a modern *Rice Mill* (₹94.87 lakh investment) for enhancing collective paddy processing and marketing.
  - **Srijoni Mahila Farmers Producer Co. Ltd., Goalpara:** Women-led *Banana Ripening & Chips Unit* (₹56.63 lakh investment) pioneering women's entrepreneurship in agri-value addition.



Celebrating Women Farmers of Srijoni Mahila FPC of Goalpara under APART | International Women's Day

  - **Borkhola Aquaculture Farmers Producer Co. Ltd., Cachar:** Set up *Fish Feed Mill, Ice Plant, and Mechanical Dryer* (₹54.8 lakh investment), boosting post-harvest fish management.
  - **Mapakkai Agro Producer Co. Ltd., Kamrup:** Established a *Silk (Eri & Muga) Production and Processing Unit* (₹65.85 lakh investment), linking traditional weaving to modern textile value chains.

- **Impact and Achievements**
  - **Farm-level Value Addition:** CSCs enabled farmers to undertake cleaning, grading, sorting, packaging, and processing, reducing post-harvest losses and ensuring better price realization.
  - **Enhanced Market Access:** Collectively marketed produce through FPC-managed CSCs fetched higher prices compared to local markets.
  - **Employment and Entrepreneurship:** Each CSC employed local youth for operations, transport, & processing, thereby generating rural employment.
  - **Women Empowerment:** Over 30% of shareholder members are women; Silk CSCs are predominantly women-managed, which enhanced gender inclusion in enterprise activities.

- **Catalyzing Institutional Growth:** CSCs have improved FPC governance, book-keeping, and market orientation. Several CSCs have achieved operational breakeven and are expanding through partnerships and convergence with other Government schemes like AIF and PMFME.

- **Sustainability and Way Forward:** The **CSC model of APART has emerged as a replicable and sustainable institutional innovation** for integrating smallholder farmers into organized value chains. Key sustainability measures include:

  - Continued business and financial mentoring of FPCs by the concerned Directorates.
  - Integration with digital market intelligence platforms and e-trading.
  - Convergence with government schemes for scaling infrastructure.
  - Strengthened linkages with banks and private sector buyers.

  Way Forward:

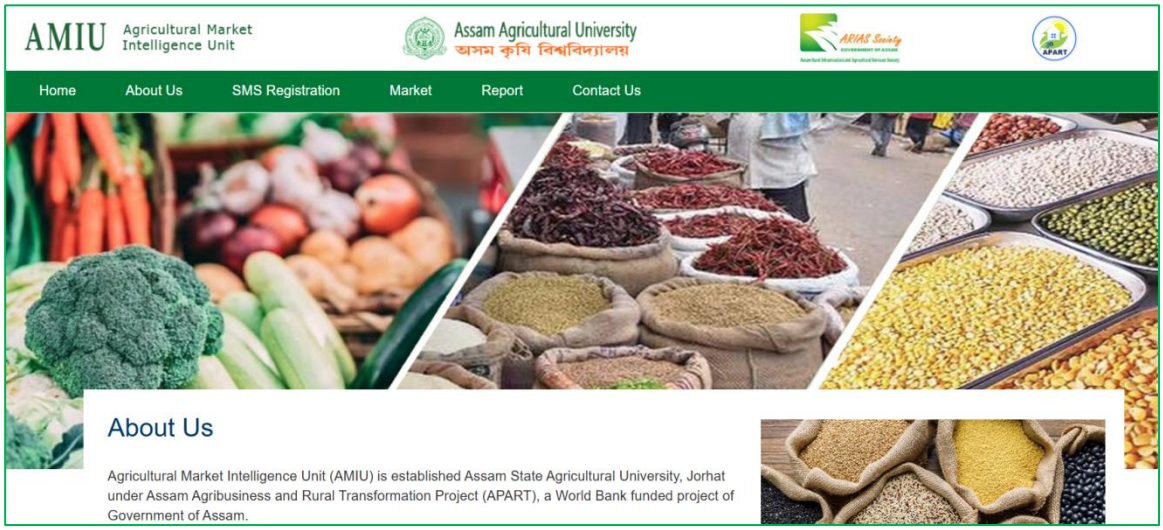
  - Support expansion of CSCs to new FPCs, commodities and districts.
  - Establish FPC and CSC federations for shared logistics and branding.
  - Promote green technologies and solar-based operations.

- **Conclusion:** The establishment of 37 CSCs under APART has demonstrated how a **small infrastructure support can transform the rural agribusiness scenario in Assam**. These farmer-owned, professionally managed hubs have show-cased the power of collective enterprise, technology adoption, and inclusive value-chain development. By empowering over **60,000 smallholder farmers** - including one-third women - CSCs have laid the foundation for **sustainable, market-led agricultural growth** and will remain the cornerstone of Assam's agribusiness transformation beyond the life of the project.

7.3.19 Sub-component C.2.2: Market Intelligence

a) A major constraint in Assam's agribusiness ecosystem has been the absence of reliable and timely market information for producers, FPCs, and agribusiness enterprises. To address this gap, APART established a structured Market Intelligence (MI) initiative aimed at improving access to price and market data, strengthening market-led decision-making, and enhancing farmers' income through informed production and marketing strategies. The Market Intelligence activities focused on:

- Developing a systematic mechanism for collecting, analyzing, and disseminating market data for key agricultural and horticultural commodities.
- Empowering farmers, FPCs, and departmental staff to use market data for crop planning, aggregation, and negotiation.
- Providing an evidence-based insights for policy formulation and sectoral planning within the Department of Agriculture and allied departments.



b) **Institutional Mechanism:** This activity was initially anchored under ASAMB. However, subsequently, with the support of the project, a dedicated Agricultural Market Intelligence Unit (**AMIU**) was established under Assam Agricultural University (AAU), Jorhat with the necessary infrastructure. The unit functions as a state-level hub for price data collection, market trend analysis, and dissemination of advisories.

c) **Key Activities and Achievements**:

Activity	Achievements/Outputs
Market Coverage	Data collection from **91 wholesale markets** across Assam covering **89 commodity** types and **213 varieties** (as of Aug.25).
Data System	Development of an online portal (https://amiu.aau.ac.in) hosting daily price and arrival data for major markets.
Market Bulletins	Regular Market Intelligence Bulletins published with commodity-wise analysis, price forecasts, and advisories for farmers and FPCs.
Capacity Building	Over 250 officials and FPC members trained on data analysis, price interpretation, and market linkage planning.
Decision Support Tools	Trend analysis and graphical dashboards developed for horticultural commodities (e.g., banana, tomato, potato, turmeric, ginger, arecanut).
Integration with APART Systems	MI data linked with the Assam Agribusiness Information Portal (AAIP) and shared with producer organizations for planning aggregation and sale.

- For market information services, specifically the Agricultural Short Messaging Service (SMS), was outsourced to a suitably qualified and experienced service provider to disseminate SMS based agricultural and market information service in local language.

d) Outcomes

- **Improved Market Decision-Making:** FPCs/ producers began using MI data to decide harvest timing, select optimal markets, & negotiate better prices.
- **Enhanced Price Realization:** Price awareness and access to multiple markets helped farmers obtain 10-15% higher prices for key commodities in several APART clusters.
- **Strengthened Institutional Framework:** The establishment of the AMIU created a sustainable institutional mechanism for continued market monitoring and policy support.
- **Evidence-Based Planning:** Departments leveraged MI insights to prioritize market infrastructure and crop planning interventions.

- **Transparency and Accessibility:** The AMIU portal recorded over **77,000** farmer and FPC visits since inception, reflecting growing reliance on digital data sources.

e) **Way Forward:** Post-APART, the AMIU at AAU has been institutionalized with the support of the State Government to continue collection and dissemination of market data. The future roadmap includes:

- Expanding coverage to all 35 districts and including livestock and fishery commodities.
- Strengthening collaboration with e-NAM, APEDA, and State Agriculture Marketing Board for wider reach.
- Developing mobile and voice-based dissemination systems for farmers in remote areas.
- Establishing a Market Advisory Committee to ensure continuous feedback and policy alignment.

f) **Conclusion:** The Market Intelligence initiative under APART has laid a strong foundation for a data-driven agribusiness ecosystem in Assam. By bridging the information gap between markets and producers, the initiative has enhanced competitiveness, supported informed decision-making, and contributed to the overall goal of market-led agricultural transformation in the state

7.3.20 Implementation pace, factors affecting implementation, bottlenecks, enablers and strategy changes, if any in sub component C.2

- **Implementation pace and factors affecting implementation:** Sub-component C.2 followed normal implementation pace except the fact that on-boarding of the technical support agencies took time because of a court related matter. However, all three agencies were fully onboard by January, 2021. Acceptance of agency reports took time as this was based on feedback from Districts as well as implementing agencies. The revised reports incorporating Project feedback were again sent to the implementing agencies for final feedback. Further, once on-boarded the agencies took time in preparation and finalization of the business plans cum DPRs for Common Service Centres (CSCs).
- Moreover, the Market Intelligence Cell (MIC) was initially set up at the Assam State Agricultural Marketing Board (ASAMB) which was later shifted to Assam Agricultural University (AAU) for operational and continuity reasons.
- **Bottlenecks:** Delayed on-boarding of the technical support agencies slightly pushed the implementation timelines. One of the key bottlenecks in the implementation of the CSC program was obtaining the beneficiary share as well as obtaining non agricultural land for setting up of CSCs. Moreover, as the auctions do not happen in the markets, obtaining a clear market price for a particular commodity on a particular day was also seen as a bottleneck. This was overcome by witnessing multiple transactions.
- **Key enablers:** Some of the existing FPCs were taken under the program which shortened the time for achieving the objectives under this sub-component. Further, for setting up the CHCs, apart from FPCs, existing farmers groups/ SHGs were also included. This enhanced the scope for providing CHCs to farming communities. Apart from this focused trainings provided by the Project were very helpful as enablers. These trainings were in the areas of FPC management, governance, compliances, farm mechanization, post harvest management and seed production etc. The Project carried out a grading of FPCs with an aim to provide staggered support to FPCs.
- **Strategy changes:** No major strategy changes were made in this sub component.

- **When implementation took off:** Implementation of this sub-component took off in January, 2021 when the three technical support agencies were on-boarded. The Market Intelligence Cell at ASAMB was set up after the in-house study on market information and intelligence gaps in Assam was completed in early 2020. The results of the study guided in setting up the MIC. Later the MIC was shifted to AAU, Jorhat.
- **Detail on impact and role of departments, community cadres, stakeholders:** The Departments i.e. Agriculture, Fisheries, Sericulture & Handloom played a defining role in this sub-component as they helped in the due diligence of FPCs for providing Project support like Common Service Centres (CSCs). Continuous monitoring during the implementation by the Departments and their District offices was very helpful. This was supplemented by the District staff of the technical support agencies. Other stakeholders which played a key role were the local Krishi Vigyan Kendras (KVKs) and international agencies (e.g. IRRI/ WorldFish), national knowledge partners like ICAR-DRMR, ICAR-IIMR etc. The impact was seen in terms of reasonably good maturity level attained by FPCs in short period of time as well as setting up of FPCs and fostering business linkages. Many FPCs could diversify to other businesses as well like seed production, agricultural inputs business etc.
- The MIC was first managed by ASAMB with a small team hired at the HQ and their Market Secretaries at District level. Later, it was managed by AAU as Agricultural Market Intelligence Unit (AMIU) and District staff were hired under the Project who were placed in respective KVKs for collecting price and arrival data from the markets. This data was uploaded on the portal and also disseminated to farmers and other value chain players through several channels. The Field Data Enumerators (FDEs) engaged by the Project played a key role in this endeavor. Apart from Project, ASAMB and AAU staff, other stakeholders included farmers, aggregators, traders and processors etc. Impact was witnessed in terms better information symmetry, efficient price discovery and increased price realization by the farmers.

7.3.21 Sub-component C.3: Facilitating access to and responsible use of financial services

a) The objective of this sub-component was to facilitate producers (smallholders, farmer organisations, agro-entrepreneurs) in value chains in targeted districts of Assam to access a broader set of financial services (savings, payments, credit, insurance) and to promote their responsible use (financial education, digital payments, risk management).


'Krisarthak' - Bittiya Sahayak providing training on how to use the Chatbot for accessing Digital self learning FEC modules
Noipam FPC, Nagaon

b) A firm with expertise in conducting surveys was contracted to implement the demand-side surveys and diagnostic study. The demand-side representative sample surveys were used to estimate the level of access, use and quality of financial services received by the producers and also assessed their financial capabilities. The diagnostic study assessed the institutional capacity, policies, staff capacity, availability of products - of financial institutions and other financial service providers to meet the 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.

c) For the innovations activity, a technical service provider was contracted to manage the Challenge Fund. The service provider issued multiple rounds of calls for proposals, facilitated 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 were evaluated based on criteria that assessed the likelihood of maximum development impact at the least cost.

Krisarthak workshop on digital facilitation of Farmers for accessing FEC modules at Disangmukh Agro FPC; Participants - 62 Venue - ligiribari,Disangmukh;

d) Financial services were linked with other APART sub-components: e.g., production clusters, supply chain infrastructure, digital platforms, so that finance is not stand-alone but embedded in the agribusiness ecosystem.

e) Activities were implemented by the PCU with the support of competitively selected technical service provider with expertise in this area in close collaboration with other project entities and service providers.

f) **Key Interventions:** Some of the main interventions / mechanisms under this sub-component included:

- An innovative competitive financing mechanism called the "Assam AgriFin Xamahar" (also called ACFIFA – "Assam Challenge Fund for Innovative Finance in Agriculture") to support private sector/financial service providers (banks, MFIs, payments/insurers) to innovate and scale financial services for agriculture, for the first time in Assam.
- Financial education & counseling services for farmers, including digital tools, financial health surveys, health-cards for households – under an assignment called "Krisarthak".
- Partnerships with financial institutions/agrifin service providers: e.g., the ARIAS Society signed agreements with eight selected financial service providers to deliver innovated services in the agribusiness finance space.
- Focus on key financial service categories included- savings/long-term savings/micro pensions, digitisation of payments, insurance (crop, livestock, life, other), credit (production/investment) for agro-value-chain players.

g) Key targets and achievements include:

- **Krisarthak**: The financial education & counseling assignment was christened as Krisarthak, aimed to reach the project beneficiaries in project districts. Accordingly, the "Krisarthak" assignment was inaugurated in January 2023.

In a pivotal step towards fostering financial inclusivity and prosperity in agriculture, "Krisarthak", a groundbreaking digital financial literacy program, has successfully empowered more than **2,00,479** farmers (including **47%** women), through Bittiya Sakhi Chatbot, Bittiya Capsule component (Text and Voice SMS).

Financial Education & Counselling (FEC) Program- was taken up in quarterly cycles and reporting was done on quarterly basis. Below are the outcomes of the program interventions-

1. Total number of farmer beneficiairies reached: 2,00,479
2. Total farmers reached with text and voice messages: 88,598
3. Total farmers reached with Bittiya Sakhi chatbot and kobo app (for base phone users): 1,18,219
4. Male farmers registered: 49,493 (42%)
5. Female farmers registered: 68,726 (58%)
6. Smart phone users: 1,11,888
7. Base phone users: 6,338
8. Chatbot registration: 80,039
9. Chatbot modules completion: 73,516 (91.85% farmers completed modules and downloaded certificates)
10. Districts covered: 24
11. Bittiya Sahayaks/ Financcial facilitators hired: 886
12. Value chains covered: 5 (Agri-horti, Fisheries, Handloom, Sericulture and Dairy)
13. FPCs covered: 248 FPCs reached out
14. DCCs covered: 64 (5432 farmers)
15. Counselling queries received through farmers Financial Health Survey: 22078 filled the form and 9581 received counseling

Challenges encountered in implementing the financial education and counselling program:

1. Incomplete FFHS form: Farmers do not complete the FFHS form before submitting. Due to this the process takes time as FC team need to call farmers individually and complete the information.

2. Unclear understanding of counselling at farmer's end: Many farmers feel that counselling sessions are held for availing loan to the farmers. They discontinue the session after learning that Krisarthak team is not offering loan.

3. Farmers are reluctant to share financial related information digitally: The unfamiliarity with the digital mode and suspicion stops them from sharing their income related data online.

4. Counselling is a slow process: Network issue, coordination with farmers for scheduling calls, constant feedback and intervention is needed for reaching an outcome in the counselling process. As such counselling can be deemed as a slow process where most steps are re-enforced.

5. Network issue at farmer's end: Connectivity and network issues at farmer's end hinders the counselling session online.

6. Counselling is also affected when financial education completion numbers fall. As counselling is only taken by those farmers who complete financial education.

7. Network issues due to adverse climatic condition also hamper the counselling process as call centers are unable to place calls in such situations.

8. Festival season: Many farmers did not receive calls due to the festival season as the family was busy with rituals and celebrations.

Summary of FEC: Financial Education & Counselling (FEC) program under APART has been successful creating susbstantial impact. On an outcome basis, a total of 2,00,479 farmers have been reached out and 1,18,219 farmers have registered on chatbot and kobo app. The program used innovative digital tools for dissemination of information like Youtube, Facebook (meta). These platform have been a avlauble tool for engagement of farmers. For branding and mobilization, making activity was also carried out. The impact of the program was seen in terms of improved literacy levels and skills, increased use of formal financial services, reduction in financial stress, enhanced savings and reduced debt vulnerability. Since, majority of the farmers were females, the program also led to increased women empowerment and improved decision making, particularly in women headed households. In turn, it has improved the standard of living of farm familes.

- **Xamahar:** The distinctive Challenge Fund was designed as "**Xamahar**" - to foster financial innovation within the agricultural value chains. Ten sub-projects (financial service providers) under Xamahar were dedicated to deliver comprehensive financial services across various segments of the agricultural value chain. The target was to directly benefit ~125,000 producers, with 30% women beneficiaries.

Accordingly, the Xamahar Challenge Fund was launched in December 2021 and the ARIAS Society signed agreements with 10 sub-projects/ selected service providers under the Xamahar mechanism.

The activities under the Xamahar Challenge Fund were divided into quarterly cycles and reporting based on field interventions was done on a quarterly basis. Following are the key performance indicator wise targets and achievements of each sub-project agency-

Key performance indicator 1: Number of farmers benefiting from financial products											
	DeHaat	ESAF	FIA	MBS	Rangde	VimoSewa	Samunnati	ECSO	Integra	Gogreen	Total
Cumulative Target	950	32114	138488	6000	1050	9500	300	15000	1621	26670	231693
Cumulative Acheivement	1212	2922	23698	7323	771	4659	158	3071	542	0	44370

Key performance indicator 2: Number of women farmers benefiting from financial products											
	DeHaat	**ESAF**	**FIA**	**MBS**	**Randge**	**Vimosewa**	**Samunnati**	**ECSO**	**Integra**	**Go Green**	**Total**
Cumulative Target	112	5584	33701	1600	150	2250	98	3000	480	21962	**68937**
Cumulative Achievement	741	1157	13152	2902	229	4109	94	959	347	0	**23690**

Sub-project wise targets and achievements:

A. Rang De

Project Cost	INR 3.07 Cr.
Grant Component	INR 2.35 Cr.
APART Districts	Barpeta, Biswanath, Darrang, Dhubri, Katrup (Rural), Kokrajhar, Lakhimpur, Nagaon, Nalbari, Sonitpur
Offerings	• Identify and onboard FPOs and Offer financial literacy training to the farmers • Provide credit to farmers through FPOs • SV Agro will provide technical l input and HYV seeds to the farmers along with buyback arrangements.

RangDe P2P services			
	Key Program Indicators	**Cumulative Targets**	**Achievement as on May 2024**
1	No of Districts covered	10	14
2	No of FPOs onboarded	10	21
3	No of beneficiaries - Men with HVY potato seed	1420	567
4	No of beneficiaries - Women - with HVY potato seed	500	235
5	Area covered under HYV potato seed (Acres)	750-1000	674
6	Total value of procurement of potato(Amt in Million)	19-26	16.53
7	Farm equipments/PHM schemes facilitation	8	5
8	No of beneficiaries receiveing credit - Men	upto 850	542
9	No of beneficiaries receiveing credit - Women	upto 200	229
10	Total value of credit (Rs in Million) - Men	12-14.5	22.49
11	Total value of credit (Rs in Million) - Women	2.3-3.5	7.95

B. VIMO Sewa Consortium

Project Cost	INR 2.00 cr
Grant Component	INR 1.6 Cr * Received 2nd Trnche on achieving 30% of cumulative KPI*
APART Districts	Barpeta, Darrang, Goalpara, Jorhat
Offerings	• Institutional Credit to FPOs by FWWB • Insurance services (Income loss policy) • Financial literacy of farmers • Capacity building of FPCs, SHGs, and Vos,,through local partner SeSTA

National Insurance VimoSEWA			
Key Program Indicators		**Cumulative Targets**	**Achievement as on May 2024**
1	No of Districts covered	5	5
2	No of Bittiya Sakhi placed	225	246
3	No of FPOs trained	20	22
4	No of workshops conducted	6	3
5	No of income loss insurance conversion	9500	4659
6	No of loans to FPOs	20	8

C. Samunnati

Project Cost	INR 6.66 cr
Grant Component	INR 5 Cr * Awainting 2nd Tranche on achieving 30% of cumulative KPI*
APART Districts	10 not defined
Offerings	• Financing Post and Pre Harvest Working Capital to Farmers, FPOs and VLEs • Grading and Assessment of FPOs • Digitisation services through Aggregators and Buyers of Agri produce and creation of Market Linkages – by Kalgudi Digital

Sl	**Key Program Indicators**	**Cumulative Targets**	**Achievement as on May 2024**
1	Digitization of Farmers	64854	26364
2	Digitization of FPOs	137	94
3	Count of products listed- Input market linkages	1500	1107
4	Count of leads generated from FPOs -- Input market linkages	1800	1135
5	Output Market Linkage - Stock Keeping Units (SKU) listed	4300	1720
6	Output Market Linkage - Request for quotes generated from buyers	860	386
7	Training Conducted - Kalgudi	493	218
8	Training Conducted - Samunnati	24	71
9	No of loans sanctioned to FPO	220	115
10	No of loans disbursed to FPO	158	115
11	No of loans sactioned - VLE/Farmers	300	158
12	No of loans disbursed - VLE/farmers	300	158
13	Grading and Assessment of FPO *	400	**

D. De-haat

Project Cost	**INR 5.08 cr**
Grant Component	INR 3.91 Cr
APART Districts	Barpeta, Dhubri, Goalpara, Kamrup(R), Karbi-Anglong (E), Kokrajhar, Nagon, Nalbari, Sonitpur
Offerings	• Arranging financial support and products to farmers • Non-financial services like advisory based input recommendations, weather alerts, crop stage-wise smart dosage alerts, etc. through Farmer solution. • Digitization of agriculture payments through DeHaat – platform

Sl	**Key Program Indicators**	**Cumulative Targets**	**Achievement as on May2024**
1	Farmers Onboarded	25000	7845
2	FPOs Onboarded	50	17
3	No of value chains covered	4	10
4	No of field surveys conducted	385	299
5	No of trainings to FPOs	100	59
6	No of farmers insured	950	1212
7	Amt (in Lakhs)of financing support to FPC	115	

E. FIA Technologies Pvt ltd

Project Cost	**INR 2.93 cr**
Grant Component	INR 2.2 Cr
APART Districts	Barpeta, Biswanath, Cachar, Charaideo, Darrang, Dhubri, Goalpara, Golaghat, Hojai, Jorhat (Undivided), Kamrup (Rural), Karbi Anglong (W), Karbi-Anglong (E), Kokrajhar, Lakhimpur, Majuli, Morigaon, Nagaon, Nalbari, Sivasagar, Sonitpur
Offerings	• Offers door-step banking services like social security, pension, insurance • Offering credit through its network of Agents. • Last mile connectivity through agents (Business Correspondents)

Sl	**Key Program Indicators**	**Cumulative Targets**	**Achievement (May 2024)**
1	FIA Banking outlets	230	222
2	Active Outlets	207	222
3	Unique Beneficiaries(Savings Bank account	88500	17232
4	Women Beneficiaries	17700	12926
5	Deposit transactions (in Lakh)	443	10047.54

Sl	Key Program Indicators	Cumulative Targets	Achievement (May 2024)
6	Farmers covered - Insurance	34500	5268
7	Pension Product (APY)	8850	1197
8	No of credit clients (leads generated)	6638	1
9	Loan products (volume of credit in lakhs)	2191	2

F. ESAF

Project Cost	INR 6.41 cr
Grant Component	INR 5 Cr
APART Districts	Barpeta, Kamrup (R), Kamrup (Metro), Nalbari
Offerings	• Offers access to finance services- Credit to FIGS , Savings, Social Security Products • Key services to be covered are capacity building programs, skill development training for micro-entrepreneurs, and micro-entrepreneurship development • Have their own BC agent network through LLMS

Sl	Key Program Indicators	Cumulative Targets	Achievement (May 2024)
1	Training for farmers	27090	2441
2	Book keeping application deployment	4794	458
3	No of advanced level farmer training	4794	0
4	No of entrepreneurial development training conducted	834	45
5	No of Banking outlets	2	0
6	No of Customer Service Centres (CSC) operated by BC	13	3
7	FIG Loans	27090	2922
8	FPO Loans	48	0
9	Loan against gold for agriculturist	960	0
10	Insurance Coverage	27090	2922
11	Atal Pension yojana	4064	14

G. Manipal Business Solution

Project Cost	**INR 6.24 cr**
Grant Component	INR 5 Cr
APART Districts	Barpeta, Cachar, Dhubri, Goalpara, Golaghat, Jorhat (Undivided), Karbi-Anglong (E), Lakhimpur, Nagaon, Sivasagar, Sonitpur

Offerings	• Offers banking services like digital POS-based customer enrolment, account opening, cash transaction, debit card and Aadhaar based services • Non-banking services through its digital platform called "SahiPay". Through SahiPay they will offer variety of digital payments and value-added services • Arranging for Credit facility for Farmers in partnership with Financial Institution.

Sl	Key Program Indicators	Cumulative Targets	Achievement as on May 2024
1	Districts live for DCS	10	8
2	DCS Covered by or onboarded as Sahipay	200	84
3	Unique Beneficiaries	6000	7310
4	Other Sahipay Points	400	242
5	Cattle/Other Loans	400	13

H. ECSO

Project Cost	INR 6.21 Cr
Grant Component	INR 4 Cr *Awaiting 1st tranche of Mobilisation Advance*
APART Districts	23 APART district
Offerings	Provide curated Insurance product to farmers with focus on Fisher value chain

Sl	Key Program Indicators	Cumulative Targets	Achievement (May 2024)
1	No of unique farmers availing insurance	15000	3071
2	No of unique women farmers availing insurance	3000	959
3	No of unique farmers availing fishery insurance	5000	3070
4	No of unique farmers availing insurance product other than fishery	10000	1

I. Integra

Project cost	INR 4.08Cr
Grant component	INR 3.26 Cr
Districts	Nalbari and Barpeta

Offerings	• Loan for Credit facility with focus on Farm Mechanisation • Provide door-step services for access to banking services like saving accounts, social security, pension • Appoint Business correspondents and open banking outlets • Enrol Farmers for carbon financing

Sl	Key Program Indicators	Cumulative Targets	Achievement as on May 2024
1	No BC appointed	30	11
2	Loan Disbursement (no)	706	4
3	Loan disbursed to women	304	2
4	No of new savings account opened	1010	414
5	No beneficiaries availing SSS coverage (Insurance)	506	124
6	Pension Coverage	105	0
7	No of farmers enrolled for carbon financing	606	460

J. Go-Green: Did not initiate activity

Over 80 banking outlets were made operational at Dairy Cooperative Societies (DCS) and FPCs. The Xamahar was instrumental in facilitating the India's first parametric fisheries insurance.

Xamahar ensured easy access to Rs. 11.03 Cr credit, disbursed at a competitive starting interest rate of 6%, benefitting 35,300 farmers, with a notable 15,760 (44.64%) among them being women.

Monitoring the sustainability during later part of the project has ensured that the innovations under Xamahar transition to commercially viable models beyond project support, so that financial inclusion gains are sustained.

Emphasis on qualitative outcomes beyond access (number of users/loan amount), have translated financial services into better value-chain participation, improved incomes, reduced risk exposure or catalysed new agribusiness.

h) Sub-component C.3 of APART has been a vital pillar in strengthening agribusiness in the project areas by addressing the finance gap that often constrains smallholders and agro-entrepreneurs. With the dual focus on *access* and *responsible use*, the initiative established the fact that mere provision of credit or digital payments is insufficient without accompanying education, product diversification, risk mitigation and value-chain linkage. The achievement data under this sub-component are promising in terms of scale (number of beneficiaries and size loan quantum) and gender focus, and they effectively contributed to the overall project development objective.

i) The activities under this subcomponent facilitated access to and responsible use of financial

Empowering Assam's Farmers: The Xamahar Initiative

The on-ground activities of Rang De's association with Xamahar commenced on November 14, 2022. In the first two quarters, Rang De and SV Agri have provided Rs. 48 lakhs of credit to 110 small and marginal farmers through 10 FPOs across 7 districts of Assam. The project has also facilitated the procurement of potatoes worth Rs. 50 lakhs

services for the producers; and thereby helped them better manage their cash flows, make productivity enhancing investments, and better manage the business and non-business risks they faced.

7.3.22 Implementation pace, factors affecting implementation, bottlenecks, enablers and strategy changes, if any in sub component C.3

a) **Implementation pace and factors affecting implementation**: Implementation pace of this sub component was slow in the beginning because of the delay in completion of the Diagnostic Study on Finance Opportunities for Producers and Micro Entrepreneurs in the Selected Agri Value Chains, which formed the basis of actual interventions taken up under this sub component. The delay was attributed to delayed on-boarding of staff under financial services vertical. Accordingly, acceptance of the reports of this study took considerable time. These initial delays caused the actual activities i.e. financial education & counseling and challenge fund including the sub-projects also to move beyond the originally planned schedules.

b) **Bottlenecks:** Key bottlenecks faced in implementation of the interventions under this sub-component were (i) coordination between ARIAS Society, Departments and Financial Institutions for on ground implementation (ii) limited penetration of digital/ ICT tools and banking network in the remote rural areas mainly attributed to limited internet / mobile network coverage (iii) low initial level of financial awareness and literacy.

c) Key enablers: Key enablers for this sub-component were (i) professionally qualified and experienced resources hired from the market (ii) Consortium model with partners like Digital Empowerment Foundation (DEF), Fair Climate Fund (FCF), Council for Social & Digital Development (CSDD) who provided a blend of required technical expertise, digital content development, and field outreach capacity (iii) Use of digital tools such as the Bittiya Sakhi chatbot allowed farmers to access financial education modules in local languages, facilitating self-paced learning irrespective of location (iv) Customized local content & language and (v) Intensive training and capacity building of field staff.

d) **Strategy changes:** No strategy changes were made during implementation of this sub component.

e) **When implementation took off:** The implementation of this sub component took off with on-boarding of the technical support agency for "Assam Challenge fund for Innovative Finance in Agriculture (ACFIFA) for supporting Innovative Approaches to Deliver Financial Services at Scale for Value Chains under APART" in November, 2020. The agency for financial education and counseling was onboarded in March 2022.

f) **Detail on impact and role of departments, community cadres, stakeholders:** The sub component was implemented by ARIAS Society with the support of Departments, Financial Institutions and Technical Agency. At the District level, District Agriculture Officers conducted credit camps in association with local banks and with the support of APART District staff like District Agri Marketing Coordinators. Impact was felt in terms of increased awareness of beneficiary farmers and FPCs on financial services, increased penetration of these services and availing by the beneficiary farmers. Community cadres including the District staff of technical support agency and District staff of APART. Other stakeholders included FPCs, Farmer Groups, Banks and other financial institutions etc

7.4 Support for Covid-19 management by the Government of Assam:

a) In response to the unprecedented challenges posed by the COVID-19 pandemic, the Project was restructured during mid-term review (MTR) to extend vital support to the Government of Assam in mitigating its management and impacts *(as a part of Subcomponent C.1.3)*. The project played a crucial facilitative role in assisting the State's National Health Mission (NHM) with pandemic management measures, including strengthening supply chains, restoring livelihoods, and building resilience among rural communities.

b) A total expenditure of Rs.186.63 crore was incurred by NHM for COVID-19 response activities, and 80% of the eligible costs was retroactively reimbursed by the World Bank, which was processed through the PCU of ARIAS Society. This intervention exemplified APART's adaptability and relevance in addressing emergent priorities of the State during any such crisis.

7.5 Component-D: Project Management, Monitoring and Learning:

Original Allocation for this component as per PAD was US$17.70 Mil. of the total Project cost; Total Expenditure for the component at Financial Closing on 31.01.2026 is **Rs.199.01 Cr.**

a) **Overview:** This component ensured effective implementation of activities, monitored & evaluated project implementation progress, outputs & outcomes, building on implementation experience of AACP. The component specifically supported:

i) strengthening and operations of a Project Coordination Unit (PCU) under the ARIAS Society, to oversee and coordinate activities of the implementing agencies

ii) establishment and operations of Project Implementation Units (PIUs) in the respective implementing agencies;

iii) setting up a project monitoring and evaluation (M&E) system for the project, including a Project Management Information System (PMIS), and contracting an external M&E agency to monitor project activities and impact.

The PCU served as the management and coordination unit for the project and was responsible for preparation and implementation of overall project budget, and implementation progress reports. The PCU provided M&E, social, environmental safeguards, procurement and fiduciary oversights to the Project. This component also financed incremental staffing for the project activities, consultancies, training and related material, office equipment, and incremental operational costs.

In addition to from the contractual staff/consultants hired under the project, substantial GoA manpower resources of the participating line departments of GoA were engaged for the project and their salaries were funded by the Government. The Project

developed a sound in-house ICT based Management Information System (MIS) for timely capturing of data from field interventions and other Project activities.

b) **Project Management Framework** The project was implemented by the Government of Assam through the ARIAS Society, which acted as the Project Coordination Unit (PCU). The PCU was responsible for overall project coordination, management, fiduciary oversight, and monitoring of implementation progress across all participating departments and partners.

c) The project followed a multi-tier institutional structure comprising:

- **Project Coordination Unit (PCU):** Led by the State Project Director (SPD), the PCU managed planning, budgeting, procurement, financial management, safeguard compliance, and overall coordination with the World Bank.

- **State Project Coordination Committee (SPCC)** of the PCU ensured effective coordination among all participating directorates, and agencies for smooth project implementation, monitored progress against the approved work and procurement plans, resolves implementation and management issues at various operational levels, and ensures efficient fund utilization. The SPCC also oversees compliance with environmental and social safeguards, supervised consultants and service providers, and ensured timely grievance redressal and reporting through regular monthly meetings.
- **Operational Project Implementing Units (OPIUs):** Located in 16 key line Directorates/agencies — including Agriculture, Horticulture, Animal Husbandry & Veterinary, Dairy, Fisheries, Sericulture, Handloom & Textiles, Industries & Commerce, P&RD, PWRD, WAMUL, NDDB, AAU, ASAMB and ASWC - the OPIUs were responsible for field-level implementation and supervision of project value chain interventions and project activities.
- **District-level Coordination:** District-Level Coordination Committees (DLCC) established under the project, under the Chairmanship of respective District Commissioners (DCs) facilitated convergence with district administration, ensuring timely delivery of project activities, beneficiary selection, and grievance redressal.
- The **Governing Body (GB)** of the ARIAS Society headed by the Agriculture Production Commissioner (APC), Government of Assam as its Chairperson, provided monitored overall management, supervision, and coordination of the Project,

including overseeing implementation, monitoring, financial management, as per the Project's mandate and also resolved implementation level issues. The GB used to sit average three times in a year.

- The **Project Guidance Committee (PGC)** headed by the Chief Secretary, Government of Assam as its President, provided strategic guidance, reviewed implementation progress, and resolved inter-departmental issues.

d) **Monitoring, Evaluation, and Learning (MEL):** The project adopted a Results-Based Management approach, linking performance indicators with outputs and outcomes across the project value chains The Monitoring, Evaluation, and Learning (MEL) system was a cornerstone of APART's adaptive and evidence-driven management approach. The dedicated MEL wing *(headed by a senior M&E specialist and supported by four support staff and a Sr. MIS Specialist in the PCU and MIS Specialist at OPIUs and District ATMA offices*) designed, implement, and operationalized robust project MIS systems in-house for tracking physical and financial progress, evaluating outcomes, and capturing lessons for policy and program improvement. Key Components of the M&E system were:

- **Management Information System (MIS):** The customized digital MIS consolidated real-time data from all OPIUs and tracked activity-wise implementation, financial utilization, and beneficiary outreach, enabling data-driven decision-making and performance monitoring at the state/district levels.

- **Third-Party Monitoring & Evaluations:** Independent agency was engaged to conduct Baseline, Midline, and End-line evaluations, thematic studies, and beneficiary assessments. These provided an objective understanding of the project's socio-economic impact and the effectiveness of interventions. The agency also undertook **Concurrent Monitoring,** i.e. physical verification, financial reviews, and output tracking, which ensured transparency and accountability. A structured reporting protocol enabled quarterly and annual reviews involving all implementing agencies. The **End Term Evaluation Study** (Outcome & Impact) studies were undertaken which has demonstrated measurable improvements in productivity, market access, etc. across value chains, validating APART's approach to value chain strengthening and agribusiness promotion. (More details provided under the M&E Section)

- **Sutra Consulting Pvt Ltd** was engaged to conduct Baseline study and two half yearly progress monitoring studies.
- **NABCONS** was engaged to do an Evaluation Study of a few interventions during Mid Term Evaluation.
- **Vision EIS Consulting Pvt. Ltd** in joint venture with Rashtriya Grameen Vikas Nidhi for four half yearly progress monitoring studies and the End Term Evaluation study.

e) **Recruitment of Manpower:** Under APART, a significant number of contractual manpower were recruited across various implementing departments/directorates/ agencies to ensure effective and timely execution of project activities. These professionals, engaged mostly through the PCU and a few by the OPIUs, included specialists, coordinators, consultants, technical experts, and support staff in disciplines such as agriculture, fisheries, livestock, handloom, sericulture, agribusiness, finance, procurement, monitoring, and communication.

The deployment of this skilled human resource greatly strengthened the institutional capacity of the participating project implementing entities, facilitated convergence with allied initiatives, and ensured efficient implementation, monitoring, and reporting of project interventions. Their dedicated efforts played a crucial role in achieving APART's objectives of enhancing agricultural productivity, improving value chain integration, and promoting rural livelihoods across Assam. The manpower engaged under the project was rationalized in a progressive and phased manner, keeping in view the approaching project closure (initially 30.09.2024 and the extended closing date of

25.09.2025, availability of project funds, and the evolving technical & operational requirements. As various activities reached completion and implementation intensity reduced, the project strategically optimized its human resources to ensure cost-effectiveness, while maintaining necessary technical and administrative support for closing activities. This systematic rationalization ensured smooth transition towards project closure without compromising on key deliverables and compliance requirements.

f) **Learning, Knowledge Management & Dissemination, and Capacity Building** formed a key part of project strategy to ensure sustainability and institutional strengthening.

- **Capacity Building:** Over **2,51,532** beneficiaries/officials - including farmers, FPC members, departmental staff, entrepreneurs, and officials - received training in areas such as value addition, business planning, financial literacy, and sustainable agri-practices, etc.
- **Exposure Visits and Cross-learning:** National and international exposure programs (including to New Zealand, Israel, Vietnam, Philippines etc.) helped introduce innovative technologies and management practices.
- **Knowledge Products:** APART produced numerous manuals, case studies, and technical reports, which served as reference materials for future agribusiness programs in Assam All these are collated and are available in the Website of ARIAS society.
- **Learning Events:** Regular review workshops, thematic consultations, and knowledge-sharing sessions facilitated cross-sector learning among departments. The project also institutionalized a Learning and Feedback Loop - where insights from monitoring and evaluation were integrated into planning and implementation, allowing for mid-course corrections and improved efficiency.

APART knowledge materials

- APART Videos (Youtube)
  https://www.youtube.com/@apartassam
- APART Newsletters
  https://arias.in/newsletter.html
- Knowledge and Informative content
  https://fpcapart.assam.gov.in/documents
- Knowledge transfer and exit strategy documents
  https://fpcapart.assam.gov.in/ktespapers

g) **Key Achievements include –**

- The robust institutional coordination framework established for integrating 9 Departments (including NDDB) and 16 Directorates of the Government (including its Agencies) under a unified agribusiness strategy.
- The digital MIS platform developed for linking all OPIUs for real-time reporting and analytics.
- Over 50 analytical studies formed the basis of evidence-based decision-making.
- Strengthened M&E capacity within line departments through dedicated training and mentoring support.
- The repository of knowledge and learning resources createdfor replication in future projects.

h) **Lessons Learned**

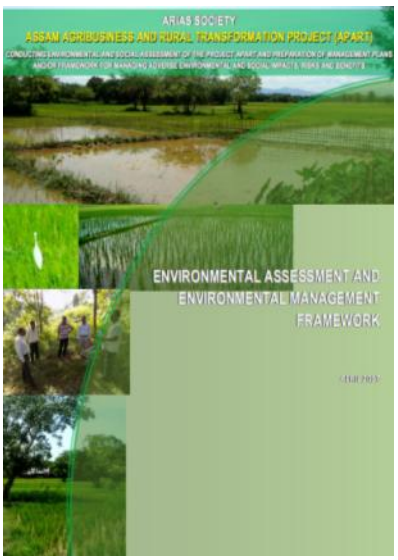
- **Integrated planning and coordination** across implementation departments/directorates/ agencies significantly enhanced efficiency with reduced duplication of activities.
- **Continuous learning and feedback mechanisms** improved implementation quality and responsiveness.
- **Digitized M&E systems** ensured transparency and better tracking of outcomes.
- **Independent evaluations and research studies** were instrumental in informing policy-level decisions and scaling successful models.

i) The Project Management, Monitoring, and Learning framework of APART provided a strong institutional backbone for effective implementation, accountability, and adaptive learning. The systems and capacities built under APART have laid a sustainable foundation for future agri-sector programs in Assam, including for the follow-on of APART project and also upcoming ADB financed **SWIFT Project**, in order to ensure continuity of the state's agribusiness transformation agenda.

7.5.1 Environmental Safeguards Management:

a) **Background and Implementation of Environmental Management Framework (EMF):** The EMF of APART had been in place since inception, with subsequent updates made as per project requirements. Project interventions ranged from small to large-scale infrastructure projects, and the development of these projects, though beneficial, had potential negative environmental impacts. Recognizing this, the ARIAS Society, as an environmentally aware and socially responsible entity, had established systems to safeguard environmental concerns through the preparation of the EMF.

b) APART had triggered three World Bank safeguard policies: OP/BP 4.01 (Environmental Management), OP/BP 4.04 (Natural Habitats), and OP/BP 4.09 (Pest Management). The EMF served as a guiding framework for the respective Line Departments in (i) subproject selection, (ii) screening and categorization, (iii) environmental assessment, (iv) preparation of Environmental Management Plans (EMPs), and (v) preparation of implementation and monitoring plans, ensuring compliance with Bank's Operational Policies as well as national rules and regulations.



c) The PCU had monitored the environmental performance of all project components through regular environmental monitoring and audits. It had also taken responsibility for training and capacity building of stakeholders. The outcomes of these reviews had been documented and shared with the relevant officers for corrective action in cases of non-compliance and with the World Bank as part of project reporting.

d) Under OP/BP 4.01, project functionaries had carried out environmental screening for all proposed interventions. Subprojects with no significant adverse impact had been implemented following sector-specific SOPs and BMPs, while site-specific assessments and EMPs had been prepared for interventions with higher environmental risks.

e) Under OP/BP 4.04, some subprojects were located near environmentally sensitive areas such as reserve forests, rivers, and wetlands. Necessary clearances had been obtained from competent authorities before initiating activities, and site-specific EMPs had been implemented to minimize adverse impacts. The project had also addressed risks associated with introducing non-native fish strains in Assam. Based on a feasibility study, it was recommended that the Department of Fisheries promote selectively bred indigenous species such as Jayanti Rohu instead of introducing GIFT, thus safeguarding native habitats.

f) Under OP/BP 4.09, a Pest Management Plan (PMP) had been implemented to enhance Integrated Pest Management (IPM) practices across agro-clusters. In partnership with Assam Agricultural University (AAU), the International Rice Research Institute (IRRI) had promoted Stress Tolerant Rice Varieties (STRVs), under APART with IPM practices in 1,728 ha of demonstration plots. Similarly, IPM demonstrations under horticulture were carried out in 195 ha for multiple winter vegetables, yielding positive results. The PMP had also raised awareness of pesticide-related hazards, encouraged safe use, and ensured elimination of banned agrochemicals through revision of Package of Practices (PoPs).

g) Project M&E reports had confirmed a significant reduction in pesticide use, from 34.24 kg/ha to 11.83 kg/ha. Cases of farmers using banned pesticides had also reduced considerably due to awareness campaigns and regular monitoring.

h) The project is well aligned with key policy framework, including:

- **State Agriculture Policy:** Promotes higher production with resource conservation, IPM/INM/organic farming, climate-resilient crops, integrated fish farming, soil & water testing, indigenous species protection, & community-managed beel fisheries.
- National Action Plan on Climate Change (**NAPCC**) and State Action Plan on Climate Change (**SAPCC**): Focus on sustaining water bodies, climate-resilient agriculture, bio-resource conservation, plantations, energy efficiency, and disaster preparedness.
- **Green Budget:** Prioritizes climate-resilient agriculture and green infrastructure.
- **Sustainable Development Goals (SDGs):** Supports clean energy, climate action, aquatic life, and clean water & sanitation. APART contributed directly to SDGs 1, 2, 3, 5, 6, 7, 8, 9, 12, 13, and 15.

In summary, through its EMF and adherence to World Bank's safeguards policies, APART had ensured that project interventions were environmentally sound, sustainable, and compliant with both national regulations and international standards.

i) **Institutional Arrangements & Process:**

- The project hired twenty-four (24) District Environment Coordinators (DECs) and one Environment Coordinator for civil works at PWRD. However, as per the implementation plan, manpower was gradually reduced towards the project's closure. The DECs were trained and deployed in their respective districts.
- All OPIUs have nominated one Nodal Officer for Environmental Safeguard at State level. At district level all line departments have nominated one Focal Officer for Environmental Safeguard who acted as a resource person. PCU trained this pool of officers to build their capacity for environmental safeguard compliance.

j) **Capacity Building:** The PCU/OPIUs organized 53 events on environmental safeguard requirements to raise awareness and build the capacity of departmental officials, contractors, DECs, and other stakeholders. These included state- and zonal-level

workshops, sensitization sessions for international agencies, departmental orientations, inception/orientation workshops, as well as fire safety training and mock drills for project manpower.

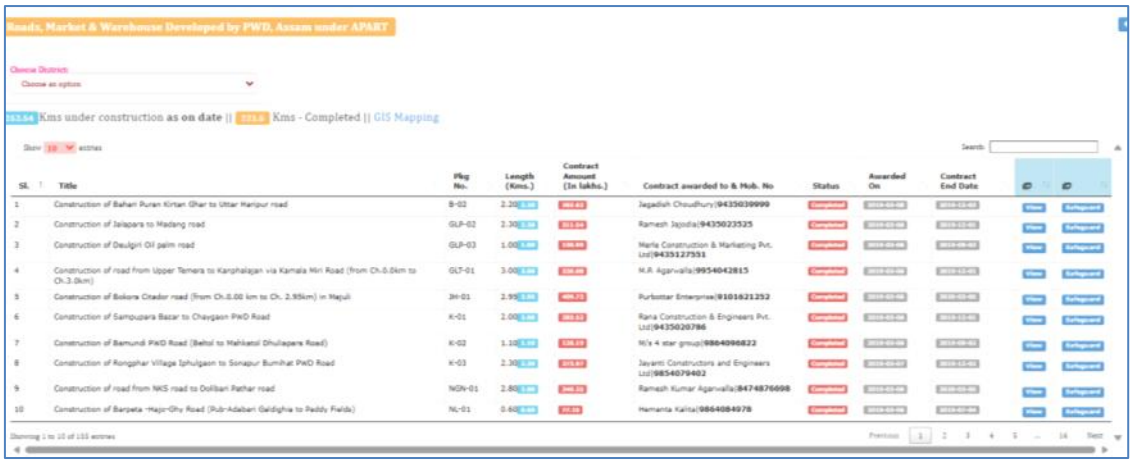
At the district level, teams conducted focused group discussions (at demo sites, FPC level, etc.) and toolbox talks at construction sites to sensitize the workforce on safeguard requirements. Individuals—including project staff, government officials, FPC members, contractors, labourers, and beneficiaries—were trained or sensitized through these initiatives.

In most cases, safeguard requirements were integrated into the main Project operations, thereby indirectly sensitizing a large number of stakeholders on their relevance and application at the field level.

k) **EMF Implementation:** Environmental Screening has been done for more than 30,000 subprojects (civil works, agri., horticulture, fisheries, sericulture) screened since inception; Over, 8000 interventions monitored by DECs under EMS supervision; Environment Management Plan (EMP) was made mandatory for all the project civil works and total 295 site-specific EMPs prepared to mitigate impacts, define responsibilities, and ensure capacity for implementation. Remaining works followed best environmental practices and package of practices.

Summary of Major Civil Works From Env. Safeguard Perspective		
Road	**Market**	**Warehouse**
• Total Length: 255.02 km, 157 nos. 138 Nos of road (213.45 Km) are completed; 14 Nos of Road (31.33 Km) incomplete; 5 Nos of Road (8.26 Km) Dropped from the project.) • Env. Monitoring (Nos.) 980 • NoC obtained: 20 (from WR & Irrigation) • Tree felling: 46 roads • EP Shifting: 49 roads • Labour Camp: 152 • Cross drainage str. : 131 roads • Side drain: 17 roads • Plantation: 103 roads • Slope protection: 46 roads	• 99 Markets were selected; 93 Markets were completed, 3 markets are dropped from the project and remaining 3 Markets are incomplete. • EMP Prepared: 98 • Env. Monitoring (Nos.) 384 • Solar Light: 1684 • Solid waste disposal system: 170 vats, 398 dustbin • Drinking water facility: 90 markets with few iron removing facility • Sanitation Facility: 72 markets • Vermi composting pit: 3 locations (44542 kg) • Rain water harvesting: 3 Locations (50,000 litre) • 26993 m of Drainage	• Target 40 godowns, Completed 37, Incomplete 3, Dropped 1 • Warehouse management centre: 15 • Tree felling: only 3 site. • Shifting of Electric Pole: 2 Sites. • Env. Monitoring till date: 146 • 10 sites, Asbestos were disposed off as per project guideline • drinking waterand Toilet facilities for Both M&F: 13 centres • Open/green belt area: Except Maidamgaon II • Rain water Harvesting proposed: 9 locations • Waste disposal Vat: all except Gossaigaon, Amingaon and Jamunamukh • Passive lighting through turbo ventilation: all • Fire Hydrant system: 10 Locations • Fire Extinguisher: 3 Locations • 7 out of 16 centers are now have solar power station

l) **Monitoring & MIS System:** The project has a well-established MIS system, through which all environmental safeguard-related documents—such as screening and monitoring formats, EMPs, and others—have been periodically disclosed to ensure transparency and easy access. (122.185.169.250/apart_bl/).



m) **Protecting the Environment through Sustainable Project Investments:** The project promoted environmentally sustainable and green development by ensuring optimal resource use, biodiversity conservation, renewable energy adoption, waste management, and ecological infrastructure measures.

Key Sustainable Practices include-

- **Agriculture:**
  - Climate-resilient rice varieties covered an area of more than 5 lakh ha through adoption and area expansion.
  - IPM: 1,728 ha, 1,332 farmers. In agri sector and 195 ha. in Horti. Sector.
  - Soil-test based nutrient management: 3,619 plots.
  - Results: 1.7 lakh demonstrations showed higher yields with reduced inputs; paddy income rose by 80%; pesticide use reduced by 30–80%.

- **Fisheries:**
  - Polyculture (3–6 species): 1,337 ha, 4,596 farmers; yield rose from 4.5 t/ha/yr to 6.3 t/ha/yr (40.62%); income up from ₹5.45 to ₹7.52 lakh/ha/yr.
  - Native fish (Mola): 2,507 ha, 7,552 farmers; production up from 580 to 1,560 kg/ha/yr.
  - Integrated fish–paddy farming: 1,005 ha, 2,113 farmers; Paddy yield increased from 6.1 t/ha;0o to 7 t/ha and fish yield increased from 0.5 t/ha/yr to 1.5 t/ha/yr.
  - Food safety: Adoption of water quality and adulteration test kits.
- **Other Value Chains:**
  - Pork: ASF management, biosecurity in 5 farms, hygienic vending cubicles.

- Dairy: 691 solar-based milk collection centres, 5 testing labs strengthened, WAMUL plant FSSAI & ISO:22000 certified, solar thermal system saving ₹4 lakh/month.
- Sericulture: 3,407 beneficiaries supported with plantations and climate-resilient rearing houses.
- Millets: Cultivation promoted in 25,000 ha over 7 years.
- Fish processing: Hygienic dry fish and fish powder production, formalin testing.
- Feed testing lab: Khanapara facility operational since July 2024, NABL accreditation in process.

- **Civil Infrastructure:**
  - More than 213 km of all-weather climate resilient road.
  - 93 markets and 37 warehouse units with climate resilient features.
  - Roadside plantations: 8,041 trees across 103 roads.

  - Slope stabilization: 46 roads, 13 km length.
  - Renewable energy: 1,639 solar lights, 40 kv capacity created.
  - Water harvesting: 12 units, 6 lakh litre capacity.
  - Waste management: 93 markets & 13 warehouses equipped.
- **Environmental Studies & Audits**
  - Rapid Risk Assessment of GIFT: Recommended promotion of indigenous species like Jayanti Rohu over invasive GIFT strain.
  - Baseline Environmental Study: 60% samples in near-natural condition; rich biodiversity with balanced soil and water quality.
  - Mid-term Environmental Audit: Completed in 2023.
  - **Final External Audit report: Completed in September 2025. "Project achieved an average compliance rate of 93% during the pre- and post-construction phases, indicating strong adherence to environmental screenings, necessary clearances, and safety protocols."**

n) **Challenges & Way forward**

Challenges	How the Challenge Was Addressed	Lessons Learnt
Inadequate contractor experience and partial compliance with environmental safeguards	Contractors were sensitised from the pre-contract signing stage; refresher trainings and regular on-site toolbox talks were conducted by DECs; monthly environmental monitoring was institutionalised; ESHS compliance formats were introduced and linked with release of performance security	Early contractor engagement, continuous supervision, and linking compliance to financial incentives are critical for effective safeguard implementation
Low awareness of	Targeted capacity-building programmes,	Capacity building must be

Challenges	How the Challenge Was Addressed	Lessons Learnt
health, safety, and environmental (HSE) requirements among stakeholders	on-site demonstrations, and periodic monitoring were undertaken to reinforce good practices	continuous and iterative rather than treated as a one-time activity
Delays due to regulatory approvals and statutory clearances	Early identification of clearance requirements, close coordination with line departments, and systematic follow-up mechanisms were adopted	Advance planning and proactive coordination for statutory approvals significantly reduce implementation delays
Difficulty in mainstreaming climate-resilient practices into existing systems	Revised guidelines, SOPs, and planning tools were developed; climate considerations were integrated into project design; implementing agencies were provided continuous technical handholding	Climate resilience must be mainstreamed at the planning and design stage, not introduced as an add-on during execution
Sector-specific environmental challenges (unauthorised pesticide use, piggery waste management, fisheries drainage issues)	Issue-specific advisories were issued; coordination with sector departments was strengthened; PoPs were vetted and revised; location-specific mitigation measures were adopted; farmers and producers were trained and regularly monitored	Sector- and context-specific solutions are essential; sustained sensitisation and handholding drive behavioural change
Inter-departmental coordination challenges and frequent staff transfers	Nodal and focal officer nomination was treated as a continuous process; processes were documented; regular coordination meetings and refresher trainings were conducted	Strong institutional systems and documentation are necessary to minimise dependence on individuals and ensure continuity

7.5.2 Social Safeguards Management:

a) APART's social safeguard frameworks, focused on land-related risks, stakeholder consultations, and support mechanisms. In order to ensure compliance with World Bank Safeguards principles, protect communities, and promote inclusive growth, Project activities were guided by Social Management Framework (SMF), Resettlement Policy Framework (RPF), Indigenous Peoples Framework (IPF) and Grievance Redress Mechanism (GRM).

b) **Land – Issues, Policy Approach, and Implementation:** The Project demonstrated significant potential impact on land management while ensuring full compliance with the SMF and the RPF. A strong emphasis was placed on avoiding involuntary land acquisition. Wherever feasible, the Project has prioritized the use of government-owned land and leased land for the development of infrastructure and activities. All interventions were guided by due diligence, including screening, entitlement provisions, and extensive stakeholder consultations, ensuring that the rights and concerns of affected communities were duly addressed. The process followed for development of sub-projects involving land is as follows:

Type of Land	Process Followed
Government Land	Land record obtained from Revenue Circle along with trace map; NOC obtained
Land Bank of the PIU (Government Land)	Due approval of higher authority, NOC
Government Land allotted to Panchayat/ Committees	Land ownership certificate from Revenue Department / NoC from Market Controlling Authority / Bazar Committee for land use

Type of Land	Process Followed
Private Land	MoU agreement between owner and FPC/cooperative/ groups etc; NOC from village headman for land use; Community Consultation; Lease deed between land owner and farmer groups

c) **Implementation of Resettlement Policy Framework (RPF):**

- **Resettlement impacts were minimal.** In 14 roads rehabilitated under the Project, minor encroachments (e.g., bamboo fencing) by 99 households was reported. There was no harvest standing crop in any of the land reported to be lost, as a result there was no resulting losses in income and assets in any of the roads. A total of 1546 sq. mtr land loss has been reported in total 14 roads. Loss reported during survey by all the HHs has been less than 5%.
- Of the total 96 Markets, RFP was implemented in 55 markets. Stakeholder Consultation was conducted with the Market controlling Authority, Market Committee and the Sellers to draft the Resettlement Action Plan (RAP) in tandem with the requirements of both the sellers and buyers. A total of 5163 male sellers and 847 female sellers were temporarily relocated to a safe space ensuring that there was no livelihood loss for the sellers. A total of 2544 temporary sheds were made of Bamboo sheds either with tinned roof or tarpoline sheets. Provision of toilets, drinking water, safe approach, waste disposal was ensured.

d) **Stakeholder Consultation – Practices and Findings:** The SMF mandated multi-level consultations involving officials, local governments, and community groups. These consultations were seen as a crucial tool in identifying social risks and solutions.

- Engagement scale: More than 4,500 villagers took part in road consultations; 2,500+ stakeholders in market design workshops.
- Influence on design: Led to improved road alignment, market sheds, sanitation blocks in 77 markets, and installation of 1,687 solar street lights.
- Inclusion: Sessions with women and tribal groups created space for marginalized voices, though more structured participation is needed.

e) **Labour and Occupational Safeguards Occupational health and safety** of workers, as well as residents living near project activities, remained a key priority during implementation, particularly in the execution phase.

- As part of the monitoring of sub-projects implemented by the PWRD, Labour Law Compliance Portal **(**http://103.158.204.172:8080/projects**)** was used as a platform for digital record keeping of workers' profile, attendance, wage payments, medical verification etc.
- Workers engaged: As per the information entered in the labour Portal, about 3,959 workers were engaged, including 7% women. No cases of child labour or major accidents were reported. Grievance Management Committee was formed in all sub-projects involving the workers. Internal Complaints Committee was formed for all the establishments as per POSH guidelines, and for establishments managed by small contractors, information on Local Complaints Committee was disseminated.
- Training: Over 550 officials, contractors and labour supervisors were trained in labour laws, health, and safety.
- COVID-19 protocols: PPE, distancing, and sanitisation were enforced at worksites.

f) **Community Mobilisation & Outreach:** Inclusion is the foundation of APART's implementation. The District Level Coordination Committees (DLCCs) were notified in 16 districts to ensure participatory decision-making. It was mandated to ensure that transparent eligibility criteria and wide publicity through newspapers and community awareness campaigns helped mobilize applications across diverse social groups. These DLCCs scrutinised the applications as per the eligibility criteria, and transparent

approvals were made. The extension workers were also used extensively by the OPIUs to create awareness about the sub-projects. The outcome of the all the mobilization process has translated into greater outreach and broader participation of beneficiaries across different districts.

g) **Training, input support, and market linkages** provided reached out to **6.71 lakh** farmers, with 30% women. Capacity building formed a cornerstone of the Project's sustainability strategy, and also served as a catalyst for adoption for climate resilient technologies under the Project. A total of 3.48 lakh farmers equipped with technical knowledge and skills, and of which 24.5% were women. Of the total adopted farmers, 21.6 % were women.

h) **From inclusion emerged empowerment:** The project supported the formation and strengthening of collectives. Farmer Producer Companies (FPCs), Dairy Cooperatives, and Industry Associations. A total of 60000 farmers from 2,662 villages across 24 districts came together under 3,111 Farmer Interest Groups, of which 34.6% were women. Four women-led FPCs and more than 1,000 Dairy Cooperative Societies demonstrated women's leadership in agribusiness. Industry Associations engaged over 2,800 entrepreneurs, including 34% women and 12% Scheduled Tribes, reinforcing inclusivity in market-oriented enterprises.

i) **Grievance Redressal Mechanism:** The GRM created under the Project is multi-tiered, gender-sensitive, and accessible in principle. The integration of technology in grievance tracking continues to strengthen the social sustainability of the project.

A defined service standard is set for addressing the grievance. Considering the diverse profile of beneficiaries, the project has two modes of GRM: Manual and Electronic. Information dissemination on the GRM was carried out through awareness meetings time to time at the beneficiary level drives and details about the project GRM is provided using IEC materials including banners, leaflets, etc. There is also provision of dropbox at the OPIUs, district offices and FPCs for submission of grievances in writing. Summary of the grievances received in the Project:

Total grievance lodged	65
Status	100% close
Resolution time	15-20 days
Sector-wise:	Agriculture-3, AHVD-1, Fishery-1, Horticulture-1, Human Resource-1, Industries &Commerce- 4, PCU- 6, PWRD-45, WAMUL-4
Grievance receiving channels	Toll free no.-11, Email: 6, Letter -3, Suo-moto:2, Verbal complaint-23)

j) **Citizen Feedback & Satisfaction:** Citizen Feedback is an important strategy used in the Project for capturing experiences of beneficiaries on access to project benefits, information dissemination and disclosure methods, training and capacity building activities.

k) **Citizen Satisfaction survey** was conducted amongst 7571 beneficiaries of the Project. The findings revealed high levels of satisfaction amongst the respondents, and they rated the Project 4.14 out of 5. Over 90% rated access to project services, staff responsiveness, and institutional visibility as good to excellent. Importantly, feedback confirmed improved knowledge on climate-resilient practices and technologies, validating the project's contribution to adaptive capacity.

l) **Lessons Learnt:** The APART social safeguard system is robust in design, achieving zero displacement, widespread consultations, and significant inclusion of women and tribal communities. The safeguards not only mitigated risks but also enabled positive social outcomes- from better access to markets and services to increased incomes and women's empowerment.

However, there were notable gaps in GRM awareness, women's participation and measurable inclusion of indigenous groups, and require stronger monitoring and

accountability. While women's participation was ensured in committees, their active role in decision-making was often constrained by entrenched socio-cultural norms.

APART has demonstrated that institutional strengthening, value chain integration, gender mainstreaming, and substantial tangible socio-economic impact. The challenge now is to institutionalize safeguards, deepen women's leadership, and secure sustainability of farmer collectives and committees beyond the project lifecycle. Addressing these will align APART more closely with World Bank safeguard norms, and enhance its role as a model for socially responsible rural transformation.

7.5.3 Procurement Management:

a) **Procurement Arrangement:** Procurement for the APART project was 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). The project is also subject to Bank's Anticorruption Guidelines (October 2006-revised in Jan2011 & Jul- 2016).

b) **Project Procurement Strategy Document (PPSD) and STEP:** As per the requirement of the Regulations, a Project Procurement Strategy Document (PPSD) has been developed and finalized after review by the Bank. 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. The World Bank has delineated threshold for post review and prior review as well as threshold for different selection methods under Works Goods & non consulting services and consulting services, for the project during the project signing which was later revised.

c) **Procurement plan through STEP:** The Project used online tool 'STEP' (Systematic Tracking of Exchanges in procurement) of the World Bank All procurement under the project was accordingly carried out after clearance of the procurement plan through Systematic Exchanges in Procurement (STEP) portal of World Bank. As the project entails several small value especially related to demonstration, procurements with estimated cost below 10,000 USD is exempted from uploading in STEP portal and it was decided to maintain the database through excel sheet.

d) The PCU has been the principal procurement planning, advisory and management entity for the Project. The OPIUs associated with the project in implementation of various project components used to manage the project procurements related to them through their own procurement unit. The OPIUs took constant procurement advice from PCU as and when needed. The PCU procurement team has one Procurement & Contract Management Specialist and three Procurement Management Executives (PMEs) to co-ordinate and review the internal & external procurement activities.

e) **Delegated Procurement for OPIUs:** An Office Memorandum (OM) approved by World Bank and was issued by PCU to OPIUs to carry out the delegated procurement at their end. As per the Delegated Procurement, OPIUs are entrusted to carry out procurement upto Rs. 65 Lakhs (equivalent of 100,000 USD) following RFQ method at OPIU level. Bids estimated beyond Rs. 65 Lakhs, OPIUs are mandated to follow National Competitive Bidding (NCB) and the contract award is reviewed by PCU before award of contract by OPIU with an exception to OPIU-PWRD. As per delegated procurement, OPIU-PWRD is mandated to carry out procurement of bids estimated upto Rs.500.00 Lakhs on their own and bids estimated beyond Rs.500.00 lakh needs review by PCU. (An OM on Delegated Procurement Guidelines was issued)

f) **Community Procurement:** Community procurement guidelines was prepared with the approval of the World Bank with the aim to make the Community Procurement for

FPC/CSCs/Industry Associations/CFCs more efficient and to make it as transparent as possible. The community procurement guidelines delineated processes for tendering, evaluation and award of contracts to be taken up by the community. The thresholds for carrying out the procurement in the community procurement guidelines are rationalized considering threshold values (OM on Community Procurement Guidelines attached **at Annnex- 6).**

g) **Procurement Capacity Building of Key Procurement officials:** In order to develop capacity of key procurement officials for undertaking procurement by following World Bank Procedures, the PCU procurement staffs and OPIUs Procurement staffs attended Procurement Training Programme on Procurement Procedures for World Bank Aided Projects. The same group of individuals has also attended training on online tool STEP. Procurement management executives of PCU as well as officials handling procurement in OPIUs were also trained on the International programme on 2016 Procurement Policy Framework for the World Bank Aided projects. The OPIUs over the period has gained considerable knowledge and understanding of the Bank's Procurement Process which helped them in the departmental procurement activities.

h) **Procurement Review:**

- **Procurement Review by PCU:** PCU level procurement planning and management activities involved obtaining the "No Objection" of the World Bank for the Procurement Plan and its updates. The World Bank's "No Objection" was also taken for TOR for all consultancy services and prior review cases under NCB.
- **Procurement Review by Internal Auditor:** Internal auditor engaged by PCU for carrying financial audit is also entrusted to carry out the procurement audit and sample check of procurement assets under the project. The internal auditors submits a yearly report on the procurement audit to PCU.
- **Statutory Audit** of the project including the procurement has been carried intermittently by the AG Audit.
- **Post Procurement Audit (PPR) by the World Bank:** The World Bank also conducts online PPR annually based on the submission through STEP.

i) **Procurements completed under the Project:** The procurement under APART has been very challenging which covered many sectors such as Agriculture, Horticulture, Industry, Dairy, Rural infrastructure, Financial services among many others. **However all procurements were completed with satisfactory rating from World Bank without any red flags during project implementation.**

j) PCU has collated the overall procurement status of the project as on date as per the approved procurement plan for consultancies, goods & equipment and civil works and the overall procurement status is given in the table below: (OPIU details are furnished at **Annex- 6**). **Gist of Procurements under the project is furnished below:**

Sl	Name of Organization	Total no of Procurement (Nos)	Value of Signed Contracts (Rs. Cr)	Total Expenditure against the Signed contracts (Rs. Cr)
1	PCU	188	188.04	161.27
2	PWRD	415	690.91	528.27
3	WAMUL	511	47.57	47.03
4	I & C	224	53.94	41.50
5	Agri	1646	116.08	101.05
6	AAU	317	34.00	33.60
7	NDDB	8	45.38	45.38
8	Horti	1035	57.95	57.43
9	Fishery	107	6.82	5.80
10	AHVD & ALPCO	235	14.34	14.31
11	ASWC	72	1.56	1.07
12	ASAMB	38	0.38	0.17
13	DDD	44	1.34	1.25

Sl	Name of Organization	Total no of Procurement (Nos)	Value of Signed Contracts (Rs. Cr)	Total Expenditure against the Signed contracts (Rs. Cr)
14	Sericulture	72	5.55	5.39
15	H & T	32	4.25	1.62
		4944	**1268.10**	**1045.12**

7.5.4 Financial Management:

a) **The Financial Management (FM) framework:** The FM framework of APART was designed to ensure accountability, efficiency, and transparency in the management of project funds. The Financial Management Manual (FMM) was developed for the project and the same was approved by the World Bank. The FMM was aligned with the project objectives as outlined in the Project Appraisal Document (PAD) and facilitated effective financial implementation and monitoring. The FMM served as the guiding document for all OPIU) and partner agencies. It outlined the institutional structure, fund flow mechanisms, budgeting systems, accounting policies, financial reporting, audit procedures, and staffing arrangements to ensure that project resources were utilized effectively and for their intended purposes.

b) **Institutional and Administrative Arrangements:** The overall financial management of was anchored in the ARIAS Society, which functioned as the PCU for the project. The PCU managed coordination, fund disbursement, and consolidated financial reporting for all implementing departments of the project. At the district level, DLCCs ensured convergence and oversight. Each OPIUs operated through with designated finance and accounts staff. A Chief Financial Officer (CFO) at PCU led the FM team, supported by a Senior Financial Advisor, five (5) Financial Management Specialists, and sixteen (16) District Accounts Managers (DAMs) who ensured monthly consolidation of accounts and compliance with financial controls.

c) **Budgeting, Planning, and Fund Flow:** Financial planning of the project was closely linked to its physical targets and Annual Work Plans (AWP). Each PIU prepared an AWP-cum-Budget based on the provisions in the agreed Cost Tables (CT) as a guidance. These budgets were approved by the Governing Body of the ARIAS Society and integrated into the State budget under Agriculture department's head to ensure flexibility and streamlined fund management. **Project Budget Head:** Code: 401-4401-00-800-5211-000-43-01-EAP-V-GA

d) **Project Funds:** Funds for the project were sourced from the World Bank, the Government of Assam, and beneficiary contributions. The World Bank disbursed its share into a Designated Account maintained by the Government of India at the Reserve Bank of India, while GoA transferred funds to ARIAS Society as grants-in-aid. The PCU operated a Parent–Child banking model, where the PCU maintained a "Parent Account" and all Accounting Centers (ACs) operated zero-balance "Child Accounts." Payments by ACs were made electronically through RTGS/NEFT within approved fund limits, ensuring that idle funds were minimized and all transactions were traceable. Beneficiary contributions, both cash and in-kind, were recorded in memorandum accounts but not as project income. Grants to FPCs, Industry Associations, and user groups were released in tranches based on utilization reports and physical verification, ensuring accountability at the grassroots level.

- **Fund Transfer Mechanism:** Funds were transferred by PCU directly to 45 ACs based on:
  - Availability of funds at PCU received from the State Government
  - Approved Annual Work Plan (AWP)
  - Verification of utilization reports
- **Banking arrangement:** A 'Parent-Child' banking model was adopted:
  - PCU maintained a Parent Account (Current Account).
  - Implementing Agencies /ACs held Child Accounts (Zero Balance).

- Fund Limit Orders (FLOs) were assigned based on fund release proposals and adjusted by the SPD as required

e) **Accounting System and Internal Control:** The project followed a double-entry accounting system on a cash basis, using TALLY software for uniformity across departments. The Chart of Accounts (CoA) was standardized to capture data by component, activity, and disbursement category aligned with World Bank reporting requirements. Each Accounting Center maintained books such as the Cash Book, General Ledger, Advance Register, Beneficiary Contribution Register, and Asset Register. The FMM established strict internal control measures — including segregation of duties, joint signatories for all bank transactions, periodic bank reconciliation, and documentary support for all payments. Electronic payment systems with mobile-based alerts enhanced transparency and reduced fiduciary risk. The PCU consolidated financial data monthly using TALLY's group consolidation feature, ensuring real-time monitoring of fund utilization.

f) **Financial Reporting and Auditing:** Financial reporting adhered to the World Bank's prescribed formats. Interim Unaudited Financial Reports (IUFRs) were prepared quarterly and submitted, detailing sources and uses of funds, advances, and prior review contracts. Annual financial statements were prepared at the end of each fiscal year, comprising Receipts & Payments Accounts, Balance Sheets, and Schedules. Audit mechanisms under APART were comprehensive. An independent Chartered Accountant firm, appointed in accordance with World Bank guidelines, conducted annual external audits of project financial statements and quarterly reviews of selected PIUs and community groups. The Comptroller and Auditor General (CAG) retained the right to audit project accounts. PCU maintained an Audit Committee, chaired by SPD, to review audit findings and ensure timely corrective actions. Audit observations were systematically tracked through a physical and electronic register, promoting accountability and transparency across all implementing level.

- Reporting & Reimbursement: ACs submitted the following monthly to PCU:
  - Trial Balance (via Tally)
  - IUFR and Schedules
  - Bank Reconciliation Statement
- PCU compiled Quarterly IUFRs and submitted to Controller of Aid Accounts and Audit (CAAA) and World Bank for reimbursement.
- Reimbursement Status at Financial Closing of the Project on **31-01-2026:**
  - Total Project Cost: **Rs.1980.00 Cr**
  - Reimbursible Amount : **Rs.1584.00 Cr**
  - Total Expenditure Incurred: **Rs.1956.44 Cr**
  - Reimbursement Claimed: **Rs.1565.15 Cr**
  - % Disbursed (incl. Last IUFR): **98.81% (Say 99%)**

g) **Capacity Building and Staffing:** The financial management function was strengthened through continuous capacity-building initiatives. All finance and accounting personnel, including district accountants and departmental finance staff, underwent training on double-entry bookkeeping, preparation of IUFRs, World Bank financial procedures, and government financial rules. The Chief Financial Controller (CFC) and the Senior Financial Management Specialists (SFMS) provided hands-on guidance and supervision to ensure adherence to the FMM. The staffing structure- comprised a CFC, a SFMS, a Sr. Accountants Manager, five (5) Junior Financial Management Specialists (JFMS), and sixteen (16) District Accounts Managers (DAMs) and they collectively ensured efficient operation and monitoring of the financial management system across the project districts.

h) **Budgeting**: All Operational Project Implementation Units (OPIUs) submitted annual budget estimates to the Project Coordination Unit (PCU), which then consolidated and submitted them to the Agriculture and Finance Departments.

i) **Financial Year (FY) wise total fund received from the Government of Assam** (including for COVID-19 response) (Rs. Cr.) as on **31.01.2026**

FY	GoA Budget	Central Share	State Share	Total Released by GoA
2016–17	20.00	4.00	4.00	8.00
2017–18	150.00	84.00	21.00	105.00
2018–19	80.00	50.00	16.00	66.00
2019–20	152.50	5.00	0.00	5.00
2020–21	272.00	217.60	39.40	257.00
2021–22	285.86	156.67	39.17	195.84
2022–23	265.00	240.00	25.00	265.00
2023–24	450.00	330.00	30.00	360.00
2024–25	400.00	240.00	7.00	247.00
2025–26	284.33	107.27	177.06	284.33
Total	**2359.69**	**1434.54**	**358.63**	**1793.17**
COVID-19 release	186.83	149.46	37.37	186.83
G/Total	**2546.52**	**1584.00**	**396.00**	**1980.00**

j) **Component wise expenditure (Rs. Cr) as on 31.01.2026** *(un-Audited):*

Sl	Component wise expenditure	Amount (Cr)	% of total
1	A: Enabling Agri Enterprise Development	115.27	5.89%
2	B: Facilitate Agro Cluster Development	542.71	27.74%
3	C: Market Led Production and Resilience Enhancement	912.62	46.65%
4	D: Project Management, Monitoring & Learning	199.01	10.17%
5	Covid-19 Response	186.83	9.55%
	Total	**1956.44**	**100.00%**

k) **OPIU-wise Fund Utilization (Rs. in Cr) as on 31.01.2026:**

Sl	OPIU/Implementing Agencies etc.	Expenditure
1	Agriculture	282.44
2	Horticulture	124.71
3	Assam Agricultural University (AAU)	98.30
4	Industry	95.96
5	A.H. & Veterinary	27.78
6	Fisheries	86.86
7	Sericulture	19.39
8	Handloom & Textiles	7.68
9	PWRD	274.61
10	ASAMB	215.66
11	ASWC	133.43
12	Dairy Development	13.45
13	WAMUL	143.59
14	NDDB	42.45
15	Sericulture (BEM)	4.29
16	PCU	199.01
17	COVID-19 Component (through NHM)	186.83
	Total	**1956.44**

l) **Overview of Financial Status as on 31-01-2026:**

Component	Amount (₹ Cr)
Total Project Cost	**1980.00**
Total Fund Received from GoA	**1980.00**
Total Expenditure	**1956.44**
Total Reimbursement Claimed (80% of Exp)	**1565.15**
% Disbursement (including the last IUFR)	**98.81% (Say 99%)**

m) The financial management system was robust, transparent, and accountable which aided efficient management of the project funds funds. The integration of electronic banking, standardized accounting procedures, and timely financial reporting enabled effective monitoring of expenditures and ensured that funds were utilized efficiently for intended project outcomes. The system not only met the fiduciary and reporting requirements of the World Bank and the Govt. of Assam, but also created a replicable model of sound financial governance for future externally aided projects in the state.

7.5.5 Monitoring & Evaluation:

a) **Introduction:** Monitoring and Evaluation (M&E) formed an integral part of the project cycle to ensure accountability, track progress, and facilitate learning. The project adopted a results-based monitoring framework aligned with the Logical Framework (Logframe) developed at the inception stage.

Monitoring was carried out (a) internally by the Project Coordination Unit (PCU) and (b) By independent external agencies engaged at different stages of the project as listed below to ensure objectivity and credibility.

- Sutra Consulting Pvt Ltd was engaged to conduct the Baseline study and two numbers of half yearly progress monitoring studies.
- NABCONS was engaged to do an evaluation study of a few APART interventions during Mid Term Evaluation
- Vision EIS Consulting Pvt. Ltd in joint venture with Rashtriya Grameen Vikas Nidhi for four numbers of Half yearly progress monitoring studies and the End Term Evaluation study.

The initial contract of Sutra Consulting Pvt Ltd was for two years. The extension of the contract beyond the period was subject to the performance of the Consultancy Agency. However as their performance was not up to the desired standards, the contract was not extended and a fresh procurement process was initiated to onboard a new M&E Agency.

To cover up for the period lost during the procurement process, NABCONs was engaged to do an evaluation study of a few APART interventions.

Vision EIS Consulting Pvt. Ltd in JV with Rashtriya Grameen Vikas Nidhi was selected to carry out the remaining studies including the End Term Assessment.

b) **Monitoring Framework:** The project's monitoring framework was based on a set of Key Performance Indicators (KPIs) covering inputs, outputs and outcomes. Progress was measured against baseline values and annual targets. **Annexure-3** shows the Results Framework (Baseline vs EOP).

c) **Project Management Information System (PMIS):** The **Project Management Information System (PMIS)** developed and deployed under the Assam Agribusiness and Rural Transformation Project (APART) has played a pivotal role in ensuring effective planning, monitoring, and reporting throughout the project lifecycle. The PMIS was conceptualized as a centralized, web-based digital platform designed to integrate data from multiple implementing agencies, project districts, and thematic components. Its primary objective was to provide real-time, reliable, and comprehensive information to aid evidence-based decision-making and enhance accountability.

To support PMIS, a web-based MIS was developed in the Year 2019 and became fully operational in 2020 after pilot testing and capacity-building of MIS Executive. This MIS web platform was designed to capture data on project activities, beneficiary coverage, financial progress, and key performance indicators. Data was collected at the district level by the District Operational PIUs through designated nodal officers and field functionaries of ATMA. Primary data was entered into the MIS either directly at the district level based on approval from District-level Coordination Committee approval or through offline formats that are subsequently uploaded to the system.

The district operational PIUs are responsible for first-level data verification, ensuring that reported figures are supported by field records and beneficiary lists wherever applicable.

d) **Key features and functions of the PMIS:**

- **Planning and Target Setting:** Component-wise, activity-wise and district-wise physical and financial targets were captured and monitored against annual work plans.
- **Data Capture and Reporting:** Field-level progress was entered by implementation units on a periodic basis, which enabled aggregation of data at state, district and component levels.
- **Monitoring & Evaluation (M&E):** The system was linked to the project's Results Framework and Key Performance Indicators (KPIs), allowing tracking of outputs and outcomes against baselines and targets.
- **Financial Monitoring:** Integration of fund flow and expenditure data ensured close alignment of physical progress with financial performance.
- **Dashboards & Analytics:** Interactive dashboards provided real-time visualization of progress across components such as agriculture, horticulture, livestock, fisheries, value chains and enterprise development.
- **Document & Knowledge Management:** Reports, guidelines, manuals and key communications were archived systematically, creating an institutional memory for future projects.
- **Grievance Redressal & Feedback:** The PMIS was linked with beneficiary feedback mechanisms to strengthen transparency and citizen engagement.

e) **Impact of PMIS on Project Implementation:**

- Enhanced transparency and accountability by making progress data available to stakeholders at different levels.
- Improved efficiency in monitoring field activities and resolving implementation bottlenecks.
- Provided a strong evidence base for mid-course corrections, strategic decisions and adaptive management.
- Facilitated timely preparation of reports for the World Bank, Government of Assam and other stakeholders.

f) **Safeguard Compliance Workflow (Detailed):**

- **Screening (field)**: When an intervention/civil work is registered, mobile form runs an environmental/social screening checklist and attaches a provisional safeguard_case_id.
- **Mitigation Plan**: If screening flags risks, a Mitigation Action Plan (MAP) is drafted (template-driven), assigned to responsible PIU.
- **Consultation & Documentation**: Dates, attendee lists, minutes, photo evidence uploaded.
- **Implementation Monitoring**: Periodic checks logged; compliance score calculated.

g) **Methodology - End-Term Assessment (ETA)**

i) **Context:** The Baseline Study of APART was conducted in 2018-19 by Sutra Consulting Pvt Ltd. The study covered a sample of 7,750, drawing 5,477 samples from APART Intervention Blocks and 2,273 as Controls from non-project blocks across 16 districts.

The M&E Agency for APART was onboarded in January 2022 to conduct rounds of progress monitoring surveys (PMS) and the end-term assessment.

Four rounds of PMSs were conducted between 2022 and 2025, covering all 24 districts twice. A total sample 9469 (Intervention - 8253; Control - 1216) was covered.

Value-chains and other segments were covered and gross margin analysis for four commodities (paddy, mustard, fisheries and potato) were done. The details of 4 PMS rounds are mentioned in the table below:

ii) **End Term Assessment:** The End Term Assessment was conducted in 2025, with data being collected in the months of July and August.

iii) **Quantitative Survey:** A total of 7,822 samples were covered. Intervention data was collected from 18 districts spanning all 6 agro-climatic zones (ACZs), comprising 150 blocks and 555 villages, comprising 5,255 samples from value chains and 310 from other segments. Control data was collected from 121 villages from 9 blocks of 9 districts, covering all six ACZs, reaching out to 2,257 households from value chains.

iv) **Qualitative information:** Key Informant Interviews (KIIs) with OPIU and PCU Coordinators, along with Focus Group Discussions (FGDs) with Farmer Producer Companies (FPCs), Common Service Centers (CSCs), Common Facility Centers (CFCs) and stakeholders related to roads, markets and warehouses were held.

Sample size	Intervention	Control
Value-chains (Agriculture, Horticulture, Milk, Fisheries and Sericulture)	5,255	2,257
Other segments (IA, CFC, AAGL, Kshyamata, FPC, CSC, Xamahar, Roads, Markets, Warehouse)	310	-
TOTAL	**5,565**	**2,257**
Grand Total	**7,822**	

v) **Analyses of PDO indicators:**

- **Increase in price premium of commodities sold by beneficiaries (%)** estimated by comparing volume-weighted average prices at baseline and endline to assess percentage changes over time.

- **Share of selected commodities sold through new marketing channels (%)** was calculated based on the proportion of total produce marketed through project-supported channels. For paddy and maize, new marketing channels included project-supported procurement centers, Farmer Producer Companies (FPCs) and direct sales to processors and millers. In the case of potato, contract farming arrangements facilitated under the project enabled farmers to sell directly to processors and FPCs, alongside improved access to traders. For milk, the quantity of milk sold to Dairy Cooperative Societies (DCSs) established under the project was considered, while for fisheries, the quantity of fish sold to markets was included.

- **Farmers adopting improved agricultural technology (%)** was calculated as the percentage of surveyed farmers who reported adopting either improved seed varieties or recommended packages of practices promoted by the project and any of the climate resilient technologies.

vi) **Analyses methods used:** The End Term Assessment (ETA) has been conducted using independent samples rather than panel data. Moreover, control data was gathered for five focused commodities - Paddy, Mustard, Potato, Fish and Milk - as discussed and agreed with the ARIAS Society.

A multi study-design framework, aligned with the nature and availability of data, has been adopted for the End-Term assessment study:

vii) **Comparison in productivity and revenue for the five focused commodities** (Paddy, Mustard, Potato (table variety), Fisheries (Polyculture) and Milk (Informal) was compared between baseline and endline (Intervention and Control) using the **Difference-in-Means approach.** Also, t-test (assuming unequal variances) has been conducted to statistically compare baseline and endline outputs.

viii) **Greater comparison between intervention and control** was established using **Multivariate regression-based analysis** has also been adopted for the 5 focused commodities Paddy, Mustard, Potato (table variety), Fisheries (Polyculture) and Milk (Informal) to compare outcomes between intervention and control areas at the endline by controlling for observable household and contextual characteristics that may influence outcome.

ix) **Operational efficiency** of crop cultivation has been calculated using **Gross Margin Analysis** and **Gross Margin Ratio** for all crops, milk and fisheries.

x) **Comparison with Baseline and ETA** - Control information was not collected for commodities like maize, black gram, lentil, pea, ginger, banana, pineapple, cabbage, cauliflower, tomato, pumpkin, brinjal, milk (formal), paddy-cum-fish, polyculture with freshwater prawns, beel fishery, sericulture and handloom. **Mann-Whitney U-test** and **non-parametric tests** have been conducted to ascertain statistical changes between baseline and end-term assessment.

xi) For **new segments** including Formal Milk, Fish (Paddy-cum-fish and polyculture with prawn), potato (processed variety), enterprises, industry associations, farmer producer company (FPCs) and infrastructure, only ETA results with qualitative inputs were used as there is no baseline or control information.

h) **Findings: Results Indicators:** The **Project Development Objective (PDO)** of APART is to "*add value and improve resilience of selected agriculture value chains, focusing on smallholder farmers and agro-entrepreneurs in targeted districts of Assam and to advance Assam's COVID-19 response*".

Project Development Objective (PDO) Indicators:

(1) Farmers reached with agricultural assets or services (number) (CRI) [Of which female beneficiaries (number)]

		Farmers reached with agricultural assets or services (number) (CRI)	Of which female beneficiaries (number)
Baseline		0	0
YR-1	Target	50000	30000
	Achievement	0	0
	%	**0.0**	**0.0**
YR-2	Target	100000	30000
	Achievement	175329	41460
	%	**175.3**	**138.2**
YR-3	Target	200000	60000
	Achievement	350358	96171
	%	**175.2**	**160.3**
YR-4	Target	300000	90000
	Achievement	407275	107298
	%	**135.8**	**119.2**
YR-5	Target	400000	120000
	Achievement	451480	119161
	%	**112.9**	**99.3**
YR-6	Target	500000	150000
	Achievement	593987	169166
	%	**118.8**	**112.8**
End Target. YR-7	Target	700000	210000
	Achievement	802838	244573
	%	**114.7**	**116.5**
Source: PMIS (January 2026)			

APART has reached out to **6,32,086 farmers** at least with one service or asset across the lifespan of the project. But it had covered more than 8 lakh farmers (of which 30.5% were females) through various interventions like climate-resilient technology demonstrations, training and exposure visits, organizing farmers and enterprises into FPCs, IAs, DCSs, BDMCs, providing agri tools, saplings (sericulture), rearing houses, looms (handloom) among others. 125 FPCs were registered under APART with 60,702 shareholders (33% women). The national and international knowledge partners facilitated newer technologies, practices and seed varieties to APART, which were

implemented through the concerned OPIUs. 18 Industry Associations (IA) were formed during the project period, comprising more than 2830 entrepreneurs / MSMEs, (including 34% women and 12% Scheduled Tribes). Around 43% of Dairy Cooperative Society (DCS) members were females, of which five (5) all-women DCSs were formed. 65 Beel Development Management Committee (BDMC) were formed across 18 districts comprising 6,750 fishery farmers, of which 45% were women. The project interventions under the Sericulture and Handloom & Textiles OPIUs have strengthened traditional weaving and rearing practices, enhanced productivity and created sustainable livelihood opportunities. The handloom sector is overwhelmingly women-led, making it one of the strongest cases of gender-transformative rural enterprises in Assam. For the first time sericulture and handloom project participants were organized into 10 FPCs in Assam. Around 2,51,366 people received training from APART of which 77,902 were women from various project segments.

The **End-Term Assessment (ETA)** captured responses of 5255 farmers (30% female farmers) across cereals, pulses, fruits & vegetables, spices & condiments, milk, fish, specialty value-chains from project intervention areas, along with other related segments. ***Few findings are given below***:

- **Agriculture -** APART promoted Integrated Crop Management Demonstrations (ICMD), Integrated Pest Management (IPM), Minikit demonstrations. For paddy, STRVs were promoted (81% of farmers confirmed that they continued using the APART recommended STRV seeds). Practices like line-sowing and proper seedbed for mustard were widely accepted.

- **Horticulture -** Practices like zero tillage with paddy straw mulching and raised-bed straw mulching for potato were quite popular with the farmers. Heat and drought tolerant varieties (STRVs) and high solid processing potatoes were promoted. 95% farmers (98.6% females) adopted the APART promoted table varieties. Integrated Pest Management (IPM) was promoted for the other vegetables. Processing varieties of potato were introduced for the first time in Assam through APART. FPCs have entered direct contract farming deals with large enterprises.

- **Milk Value Chain -** Ration Balancing program for the cattle and climate-resilient practices like solar powered AMCU and BMC were readily adopted by the farmers and the DCSs. Services like improved breed management, better feed management, dairy management along with disease control practices had been widely adopted by the dairy farmers. Organization of the dairy farmers into DCSs has been widely facilitated by APART.

- **Fisheries Value Chain -** Interventions like polyculture with small indigenous species, freshwater prawns and paddy-cum fish, have gained wide acceptance among the fish farmers. APART had promoted improved fish seed and fish feed varieties, adopting which the farmers have experienced greater outputs. 66% fish farmers (59% females) said that they have completely adopted the practices promoted through APART. Through APART's facilitation, Beel fish farmers had been organized into Beel Development Management Committee which has increased their active participation.

- **Sericulture and Handloom Value Chain -** Climate-resilient rearing houses were provided to silk farmers, along with training and saplings. 12% of silk farmers confirmed receiving rearing houses received from APART.

- **Industry Association (IA) -** In the General Body of the IAs, 38% are females and there are 44% females in Executive Body. STs comprise 25% of the General Body and 22% of the Executive Body.

- **Common Facility Center (CFC) -** The CFCs interviewed had on an average 16.71 male members and 7.29 female members (30%). All seven CFCs interviewed had begun production.

- **AAGL -** Across the 30 enterprises surveyed, about 40% of the enterprises are owned by females. The number of employees engaged, on average, comprises of 6.13 males and 4.47 females.

- **Kshyamata -** 53% of the enterprises have female owners. On average, each enterprise employed 7.23 workers, comprising approximately 2.77 males and 4.50 females, indicating a relatively higher engagement of women in the workforce.

- **Farmer Producers Company (FPC) -** The membership of farmers in the FPCs was significant, with an average of 502 members per FPC out of which 33% were females. On average, the Board of Directors (BoDs) of the FPCs comprised 5.93 members, including 4.68 male and 1.25 female members. This data revealed that women remain under-represented in leadership positions, limiting inclusivity at the decision-making level.

- **Beel Development Management Committee (BDMC) -** 11 out of 85 BDMC members interviewed were females.

- **Dairy Cooperative Societies (DCS) -** All 353 respondents from the formal milk sector were members of DCS (WAMUL) for a little less than 4 years (in average).

APART had provided multiple services and assets to the target farmers across many districts of Assam.

Drawing from the responses of the farmers from the ETA across all the six value-chains, farmer's income was calculated for 5,255 intervention and 2,257 control farmers. A very significant difference in average annual income was observed between the two groups, which is also reflected in the household net capita income.

Comparison of household income (intervention & control farmers):

	Interv-ention	Control	% Difference	P values	Significance (T-Test)	95% CI	
					***: p<0.001; **: p<0.05; *: p<0.01		
Sample	**5255**	**2257**					
Average HH Income	2,63,439.1	1,67,830.6	**56.97%**	Pr(T<t) = 1.0000 Pr(|T|>|t|) = 0.0000 Pr(T>t) = 0.0000	***	86506.56	104710.6
Source: End-term Assessment (2025)							

	Intervention	Control	% Difference
Average Family Size	5.5	5.01	-
Average Per Capita Income	47,898.02	33,499.12	**42.98%**

Note: The per capita income estimates presented in this report are based on primary data collected through the End Term Assessment survey and are limited to sampled farmers in intervention and control areas. These estimates are intended for project-level comparison and analysis and cannot be compared with state-level averages.

The data on income demonstrated a clear and statistically robust improvement in farmer incomes in intervention areas across all six value chains. Despite marginally larger household sizes, intervention households recorded significantly higher per capita incomes, indicating real gains in economic well-being. The magnitude and consistency of these differences strongly suggest that project interventions have contributed meaningfully to enhanced and more resilient rural livelihoods.

(2) Increase in quality as measured by price premium of commodities sold by beneficiaries in selected value chains (%)

Producer level prices were collected from the farmers across selected commodities both for intervention and control areas, which was compared with Baseline information available. The table below shows the increase in

price premium across selected value chains using data from the end-term assessment study:

	Intervention				Control			
	2025	**2019**	**Change**	**% Change**	**2025**	**2019**	**Change**	**% Change**
	Weighted Average				**Weighted Average**			
Paddy (Rs. per kg)	21.27	12.62	8.65	**68.54%**	21.46	12.34	9.12	**73.91%**
Mustard (Rs. per kg)	63.39	27.55	35.84	**130.09%**	64.15	28.31	35.84	**126.60%**
Potato (Table varieties) (Rs. per kg)	12.74	10.52	2.22	**21.10%**	13.53	10.13	3.4	**33.56%**
Milk (Formal) (Rs. per kg)	47.79	39.73	8.06	**20.29%**	43.49	38.06	5.43	**14.27%**
Fish (Polyculture) (Rs. per kg)	208.97	149.7	59.27	**39.59%**	209.44	176.13	33.31	**18.91%**
Total	**354.16**	**240.12**	**114.04**		**352.07**	**264.97**	**87.1**	
	Increased (%)			**47.49%**	**Increased (%)**			**32.87%**
Net increase in price premium: 47.49 % - 32.87% = **14.62 percentage points**								
Source: Baseline Study (2019), End Term Assessment (2025)								

The increase in price premium of commodities sold by farmers from the selected value chains was assessed using producer-level primary survey data. For both intervention and control areas, weighted average prices were computed at the producer level by weighting individual selling prices with the corresponding quantities sold, ensuring that price estimates reflect actual volumes transacted.

Apart from paddy and mustard, data for table variety potatoes and polyculture fisheries was used for calculation. For the milk segment, farmers (both from formal and informal sectors) who have poured their produce to WAMUL and DCSs have been considered.

The weighted average prices for the current assessment period (2025) were then compared with the corresponding 2019 baseline weighted average prices to estimate changes over time. Based on this analysis, beneficiaries in intervention areas recorded a 47.49 percent increase in price premium relative to the baseline, while a 32.87 percent increase was observed in control areas. The price change observed in control areas captures broader market-level movements and external factors affecting commodity prices. The net increase in price premium attributable to project interventions is estimated at **14.62 percentage-points**, indicating an improvement in producer price realization associated with project-supported value chain interventions.

While price increases in control areas reflect broader market trends and external factors affecting agricultural prices, the higher increase observed in intervention areas indicates the additional gains attributable to project-supported interventions. The **net increase in price premium attributable to the project is estimated at 14.62 percentage points**, demonstrating improved producer price realization associated with value chain strengthening, aggregation, and market linkage interventions.

Across commodities, substantial price gains were observed for mustard and paddy, while milk and fisheries also recorded notable improvements, particularly in intervention areas. Fisheries under polyculture systems showed strong price and volume effects, reflecting productivity gains alongside improved market access.

Overall, the findings suggest that project interventions have contributed meaningfully to enhancing farm-gate prices beyond general market movements.

The table below shows results of few output indicators from the ETA related to prices of commodities:

Output Indicators	**Findings**

Output Indicators	Findings
Formal milk sector	
Quantity of milk sold to WAMUL	80.7% dairy farmers sell milk to WAMUL - 15.53 kg per day (average) at Rs. 48.07 per kg. On average per farmer sells 4603.54 kg of milk per year
Daily milk sales of dairy farmer	Rs. 931.2 per farmer per day
Informal milk sector	
Milk marketable surplus (kg/day)	14.56 kg/day from intervention area and 12.8 kg/day from control area
Amount of milk channeled into the formal sector	72.8% farmers are pouring milk, 15.06 liters per day at Rs. 51.3 to the DCS (intervention), 20.75% farmers are pouring milk, 19.74 liters per day at Rs. 46.78 to the DCS (control)
Amount of milk available for processing	**Sold to Sweet processor** • 14.3% farmers - 5.42 liters per day at Rs. 49.3 (intervention) • 29.8% farmers - 7.49 liters per day at Rs. 46.22 (control) **Sold to Cottage cheese processors** • 2.8% farmers - 9.7 liters per day at Rs. 45.0 per day (intervention) • 6.3% farmers - 4.14 liters of milk per day at Rs. 49.2 (control)
Fisheries value chain	
Marketable Surplus due to climate resilient aquaculture practices (in kgs)	**Polyculture Fisheries** - 3094.1 kg per year per farmer (intervention) at Rs. 208.88 per kg and 1116.225 kg per year per farmer (control) at Rs. 209.6 per kg
	Paddy-cum-Fish - 1092.02 kg per year per farmer at Rs. 207.9 per kg
	Polyculture with Prawns - 2492.75 kg per year per farmer at Rs. 207.17 per kg
Marketable Surplus due to technology demonstration in Beel fisheries	**Beel Fisheries** - 1180.31 kg per year per farmer at Rs. 271.47 per kg
Source: End Term Assessment (2025)	

Gross Margin Analysis[2] (GMA) for the commodities was conducted with the ETA data to understand the operational efficiency of the interventions.

	Intervention		Control	
	Gross Margin (Rs. /ha)	**Gross Margin Ratio**	**Gross Margin (Rs. /ha)**	**Gross Margin Ratio**
Paddy	64,077.85	**64.16%**	37,617.52	50.27%
Mustard	58,692.52	**61.25%**	36,634.01	54.82%
Potato	1,13,565.65	**54.43%**	37,702.88	38.40%
Fish	11,42,505.05	**88.92%**	6,61,910.64	75.95%

The gross margin analysis clearly demonstrated that project interventions have resulted in substantial improvements in farm-level profitability and cost efficiency across all assessed commodities. Intervention areas consistently outperformed control areas, reflecting the effectiveness of improved production practices, input optimization and market linkages promoted under the project. The particularly strong gains observed in potato and fish value chains highlighted their high potential for income enhancement and scalability. The results underscored that the intervention model is not only increasing returns but also strengthening the economic sustainability and resilience of participating producers, providing a robust case for consolidation and replication in similar agro-ecological contexts.

The ETA findings indicated that project-supported value chain interventions have contributed to improved producer price realization, higher marketable surpluses and stronger integration of farmers into formal market channels. Improvements are particularly evident in dairy and fisheries value chains, where higher volumes, better prices and increased participation in organized procurement systems were observed. Enhanced aggregation, access to formal buyers and adoption of improved production practices have collectively strengthened farmer returns and reduced reliance on informal and less remunerative market channels. Overall, the evidence points to a positive contribution of the project in enhancing farmer incomes and market resilience.

[2]**Gross Margins** show the financial returns to farmers after considering all monetary revenues and costs that are significantly affected by their choice of technology. Anything that is not a monetary cost (e.g., use of family labor) or would be essentially the same whichever technology was used (e.g., land rental) can be left out. The **gross margin ratio** is a profitability metric calculating the percentage of revenue retained after incurring the direct costs of producing goods or services (COGS). It indicates operational efficiency, with higher percentages signaling stronger, more profitable performance

(3) Selected commodities sold through new marketing channels (%)

		Share of selected commodities sold through new marketing channels (%)
Baseline		0
YR-1	Target	0
	Achievement	0
	%	**0.0**
YR-2	Target	5
	Achievement	9.5
	%	**190.0**
YR-3	Target	15
	Achievement	18.97
	%	**126.5**
YR-4	Target	15
	Achievement	22.69
	%	**151.3**
YR-5	Target	20
	Achievement	24
	%	**120.0**
YR-6	Target	20
	Achievement	24
	%	**120.0**
End Target. YR-7	Target	25
	Achievement	24
	%	**96.0**
Source: PMIS (January 2026)		

Findings from ETA: APART has facilitated the creation of new channels of marketing through various interventions like (i) formation of farmer producer companies (FPCs) and establishing Common Service Centers (CSCs), (ii) the conglomeration of agri-horti and other value-chain entrepreneurs and enterprises and formation of Common Facility Centers (CFCs), (iii) strengthening and expanding the reach of WAMUL, (iv) creation and revival of Dairy Cooperative Societies (DCSs) under the Directorate of Dairy Development, (v) upgradation and modernization of wholesale markets, (vi) upgradation of warehouses (for storing commodities to fetch better prices later), (vii) market linkages with industries like Pepsico, Siddhi Vinayak, Haldirams, (viii) fairs, exhibitions, reshom haats (sericulture and handloom), (ix) engaging agencies like Sammunati, Rang De and others to provide farmers/FPCs with credit, insurance and aggregation support, (x) supported the government's initiative to strengthen the e-procurement centers.

Share of selected commodities sold through new marketing channels (%)						
	Intervention			**Control**		
	2025	**2019**	**Change**	**2025**	**2019**	**Change**
Paddy						
Sold to markets (% of produce sold)	62.33%	5.21%	57.12%	53.59%	10.61%	42.98%
Sold to traders (% of produce sold)	6.45%	23.48%	-17.03%	4.82%	31.39%	-26.57%
Sold to processors / millers (% of produce sold)	5.38%	-	-	5.76%	-	-
Sold to FPC (% of produce sold)	0.11%	-	-	0.25%	-	-
Sold to procurement centers (% of produce sold)	1.72%	-	-	2.2%	-	-
Mustard						
Sold to markets (% of produce sold)	60.78%	36.28%	24.50%	68.13%	42.47%	25.66%
Sold to traders (% of produce sold)	13.16%	51.11%	-37.95%	7.48%	50.68%	-43.20%
Sold to processors / millers (% of produce sold)	4.94%	-	-	8.89%	-	-
Sold to FPC (% of produce sold)	0.35%	-	-	0.13%	-	-
Sold to procurement centers (% of produce sold)	3.66%	-	-	6.36%	-	-
Potato (Table varieties)						
Sold to markets (% of produce sold)	70.91%	53.23%	17.68%	67.53%	21.38%	46.15%
Sold to traders (% of produce sold)	21.52%	38.94%	-17.42%	11.58%	50.83%	-39.25%
Sold to processors / millers (% of produce sold)	1.61%	-	-	2.4%	-	-
Sold to FPC (% of produce sold)	0.28%	-	-	0.05%	-	-
Milk (Informal)						
Sold to traders (% of produce sold)	25.34%	31.04%	-5.70%	46.34%	33.24%	13.10%
Sold to sweet processors (% of produce sold)	4.73%	-	-	15.64%	-	-
Sold to cottage cheese processors (% of produce sold)	1.69%	-	-	3.16%	-	-
Sold to DCS (DDD) (% of produce sold)	47.6%	2.2%	45.40%	2.43%	0.17%	2.26%
Sold to neighbors, villagers (% of produce sold)	9.6%	44.03%	-34.43%	10.21%	48.92%	-38.71%

Share of selected commodities sold through new marketing channels (%)						
	Intervention			Control		
	2025	2019	Change	2025	2019	Change
Sold to WAMUL (% of produce sold)	-	-	-	11.96%	-	-
Other markets (% of produce sold)	-	11.56%	-	-	3.56%	-
Milk (Formal)						
Sold to WAMUL (% of produce sold)	73.52%	-	-	-	-	-
Sold to neighbors, villagers (% of produce sold)	17.58%	-	-	-	-	-
Fish (Polyculture)						
Sold to markets (% of produce sold)	97.21%	53.54%	43.67%	91.79%	7.01%	84.78%
Sold to villagers (% of produce sold)	-	37.94%	-	-	47.54%	-
Source: Baseline Study (2019), End Term Assessment (2025)						

A clear distinction between 2019 baseline and 2025 endline, show a consistent transformation in marketing channels across commodities, reflecting a shift away from informal, intermediary-driven sales towards more direct, diversified and institutionalized market linkages.

		All respondents		Intervention		Control	
SN	Commodity	Produce sold to new marketing channels (In kgs)	Total Produce (In Kgs)	Produce sold to new marketing channels (In kgs)	Total Produce (In Kgs)	Produce sold to new marketing channels (In kgs)	Total Produce (In Kgs)
1	Paddy	3,72,711	49,09,837	2,18,557	30,30,954	1,54,154	18,78,883
2	Mustard	96,814	8,05,193	37,758	4,21,356	59,056	3,83,837
3	Potato	11,80,500	64,65,337	10,13,225	52,73,495	1,67,275	11,91,842
5	Milk - Sold to DCS/WAMUL	8,896	18,425	7,759	11,332	1,137	7,093
6	Fish - Directly to Markets	25,16,609	26,23,290	20,70,119	21,36,860	4,46,490	4,86,430
	Total	**41,75,530**	**1,48,22,082**	**33,47,418**	**1,08,73,997**	**8,28,112**	**39,48,085**
	% of produce sold through new marketing channels		**28.17%**		**30.78%**		**20.98%**
Source: End Term Assessment (2025)							

Data from five focused commodities - Paddy, Potato, Mustard, Milk and Fish - was used for this analysis, across intervention and control areas. The indicator measured the proportion of total produce marketed through new marketing channels supported under the project. The total quantity of produce sold through the new marketing channels was aggregated across all surveyed farmers and expressed as a percentage of the total quantity of produce generated.

For instance, for paddy and mustard, these new marketing channels include project-supported procurement centers, Farmer Producer Companies (FPCs) and direct sales to processors/millers. In the case of potato, the project supported the formation of FPCs, facilitated contract farming arrangements with private companies and enabled direct linkages with large traders, allowing farmers to access more organized and remunerative markets. Under milk value chain, Dairy Cooperative Societies (DCSs) were established and strengthened, providing dairy farmers with an assured and organized supply chain for milk marketing. For fisheries, the quantity sold directly to markets was included for the purpose of this assessment. Based on this approach, 28.17 percent of the total quantity produced by the surveyed farmers was sold through new marketing channels. 48.9% agri, horti and fisheries farmers are members of FPC while all 704 dairy farmers were members of MPIs or DCSs and 87.8% dairy farmers pour milk to WAMUL.

The table above shows a meaningful shift towards new marketing channels across all commodities, with nearly **28.17% of total produce** being sold through these

channels. The intervention group clearly outperforms the control group, with 30.78% of total produce routed through new channels compared to 20.98% in control, reflecting differences in commodity mix and market access dynamics. High volumes of **potato and fish** dominate new-channel sales, underscoring their strong market linkage potential, while paddy and mustard show moderate but steady uptake. Overall, the findings suggest that project interventions have strengthened market integration, enhanced producers' exposure to diversified marketing avenues, and laid a foundation for improved price realization and reduced dependence on traditional intermediaries.

The table below shows results of few output indicators from the ETA:

Output indicators	Findings
Increase Volume throughput of the Common Service Centers (CSCs) (tons per annum) - Fish N=12	The 12 Fish CSCs collectively reported sales of 555 tons of fish during the year 2024-25, generating a total revenue of approximately Rs 5.28 Crore. In addition to fish, these CSCs also engage in trading other commodities such as paddy, maize, mustard, potato, cabbage, cauliflower, black gram, turmeric with a combined sales volume of about 238 tons and revenue of Rs 80.9 lakh.
Increase Volume throughput of the Common Service Centers (CSCs) (tons per annum) - Milk	DCS (WAMUL) - A total of 5,032 kg of milk is sold every day to WAMUL by 324 sample dairy farmers, with each farmer selling an average of 15.53 kg per day at a price of Rs. 48.07, over an average of 29.59 selling days per month. On an average, each farmer sells 4603.54 kg of milk per year
	DCS (DDD) - A total of 2,727 kg of milk is sold every day to WAMUL by 255 sample dairy farmers, with each farmer selling an average of 10.69 kg per day at a price of Rs. 47.74, over an average of 29.29 selling days per month. On an average per farmer sells 3050.85 kg of milk per year
Increase Volume throughput of the Common Service Centers (CSCs) (tons per annum) - Agricultural Commodity N=7	The 7 Agri-horti CSCs collectively reported an annual sale of 350 MT of focus commodities such as rice, mustard, and banana, generating a revenue of approximately Rs 86.9 lakh. In addition, the CSCs sold 245 MT of processed/ semi-processed products, by-products, other commodities etc. generating an additional revenue of Rs 97.5 lakh. Together, these accounted for a cumulative sale of 595 metric tons and a total revenue of about Rs 1.84 Crore during 2024-25.
Source: End Term Assessment (2025)	

Overall, the observed increase in throughput and revenues across CSCs indicated strengthened aggregation systems, improved market linkages, and enhanced economic viability of community-managed service centers. Sustaining these gains would require continued support for market linkages, quality assurance and diversification to further enhance the scale and resilience of CSC operations.

The APART project had successfully introduced and strengthened new marketing channels across key agricultural, dairy and fisheries value chains. Nearly 28% of total produce was marketed through project-supported channels, reflecting a clear shift towards more organized and remunerative market systems. Institutions such as FPCs, DCSs, CSCs and direct buyer linkages have improved aggregation and reduced dependence on traditional intermediaries. High uptake in commodities like potato, fish and milk underscores the effectiveness of assured and structured market access.

Overall, these interventions have enhanced market integration, price realization and the commercial viability of smallholder producers.

(4) Farmers adopting improved agricultural technology (number) CRI [Of which female beneficiaries (number)]

Adoption referred to the continuation of using the recommended seed varieties and/or the promoted climate resilient practices by the farmers who had received demonstration support (direct) and by other fellow farmers (indirect) who have learnt from the trained farmers. Organizing Farmer Field Days (FFD), as a part of demonstration, has been one of the key inputs of the project to promote adoption, nearly 20-25 farmers were gathered near the demonstration site to witness harvesting. They were also apprised of the seed varieties and package of practices that had led to the increase in productivity.

Findings of ETA: The table below shows calculated adoption data from ETA study:

	Beneficiaries		**Farmers adopted improved agricultural technology**		**Percentage**	
	Total	Female	Total	Female	Total	Female
Paddy	52480	10349	40678	7826	77.51	75.63
Maize	2495	452	2476	452	99.24	100.00
Pulses	1516	340	1277	291	84.24	85.59
Fruits	121	19	69	13	57.32	66.67
Potato	1557	382	1201	306	77.11	80.00
Vegetables	440	93	423	89	96.06	94.89
Mustard	52654	15113	45584	13687	86.57	90.57
Ginger	300	84	298	84	99.24	100.00
Milk	56350	16905	44086	12765	78.24	75.51
Fish	5805	1335	4027	815	69.36	61.03
TOTAL	**173,718**	**45,072**	**140,119**	**36,327**	**80.66**	**80.60**

Adoption of improved practices across APART-supported commodities is high, with over 80% of total beneficiaries adopting project interventions, indicating strong acceptance of the promoted technologies and services. Adoption rates are particularly strong in maize, ginger, vegetables and mustard, reflecting effective extension support and relevance of interventions. Female adoption levels closely mirror overall adoption (80.6%), demonstrating meaningful participation of women farmers across value chains. Lower adoption in fruits and fisheries suggests the need for more targeted handholding and risk mitigation in these sectors. Overall, the adoption trends confirm the effectiveness of APART's farmer-centric approach while highlighting areas for focused improvement.

The ETA collected responses from 4861 farmers (of which 26% were female farmers) across agri-horti, milk and fisheries value-chain. The agri-horti value-chain farmers were asked whether they had used the recommended seed varieties in the last season they cultivated. The milk and fish value chain farmers were asked whether they had continued following the recommended practices. The summation of the responses has been presented.

Adoption levels were **high for five focused commodities - Paddy, Mustard, Potato, Milk and Fish** where 70-95% of surveyed farmers reported using recommended seeds and practices**.** Paddy and Mustard, with large sample sizes, demonstrated broad-based adoption, indicating scalability of interventions. **Potato** showed strong uptake, suggesting that technologies promoted were well-aligned with farmer needs and market incentives. In dairy and fisheries, the uptake of improved practices was also notable. **Milk producers (both formal and informal)** reported high adoption of

improved management practices and **fishery households** showed widespread adoption.

Adoption levels were also **high for other crops** such as **maize, vegetables, ginger**, etc. **Maize and vegetables recorded high adoption levels, reflecting strong alignment of the promoted technologies with farmer requirements and market signals, and demonstrating widespread uptake with strong potential for scaling up the interventions.** While **pulses and fruits** showed comparatively lower adoption rates, the trend still reflected a **significant shift from traditional practices**, highlighting gradual but positive behavioral change in crops that are often more risk-prone or less input-intensive. Importantly, **women farmers' adoption rates were comparable to and in several cases higher than, overall averages**, especially for mustard, vegetables, potato and maize, pointing to improved gender inclusion in technology access.

Comparison in productivity[3] (yield) across selected commodities:

	Intervention	Control	Difference	%	**/*** = 1%; * = 5%
Paddy (kg/ha)	5,990.54	4,938.32	1,052.22	21.31%	***
Mustard (kg/ha)	1,773.43	1,116.18	657.25	58.88%	***
Potato (kg/ha)	17,042.46	8,074.10	8,968.36	111.08%	***
Milk (kgs/day)	16.37	14.27	2.1	14.73%	**
Fisheries (kg/ha)	6,327.39	4,499.50	1,827.90	40.62%	***

The adoption of technologies has reflected in better yields for farmers in intervention areas compared to control areas. Paddy (*increase by 21.31%*), Mustard (*increase by 58.88%)* and Potato (*increase by 111.08%*) showed significantly higher yields than the control farmers. Similarly, average quantity of milk produced per day (kg/day) (*increase by 14.73%*) is also significantly higher in intervention areas, compared to control area. The yield (kg/ha) of fish (*increase by 40.62%*) is extremely significant when compared to control farmers.

i) Project Component wise progress against Intermediate Results Indicators and Output Indicators

1) Component A: Enabling Agri Enterprise Development [Intermediate Results Indicators] (Cumulative Target Values)

		Agribusiness investment leads facilitated through the Assam Bureau of Investment Promotion (ABIP) (number)	Enterprise supported by Enterprise Development and Promotion Facility (EDPF) (number)
Baseline		0	0
YR-1	Target	0	0
	Achievement	0	0
	%	**0.0**	**0.0**
YR-2	Target	20	0
	Achievement	0	0
	%	**0.0**	**0.0**
YR-3	Target	60	200
	Achievement	18	120
	%	**30.0**	**60.0**
YR-4	Target	100	400
	Achievement	32	204
	%	**32.0**	**51.0**
YR-5	Target	200	800
	Achievement	224	1878
	%	**23.3**	**12.6**

[3] Crop productivity can be estimated either as an unweighted mean of individual farmer-level yields (where yield is calculated as production divided by cultivated area for each farmer) or as an area-weighted mean yield, estimated as total production divided by total cultivated area across surveyed farmers. The unweighted mean yield can be sensitive to small plots with unusually high reported yields, which may disproportionately influence the average. Therefore, this assessment uses the area-weighted mean yield, as it provides a more robust estimate of overall land productivity and is consistent with standard agricultural statistics practice for aggregate and program-level reporting.

		Agribusiness investment leads facilitated through the Assam Bureau of Investment Promotion (ABIP) (number)	Enterprise supported by Enterprise Development and Promotion Facility (EDPF) (number)
YR-6	Target	250	1000
	Achievement	322	1878
	%	**128.8**	**180.3**
End Target. YR7	Target	300	1500
	Achievement	466	1878
	%	**155.3**	**120.2**
Source: PMIS (January 2026)			

Agribusiness investment through ABIP and support to enterprises under EDPF have exceeded achievements, both have over-achieved their targets, while the one on Assam Agri-business investment Fund (AIF) was dropped.

Agribusiness Investment Leads

- Key sectors: 65 Nos. / Rs 4399 crores
- **Agri-based sectors:** 45 Nos./Rs 2529.96 crores. (Egg, Ready to cook food, Hatcheries, Rice mill, Spices, Agarwood oil, Food processing, Cold storage, Poultry feed, Processed meat, Brewery, Stevia, Feed mill, Bamboo processing, Herbal extract, Juice, Silk)
- **Ethanol:** 7 Nos. / Rs 1154 crores
- **Other manufacturing:** 8 Nos. / Rs 640.60 crores
- Investor Leads: Key Sectors
- Food processing, Ethanol, Bamboo products, Incense sticks, Agarwood oil, Spices processing, Bio fertilizer, Cattle feed, Layer farming etc.

1878 agri-based enterprises have been brought under the fold of Enterprise Development and Promotion Facility (EDPF). Schemes like Kshyamata and Assam Agri-business Growth Laboratory (AAGL) have provided business development support (BDS), light touch-up support, access to finance and other national schemes like PMFME, PMEGP etc. 75 enterprises also received incubation support under the program.

The **Assam Agri-business Investment Fund** could not be set-up, although substantial preparatory work and initial efforts had been accomplished by the project. These include fund feasibility study, onboarding the corporate law firm and onboarding of fund manager. The Fund Manager could not achieve the pre-requisite for the first close i.e. mobilization of Private Capital in a timely manner (May 2024). Pushing the timeline would have meant substantial delay in the subsequent steps. As at that point of time the project was supposed to close in September 2024. In such a scenario completion of the remaining steps related to AIF seemed almost impossible. Hence, this activity had to be dropped under intimation to GoI, the World Bank and GoA.

Component A: Enabling Agri Enterprise Development [Output Indicators] (Cumulative Target Values)

		Number of Agribusiness Business Investment Summits organized (Number)	Number of Exposure Trips for DI&CC officials (Number)	Number of Agribusiness MOUs signed (Number)	Entrepr-eneurs/ Enterprises Enrolled
Baseline		0	0	0	0
YR-1	Target	0	24	0	0
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	2	48	12	0
	Achievement	0	11	0	0
	%	**0.0**	**22.9**	**0.0**	**0.0**
YR-3	Target	3	72	24	400
	Achievement	0	11	0	400
	%	**0.0**	**15.3**	**0.0**	**100.0**

		Number of Agribusiness Business Investment Summits organized (Number)	Number of Exposure Trips for DI&CC officials (Number)	Number of Agribusiness MOUs signed (Number)	Entrepr-eneurs/ Enterprises Enrolled
YR-4	Target	4	96	36	750
	Achievement	1	11	0	799
	%	**25.0**	**11.5**	**0.0**	**106.5**
YR-5	Target	5	120	48	1100
	Achievement	1	32	39	1878
	%	**12.6**	**23.3**	**12.6**	**12.6**
YR-6	Target	5	144	60	1400
	Achievement	1	49	42	1878
	%	**20.0**	**34.0**	**70.0**	**134.1**
End Target. YR-7	Target	5	144	70	1400
	Achievement	1	49	65	2336
	%	**20.0**	**34.0**	**92.9**	**166.9**
Source: PMIS (January 2026)					

		Number of Beneficiaries provided light touch up support through EDPF (Number)	Entrepreneurs / Enterprises Supported in Business Development Support	Entrepreneurs to be facilitated with access to finance	Number of Beneficiaries of Business Development &Management Services through EDPF (Number)	Number of Incubates graduating from the long-term intensive incubation program supported under EDPF (Number)
Baseline		0	0	0	0	0
YR-1	Target	180	0	0	0	0
	Achievement	0	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	350	0	0	80	0
	Achievement	0	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR3	Target	540	300	250	130	0
	Achievement	45	119	87	51	0
	%	**8.3**	**39.7**	**34.8**	**39.2**	**0.0**
YR-4	Target	720	550	450	170	25
	Achievement	300	258	148	276	0
	%	**41.7**	**46.9**	**32.9**	**162.4**	**0.0**
YR-5	Target	900	800	650	210	50
	Achievement	1602	1214	728	1214	50
	%	**23.3**	**23.3**	**12.6**	**23.3**	**12.6**
YR-6	Target	1080	1000	800	260	75
	Achievement	1602	1429	996	1429	50
	%	**148.3**	**142.9**	**124.5**	**549.6**	**66.7**
End Target. YR-7	Target	1250	1000	800	300	100
	Achievement	1602	1641	996	1429	75
	%	**128.2**	**164.1**	**124.5**	**476.3**	**75.0**
Source: PMIS (January 2026)						

The results framework output indicators highlighted notable gaps in marketing-related initiatives such as the Agri Business Investment Summits, while exposure trips for DI&CC officials also lagged. On the other hand, the project significantly outperformed expectations in areas such as beneficiaries receiving light-touch support through the EDPF, entrepreneurs and enterprises enrolled, enterprises supported with business development services and entrepreneurs facilitated with access to finance. Particularly noteworthy is the project's performance in providing Business Development & Management Services through EDPF, where achievement reached an exceptional 476% of the target. Three indicators related to Road shows and Agribusiness SME Fund were dropped in discussion with the World Bank.

DICCs are District Offices under Commissionerate of Industries and APART has supported the same for modernization of the offices and capacity building of the

District Officers. Under APART, the DICC offices were responsible for facilitating the grounding of the Investors under Component A1 and setting up of the Common Facility Centers (CFCs) under Component B1. Through the support of both the State and District offices of Industry Department, APART was able to achieve the project objectives and support industrial activities in the Agricultural sector both for bigger enterprises and local MSMEs. In lieu of MoUs, project had received approval from the World Bank that a letter of acknowledgement would be taken from investors.

Kshyamata was an in-house program on entrepreneurship development which aimed to contribute towards designing and establishing agri and allied sector enterprises, by providing hand-holding support services through numerous trainings and capacity building / entrepreneurship development programs, providing business development support, etc. Through this initiative, 1803 enterprises were enrolled in the scheme; Light touch-up support was provided to 1602 enterprises; Business Development Support has been provided to 1641 enterprises and access to finance has been facilitated for 996 enterprises. Loans amounting to Rs 24.5 Cr have been disbursed across 8 districts.

APART launched the Assam Agribusiness Growth Lab (AAGL), to support and accelerate the growth of Agri and allied enterprises in Assam. The target was to assist 100 enterprises in Agri and allied sectors in the state of Assam in 4 years. Under this, it was planned to graduate 100 entrepreneurs including startups in four batches of 25 each. The incubates who completed the entire tenure were to be known as graduates. The program started late and only three cohort rounds could be completed with 80 enrolled enterprises out of which 75 graduated from the incubation and acceleration program.

The table below reflects the findings from the ETA against some of the key output indicators of Component A.

Component A: Enabling Agri Enterprise Development - Output Indicators		
	Kshyamata (N=30)	**Assam Agribusiness Growth Lab (AAGL) (N=30)**
	APART had an in-house program on entrepreneurship development called **Kshyamata**, which aimed to contribute opportunity towards designing and establishing agri and allied sector enterprises, by providing hand-holding support services.	The **Assam Agribusiness Growth Lab (AAGL)** was taken up aiming to graduate 100 entrepreneurs including start-ups in four batches of 25 each. Under cohort 1, **23** enterprises completed incubation process out of the 25 selected. Under cohort 2, **26** enterprises have completed the incubation process out of 29 selected. Cohort 3 comprised of **26** enterprises, all of whom graduated. The fourth cohort could not be taken up due to changes in program design with the approval of WB, the onboarding of the agency AAGL also took time and the project was scheduled to close on September 2024.
Number of Beneficiaries provided light touch up support through EDPF (Number)	The 30 enterprises selected for the survey were supported under Kshyamata have been operational for an average of just over 7 years. Ownership is balanced, with 47% led by men and 53% by women. Each enterprise engages, on average, more than seven individuals in its activities. The focused commodities include paddy, dairy, fish, horticulture and spices. The focused areas are food processing (43%), market	The 30 surveyed enterprises had been in operation for an average of seven years. Ownership is predominantly male (60%), with women accounting for 40% of the enterprise owners. Each enterprise engages around 11 individuals. The main commodities include paddy, spices, mustard and horticulture. Regarding their primary focus area, 63% of the enterprises are based on food processing, 37% on market linkages and 20% on farm inputs. **Source:** Endline data

Component A: Enabling Agri Enterprise Development - Output Indicators		
	Kshyamata (N=30)	**Assam Agribusiness Growth Lab (AAGL) (N=30)**
	linkages (63%) and farm inputs (7%). **Source:** Endline data	
	Light touch up support through EDPF provided to 1803 beneficiaries **Source:** Project Data	Light touch up support through EDPF provided to 75 beneficiaries **Source:** Project Data
	70% surveyed beneficiaries reported receiving only light touch up support through EDPF **Source:** Endline data	100% surveyed beneficiaries reported receiving light touch up support through EDPF **Source:** Endline data
Number of Beneficiaries of Business Development & Management Services through EDPF (Number)	Business Development & Management Services support provided to 1429 beneficiaries **Source:** Project data	Business Development & Management Services support provided to 75 beneficiaries **Source:** Project data
	93% surveyed beneficiaries reported receiving Business Development & Management Services support through EDPF **Source:** Endline data	100% surveyed beneficiaries reported receiving Business Development & Management Services support through EDPF **Source:** Endline data
	Majority of enterprises have leveraged program support to strengthen their operations: 73% have diversified their business by introducing new products or services, 67% have improved food quality standards, and 67% reported an increase in employment. Additionally, 53% noted growth in enterprise turnover, 43% adopted improved technologies, and 23% were able to mobilize finance for their enterprise. **Source:** Endline data	A significant proportion of enterprises reported positive outcomes following program support: 83% indicated an increase in employment, 77% have diversified their business by introducing new products, 63% have improved food quality standards, 73% reported growth in enterprise turnover, and 63% have adopted improved technologies. However, only 50% of enterprises reported successfully mobilizing finance for their operations. **Source:** Endline data
Number of Incubates graduating from the long-term intensive incubation program supported under EDPF (Number)	-	Long-term intensive incubation program support provided to 75 enterprises under EDPF **Source:** Project data
	-	13% surveyed enterprises reported receiving support from long-term intensive incubation program under EDPF. 3 Cohorts were completed **Source:** Endline data
Source: End Term Assessment (2025), Project Documents		

Component B: Facilitating Agro Cluster Development [Intermediate Results Indicators] (Cumulative Target Values)

		Joint actions undertaken by firms in a cluster (number)	Agro-industrial development plans developed (number)	Firms mobilized into Industry Associations (number)	Negotiable warehouse receipts issued to project beneficiaries (number)	Increase in Trading volume through improved markets (%)	Rural roads upgraded with climate resilient technologies (KM)
Baseline		0	0	0	0	0	0
YR-1	Target	0	0	0	0	5	0
	Achievement	0	0	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	28	7	1000	0	5	50
	Achievement	6	0	279	0	0	12
	%	**21.4**	**0.0**	**27.9**	**0.0**	**0.0**	**24.0**

		Joint actions undertaken by firms in a cluster (number)	Agro-industrial development plans developed (number)	Firms mobilized into Industry Associations (number)	Negotiable warehouse receipts issued to project beneficiaries (number)	Increase in Trading volume through improved markets (%)	Rural roads upgraded with climate resilient technologies (KM)
YR-3	Target	96	17	1700	0	10	100
	Achievement	12	0	347	0	0	40
	%	**12.5**	**0.0**	**20.4**	**0.0**	**0.0**	**40.0**
YR-4	Target	164	17	1700	0	15	150
	Achievement	314	18	1917	0	0	47
	%	**191.5**	**105.9**	**112.8**	**0.0**	**0.0**	**31.3**
YR-5	Target	232	17	1700	1000	15	200
	Achievement	330	18	2468	232	0	175.46
	%	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**
YR-6	Target	300	17	1700	5000	20	200
	Achievement	639	18	2742	310	0	175.46
	%	**213.0**	**105.9**	**161.3**	**6.2**	**0.0**	**87.7**
End Target. YR-7	Target	500	17	1700	10000	20	200
	Achievement	695	18	2845	644	47.81	221.48
	%	**139.0**	**105.9**	**167.4**	**6.4**	**239.1**	**110.7**
Source: PMIS (January 2026)							

The component has made significant progress in key areas, with achievement of targets for Agro-Industrial Development Plans and mobilization of firms into industry associations (142%). While good progress has also been made in warehouses upgraded (93%) and markets upgraded (90%), the establishment of e-trading facility and open auction platforms are yet to commence. The targeted number of warehouse receipts was reduced after optimistic planning at the time of project appraisal as the intervention was entirely new to the state. As the warehouse upgradation program took time, the project took up a successful pilot on WRF in Tezpur, Sonitpur District (2023-24).

213.5 km of climate resilient roads have been constructed under the project, benefitting around 87,751 households across 21 districts.

Findings from the ETA against some of these indicators:

Number of firms mobilized into Industry Associations (IAs) (Number) N=17
On average, 216 enterprises have been clustered under each Industry Association (IA). Small enterprises with similar commodities were selected. Women's participation remains notable, with an average of 82 members in the general body and 5 in the executive body. All IAs are associated with major agri-horti commodities, with sectoral distribution showing 4 IAs also engaged in fisheries, 2 in dairy and 2 in sericulture and handloom. The financial performance of the IAs demonstrates growth, with annual turnover rising from Rs.20.65 lakh in 2022-23 to Rs.27.35 lakh in 2023-24 and further to Rs.32.06 lakh in 2024-25. About 35% of respondents reported that participation in Industry Associations (IAs) has facilitated better access to loans and credits. Additionally, 53% of the IAs have established market linkages through e-commerce platforms, while 65% have developed connections through modern trade. Furthermore, linkages have been established with retailers (94%), wholesalers (76%) and traders (53%) indicating a diversified and expanding market outreach. IA members confirmed having participated in various capacity-building and trainings over the past year. Among them, 71% reported attending entrepreneurship trainings, 47% participated in exposure visits and 35% were involved in ICT programs, contributing to enhanced business and managerial capabilities among their members.
Rural roads upgraded with climate resilient technologies (Km) N=20

Number of firms mobilized into Industry Associations (IAs) (Number) N=17
The findings indicate that rehabilitated roads have provided multiple benefits to the respondents. On an average, the length of the surveyed roads upgraded is 1.4 km. All respondents (100%) reported improvement in road quality while 85% noted faster access to town. Increased access to markets was reported by all. All respondents (100%) observed an increase in traffic density following road rehabilitation and 50% felt that access by lorries and trucks had increased. Universally (100%), respondents agreed that road rehabilitation has reduced travel time, made transportation of goods and commodities easier, lowered transportation costs and enhanced market access.

Component B: Facilitating Agro Cluster Development [Output Indicators] (Cumulative Target Values)

		Number of Agro-Industrial Cluster Develop-ment Plans (AIDPs) Developed (Number)	Number of firms mobilized into Industry Associations (IAs) (Number)	Number of Ware-houses Upgraded (Number)	Warehouse Receipt Financing (Amount in INR lakhs)	Number of Markets Upgraded (Number)	Number of E-Trading Facility / Spot Exchange Platforms Operational (Number)	Number of Open Auction Platforms Operat-ional (Number)	Number of motivational seminars conducted to attract buyers/ sellers to the markets (Number)
Baseline		0	0	0	0	0	0	0	0
YR-1	Target	0	0	0	0	0	0	0	16
	Achievement	0	0	0	0	0	0	0	16
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	7	1000	16	0	15	0	0	48
	Achievement	0	120	0	0	0	0	0	22
	%	**0.0**	**12.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**45.8**
YR-3	Target	17	2000	33	5	50	1	9	80
	Achievement	0	1362	0	0	0	0	0	28
	%	**0.0**	**68.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**35.0**
YR-4	Target	17	2000	40	10	70	2	19	112
	Achievement	18	2038	0	0	0	0	0	40
	%	**105.9**	**101.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**35.7**
YR-5	Target	17	2000	40	15	75	4	30	144
	Achievement	18	2468	6	75	17	0	0	58
	%	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**
YR-6	Target	17	2000	40	20	75	4	30	144
	Achievement	18	2742	11	80	17	0	0	76
	%	**105.9**	**137.1**	**27.5**	**400.0**	**22.7**	**0.0**	**0.0**	**52.8**
End Target. YR-7	Target	17	2000	40	25	100	4	30	144
	Achievement	18	2845	37	170	96	0	0	109
	%	**105.9**	**142.3**	**92.5**	**680.0**	**96.0**	**0.0**	**0.0**	**75.7**

Source: PMIS (January 2026)

37 godowns & 96 markets have been upgraded/modernized under the project.

Two output indicators against eight could not be achieved, related to trading and e-auctions.

A feasibility study for setting-up e-auctions and spot exchange platforms in Assam was carried out through a competitively hired agency. In the early phase of the study, it became evident that setting-up such platforms was not feasible at that point of time. The same was discussed with World Bank and accordingly the initiative to set-up such platforms were aborted.

The target for Warehouse Receipt Financing in monetary terms corresponding to number of receipts remained low by an oversight.

The table below shows the findings from the ETA against some of the output indicators of Component B:

Number of Warehouses Upgraded (Number) N=20
The average total storage capacity of the renovated warehouses is 4,033 MT. At present, they store about 2,088 MT per month. Around 55% of the warehouses store more than one type of agri-horti value chain commodity. All warehouses reported that trucks can access their premises and that they are well-connected through dedicated approach roads and internal roads, ensuring efficient movement of goods to and from the facility. Construction of Drainage system also has proved to be beneficial and has improved occupancy rate.
Number of Markets Upgraded (Number) N=20
On average, each market has around 61 traders and 44 vendors, along with 5 registered Grower's Societies. About 30 sellers and 14 traders, on average, are formally registered with the market. The markets handle an average annual volume of 4,135 MT of commodities. All markets trade in a wide range of agri-horti value chain commodities, with pulses and vegetables sold universally, followed by mustard, fruits and spices. Around 50% of the markets have wholesale sheds, while all markets have retailer sheds.
Source: End Term Assessment (2025)

Component C: Fostering Market Led Production and Resilience Enhancement [Intermediate Results Indicators] (Cumulative Target Values)

		Climate resilient techno-logies demon-strated in project areas (Number)	Farmer Producer Organizations (FPOs) supported by the Project-FPOs (No.)	Farmer Producer Organizations (FPOs) supported by the Project-Members (No.)	Increase Volume throughput of Common Service Centers (CSCs) (tons per annum)-Fish	Increase Volume throughput of Common Service Centers (CSCs) (tons per annum)-Milk	Increase Volume throughput of the Common Service Centers (CSCs (tons per annum)-Agricultural Commodity	Producers provided financial education/ counseling	Producers with increased access to financial services (number), of which at least 30% are female
Baseline		0	0	0	0	27	0	0	0
YR1-	Target	7	0	0	0	30	0	2500	0
	Achievement	7	0	0	0	30	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	15	0	0	0	45	0	10000	0
	Achievement	11	0	0	0	36	0	0	0
	%	**73.3**	**0.0**	**0.0**	**0.0**	**80.0**	**0.0**	**0.0**	**0.0**
YR-3	Target	25	30	12000	2000	90	40000	30000	0
	Achievement	18	0	15580	0	38	0	15839	1276
	%	**72.0**	**0.0**	**129.8**	**0.0**	**42.2**	**0.0**	**52.8**	**0.0**
YR-4	Target	25	50	20000	3500	175	45000	70000	0
	Achievement	18	44	24506	0	73	201	20001	3845
	%	**72.0**	**88.0**	**122.5**	**0.0**	**41.7**	**0.4**	**28.6**	**0.0**
YR-5	Target	25	125	50000	5500	315	53000	150000	50000
	Achievement	18	124	59357	5400	74	1731.9	27321	23325
	%	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**	**12.6**
YR-6	Target	25	125	60000	6000	505	60000	200000	100000
	Achievement	26	126	60094	8429	186	8686.47	130009	38447
	%	**104.0**	**100.8**	**100.2**	**140.5**	**36.8**	**14.5**	**65.0**	**38.4**
End Target YR-7	Target	25	125	60000	10000	100000	30000	250000	125000
	Achievement	27	125	60094	10272.45	56575	27016.42	200479	117259
	%	**108.0**	**100.0**	**100.2**	**102.7**	**56.6**	**90.1**	**80.2**	**93.8**
Source: PMIS (January 2026)									

The project achieved targets in 4 indicators. Along with climate-resilient technology demonstrations, the two indicators related to FPCs have been achieved. Out of the three indicators related to CSC, the one on Fish surpassed expectations and on agriculture commodity is above 90%, while milk throughput of the CSCs (56.6%) lagged targets.

The fifth indicator on milk remained unachieved. As per the PAD, the target set was 760 MT per annum which was previously achieved. However, since the target was on the lower side, the same was set by World Bank for 1,00,000 MT, which could not be achieved.

APART-led climate-resilient demonstrations

Agriculture

- The Paddy PMIS dataset covered 72,033 demonstrations over 2018 to 2023, with a cumulative demonstration area of 21,044 ha, across 26 districts engaging 19.7% women farmers and 80.3% men.

- Maize PMIS dataset covered 4,844 demonstrations implemented between 2018 & 2023, across 16 districts, covered a total of 1,868 ha of farmer fields (average 0.39 ha/demonstration), with 18% of dems involved women farmers.

- The Pulses PMIS dataset showed 6,402 demonstrations from 2018-23 across 13 districts with a cumulative area of 2087.9 ha engaging 22.7% female farmers.

Horticulture

- The Horticulture PMIS dataset comprising fruits (banana and pineapple) and vegetables (brinjal, cabbage, cauliflower, potato, pumpkin and tomato) covered 9,671 demonstrations over 2018 to 2023, with a cumulative demonstration area of 2,726.64 ha, across 18 districts engaging 22.7% women.

Spices and Condiments

- The Mustard PMIS dataset from 2018 to 2023 covered 80,025 demonstrations across 17 districts with a cumulative area of 23,475.9 ha, engaging 28.7% female farmers.

- The Ginger PMIS dataset from 2018-23 covered 400 demonstrations across 4 districts with a cumulative area of 88.48 ha, engaging 28% female farmers.

Fisheries VC

- APART has reached out to 11,918 fish farmers (including Beel members), among which 23.2% are female farmers through various interventions.

Milk VC

- 21 DCSs have been formed by the Directorate of Dairy Development

- WAMUL operated through 24 districts, covering 3400 villages and forming 1600 DCSs with 50,000+ active pourers. Expanded milk processing capacity from 60 to 150 TLPD, with facilities for value-added products such as ice cream, flavored milk and traditional sweets.

Sericulture and Handloom

- Sericulture - Plantation support, training and rearing houses were provided to 4591 Eri farmers and Muga farmers, among which 2632 are females.

- Handloom – Through APART, the Directorate of Handloom & Textiles have worked with 7000 weavers of which 99% are women, 33.7% belonged to indigenous groups. 12 Farmer Producer Companies (FPCs) have been successfully registered to strengthen farmer collectives and streamline production and marketing, and 4 Common Service Centers (CSCs) have been established to support the operations and provide shared facilities to the stakeholders involved.

Farmer Producer Company (FPC) –

APART promoted 125 FPCs across three significant value chains, namely Agri-Horti, Fishery and Silk, which are owned and managed by farmers. Through this FPC intervention, APART has also given importance to developing the capacity and skills of FPC members in post-harvest management, governance, value addition and marketing of the produce for better price realization of FPC products. The business

development support extended from APART is multi-pronged for the overall growth and sustainability of the FPCs.

Common Service Centers (CSCs) –

37 (Agri-horti - 10, Fishery - 22 and Silk - 5) CSCs are functional.

Krisarthak (Financial Education Counseling) –

The objective of Krisarthak was to develop and implement an ICT-based FEC program for target beneficiaries to contribute to enhancing their financial inclusion, defined as their access to and prudential use of appropriate financial services. 129,470 farmers were reached out, 51,506 (40%) were women. 58,268 farmers were registered through Bittiya Sakhi chatbot and Kobo App (for base phone users) in 21 districts. 25,420 (43.6%) male farmers, 32,848 (56.4%) female farmers were registered - 52,240 (89.65%) smartphone users and 6028 (10.34%) base phone users. Five value-chains (Agri/Horti, Fishery, Handloom, Sericulture and Dairy) were covered. APART supported FPCs and DCS were also reached out.

Xamahar Assam Challenge Fund mobilized ten financial institutions to innovate and scale value-chain financing models, which benefited 1,17,259 producers across priority districts. Through APART Rs. 35.18 crores were granted to the sub-projects.

ETA findings against the Component C intermediate indicators:

<table>
<tr><th>Output Indicator</th><th>Findings</th></tr>
<tr><td>Climate resilient technologies demonstrated in the project areas (No)</td><td>The ETA reached out to 4861 farmers (of which 26% were female farmers) across agri-horti, milk and fisheries value-chain, who have received climate resilient technology demonstrations from 2018-2024.</td></tr>
<tr><td>Farmer Producer Organizations (FPOs) supported by the Project-FPOs (No.) N=100</td><td rowspan="2">On average, the FPCs are having more than 502 members, including 335 male and 167 female shareholders, of which 91 belong to indigenous groups. The focused commodities of FPCs include rice (35%), fish (26%), mustard (13%), and eri and muga silk (9%), while the remaining 18% comprises other agri-horti commodities.The annual turnover of the FPCs has shown a steady increase, from INR 14.5 lakh in 2022-23 to INR 15.9 lakh in 2023-24 and INR 17.2 lakh in 2024-25.
Furthermore, 63% of FPCs have gained access to new markets or marketing channels, including online platforms, while 48% have secured access to loans and credit facilities. When asked about the benefits perceived by farmers from joining FPCs, 69% of FPCs reported that farmers experience better price realization for their produce, while 19% mentioned that farmer's interests are safeguarded through year-round access to organized markets.</td></tr>
<tr><td>Farmer Producer Organizations (FPOs) supported by the Project-Members (No.) N=100</td></tr>
<tr><td>Increase Volume throughput of the Common Service Centers (CSCs) (tons per annum) - Fish N=12</td><td>The 12 Fish CSCs collectively reported sales of 555 tons of fish during the year 2024-25, generating a total revenue of approximately Rs 5.28 Crore.
In addition to fish, these CSCs also engage in trading other commodities such as paddy, maize, mustard, potato, cabbage, cauliflower, black gram, turmeric with a combined sales volume of about 238 tons and revenue of Rs 80.9 lakh.</td></tr>
<tr><td rowspan="2">Increase Volume throughput of the Common Service Centers (CSCs) (tons per annum) - Milk</td><td>DCS (WAMUL) - A total of 5,032 kg of milk is sold every day to WAMUL by 324 dairy farmers, with each farmer selling an average of 15.53 kg per day at a price of Rs. 48.07, over an average of 29.59 selling days per month.
On an average per farmer sells 4603.54 kgs of milk per year</td></tr>
<tr><td>DCS (DDD) - A total of 2,727 kg of milk is sold every day to WAMUL by 255 dairy farmers, with each farmer selling an average of 10.69 kg per day at a price of Rs. 47.74, over an average of 29.29 selling days per month.
On an average per farmer sells 3050.85 kg of milk per year.</td></tr>
<tr><td>Increase Volume throughput of the Common Service</td><td>The 7 Agri-horti CSCs collectively reported an annual sale of 350 MT of focus commodities such as rice, mustard, and banana, generating a revenue of approximately Rs 86.9 lakh.</td></tr>
</table>

Output Indicator	Findings
Centers (CSCs) (tons per annum) - Agricultural Commodity N=7	In addition, the CSCs sold 245 MT of processed/ semi-processed products, by-products, other commodities etc. generating an additional revenue of Rs 97.5 lakh. Together, these accounted for a cumulative sale of 595 metric tons and a total revenue of about Rs 1.84 Crore during 2024-25.
Producers provided financial education / counseling. N=100	On average, 35 members per FPC participated in Krisarthak/FEC training programs. 75% of FPCs organized KCC awareness camps, and among these, an average of 100 members attended the camps.
Producers with increased access to financial services (number), of which at least 30% are female.	When asked about the types of thematic support received through the Challenge Fund, 98% of respondents mentioned insurance-related support. Among them, 75% reported receiving regular crop insurance, while 50% availed Wage-loss (Hospi-cash) Insurance. Additionally, among respondents who received loans, 100% indicated that these were working capital loans. 50% reported that Xamahar enabled them to access credit for improving their businesses. One-third (33%) indicated that they were able to expand their business operations, while 48% acknowledged that risks were effectively mitigated through the insurance support provided under the program. 80% of respondents from Vimo Sewa, Dehaat and ECSO reported improved awareness of insurance procedures and documentation. Likewise, 85% of respondents from Samunnati, RangDe, ESAF and Integra indicated that they have gained the skills for the required documentation for availing credit loans. Most claims were made under the Parametric Insurance scheme. While the initiative was taken positively, it was closed prematurely for unspecified reasons. It is recommended that the scheme be revived or considered in future project designs.
Source: End Term Assessment (2025)	

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

Horticulture, crop, spices and condiments value chains:

		Number of Demonstrations on Climate Resilient Technologies conducted by Agriculture and Horticulture Departments (Number)	Number of Demonstrations on Climate Resilient Technologies conducted by Assam Agricultural University (Number)	Number of Trainings of Nursery Growers Conducted (Number)
Baseline		0	0	0
YR-1	Target	1814	210	20
	Achievement	0	0	0
	%	**0.0**	**0.0**	**0.0**
YR-2	Target	5054	450	40
	Achievement	4211	419	2
	%	**83.3**	**93.1**	**5.0**
YR-3	Target	9164	690	60
	Achievement	6386	724	28
	%	**69.7**	**104.9**	**46.7**
YR-4	Target	13274	832	100
	Achievement	7849	724	58
	%	**59.1**	**87.0**	**58.0**
YR-5	Target	17034	832	140
	Achievement	18358	781	166
	%	**12.6**	**12.6**	**12.6**
YR-6	Target	20234	832	140
	Achievement	22650	791	166
	%	**111.9**	**95.1**	**118.6**
End Target. YR-7	Target	22000	832	140
	Achievement	22650	791	166
	%	**103.0**	**95.1**	**118.6**
Source: PMIS (January 2026)				

The performance of **Agri-Horti Value Chains** has been strong, with demonstrations on climate-resilient technologies by departments exceeding targets (103%) and training of nursery growers at 119%, while AAU demos. reached 95% of the target.

ETA adoption data for agri-horti commodities and spices from the :

Output Indicator	Findings
Horticulture, crop, spices and condiments value chains: Number of Demonstrations on Climate Resilient Technologies conducted by Agriculture and Horticulture Departments (Number)	**Paddy -** 75% of 2018 demonstration farmers, 81.5% of 2019 farmers, 79% of 2020 farmers, 74% of 2021 farmers and 98% of 2022 farmers have continued cultivating STRVs last season (2025), much after they had received demonstration. 74.5% farmers have adopted seed varieties recommended by APART during demonstrations and 71.9% have continued following the said package of practices.
	Maize - 84.8% farmers have adopted seed varieties recommended by APART during demonstrations and have continued following the said package of practices.
	Pulses - 60.2% farmers have adopted seed varieties recommended by APART during demonstrations and 56.3% have continued following the said package of practices.
	Fruits - 48.8% farmers have adopted seed varieties recommended by APART during demonstrations and 47.6% have continued following the said package of practices.
	Potato - 70% farmers of 2018 demonstration farmers, 95% of 2019 farmers, 77% of 2020 farmers, 79% of 2021 farmers, 97% of 2022 farmers and 71% of 2023 farmers have continued cultivating the APART recommended potato varieties in the last season, much after they had received demonstrations. 95% farmers have adopted seed varieties recommended by APART during demonstrations and 94% have continued following the said package of practices. **Processed Potatoes -** 72% farmers have adopted seed varieties recommended by APART during demonstrations and 71.3% have continued following the said package of practices.
	Vegetables - 72.3% farmers have adopted seed varieties recommended by APART during demonstrations and 71.3% have continued following the said package of practices.
	Mustard - 99% farmers who have received demonstration support in the year 2020, continued to use the APART recommended seed varieties in the last season, similarly 69% of 2021 farmers and 92% of 2022 farmers have used recommended seed varieties last season, much after they had received demonstrations. 81.6% farmers have adopted seed varieties recommended by APART during demonstrations and 78.8% have continued following the said package of practices.
	Ginger - 84.1% farmers have adopted seed varieties recommended by APART during demonstrations and 83.3% have continued following the said package of practices.
Source: End-term Assessment (2025)	

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

Milk value chain: Formal Sector

		Number of AI Services to be Administered per Year (Number)	Number of Calves to be Born per Year (Number)	Number of Dairy Farmers to be reached through MPIs/DCS (Number)	Quantity of Milk to be Procured from MPIs/DCS (?000 kg per Day)	Creation of Chilling Capacity (BMCs) (?000 liters per Day)	Creation of Liquid Milk Processing Capacity (?000 liters per Day)	Milk Sales (?000 kg Per Day)
Baseline		0	0	0	0	0	0	0
YR-1	Target	56550	15834	1275	25	4	0	66
	Achievement	39520	21370	255	1.34	0	0	50.68
	%	**69.9**	**135.0**	**20.0**	**5.4**	**0.0**	**0.0**	**76.8**
YR-2	Target	156420	43798	5180	36	18	40	80
	Achievement	105374	44723	1027	2.42	0	0	54.09
	%	**67.4**	**102.1**	**19.8**	**6.7**	**0.0**	**0.0**	**67.6**
YR-3	Target	303330	84934	10650	54	64	130	112
	Achievement	253712	80992	12835	29.62	33	0	55
	%	**83.6**	**95.4**	**120.5**	**54.9**	**51.6**	**0.0**	**49.1**
YR-4	Target	482790	135181	18480	82	141	130	135
	Achievement	377347	124092	13522	38	47	60	65
	%	**78.2**	**91.8**	**73.2**	**46.3**	**33.3**	**46.2**	**48.1**
YR-5	Target	679374	190225	27895	120	209	180	158
	Achievement	758452	288249	28513	48	88	60	83
	%	**111.64**	**151.53**	**102.22**	**40.00**	**42.11**	**33.33**	**52.53**

		Number of AI Services to be Administered per Year (Number)	Number of Calves to be Born per Year (Number)	Number of Dairy Farmers to be reached through MPIs/DCS (Number)	Quantity of Milk to be Procured from MPIs/DCS (?000 kg per Day)	Creation of Chilling Capacity (BMCs) (?000 liters per Day)	Creation of Liquid Milk Processing Capacity (?000 liters per Day)	Milk Sales (?000 kg Per Day)
YR-6	Target	894546	250471	36400	159	287	180	187
	Achievement	818839	308919	28513	52	103	150	103
	%	**91.5**	**123.3**	**78.3**	**32.7**	**35.9**	**83.3**	**55.1**
End Target. YR-7	Target	1132530	317110	44955	202	307	180	217
	Achievement	1084665	423438	49681	161.52	220	150	137.24
	%	**95.8**	**133.5**	**110.5**	**79.96**	**71.7**	**83.3**	**63.2**
Source: PMIS (January 2026)								

The progress of Milk Value Chain (Formal sector) is mixed. AI services reached 96% of the target cumulatively, while calves born at HH level exceeded expectations at 134%. The number of dairy farmers covered was also higher than planned (111%). However, indicators on milk procurement (80%), chilling capacity (72%), processing capacity (83%) and milk sales (63%) fell short of their respective targets.

WAMUL emerged as a new leader in the milk sector in Assam with significant growth and transformation through APART. WAMUL underwent a major infrastructure and operational transformation that significantly improved productivity, efficiency and transparency across its dairy value chain, under APART.

- WAMUL established a network of 400 trained Mobile AI Technicians (MAITs) delivering over 11 lakh AI services, leading to the birth of 5 lakh genetically improved calves, 50% of which are female.
- Over 2 lakh genetically improved female calves born, ensuring higher future milk productivity.
- WAMUL expanded operations to 24 districts, covering 3400 villages and forming 1600 DCSs with 50,000+ active pourers.
- Increased daily milk procurement to 1.6 lakh kg, sourced directly from farmers.
- WAMUL has set up 70 Bulk Milk Cooling (BMC) units (2.2 lakh LPD total capacity) and deployed 18 insulated road milk tankers (RMTs) with a capacity of 1,56,000 liters to maintain a seamless cold chain.
- WAMUL expanded milk processing capacity from 60 to 150 TLPD, with facilities for value-added products such as ice cream, flavored milk/traditional sweets.

The table below reflects data from the End-term assessment:

Output Indicator	Findings
Percentage of farmers who have availed AI services	85.8% dairy farmers reported to have availed AI services
Total number of calves born per year	On an average 624 number of calves were born per year
Average number of Dairy Farmers who are members of MPI / DCS	All 353 dairy farmers (100%) were members of MPIs/DCS
Quantity of milk sold to WAMUL	80.7% dairy farmers sell milk to WAMUL - 15.53 kg per day (average) at Rs. 48.07. On average per farmer sells 4603.54 kg of milk per year
Daily milk sales of dairy farmer	Rs. 931.2 per farmer per day
Source: End-term Assessment (2025)	

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

Milk value chain: Informal Sector

		Dairy Informal Milk Marketable Surplus (kg per Day)	Informal Milk channeled into the Formal Sector (kg per day)	Informal Milk available for processing (kg per day)	Value Realized from the Informal Milk Channeled to the Formal Milk Sector (Rs?000 per day)
Baseline		0	0	0	0

		Dairy Informal Milk Marketable Surplus (kg per Day)	Informal Milk channeled into the Formal Sector (kg per day)	Informal Milk available for processing (kg per day)	Value Realized from the Informal Milk Channeled to the Formal Milk Sector (Rs?000 per day)
YR-1	Target	0	0	0	0
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	0	0	0	0
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-3	Target	21600	10800	1080	117
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-4	Target	51840	25920	3888	303
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-5	Target	82080	41040	8208	514
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-6	Target	103680	51840	12960	689
	Achievement	25763	12580	25763	528
	%	**24.8**	**24.3**	**198.8**	**76.6**
End Target. YR-7	Target	207360	103680	31104	1450
	Achievement	82520.34	40287.3	42233.04	1893.5
	%	**39.8**	**38.9**	**135.8**	**130.6**
Source: PMIS (January 2026)					

In the informal sector, while marketable surplus is only 40%, encouragingly, value realized from informal milk channeled to the formal sector surpassed targets (131%).

The Directorate of Dairy Development (OPIU) facilitated the transformation of the informal dairy sector into the formal one through improvement in resilience in production, quality, safety and standards of milk adding value to the produce with particular focus on informal market actors and dairy entrepreneurs in targeted districts. Few key activities included:

- Design, Development and Printing of training manuals for Informal Milk Market Actors, protocols for Training of Trainers (ToT), capacity building of government officials on Laboratory Technology were conducted with support from International Livestock Research Institute (ILRI).
- Training of milk market actors (Milk Producers, Milk Traders, Sweet Makers and Cottage Processors) in targeted project districts on improved package of practices for quality and hygiene was conducted. Immediately after each training, a Hygienic Milk Monitoring Committee (HMMC) was constituted among the trained actors to monitor the adoption of improved practices taught during the training.
- Formation of Dairy Cooperatives Societies (DCS) among the interested trained Milk Producers through mobilizing the informal dairy value chain through strengthening of the existing DCS, formation of new DCS wherever feasible and register them under the Assam Cooperatives Registration Act. They were supported with capacity up-gradation, input services, market access and other linkages in the Milk value chain.
- Linkages and Support to market actors to run their business efficiently by providing input support and recognition for adoption of improved practices.
- Development of Milk Collection Centers at each DCS for better aggregation of milk produced by each member of the Dairy Cooperative Society (DCS).
- The table below reflects data from the ETA for the informal sector Milk VC:

Output Indicator	Findings
Milk marketable surplus (kg/day)	14.56 kg/day from intervention area and 12.8 kg/day from control area

Output Indicator	Findings
Amount of milk channeled into the formal sector	72.8% farmers are pouring milk, 15.06 liters per day at Rs. 51.3 per kg to the DCS (intervention), 20.75% farmers are pouring milk, 19.74 liters per day at Rs. 46.78 per kg to the DCS (control)
Amount of milk available for processing	**Sweet processor** - 14.3% farmers - 5.42 liters per day at Rs. 49.3 (intervention) - 29.8% farmers - 7.49 liters per day at Rs. 46.22 (control) **Cottage cheese processors** - 2.8% farmers - 9.7 liters per day at Rs. 45.0 per day (intervention) - 6.3% farmers - 4.14 liters of milk per day at Rs. 49.2 (control)
Source: End-term Assessment (2025)	

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

- **Fisheries value chain:**

		Area Under Climate Resilient Aquaculture Practices (Hectares)	Water Area in Hectares to be covered under Technology Demonstration in Beel fisheries (Hectares)	Increase in Marketable Surplus due to climate resilient aquaculture practices (Tons)	Increase in Marketable Surplus due to technology demonstration in Beel fisheries combining small indigenous fishes (Tons)
Baseline		0	0	0	0
YR-1	Target	0	0	0	0
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	250	125	1225	250
	Achievement	240.9	138.25	0	0
	%	**96.4**	**110.6**	**0.0**	**0.0**
YR-3	Target	650	425	3125	850
	Achievement	793.28	423	5343.49	774.2
	%	**122.0**	**99.5**	**171.0**	**91.1**
YR-4	Target	1150	925	5225	1850
	Achievement	1366.81	703	5353.01	1282.71
	%	**118.9**	**76.0**	**102.4**	**69.3**
YR-5	Target	1450	1625	6625	3250
	Achievement	2090.19	1160.91	5587.55	1850
	%	**144.2**	**71.4**	**84.3**	**56.9**
YR-6	Target	1700	2225	7850	4450
	Achievement	2607.04	1160.91	5587.55	1850
	%	**153.4**	**52.2**	**71.2**	**41.6**
End Target. YR-7	Target	1700	2225	7850	4450
	Achievement	2652.34	1239.34	5587.55	1850
	%	**156.0**	**55.7**	**71.2**	**41.6**
Source: PMIS (January 2026)					

- The water area brought under the **Fisheries Value Chain** for climate-resilient aquaculture practices has substantially exceeded the target (156%), although the resulting marketable surplus has remained lower at 71% of the target.
- The Fisheries interventions under APART focused on sustainable fisheries development in Assam. It aimed to increase fish production and productivity through climate-resilient aquaculture and better management practices, while enhancing food security and the livelihoods of smallholder farmers and fishers. The project was implemented by the Department of Fisheries, Assam with technical support from organizations like WorldFish[4] .
- The APART aquaculture demonstrations (polyculture, paddy-cum-fish, polyculture with freshwater prawns) showed a consistent scale-up over six years, covering 7,789 beneficiaries and 2,652.34 ha of water area against a target of 2,504 ha, indicating strong field uptake and participation. The Beel Fishery component of

[4] https://worldfishcenter.org/project/assam-agribusiness-rural-transformation-apart

the APART project supported 68 beels across five years, bringing 1,105.74 hectares of natural water bodies under improved scientific management.

- The table below reflects data from the ETA:

Output Indicator	Findings
Marketable Surplus due to climate resilient aquaculture practices (in kgs)	**Polyculture Fisheries** - 3094.1 kg per year per farmer (intervention) and 1116.225 kg per year per farmer (control)
	Paddy-cum-Fish - 1092.02 kg per year per farmer
	Polyculture with Prawns - 2492.75 kg per year per farmer
Marketable Surplus due to technology demonstration in Beel fisheries combining small indigenous fishes (in kgs)	**Beel Fisheries** - 1180.31 kg per year per farmer
Source: End-term Assessment (2025)	

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

Sericulture and Handloom Value Chain

		Increase in Eri Raw Silk production (Tons)	Increase in Muga Raw Silk production (Tons)	Increase in Eri fabric production (in metres)	Increase in Muga fabric production (in metres)
Baseline		29	5	598000	198000
YR-1	Target	29	5	626000	201300
	Achievement	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	29	5	656000	211860
	Achievement	29	5.175	0	0
	%	**100**	**103.5**	**0.0**	**0.0**
YR-3	Target	29	5	690000	222420
	Achievement	29	5.175	0	0
	%	**100.0**	**103.5**	**0.0**	**0.0**
YR-4	Target	31	6	736000	237820
	Achievement	43.95	6.14	600651	199217
	%	**141.8**	**102.3**	**81.6**	**83.8**
YR-5	Target	34	7	788000	254980
	Achievement	68.616	7.299	663041	288910
	%	**201.8**	**104.3**	**84.1**	**113.3**
YR-6	Target	37	7	844000	272910
	Achievement	70.68	7.903	782388	314912
	%	**191.0**	**112.9**	**92.7**	**115.4**
End Target. YR-7	Target	37	7	902000	291610
	Achievement	73.38	8.163	923218	349552
	%	**198.3**	**116.6**	**102.4**	**119.9**
Source: PMIS (January 2026)					

APART has supported the eri and muga silk farmers through plantation support, providing training and exposure visits, providing rearing houses, spinning and reeling machines and market linkages like fairs and reshom haat. Since, sericulture activities are inherently home-based, it was an unorganized sector. APART through the Department of Sericulture facilitated the formation of Farmer Interest Groups (FIGs) and FPCs for the first time in Assam. Reelers and spinners were incorporated in the FIGs, 1 machine for 3 muga silk reelers and 1 machine for 2 eri silk spinners were provided. Rearing capacity for eri silk was expanded. Plantation activities both in government land and private (farmers') land were promoted. The rearing cost for muga thereby reduced. Eri male farmers systematically cultivated and managed their plantations, thereby reducing the workload of women rearers (eri). The quality of reeling and spinning improved with the available machines. Skill development training was provided to nearly all farmers.

APART has reached to 4591 eri and muga silk farmers of which 2362 are females.

Component C: Fostering Market Led Production and Resilience Enhancement [Output Indicators] (Cumulative Target Values)

Cross cutting areas of Formal and Informal Milk Sectors:

		Number of animals covered under the projects immunization program (Number)	Number of animal health camps (Number)	Number of reproductive health and Mastitis management camps (Number)	Number of Gopal Mitras trained and established (Number)	Training of DCS members on Dairy management (Number)
Baseline		0	0	0	0	0
YR-1	Target	207896	736	232	0	0
	Achievement	0	0	0	0	0
	%	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
YR-2	Target	617528	2348	412	17	20
	Achievement	423267	0	0	0	0
	%	**68.5**	**0.0**	**0.0**	**0.0**	**0.0**
YR-3	Target	1168615	4512	608	32	83
	Achievement	904560	2285	186	44	0
	%	**77.4**	**50.6**	**30.6**	**137.5**	**0.0**
YR-4	Target	1798502	7096	689	37	130
	Achievement	1314460	3785	373	44	100
	%	**73.1**	**53.3**	**54.1**	**118.9**	**76.9**
YR-5	Target	2444734	9784	736	42	177
	Achievement	247480	5285	373	44	0
	%	**10.1**	**54.0**	**50.7**	**104.8**	**0.0**
YR-6	Target	3105421	12565	769	46	210
	Achievement	247480	5285	373	44	350
	%	**8.0**	**42.1**	**48.5**	**95.7**	**166.7**
End Target YR-7	Target	3727758	15111	769	46	210
	Achievement	386068	5285	373	44	350
	%	**10.4**	**35.0**	**48.5**	**95.7**	**166.7**
Source: PMIS (January 2026)						

Note: The Foot and Mouth Disease (FMD) immunization under APART was put on hold as it was then covered by GoI scheme. Major inputs were put into training activities.

Findings from End-term Assessment study related to few indicators:

- **Health Camps:** 55.3% farmers have attended health camps on reproductive health and Mastitis management and immunization.
- **Training of DCS:** 42.2% farmers have received training on dairy management through DCS.

Component D: Project Management, Monitoring and Learning [Intermediate Results Indicator | Output Indicator] (Cumulative Target Values)

		Grievances registered related to delivery of project benefits that are actually addressed (Percentage) (CRI)
Baseline		0
YR-1	Target	70
	Achievement	100
	%	**0.0**
YR-2	Target	80
	Achievement	100
	%	**125.0**
YR-3	Target	80
	Achievement	100
	%	**125.0**
YR-4	Target	100
	Achievement	100
	%	**100.0**
YR-5	Target	100
	Achievement	100
	%	**100.0**

		Grievances registered related to delivery of project benefits that are actually addressed (Percentage) (CRI)
YR-6	Target	100
	Achievement	100
	%	**100.0**
End Target. YR-7	Target	100
	Achievement	100
	%	**100.0**
Source: PMIS (January 2026)		

All grievances lodged in the project have been addressed timely.

In the processing of all grievances, APART follows international best practices including the adoption of basic procedures such as acknowledging all grievances and assigning a central tracking number/ID for all grievances alongside basic service standards for the response. APART has also established an operating procedure for the handling of unresolved grievances through a process of escalation - where unresolved grievances are transmitted to the next higher level - to OPIUs and then PCU. The PCU aggregates all grievances into a consolidated single database to monitor the performance of PIUs with service standards and generate aggregated statistics on performance to be disclosed on the project's web platform for the public.

A comprehensive set of trainings on the GRM has been undertaken covering the PCU and PIUs at the State and District level. The training was designed as cascading from the PCU that trains State Level PIU officials as part of the Social Safeguards Training. The PCU and State Officials joined the training sessions for the District Level PIUs conducted by DLCC. Service providers and ATMAs also received training on the GRM.

The tollfree helpline number is functional.

The table below is data collected from ETA from farmers interviewed:

Segments	Percentage of respondents who are aware of APART's GRM process	Percentage of respondents who have ever lodged a formal complaint	Whether the lodged grievance was addressed (Y/N)
Agri-Hoti	67	19	Yes
Milk	77	21	Yes
Fisheries	57	15	Yes
Sericulture and Handloom	70	22	Yes
Kshyamata and AAGL	52	15	Yes
Xamahar	13	0	-
Industry Associations and CFC	39	3	Yes
FPC and CSC	35	4	Yes
Roads	80	10	Yes
Markets	55	10	Yes
Warehouse	55	15	Yes
Source: End Term Assessment (2025)			

The assessment of APART's Grievance Redress Mechanism (GRM) indicates that while the system is responsive and effective for those who use it, awareness and uptake vary significantly across beneficiary segments. Awareness is highest among respondents in the Roads (80%), Milk (77%), Sericulture & Handloom (70%) and Agri-Horti (67%) sectors, whereas segments such as Industry Associations & CFC (39%), FPCs & CSCs (35%) and particularly Xamahar (13%) exhibit very low awareness levels.

The proportion of respondents who have ever lodged a formal grievance remains low overall, with only a few segments, Sericulture & Handloom (22%), Milk (21%), Agri-Horti (19%) and Warehouses (15%), showing relatively higher engagement. Notably, all respondents who lodged grievances confirmed that their issues were addressed, reflecting a functional and responsive GRM system.

The findings suggest a need for strengthened communication and outreach efforts, especially in low-performing segments, to ensure equitable access and improved utilization of the GRM across all APART-supported groups.

The achievements against latest Results Framework and Monitoring Indicators as per PAD (updated) is attached at Annexure-7.

8. Evaluation of performance of Borrower, Implementing Agencies and the World Bank

This section of the Project Completion Report (PCR) presents an assessment of the performance of the key stakeholders involved in the project, namely: the Borrower - the Implementing Agencies, and the World Bank.

The assessment is based on their respective roles and responsibilities, effectiveness in implementation, and contribution to the achievement of project objectives.

8. Performance of the Borrower

8.1.1 Project Ownership and Commitment

The Government of Assam demonstrated strong ownership of APART throughout the project lifecycle. The project objectives were well aligned with the state's agricultural development strategy and rural transformation priorities. The Borrower provided consistent administrative and policy support, enabling implementation across multiple departments and agencies.

High-level engagement through steering and review mechanisms contributed to resolving implementation issues and maintaining strategic focus on project outcomes.

8.1.2 Institutional Arrangements and Coordination

The Borrower established appropriate institutional arrangements for implementation, including the creation of a dedicated Project Coordination Unit (PCU) and involvement of relevant line departments. Given the multi-sectoral nature of APART, inter-departmental coordination was critical.

While coordination challenges were observed during the initial phase, particularly in role clarity and procedural alignment, these improved over time through regular reviews and strengthened convergence mechanisms.

8.1.3 Financial Management and Counterpart Funding

The Government of Assam ensured provision of counterpart funding and adherence to agreed financial management arrangements. Statutory audits and financial reporting were conducted in line with project requirements. Although occasional delays occurred due to administrative processes, these did not materially affect overall project implementation.

8.1.4 Monitoring, Oversight, and Decision-Making

The Borrower exercised oversight through periodic reviews, monitoring implementation progress, and timely decision-making on restructuring and course correction where required. The responsiveness of the Borrower improved over the project period, contributing to smoother implementation during later stages.

8.2. Performance of the Implementing Agencies

8.2.1 Implementation Capacity and Project Management

The Implementing Agencies, comprising the PCU, participating line departments and district-level units were responsible for day-to-day execution of project activities.

Dedicated staffing and adoption of structured project management practices supported implementation.

Initial capacity constraints were observed in areas such as procurement, safeguards management, and results-based monitoring. These constraints were progressively addressed through capacity-building initiatives, hands-on support, and experience gained during implementation.

8.2.2 Technical Execution and Achievement of Outputs

The Implementing Agencies demonstrated adequate technical competence in implementing core project components, including: - Promotion of improved and climate-resilient agricultural practices; - Development of agribusiness value chains; - Support to farmer aggregation, producer organizations, and market linkages; - Facilitation of private-sector participation and investment.

The technical quality of interventions improved over time, contributing to achievement of key project outputs and outcomes.

8.2.3 Procurement and Contract Management

Procurement activities were largely carried out in accordance with agreed guidelines. Some delays were experienced during early implementation due to procedural complexities, market response issues, and capacity limitations. Contract management improved in later years following targeted support and system strengthening.

8.2.4 Environmental and Social Safeguards

The Implementing Agencies integrated environmental and social safeguards into project activities in line with agreed frameworks. Compliance and documentation improved progressively, supported by training, supervision, and corrective actions where required.

8.2.5 Monitoring, Evaluation, and Reporting

Monitoring and evaluation systems, including a project MIS, were established to track progress against results indicators. While data quality and timeliness varied initially, reporting systems stabilized and improved significantly toward project completion.

8.3. Performance of the World Bank

8.3.1 Quality at Entry

The World Bank's performance at entry was strong, with project design informed by sectoral analysis, lessons from similar operations, and alignment with state priorities. The results framework and implementation arrangements were appropriate, though ambitious in certain areas.

8.3.2 Supervision and Implementation Support

The World Bank provided implementation support through missions, technical guidance, and continuous engagement with the Borrower and Implementing Agencies. The Bank responded proactively to implementation challenges and supported restructuring and adjustments as required. However, regular and structured full team mission from Bank would have ensured better, efficient and smooth implementation of Project interventions

8.3.3 Fiduciary and Safeguards Oversight

The Bank ensured adequate fiduciary oversight through regular reviews of financial management, procurement, and safeguards compliance. This contributed to strengthening institutional systems and mitigating implementation risks over time.

8.3.4 Knowledge Support and Capacity Building

The World Bank facilitated knowledge sharing, exposure to best practices, and capacity building of project staff and state institutions. This support enhanced implementation quality and informed adaptive management.

8.4. Overall Performance Assessment and Conclusion

Overall, the Assam Agribusiness and Rural Transformation Project (APART) benefited from effective collaboration among the Borrower, Implementing Agencies, and the World Bank. Despite initial implementation challenges, coordinated efforts, institutional learning, and adaptive management contributed to improved performance over the project period.

- The **Borrower** demonstrated strong ownership and provided consistent policy and administrative support.
- The **Implementing Agencies** showed progressive improvement in capacity and effectiveness, delivering key project outputs.
- The **World Bank** added value through quality project design, supervision, and technical and knowledge support.

The collective performance of all stakeholders supported the achievement of the project development objectives and laid a foundation for sustained agribusiness growth and rural transformation in Assam as is evident from the following observations of the the World Bank –

"4. KEY ISSUES & STATUS

4.1 Implementation Status and Key Decisions

The Assam Agribusiness and Rural Transformation Project (APART) concludes with remarkable achievements, surpassing key targets—reaching 664,392 households (32% above target) and engaging 188,676 female farmers (25% above goal). Delivering average net benefits of INR 30,000 per beneficiary, the project pioneered innovative approaches in commodity aggregation and environmentally sustainable agricultural practices across multiple subsectors. Though price premium targets remained challenging at 15% versus the targeted 25%, the initiative effectively diversified marketing channels and tripled technology adoption rates among farmers, firmly establishing itself as the Government of Assam's flagship initiative for agricultural transformation.

As APART transitions toward completion, comprehensive institutional reforms ensure sustainability of project innovations. The three-phase diagnostic review of Assam's Animal Health and Veterinary Departments is modernizing livestock sector governance, while fully staffed field positions in the revamped State Farm Advisory Services provide critical infrastructure for long-term agricultural development. With no outstanding implementation challenges and nearly 90% of targeted expenditure already made, the management team now focuses on documenting valuable lessons in investment structures and public-private partnerships. These insights will inform future initiatives as the Government of Assam explores interventions in high-value sectors such as dairy, eggs, and meat production.**"**

Source:
https://documents1.worldbank.org/curated/en/099042225182512619/pdf/P155617-eaa8e8fd-5c49-4e8b-bd25-579064a40054.pdf

9. Sustainability of project interventions

To ensure the sustainability of successful Project interventions, the Project put in place a robust exit strategy as recommended by the TPRM in April 2024 at Udaipur. The exit strategy

has been shared with DEA World Bank. Also, a status report on implementation of exit strategy has been submitted to DEA.

10. **Beneficialy Case Studies are at Annexure-2 and Project Success Stories are attached separately at Annexure-7.**

11. **Conclusion and Way forward**

Based on the success of APART, ARIAS Society has initiated the process of preparing for two new Projects i.e. one to be jointly funded by the World Bank and the Asian Development Bank (ADB) and ther other one to be funded by International Fund for Agricultural Development (IFAD).

Annexures to PCR

Annexure-1: Brief profile of Assam

- **Location:** Assam is located in the Northeastern India, sharing borders with Arunachal Pradesh, Nagaland, Manipur, Meghalaya, Tripura, Mizoram, West Bengal, and international borders with Bhutan and Bangladesh.
- Population of Assam stands at 3,11,69,272, of which 1,59,54,927 are males and 1,52,14,345 females (Source: Census of India, 2011 /Economic Survey, Assam, 2011-12)
- Assam's geographical area is 78,438 sq. kms. i.e., about 2.4 percent of India's total geographical area, and the State provides shelter to 2.57 percent population of the Country. Urban area is 1.6% while rural area is 98.39%.
- Decadal growth of the State's population is 16.93 percent during the decade 2001-2011 as against 17.64 percent for the country as a whole.
- **Major Rivers:** Brahmaputra (dominant river), Barak
- **Terrain:** Fertile plains, hills, and forests

Agriculture scenario in Assam

- Net sown area: 27.23 lakh ha
- Gross cropped area: 40 lakh ha
- Total cultivable land: 39 lakh ha
- Area under horticultural crops: 6 lakh ha
- Key agricultural crops: Rice, Maize, Mustard, Pulses, Jute
- Key Horti. crops: Banana, Pineapple, Orange, Potato, Ginger, Turmeric, Lemon, Honey
- Cropping intensity: 147%
- Area cultivated once: 14.43 lakh ha **;** Area cultivated twice or more: 12.81 lakh ha

Agro-climatic zones of Assam

1. North Bank Plain Zone (NBPZ)

- **Districts** : Dhemaji, Lakhimpur, Sonitpur, Darrang, Udalguri, Baksa
- **Climate**: Humid with high rainfall
- **Soil**: Alluvial, sandy to sandy loam
- **Major Crops**: Rice, pulses, mustard, vegetables, sugarcane

2. Upper Brahmaputra Valley Zone (UBVZ)

- **Districts** : Tinsukia, Dibrugarh, Sivasagar, Jorhat, Golaghat
- **Climate**: Humid subtropical
- **Soil**: Alluvial with good fertility
- **Major Crops**: Rice, tea, mustard, vegetables, sugarcane

3. Central Brahmaputra Valley Zone (CBVZ)

- **Districts** : Nagaon, Morigaon, parts of Karbi Anglong
- **Climate**: Warm and humid
- **Soil**: Alluvial with moderate fertility
- **Major Crops**: Rice, pulses, jute, vegetables

4. Lower Brahmaputra Valley Zone (LBVZ)

- **Districts**: Kamrup (M&R), Nalbari, Barpeta, Bongaigaon, Goalpara, Dhubri, Kokrajhar
- **Climate**: Hot and humid with high rainfall
- **Soil**: Sandy loam to clay loam
- **Major Crops**: Rice, jute, mustard, pulses

5. Barak Valley Zone (BVZ)

- **Districts** : Cachar, Karimganj, Hailakandi
- **Climate**: Humid and warm
- **Soil**: Loamy and lateritic
- **Major Crops**: Rice, tea, sugarcane, fruits, vegetables

6. Hill Zone (HZ)

- **Districts Covered**: Karbi Anglong, Dima Hasao
- **Climate**: Mild to moderate with high rainfall
- **Soil**: Red loamy, lateritic
- **Major Crops**: Maize, upland rice, ginger, turmeric, horticultural crops

Annexure-2: Beneficiary case studies

Case Study 1: Women-led Sericulture FPC: A women-led Farmer Producer Company in Jorhat district adopted improved silkworm rearing practices under APART support and set up a Common Service Centre. With training and collective marketing, members increased income by substantially while creating sustainable employment for over 500 women.

Challenge: *Limited diversification, market access and high input cost were the major obstacles in the development of sericulture in the Titabor area of Jorhat District. A woman handloom entrepreneur, Ms* ***Sikhamoni Buragohain****, (54) primarily dealing with Silk handloom recognised the problem and took lead to tackle the issue in the interest of Sericulture community in the area, particularly the women and now leads an all women FPC of 500 members.*

Ms Buragohain was born in Kakodunga Habi Gaon of Jorhat district in Assam. She is a classic example of a successful rural woman handloom entrepreneur. The example demonstrates ***Sikhamoni Buragohain****'s self-assurance, dedication and willpower in establishing herself as a prosperous rural woman entrepreneur and has been able to successfully run her small-scale business through group support, cooperation from her fellow weavers. She successfully preserved the traditional handloom weaving techniques passed down from her mother and grandmother.*

With the inputs from APART and formation of Titabor Paat Muga Farmer Producer Company limited in 2020 there is a silver lining for development and progress of Ms Buragohain along with other members in the FPC. Now she is capable of producing successfully by incorporating innovation and tradition in her products generating a net income of approximately Rs 4, 20,000 to Rs 5, 00,000 per annum from a meagre amount of Rs 60,000 to Rs1,20,,000 per annum in the initial stage.

The rise in the number of women entrepreneurs is creating jobs, influencing demographic changes and motivating the subsequent generation of female owned businesses is playing a significant role in society. One such enterprising women entrepreneur of Assam's rural communities is Ms **Sikhamoni Buragohain**,. However, while starting her businesses in rural area she was confronted with a variety of obstacles but has been able to create profitable and sustainable enterprise not only for herself but also for women in her area.

Further in 2004 with 20 women she formed the Lakhimi Atma Sahayak Self Help Group under ASRLM in her locality. Then onwards she worked in the group and attended several quality training in Silk pre cocoon, post cocoon, Paddy cultivation and marketing facilities. Ms. **Buragohain's** self-assurance, dedication and willpower established her as a prosperous rural woman entrepreneur and has been able to successfully run her small-scale business through group support, cooperation from her fellow weavers. For her work as a producer of natural silk handlooms, empowering women weavers in her community, her empathy for her fellow workers she was acknowledged and awarded in different forums from organisations of repute like Central Silk Board, Department of Handloom, Textiles, Sericulture, NEDFi, ASRLMS, AAU.

Despite all efforts, the recognitions received, the knowledge acquired in the trainings the issues of market access, limited diversification of products and high input cost were found to be the major obstacles in the community. There were occasionally no orders at all and at times there are usually large ones. Due to competition from low-quality products, some products fail to command a fair market price. Due to steep rise in yarn price she is unable to make more profit margins from the products. Poor marketing and insufficient market linkages resulted in missed opportunities and effect earning more revenue. To overcome the problems she and her SHG members was harping on working in a bigger group with many such handloom and agri entrepreneurs catering to bulk production, joint marketing activities, procurement of yarns, natural dyeing, skill up gradation the proposal for proposal for formation of the Titabor Paat Muga Farmer Producer Company limited under APART in 2020 came as big boost. Then on wards the problems were streamlined and the DPR was approved for implementation in 2022. However the backbone behind this venture was the simple, dedicated, hardworking invincible Ms Buragohain.

Thereafter the potential weavers from Titabor, Jorhat district participated in skill development training in weaving, designing, natural dyeing as well as participated in exposure visits to the

prominent Handloom cluster of India conducted by the Directorate of Handloom & Textiles and learned about new techniques in weaving and replicate the same in their area of operation. The design consultancy firm's support in activities like skill up gradation, design / product development, marketing linkages, building pipeline of orders and facilitating participation in marketing events under APART has been a great support in the right direction. With the support of improvised looms with jacquard attachment under APART Ms Buragohain along with other members in the FPC, has been capable of enhancing productivity and quality of the woven products. From the Common Service Centre the FPC is generating a net income of approximately Rs 4, 20,000 to Rs 5, 00,000 per annum from a meagre amount of Rs 60,000 to Rs 1,20,000 per annum in the initial stage. In the years to come, the business is expected to scale up multi-fold and cover additional & distant markets.

Activities under Titabor Paat Muga FPC, Jorhat in progress

Case Study 2: An all women FPC in Sonitpur District demonstrates crop diversification to increase farm income and leads the way in mustard processing.

Jaymoti FPC was formed in October 2021 with the support of APART with 653 number of shareholders (all women). The main crop of the FPC is mustard. Initially, mustard was not a very profitable crop as there were no processing facilities, no procurement on MSP and there were moisture related issues. Traders offered very low price. As a risk mitigation strategy, the FPC diversified into other crops like potato, blackgram, pumpkin, tomato etc. Also, the company set up a CSC on mustard processing with the support of APART.

Mrs Kamal Kumari Boro is a torch bearer for more than 650 women member farmers. She encouraged women in her area to come together and form an FPC. APART provided all required

support in smooth organization of member farmers into 32 CIGs and successful incorporation of the Company under the Companies Act.

Realizing the labor shortages as well as high cost of labor, the FPC applied under various schemes and has been able to acquire a number of machines which are highly useful, brought down cost of cultivation and increased yields and hence the net income of the member farmers. The machines are rented out to member and non member farmers and thus machine rental has now become an additional revenue stream for the FPC. As of now the FPC has the following functional machines:

Village Level Farm Machinery Bank: Tractor with case wheel, rotavator, trolley, potato planter

CMSGUY: Combine harvestor

APART: Plastic trays, Power sprayer, Four-wheeler transport vehicle, potato grader

HMNEH: Battery operated sprayers (13 nos)

Common Service Centre on mustard processing: with the support of APART, FPC has set up a CSC on mustard processing to produce edible oil and oil cake at total cost of Rs 37.72 lakh, APART contribution being Rs 30 lakh, company contribution- Rs 3.97 lakh and bank loan of Rs 3.75 lakh. The CSC was inaugurated on 7th July 2025 and FPC has already started commercial sale of edible oil and cake. Edible oil is packaged and sold under the brand "Jaymoti Khati Xorihor Tel."

Business turnover of the FPC: Business turnover of the FPC has been on an increasing trend-

1) 2022-2023: Rs. 80.00 Lakh
2) 2023-2024: Rs. 90.00 Lakh
3) 2024-2025: Rs. 1.00 Crore

Case Study 3: Dairy Enterprise in Sonitpur: A DCS in Sonitpur established chilling facilities with APART support. Daily milk procurement doubled, farmer incomes rose by 30%, and linkages with private processors were secured, ensuring sustainability.

Challenge: Milk producers in Teligaon village in Tehlamara area of Sonitpur District were selling milk individually to milk traders/ paikarias in the area and were not getting good price of milk. Also, there were delays in payments for milk. On the other side, the productivity of the animals was also low. Around 30 women dairy farmers were producing only 100 liters of milk per day and were selling in the local market which was a great challenge for them as they were all female producers and thus it also limited their profits and earnings for their livelihood.

They attended a 5 days Milk Producer's Training Program under APART. After undergoing the training program they also availed technical guidance from departmental officers and enriched themselves with knowledge on scientific rearing of cattle, which became a turning point for them. Along with scientific dairy farming and value addition of milk they also learned about benefits of formation of Dairy Cooperative Society (DCS). They decided to form a Dairy Cooperative Society, which was whole new concept for them and named it as "Kamdhenu Mahila DUSS".

The Milk production has now increased and collection has also increased to around 150- 200 litres (approx) per day. They sell a portion of milk to Purabi Dairy, getting a fair price and the rest in local market. Their monthly income at present is nearly Rs 1,50,000-2,00,000/-. They are practicing all hygienic conditions while rearing the dairy animals, resulting in proper animal welfare along with environmental cleanliness. Now they have become the source of inspiration for other women in the nearby areas.

Support from APART, played a very important and pivotal role in changing their life along with ensuring better livelihood opportunities and women empowerment alongside.

Annexure-3: List of CSCs under APART

Sl.	Name of the District	Name of Block	Name of FPC	Focus Commodity	Total cost (Rs lakh)	Project Grant (Rs lakh)	FPC Share (incl. Bank loan) (Rs lakh)
1	Morigaon	Mayong	Amlighat Banana Producer Company Limited	Banana	45.37	36.30	9.07
2	Nalbari	Tihu	Tihu Bajali Krishi Vikash & Producer Company Limited	Rice	94.87	50.00	44.87
3	Kamrup	Rangia	Uttaran Krishi Producer Company Limited	Rice	33.05	25.00	8.05
4	Majuli	Majuli	Majuli River Bank Farmer Producer Company (FPC) Limited	Mustard	37.23	29.70	7.53
5	Goalpara	Rangjuli	Srijoni Mahila FPC Limited	Banana	56.63	45.30	11.33
6	Golaghat	Bokakhat	Brahmaputra Valley FPC Limited	Mustard	43.69	34.95	8.74
7	Majuli	Ujani Majuli	Jengraimukh Agri FPC Limited	Rice	61.15	48.92	12.23
8	W. Karbi Anglong	Amri	Indigenous Agricultural Farmers Producer Company Limited	Ginger	63.49	50.00	13.49
9	Sonitpur	Sootia	Chowkighat FPCLimited	Maize	64.53	50.00	14.53
10	Sonitpur	Bihaguri	Jaymoti FFPC Limited	Mustard	37.72	30.00	7.72
11	Barpeta	Pakabetbari	Betbari Pragati FPC Limited	Fishery	54.66	43.73	10.93
12	Barpeta	Barpeta	Howly Agro Fish FPC Limited	Fishery	62.2	49.60	12.60
13	Cachar	Borkhola	Borkhola Aquaculture FPC Limited	Fishery	54.8	44.00	10.80
14	Cachar	Borjalenga	Borjalenga Integrated Aquaculture Farmers Producer Company Limited	Fishery	12	9.34	2.66
15	Morigaon	Dolongghat (Pt.)	Millan Jyoti FPC Limited	Fishery	52.16	41.73	10.43
16	Nagaon	Raha	Jungalbalahu Agragrami Fishery Farmer Producer Company Limited	Fishery	63.25	50.00	13.25
17	Nalbari	Pub Nalbari	Chengnoi FPC Limited	Fishery	54.75	43.80	10.95
18	Sonitpur	Chayduwar	Gohpur Fish FPC Limited	Fishery	77	50.00	27.00
19	Sonitpur	Sootea	Sootea FPC Limited	Fishery	60.18	48.14	12.04
20	Darrang	Kalaigaon	Anunad Agro Producer Company Limited	Fishery	66.04	50.00	16.04
21	Darrang	Dalgaon Sialmari	Neerjeevan Fish Producer Company Limited	Fishery	54.39	43.51	10.88
22	Goalpara	Kharmuza	Kharmuza Fish FPC Limited	Fishery	63.92	50.00	13.92
23	Goalpara	Rongjuli	Axomagro Producer Company Limited	Fishery	68.22	50.00	18.22
24	Kamrup	Rangia	Uttaran FPC Limited	Fishery	62.5	50.00	12.50
25	Kamrup	Hajo	Bhaillabari Fishery Farmer Producer Company Limited	Fishery	60	48.00	12.00
26	Kamrup	Chamaria	Samaria Producer Company Limited	Fishery	62 .00	49.60	12.40
27	Kamrup	Kamalpur	Naba Suruj Agricultural Farmer Producer Company Limited	Fishery	52.23	41.78	10.45
28	Lakhimpur	Karunabari	Taba Tate FPC Limited	Fishery	11.67	9.34	2.33
29	Nagaon	Kaliabor	Kaliabor Minpalon Ou Krishi Farmer Producer Company Limited	Fishery	11.67	9.34	2.33
30	Nalbari	Barkhetri	Mara Chaulkhoa FPC Limited	Fishery	11.67	9.34	2.33
31	Sonitpur	Barchala	Barchola FPC Limited	Fishery	11.67	9.34	2.33
32	Nagaon	Moirabari part	Gerkani FPC Limited	Fishery	11.67	9.34	2.33
33	Kamrup	Chayani Borduwar	Mapakkai Agro Producer Company Limited	Handloom and Sericulture	65.85	50.00	15.85
34	Lakhimpur	Ghilamara	Den Multipurpose Agriculture Producer Company Limited	Silk (Eri & Muga)	50.75	40.60	10.15
35	Charaideo	Lakwa	Charaideo Silk And Agro Producer Company Limited	Silk (Eri & Muga)	62.23	49.78	12.45
36	Jorhat	Titabor	Titabor Paat Muga FPC Limited	Silk (Eri & Muga)	52.27	41.81	10.46
37	Lakhimpur	Dhakuakhana	Charikaria Muga FFPC Limited	Muga Silk	63.22	50.00	13.22
				Total	**1808.7**	**1442.29**	**428.41**

Annexure-4: Value Chain-wise Achievements

Activities	Target	Achievement	Remarks
Agriculture value chains			
Market Led Climate Resilient Demonstrations (nos)	22,000	1,53,477	
Input Dealer cum farmers' interactive meet (nos)	192	112	
Zonal level workshop (nos)	56	39	17 dropped
Streamlining Agri credit including KCC & insurance (nos)	756	374	
Demonstration on Fodder (nos)	2,112	7,328	
District level Buyer seller meet (nos)	104	36	
Post Harvest Mgt Demo (nos)	900	420	480 dropped
Training on GAP (nos)	480	299	181 dropped
Renovation of District ATMAs (nos)	15	15	
Renovation of FIAC/ BRCs (nos)	60	36	
New ADO offices construction (nos)	100	93	
Silage making units (nos)	2	2	
CHCs (nos)	30	29	
Millet primary processing unit (sets)	15	15	
OPIU AAU			
On Farm Testing (OFT) demos (nos.)	2067	1,798	269 dropped
Front Line Demos (ha)	1533	1,035	498 dropped
Demonstration on fishery techs. (nos.)	550	74	Delayed start
Farm Machinery Training Centres (nos.)	3	3	
GIS labs (nos.)	4	4	
Strengthening of seed lab (no.)	1	1	
Millets product development (nos.)	6	6	
Faculty training at EDI (nos.)	100	96	
CHCs (nos.)	16	17	
Rice varietal profiling (varieties) (nos.)	100	75	
FPC Coordination Centre (nos.)	1	1	
Horticulture value chains			
Market Led Climate Resilient Demonstrations (nos)	7660	7660	
Post Harvest Management (PHM) demonstrations (nos)	846	846	
IPM demonstrations (nos)	195	195	
Demonstrations on Medicinal and Aromatic Plants (MAPs) (acre)	346.5	346.5	
Demonstrations on Farm Mechanization (Potato) (nos)	365	325	
Demonstration on Nursery grafting Techniques (nos)	41	41	
Grant to private nursery development (nos)	50	63	
Training to Nursery Growers (nos)	140	154	
Tissue Culture Anthurium (bamboo structure units)	51	50	
Tuberose (beneficiaries) (nos)	326	326	
C. Fisheries value chain			
Fishfed revival study (no.)	1	1	
Fishery value chain study (nos)	1	1	
Seed multiplication centres (nos)	4	4	
Upgradation of hatcheries (nos.)	5	5	
Polyculture including Fresh water Prawn (ha)	1500	1500	
Tech demo in beel fisheries (ha)	1500	1350	Suitable beels not found
Paddy fish integrated farming (ha)	1000	1000	
Quality brood collection from wild source (nos.)	6	6	
Credit linkage and insurance workshops (nos.)	100	100	
Field days (nos.)	400	400	
Training cum awareness for officers (nos.)	400	316	Due to COVID
Fish powder nutrition in schools pilot (qtl)	1	1	
Water testing kits distribution (nos.)	100	100	
Pilot on fresh fish vending on motor bikes (nos)	1	1	
D. Formal dairy value chain			
Transport containers (50 Lts) (nos.)	257	257	
Jumbo Semen storage container (nos.)	21	21	
Sex sorted semen (doses)	65,000	65,000	
FSD-Conventional (nos.)	11,55,180	12,16,809	
Bulk Milk Coolers (nos.)	84	84	
Silage making units (nos.)	4	4	
Expansion of LMP at Guwahati (nos.)	1	1	
ERP (nos.)	1	1	
Milko-scan (nos.)	3	1	2 dropped
Automatic Milk Collection Units (nos.)	1083	1255	
Walk in coolers (nos.)	5	5	
Ice cream deep freezers (nos.)	340	340	
Refrigerated vans (nos.)	7	11	
Road milk tankers (nos.)	21	18	capacity hiked

Activities	Target	Achievement	Remarks
Persons trained (nos.)	10,134	26,567	
E. Informal dairy value chain			
Studies (nos.)	2	2	
Peer monitoring & certification (Dist) (nos.)	17	17	
Formation of licensed market Actor Groups (nos.)	53	43	
Support to existing DCSs (capacity building) (nos.)	50	39	
Mastitis mgt & reproductive health camp (nos.)	11	11	
Strengthening of lab infra (nos.)	17	5	MTR advised 5
Demo of fodder cultivation & silage making (nos.)	2	2	
Workshop- training monitoring & certification (nos.)	2	2	Online/ offline
Certification of master trainers By ASCI (nos.)	86	81	
Training manuals for market actors (nos.)	4	4	Completed
Capacity building of Govt officials in Lab tech (nos.)	1	1	
ToT dist level resource persons (nos.)	1	1	
Exposure visit of Dairy officers to Kerala (nos.)	10	10	
Formation of new Dairy Coop Societies (nos.)	38	21	17 dropped
Capacity building of newly formed DCSs (nos.)	38	16	
Capacity building on Coop. Mgt for Dairy Staff(nos.)	25	30	
F. Sericulture value chain			
Studies (nos.)	3	3	
Institutional training to farmers (batches)	30	30	
Raising improved seedlings in Govt Farms (l) (nos.)	16	10	Target revised to 10
Support to private graineurs (nos.)	107	65	
Strengthening Muga Farms for Seed Multiplication (nos.)	4	4	
Cocoon drying chambers (nos.)	16	9	7 dropped
Support to entrepreneurs for eri house (nos.)	800	890	
Reshom haats (nos.)	5	5	
Host plantation development (ha)	1260	1289	
Skill upgradation of reelers and spinners (persons)	900	675	225
Departmental staff training (nos.)	50	73	
Strengthening of ESG/ECC (nos.)	7	7	
Softskill training for Sericulture officials (nos.)	100	93	
Strengthening of Cold Storage at Guwahati (nos.)	1	1	
Exposure visit of Sericulture Officials (nos.)	20	17	
Exposure visit of Sericulture Farmers (inter dist) (nos.)	80	80	
FPC members with Seri Officials (nos.)	40	30	
Distribution of Muga Reeling Machine (nos.)	120	46	74 dropped
G. Handloom Value chain			
Baseline / Diagnostic Study (no.)	1	1	
Awareness Programs (batches)	75	55	Target benef.7000, Achiv.: 9355
Training of Dept Staff (batches)	4	4	
Skill upgradation training for weavers (batches)	140	116	24 dropped
State level workshops for cross learning (batches)	12	8	Targeted beneficiaries.
Exposure visits – weavers (persons)	100	46	Dropped
Exposure visits- officers (persons)	40	10	Dropped
Organization of Trade Fair (nos.)	3	40	
Buyer- Seller Meets (nos.)	9	1	Assignment with NEDFi closed due to term completion.
Provision of improvised looms (nos.)	1,800	100	Target reduced as FPCs were not able to start functioning
Provision of Jacquards (nos.)	900	35	
H. Piggery value chain			
Demos on modern housing technology (nos.)	177	84	
Demos on ration balancing (nos.)	59	16	
Vaccinations (nos.)	1,46,13,600	32,03,200	After 2018-19, vaccination covered under FMD-CP of Central Govt. scheme
Media campaigns (nos.)	3	5	
Monthly cluster level meetings (nos.)	708	384	
Pig bandhus (nos.)	208	254	
Local AI worker (nos.)	208	254	
Tablets (nos.)	208	61	
Community boar at cluster level (nos.)	9,447	0	Dropped due to ASF
Exotic germplasm (nos.)	500	200	
Industry value chain (value chain related)			
G2B meetings with Investors	60	155	
Agribusiness Investment Leads generated	300	466	
Investment Facilitated	70	65	
Enterprises set up with the support of EDPF (No.)	1500	1878	
Industry Associations established	17	18	
Agro Industrial Development Plans developed (No.)	17	18	
Firms mobilized into Industry Association (AI) (No.)	1700	2845	
Joint actions undertaken by firms in a cluster (No.)	500	695	

Annexure-5: List of Infrastructure Created (major civil works)

A. Rural access roads

Sl	District	Length (Km)	Name of Road	Contract Amount (Rs Lakh)	Status
1	Bajali	0.75	Chandrapravasaikiani PWD road to Karuna Pathak House Saloipara village, Bar Saderi and Bajali district	72.77	Completed
2	Bajali	0.40	From Pathsala Rampur PWD road from Gobinda Roy House to Bhagaban Goswami House of Borgaon village, Sariha Mouza	38.31	Completed
3	Bajali	0.52	Garemari Chak to Garemary village road of Garemari village, Pub Bajali Mouza	52.63	Completed
4	Barpeta	2.20	Bahari Puran Kirtan Ghar to Uttar Haripur Road	294.62	Completed
5	Barpeta	0.19	Howly PWD Road to Assistant Agricultural Marketing Office of Howly town, Ghilajari Mouza in Barpeta District	19.16	Completed
6	Barpeta	1.61	Chenga Daulashal PWD Road(in front of Mahendra Talukdar House) to Chenga - Sarthebari Road via Chenga of Chenga Village, Chenga Mouza Barpeta District(Length 1.605KM)	153.53	Completed
7	Barpeta	0.64	Naligaon Chariali to Paschim Naligaon Chariali of L.P. School village, Naligaon Mouza	70.29	Completed
8	Barpeta	0.10	Madan Deka house to Bampara Kirtan ghar road of Niz Chenga village, Chenga Mouza	12.69	Completed
9	Barpeta	0.20	Doulashal Barpeta PWD road to Bhanu Patowary House Tiniali of Niz Chenga village, Chenga Mouza	17.60	Completed
10	Barpeta	1.56	Bahari Satra main gate to Subha Chenga Road via Bahari Kumarpara to Chenga Bahari PWD Road of Bahari village, Chenga Moza in Barpeta	156.15	Completed
11	Barpeta	0.60	Dhanbandha to Bahumara to Mojibur Rehman house of Dhanbandha village, Ghilajari Mouza	56.63	Completed
12	Biswanath	1.20	Botiamati Centre to No 7 Botiamari Village in Biswanath District	134.64	Completed
13	Biswanath	1.80	Jayamati High School to Borajuli Village road of Borajuli Nepali Village of Biswanath District	202.21	Completed
14	Biswanath	1.39	Ghimorujan to Jokapora via Ghehua of Ghimorujan village, Kallangpar Mouza.	140.13	Completed
15	Cachar	0.25	Khambar Bazar centre approx. 2 Km towards Kalain BMC Building Kosutillain (Ch. 0.0 M to Ch. 250.00 M)	28.69	Completed
16	Cachar	1.10	Baromoni Road to 133 No. L.P. School via Gurukul School of Village Nagdiram pt-ii, Mouza Bonraj in Cachar District	120.72	Completed
17	Cachar	0.90	Silcorie PMGSY road to Irongmara Bapuji L.P School of Irongmara Grant village	104.76	Completed
18	Cachar	1.10	Jamjami Road (Panibhora Kalibari Road to Paloi-Darby-Barjalenga Road), Barjellengy Pt VII village, Chabua Mouza)	122.91	Completed
19	Charaideo	1.11	Rangali Than Pathar to Balikhuti of Rangoli Thanpathar Village, Mahmora Mouza	152.22	Completed
20	Charaideo	0.55	Deroi Deogharia to Rangoli Goanburha Road of Deoghoria Village, Mahmora Mouza	60.09	Completed
21	Charaideo	0.54	Kakoroni to Noloni Road of Kakoroni Village, Khalighagura mouza	66.11	Completed
22	Charaideo	1.96	Dogabheta to Garhpara Road of Doba and Nahartali village Nahartali, Nizkhalighagura, Khalighagura mouza	251.55	Completed
23	Darrang	1.40	NH-15 to Barkumarpara	192.13	Completed
24	Darrang	1.68	Bhuktabari Sonapur Road	235.27	Completed
25	Darrang	1.40	Mowamari Chareng Chapori Road from Ch-0.00 km to Ch-1.40 km including Cross Drainage Works in Darrang District	143.60	Completed
26	Darrang	2.08	Narikali Road Bhuktabari Road to Janasewa Kathamara Road of Narikali Patharighat Village	227.34	Completed
27	Darrang	1.30	Borjhar Grant to Borjhar Grant Road of Borjhar Grant Village, Pub Dalgaon Mouza	137.63	Completed
28	Darrang	1.10	Garukhuti Kalitapara (Rajapukhuri) to Gosala Road (From Ch0.00 m to 1100.00m)	133.99	Completed
29	Darrang	1.80	Niz Sarabari Gangapukhori Road of Niz Sarabari & Burakhat Village, Sarabari Mouza	188.90	Completed
30	Darrang	1.50	Gorapori LP school to Dhula NH-15 Road	159.23	Completed
31	Dhubri	3.77	Sonaluguri (Kurshakati) to Ghunghunikhata	450.30	Completed
32	Dhubri	0.84	Gauripur Motejhar Road to DK Road (Near Chapar Balajan) of Naichakuti Chapar and Motejhar Village, Balajan Mouja	88.25	Completed
33	Dhubri	1.23	Nabab Idgah to J.N. Vidyalaya at village Alamganj Pt-DC, Alomganj Mouza	146.82	Completed
34	Dhubri	2.23	Dhanpur Suripara road to Baruahpara of Suobpara Barnapara, Bherbheri village, Bilashipara Mouza	303.25	Completed
35	Dhubri	1.35	3rd km of Khudimari Dumurdaha Kalahat Binnachora road to Thengmala Bazar via A.C. English Academy at village Dumordaha Pt-III, Dag No. 483, Gauripur Mouza	155.76	Completed
36	Dhubri	2.30	Kismat Hasdah Pt-IV to DB road of Kochuarkhash Pt-II village, Dhubri Mouza	261.95	Completed
37	Goalpara	0.90	Baijuri to Watrigiri of Baijuri village, Balijana Tehsil	108.29	Completed
38	Goalpara	2.30	Jalapara to Madang Road	311.54	Completed

Sl	District	Length (Km)	Name of Road	Contract Amount (Rs Lakh)	Status
39	Goalpara	1.00	Deulgiri Oil Palm Road	130.99	Completed
40	Goalpara	0.90	Gualergaon 180 dia culvert to Nolongapar road of Dhamor Reserve & Bapurbhita Part - II (village) Lakhipur Mouza	115.69	Completed
41	Goalpara	1.50	Tengabari Sidhabari PWD road to Nandeswar Dorongiri PWD rural road of village Sarapara; Mouza Matia	167.67	Completed
42	Goalpara	1.50	Makri Kharmuja PWD road to Dariduri Nayapara of Dariduri Nayapara village, Chutki Nonk Part II, Mouza Balijana	158.86	Completed
43	Golaghat	3.00	Road from Upper Temera to Kanphalajan via Kamala Miri Road (from Ch.0.0 km to Ch.3.0km)	320.08	Completed
44	Golaghat	3.25	Goroimari to Nikori Gutung of Goroimari and Nikori Village (Chainage 0.00Km to Chainage 3.25Km)	359.65	Completed
45	Golaghat	1.96	Missimati Dichoipar connecting Affola road of Bokakhat Revenue Circle and Khumtai Revenue Circle	208.91	Completed
46	Golaghat	3.15	Riri Elengmari Road (from Ch 0.00 to Ch 3.15 KM)	345.47	Completed
47	Golaghat	2.00	Extension of Riri Alengmarijan Road, Nikori to Riri of Alengmari village Mohura Mouza	210.67	Completed
48	Golaghat	2.00	Borpak to Boraikhawa of Boraikhawa Village Mohura/ Bokakhat Mouza	221.06	Completed
49	Hailakandi	1.00	Salchapra-Bandukmara PWD road to Bar-Hailakandi Part I PWD road, Mouza-Bar-Hailakandi Part I & II	111.05	Completed
50	Hailakandi	3.00	Bipincherra PMGSY road culvert to Tekata of Telicherra Non Cadastral (NC) village, Vernerpur Mouza	344.86	Completed
51	Hojai	1.00	Deobali Shiv Mandir to Kachadhara Bonia Namghar, Village 2 Block 2 No Gaon road, Kaki Mouza	98.75	Completed
52	Hojai	1.50	House of Haradhan Das to Haramohan Biswas House of Sautalbasti, Uttar Matikhola Village Jugijan Mouza	157.80	Completed
53	Hojai	1.40	Milan Das parika House to Borboha PWRD road of Dhanuharbasti Village	145.92	Completed
54	Hojai	1.50	Adarsha Sishu Bidyalaya(Radhanagar) to Kumrakata PMGSY Road Dakhin Radhanagar No. 1 Village Jugijan Mouja	145.85	Completed
55	Jorhat	1.04	Upper Deori to Tetelia Gaon of Upper Deori Village in Jorhat District	122.10	Completed
56	Jorhat	1.96	Bengenakhowa to Phalengichuk of Bongali Village (Chainage 0.00 km to Chainage 1.96 km)	209.73	Completed
57	Jorhat	1.19	Adarsha Mohimabari to Boramari of Mohimabari Grant village, Amguri Kharikatia Mouza	138.36	Completed
58	Jorhat	1.51	Pithachali Gaon (Charigaon) to Gohainkhuti Gaon of Charigaon village, Porbotia Mouza	167.61	Completed
59	Kamrup	2.00	Sampupara Bazar to Chhaygaon PWD Road	266.46	Completed
60	Kamrup	1.10	Bamundi PWD Road (Beltol to Mahkaltol Dhuliapara Road)	129.16	Completed
61	Kamrup	1.00	Bhagabati Para to Abhipara of Bartari village, Dakshin Sarubangshar Mouza	98.40	Completed
62	Kamrup	0.66	Choudhury Para to Jauka road of Majorkuri village, Ramdia Mouza	62.05	Completed
63	Kamrup	1.32	Majpara Monnatari to Karigaon Maszid of No. 2 Barua Pathar village, Chamaria Mouza	101.73	Completed
64	Kamrup	0.70	Bhagabati Para to Abhipara of Bejatari village, Dakshin Sarubangshar Mouza	68.41	Completed
65	Kamrup	0.50	Baralimara to Choudhury Para road of Majorkuri village, Ramdia Mouza	47.97	Completed
66	Kamrup	0.52	Makundapur Satra to Prabhat Deka's shop, village - Makundapur, Patidarrang Mouza	46.53	Completed
67	Kamrup	0.71	Bhaillabari PWD road to Sarat Das's Fishery of 2 No. Bagta village, Hajo Mouza.	77.23	Completed
68	Kamrup (M)	2.30	Rongphar Village Phulonggaon to Sonapur Bumihat PWD Road	273.82	Completed
69	Kamrup (M)	1.22	Gakhora to Sokhurabori of Sokhurabori Revenue Village, Dimaria Mouza, Sonapur	133.30	Completed
70	Kamrup (M)	0.11	Approach Road to Paschim Boragaon Warehouse from PWD Road at Paschim Boragaon Warehouse complex	19.87	Completed
71	Kamrup (M)	1.33	Bogibari to Kalangpar Market and Hahra Revenue Village , Dimoria, Sonapur	122.18	Completed
72	Kamrup (M)	0.90	Bogibari road to Kalang Kapili FPCs office of Bogibari village, Sonapur Mouza	95.06	Completed
73	Karbi Anglong	3.00	Dillaji Road (Rongklarbong)	363.90	Completed
74	Karbi Anglong	3.00	Hamlai Gaon to Longnit Gaon (Through Longkoi Bey Village) Borjan Mouza	286.64	Completed
75	Kokrajhar	1.23	Bongshigaon to Bongshigaon H.S	141.63	Completed
76	Kokrajhar	1.40	Nalbari to Batabari	135.73	Completed
77	Kokrajhar	1.10	Barmanpara to New Kadamtola Chowk	135.71	Completed
78	Kokrajhar	2.70	Banugaon to Gwathwibari at 17 Km of Kokrajhar Ramfalbil village, Dotma Mouza	311.82	Completed
79	Kokrajhar	0.90	Imran Hussain residence of Bashbari to Batabari road of Jarnagara village Dehi Rokakhata	104.76	Completed

Sl	District	Length (Km)	Name of Road	Contract Amount (Rs Lakh)	Status
80	Kokrajhar	1.50	Milmilpara and ends at Joregaon to Kauniabhasa Bhatiapara road of Kauniabhasa Bhatipara village Dokra Dehi	155.72	Completed
81	Kokrajhar	1.70	Nayachara Part II from Dologaon road via Nayachara part III to Nayachara Part - IV of Nayachara Pt-IV village Dokra Dehi	172.00	Completed
82	Kokrajhar	0.80	Batabari to Bonorgaon LP school of villages Batabari and Bonorgaon of 5th part Sidli Mouza	78.29	Completed
83	Kokrajhar	1.77	Gurufela Panbari PWD road near Thanda Bazar to Majhi Basti at village No. 2 Panbari under Mouza - Ripu No. 1	206.12	Completed
84	Kokrajhar	2.95	Gossaigaon Bhawraguri road after crossing Sogumhara football ground from Gossaigaon side to Choto Binyakhata to Gossaigaon Bhawraguri road near GK ME School of Sogunhara, Gorjan Pt-II and Dhobai village, Bhawraguri Dihi/ Mouza.	266.75	Completed
85	Kokrajhar	3.90	No. 1 Joyma NH 31 (C) via Hatigarh Pt II to Garokotra of No. 1 Joyma and No. 2 Hatigarh village, No.1 Ripu Mouza	444.79	Completed
86	Lakhimpur	3.64	Dhalpur Simuluguri PWD to Rangati Arimora Ghat PWD Road via Ganakdoloni and Nidansuwa village	505.32	Completed
87	Lakhimpur	1.00	Sogarpur PWD to Biswas Chubri connecting Road of Dolohat Village, Naoboicha Mouza	106.78	Completed
88	Lakhimpur	3.00	Pava Chariali to Dharampur Block Tiniali of Ahmedpur Block and Dharampur Block	315.53	Completed
89	Lakhimpur	1.80	Krishnapur Namgarh to Bhitoripam Road of 345 No. Grant Revenue Village under Nowboicha Mouza	157.32	Completed
90	Lakhimpur	4.00	Durpang to Naharani via Balipathar PWD Road	390.02	Completed
91	Lakhimpur	2.00	Dhemagarh Tiniali to Betbari via Tengabari Road of No. 2 Dhemagarh Revenue Village under Nowbaicha Mouza	185.87	Completed
92	Lakhimpur	2.00	11 mile Tiniali to Sengamari road, Kuhiabari, Panigaon of 2 No. Dulia Pathar revenue map village, Telahi Mouza.	237.67	Completed
93	Lakhimpur	3.72	Konwar Gaon to Boicha Gaon Road of Adarsha Hindu Gaon village, Lakhimpur Mouza.	388.24	Completed
94	Majuli	2.95	Bokora Citador Road (from Ch.0.00 km to Ch. 2.95km)	470.98	Completed
95	Majuli	3.25	Alimur Bhakat Chapori to Jamuguri Tiniali of Bhakat Chapori village, Kamalabari Mouza.	442.80	Completed
96	Majuli	1.00	Bahguri to Maharichuk of Maharichuk village, Kamalabari Mouza.	114.00	Completed
97	Morigaon	1.08	Bhuyan Bazar to Baligaon village Dighalipathar	113.81	Completed
98	Morigaon	1.50	Domal Tiniali to Domal Pathar of Wabori Village	161.60	Completed
99	Morigaon	0.88	Darangial Goan to Gohainchoki of Darangialgaon Village, Manaha Mouza	128.97	Completed
100	Morigaon	0.95	Hatiutha to Nuwagaon road of Hatiutha Village Manaha Mouza	116.97	Completed
101	Morigaon	1.00	Balipara to Sonaipar, Kalmoubari village.	112.81	Completed
102	Morigaon	0.81	NH-37 Sagarghat Road to Chaligaon Village, Uttar Khola Mouza	109.48	Completed
103	Morigaon	0.79	Manaha Bridge to Barhampur Tinali of Barhampur Village, Manaha Mouza	123.73	Completed
104	Morigaon	1.00	Homen Borgohain road to Murkata of Bordia Village, Mayong Mouza in	147.47	Completed
105	Morigaon	0.90	Charaibahi Mikirbheta PWD road to Patuakata via Garmari of Hekudargbari & Niz Mikirbheta vill., Mikirbheta Mouza	101.12	Completed
106	Morigaon	1.40	Charaibahi Mikirbheta PWD road to IOB Bank to Phaliamari of Hekudangbori village, Mikirbheta Mouza	164.62	Completed
107	Morigaon	2.00	Kanfala to Mela - Ati pathar Chamkata road of Kanphala and Ralipathar revenue village, Morigaon Mouza	227.46	Completed
108	Morigaon	2.00	Swahid Birbal Patar road to Habi-Barangabari via Majarbori of Habi-Barangabari village, Mikirbheta Mouza	227.71	Completed
109	Nagaon	2.80	NKS Road to Dolibari Pathar Road	374.04	Completed
110	Nagaon	0.73	Nonoi Uriagaon to Pachim Jalah (Mini Stadium)	81.15	Completed
111	Nagaon	0.72	Pahupuri Khaiti to Hugaltoli	73.56	Completed
112	Nagaon	1.00	Hatikhuli to Hampajuri road of Balijuri Village, Chalchali Mouza	120.64	Completed
113	Nagaon	2.50	Borbari to Hatikhuli Sukanjuri road of Balijuri Village, Chalchali Mouza	275.67	Completed
114	Nalbari	0.60	Barpeta -Hajo-Ghy Road (Pub-Adabari Galdighla to Paddy Fields)	78.40	Completed
115	Nalbari	2.70	Kathpua to Ulabari of Kathpua and Ulabari Village of Uparbarbhag	291.51	Completed
116	Nalbari	3.70	Narayanpur Village to Laothari Village of Madhyam Barkhetri Mouza	395.36	Completed
117	Nalbari	0.81	Moranjan to Pagladiya embankment of 3 no Balitara village Paschim Banbhag Mouza	73.82	Completed
118	Nalbari	1.44	Panimajkuchi Chowk to Mini Culvert of Panimajkuchi village	154.09	Completed
119	Nalbari	0.56	Paka Kirtanghar to Manoj Talukdar of Nakhara village, Tihu Mouza, via Tihu Bajali FPC (Tihu Bajali FPC linked road)	64.06	Completed
120	Nalbari	0.74	Niz Bahjani Satrapara Namghar to Gopal Mandir (Niz-Bahjani) via Kadamtal of Niz Bahjani village, Bahjani Mouza; Block: Pub-Nalbari.	71.28	Completed
121	Nalbari	1.15	Barajol Chowk to Noona Embankment, Village: Barajol, Mouza: Pub Banbhag	121.16	Completed
122	Sivasagar	1.00	Hatighuli to Na-Charingia of No. 3 Khulagrazing Village under Jokaichuk Mouza	110.86	Completed
123	Sivasagar	0.70	Barbarua Tekela Road (from Ch.0.0 km to Ch.0.7 km)	64.04	Completed
124	Sivasagar	1.92	Kamaldoipool to Goroimar of Nahat Goroimari Village (Ch.0.00 km to	236.65	Completed

Sl	District	Length (Km)	Name of Road	Contract Amount (Rs Lakh)	Status
			Ch.1.915 km)		
125	Sivasagar	1.19	Telenga Ali to State Veterinary Dispensary,Kotiari Village (Ch.0.00 Km to Ch.1.185 Km)	122.71	Completed
126	Sivasagar	0.53	Langmathu to Waksung of Telial Katoni Village under Morabazar Mouza	57.56	Completed
127	Sivasagar	1.00	Hatighuli Khonamukh Road to Jokai Chatra of Chabukadhara (Hatighuli) village, Jokaichuk Mouza	111.54	Completed
128	Sivasagar	1.11	Satoi Ali to Lahon of Maduri Gohain village, Juktoli Mouza	107.14	Completed
129	Sivasagar	0.70	Godhabill to Digholiyahula of Gamiri village, Nitaipukhuri Mouza	67.86	Completed
130	Sivasagar	0.76	Kharadhara to Raghubari of Kharadhara Goan under Jackaichuk Mouza in	96.64	Completed
131	Sivasagar	1.40	Deoghoria to Teliadunga of Janamiri Goan under Jackaichuk Mouza)	167.17	Completed
132	Sonitpur	3.00	Sonai Miri Village to Chariduar Bhalukpong Main Road	381.41	Completed
133	Sonitpur	1.14	Mahila Sakti Kendra (Bakula Morisuti) to Salbari (Chengelimari), of Bokula Village, Chariduar Mouza	150.45	Completed
134	Sonitpur	2.00	Barakota Chapori to Jharani Tinikharia of Bardubia village, Bihaguri Mouza, Sonitpur district.	202.98	Completed
135	Sonitpur	4.60	Mainajuli Mitha Aam Bengali Road of Dhekiajuli Mouza	460.07	Completed
136	Golaghat	3.27	Dustimukh to Kancha Chapori(fron Ch: 0.00 to Ch:3.50 Km)	317.35	Completed
137	Cachar	3.00	Gourmoni Roy house(SMD PWD road) to Darmikhal Khasia via Bhita Kalyanpur LP School/ via Dakshin Barbasti LP School, Village Dharmikhal Grant, Devidsonabad Mouza	318.46	Incomplete
138	Goalpara	1.50	Khaimuddin House to Ajagar River	170.27	Incomplete
139	Goalpara	1.03	Chenimari L.P school to Dhabanipara road of village Chenimari Part - II, Mouza - Matia	111.41	Incomplete
140	Lakhimpur	3.00	Moderguri Tiniali to Na Kapahua Parghat via Goroimari Kapahua of Moderguri Chapori village, Dhakuakhana Mouza	319.49	Incomplete
141	Sivasagar	1.10	Panbecha Selapathar Dihingia road of Panbecha village, Konwarpur Mouza	112.33	Incomplete
142	Lakhimpur	1.70	Singia Govindapur PWD to No. 1 Thekeraguri Gaon, Machkhowa Mouza	168.99	Incomplete
143	Goalpara	1.50	Harimura Forest Gate (Mama Bhagin Shil Rakhyasini) PWD road to Paharsingpara PWD road of village Paharsingpara/ Futuripara/ Rakhyasini Garopara Part - II, Mouza - Matia	161.77	Incomplete
144	Biswanath	3.18	Laalpani (Pavoi-Borgang road) to Pub Gingia (Pavoi-Borgang road) via Aragang Fishery of Pub Gingia village, Baghmara Mouza	331.92	Incomplete
145	Lakhimpur	4.40	Handique Tiniali to Dhemagarh To Rangati PWD via Majgaon	444.37	Incomplete
146	Jorhat	1.43	Tamulichiga Gaon to Chaporichuk of Lukhurakhon village, Simoluguri Mouza	141.26	Incomplete
147	Lakhimpur	3.78	Jalukkata to Silikhaguri of Jalukkata and Saukuchi village. Naravanpur Mouza	402.50	Incomplete
148	Jorhat	2.18	Goalgaon to Arunamukh via Ajarguri of Boriagaon village, Teok Mouza	240.34	Incomplete
149	Jorhat	1.21	Boloma Lahon Gaon to Gohain Gaon of Dolakhoria village, Gakhirkhowa Mouza	129.93	Incomplete
150	Lakhimpur	4.30	SH-43 at Madhavdev University to Badatighat road at Bordeori, Dhanguloi, Hulaguri and No. 2 Sonaribari village, Narayanpur Mouza	416.98	Incomplete
151	Hojai	2.00	Darjisit to Jamunasit via South Laskar Pathar	230.22	Complete
152	Hojai	1.50	Darjisit to Jamunasit via South Laskar Pathar (Extension)	182.10	Complete
153	Dhubri	1.80	Asharikandi Guaripur Beparipatty Road (from Geraimari Pt-VI Kanaimore to Beguntali	204.69	Dropped
154	Sivasagar	0.67	Bokulbari to Rangman Beel of Ajarguri Gaon under Konwarpur Mouza	85.46	Dropped
155	Sonitpur	3.29	Chowkighat CRPF camp to Chowkighat FPC of Goalgaon, No. 2 Gotaimari, No. 3 Gotaimari village, Silabandha Mouza.	381.75	Dropped
156	Goalpara	1.50	Manash Reserve Hajong para to Falimari PWD Road		Dropped
157	Biswanath	1.00	Road from NH 15 to Kolmouguri		Dropped
		255.04 Km		**28233.46**	

B. Warehouse godowns of ASWC

Sl	District	Warehouse	No of Godowns	Contract Amount (Rs Lakh)	No of Units Completed	Remarks
1	Darrang	Kharupetia Unit 1	1	199.64	1	Completed
2	Darrang	Kharupetia Unit 2	1	128.27	1	Completed
3	Darrang	Kharupetia Unit 4	1	304.77	1	Completed
4	Darrang	Kharupetia Unit 3 & 6	2	458.70	2	Completed
5	Darrang	Kharupetia Unit 5	1	254.30	1	Completed
6	Goalpara	Lakhipur Warehouse	1	511.95	1	Completed
7	Hojai	Hojai Unit 1 & 2	2	629.08	2	Completed
8	Hojai	Hojai Unit 3 & 4	2	468.37	2	Completed

Sl	District	Warehouse	No of Godowns	Contract Amount (Rs Lakh)	No of Units Completed	Remarks
9	Hojai	Jamunamukh Warehouse	1	367.24	1	Completed
10	Kamrup	Amingaon Unit 1	1	225.94	1	Completed
11	Kamrup	Amingaon Unit 3	1	221.08	1	Completed
12	Kamrup (M)	Paschim Boragaon Unit 1	1	191.51	1	Completed
13	Kamrup (M)	Maidamgaon Unit (Plot-2) Unit 4 5 & 6	3	717.47	3	Completed
14	Kamrup (M)	Maidamgaon Unit (Plot-1) Unit 1 2 & 3	3	792.86	3	Completed
15	Karbi Anglong	Howraghat Unit 1	1	320.36	1	Completed
16	Karbi Anglong	Howraghat Unit 2	1	285.87	1	Completed
17	Kokrajhar	Gossaigaon Warehouse	1	266.54	1	Completed
18	Nagaon	Raha Unit 1	1	300.00	1	Completed
19	Nagaon	Raha Unit 2	1	325.82	1	Completed
20	Nagaon	Haibargaon Unit 1 & 2	2	498.61	2	Completed
21	Sivasagar	Sivasagar Unit 3	1	187.90	1	Completed
22	Sivasagar	Sivasagar Unit 2	1	225.02	1	Completed
23	Sivasagar	Sivasagar Unit 1 & 7	2	325.80	2	Completed
24	Sivasagar	Sivasagar Unit 5 & 6	2	480.41	2	Completed
25	Kamrup	Amingaon Unit 2	1	838.16	1	Completed
26	Kamrup (M)	Paschim Boragaon Unit 2 (Model)	1	788.94	1	Completed
27	Kamrup (M)	Maidamgaon Unit 7 (Model)	1	1074.38	1	Completed
28	Karbi Anglong	Langhin Warehouse	1	239.40	Incomplete	Incomplete.
29	Golaghat	Golaghat Warehouse	1	266.39	Incomplete	Incomplete.
30	Golaghat	Sarupathar Warehouse	1	293.75	Dropped	Dropped
Total Units			**40**	**12188.54**	**37**	

C. Markets

Sl	District	Market	Contract Amount (Rs Lakh)	Remarks
1	Barpeta	Bahari Chandi Haat	256.54	Completed
2	Barpeta	Barbala Bazaar	230.00	Completed
3	Barpeta	Mandia SMY	221.67	Completed
4	Barpeta	Kayakuchi Bazaar	233.33	Completed
5	Barpeta	Sarukhetri Anchalik Bazaar	296.04	Completed
6	Biswanath	Balijuri weekly Market	271.49	Completed
7	Biswanath	Bedeti Market	230.42	Completed
8	Biswanath	Dikorai WSM	328.47	Completed
9	Biswanath	Gohpur Sunday Weekly Market	239.99	Completed
10	Bongaigaon	Alokghari Bazaar	224.29	Completed
11	Bongaigaon	Patiladoha Weekly Market (Patiladaha Ardha Saptahik Bazar)	261.41	Completed
12	Bongaigaon	Bajitpara Ardha Saptahik Haat	230.63	Completed
13	Cachar	Gumrah Bazar	116.33	Completed
14	Cachar	Sonai General Market	284.85	Completed
15	Charaideo	Mothurapur Weekly Market	229.81	Completed
16	Darrang	Bechimari Market	196.88	Completed
17	Darrang	Dumunichawki Weekly Market	214.63	Completed
18	Darrang	Alikash Bazaar (Balugaon)	227.16	Completed
19	Darrang	Kharupetia PMY	808.37	Completed
20	Dhemaji	Jonai Weekly Market MSTD	224.37	Completed
21	Dhemaji	Simen Chapori Weekly Market MSTD	260.44	Completed
22	Dhemaji	Telam Bazaar (Weekly)	265.63	Completed
23	Dhubri	Bilasipara Chilli Market	228.63	Completed
24	Dhubri	Halakura PMY	245.54	Completed
25	Dhubri	Gauripur PMY	290.30	Completed
26	Goalpara	Dwarka Market	253.06	Completed
27	Goalpara	Amjonga Haat	240.78	Completed
28	Goalpara	Makri Bi-weekly Market	148.63	Completed
29	Goalpara	Thorko Weekly Market	210.13	Completed
30	Goalpara	Khardang Weekly Market	190.00	Completed
31	Goalpara	Sidhabari Weekly Market	271.41	Completed
32	Goalpara	Sutarpara Weekly Market	288.00	Completed
33	Golaghat	Missamora Weekly Market	292.61	Completed
34	Golaghat	Bokakhat Market	48.80	Completed
35	Hojai	Odali Market	192.92	Completed
36	Hojai	Nilbagan PMY	233.24	Completed
37	Hojai	Gandhi Maidam SMY	48.44	Completed
38	Hojai	Nakhuti Market	137.45	Completed
39	Jorhat	Thengalbari Weekly Market	210.40	Completed
40	Jorhat	Sipahikhola Weekly Market	271.95	Completed
41	Kamrup	Rampur Bazaar	147.13	Completed

Sl	District	Market	Contract Amount (Rs Lakh)	Remarks
42	Kamrup	Chaygaon Bazaar	132.90	Completed
43	Kamrup	Bondapara Bazaar	232.42	Completed
44	Kamrup	Mahtoli Guwahati SDMC	973.29	Completed
45	Kamrup	Uparhali PMY	892.47	Completed
46	Kamrup	Palara Bazaar	141.57	Completed
47	Karbi Anglong	Dillai Weekly Market	117.13	Completed
48	Karbi Anglong	Koilamati Weekly Market	253.79	Completed
49	Karbi Anglong	Khatkhati Weekly Market	253.72	Completed
50	Karbi Anglong	Langhin Weekly Market	231.89	Completed
51	Karbi Anglong	Balipathar Weekly Market	326.57	Completed
52	Karbi Anglong	Hidipi Weekly Market	182.93	Completed
53	Karbi Anglong	Silonijan Weekly Market	261.29	Completed
54	Karbi Anglong	Barpathar Weekly Market	231.24	Completed
55	Karbi Anglong	Deithor Bazaar	265.17	Completed
56	Karbi Anglong	Centre Bazaar	269.35	Completed
57	Karbi Anglong	Dengaon Bazaar	262.43	Completed
58	Kokrajhar	Bhowraguri Market	204.37	Completed
59	Kokrajhar	Tulshibil Market	202.73	Completed
60	Kokrajhar	Chak Bazaar, Gossaigaon	116.39	Completed
61	Kokrajhar	Dotma Market	248.99	Completed
62	Lakhimpur	Simaluguri Market	221.71	Completed
63	Lakhimpur	Ghilamora Weekly Market	181.50	Completed
64	Lakhimpur	Dhalpur Weekly Market	263.46	Completed
65	Lakhimpur	Durpang Weekly Market	325.01	Completed
66	Lakhimpur	Dhakuakhana Daily Market	139.43	Completed
67	Lakhimpur	Dolohat Weekly Market	236.54	Completed
68	Majuli	Maharichuk Budhboria Bazar	127.20	Completed
69	Morigaon	Bechamari Bi-Weekly Market	234.22	Completed
70	Morigaon	Baghara Market	180.64	Completed
71	Morigaon	Moirabari Market	269.46	Completed
72	Morigaon	Buraburi Bi-weekly Market	264.44	Completed
73	Morigaon	Nelli WSM Market	251.26	Completed
74	Nagaon	Sulung Fish Market	44.68	Completed
75	Nagaon	Dhing PMY	353.70	Completed
76	Nagaon	Doomdumia (Balisatra PMY)	322.66	Completed
77	Nalbari	Barajol Bi-Weekly	229.33	Completed
78	Nalbari	Mukalmua Market	255.56	Completed
79	Sonitpur	Panchmile Daily Market	153.90	Completed
80	Sonitpur	Lakhra Market	279.14	Completed
81	Sonitpur	Dhekiajuli Weekly Market	162.45	Completed
82	Sonitpur	Khelmati Weekly Market	222.79	Completed
83	Sonitpur	Bindukuri Market	269.60	Completed
84	Sonitpur	Borsola Weekly Market	258.36	Completed
85	Sonitpur	Ketekibari Market	315.57	Completed
86	South Salmara	Pipulbari Market	281.23	Completed
87	Morigaon	Mayong Bi-Weekly Market	180.53	Completed
88	Nalbari	Hatkhola daily market	226.00	Completed
89	Goalpara	Meselkhowa Nabang Market	213.14	Completed
90	Kamrup	Tupamari Khoritola Bazaar	244.64	Completed
91	Lakhimpur	Bongalmora Market	300.00	Descoped & completed
92	Dhemaji	Moharicamp Weekly Market	279.94	Descoped & completed
93	Lakhimpur	Harmoti Market	222.00	Descoped & completed
94	W. Karbi Anglong	Jengkha Market	184.14	Incomplete
95	W. Karbi Anglong	Tumpreng Market	265.03	Incomplete
96	Kokrajhar	Nepalpara Bazar, Sarfanguri	219.36	Incomplete
97	Hojai	Doboka Market	158.40	Dropped
98	Cachar	Bhaga Bazar General Market	256.11	Dropped
99	Hailakandi	Matijuri Bazar		Dropped
		Total	**24195.94**	

D. Repair and renovation of DICC offices

Sl	Dist./ DICC	Contract amount (Rs Lakh)	Status
1	Barpeta	31.04	Completed
2	Nalbari	32.14	Completed
3	Dhubri	28.78	Completed
4	Goalpara	22.26	Completed
5	Kokrajhar	24.69	Completed
6	Sonitpur	29.06	Completed
7	Nagaon	27.15	Completed
8	Morigaon	26.94	Completed
9	Sivsagar	26.82	Completed
10	Lakhimpur	27.86	Completed
11	Golaghat	24.50	Completed
12	Cachar	24.67	Completed
13	Darrang	27.00	Completed
14	Karbi Anglong	25.38	Completed

E. Physical interface at Commissionerate of I&C

Dist.	Name of work	Contract Amount (Rs lakh)	Status
Kamrup	Setting up of infrastructure for Physical Interface (Renovation, Repair and Interior Works) of the Offices of the Commissioner of Industries and Commerce Bamunimaidam, Guwahati-21	85.37	Completed

F. Repair and renovation of District ATMA offices

Sl	Dist./ ATMA office	Units	Contract amount (Rs lakh)	Status
1	Kokrajhar, Dhubri & Goalpara	3	18.90	Completed
2	Cachar	1	6.30	Completed
3	Jorhat	1	6.55	Completed
4	Golaghat	1	6.95	Completed
5	Sivasagar	1	6.42	Completed
6	Barpeta	1	7.00	Completed
7	Nalbari	1	8.04	Completed
8	Sonitpur	1	7.00	Completed
9	Darrang	1	7.00	Completed
10	Nagaon	1	7.57	Completed
11	Morigaon	1	7.00	Completed
12	Karbi Anglong	1	7.00	Completed
13	Lakhimpur	1	6.98	Completed
	Total	**15**	**102.71**	

G. Repair & renovation of OPIUs under APART

Sl	District	Name of work(s)	Units	Contract Amount (Rs lakh)	Status
1	Kamrup	Need based renovation/ refurbishment for setting up of the Operational Project Implementation Unit (OPIU) of 1. State Dairy Development Department at Khanapara, Guwahati, 2.State Fishery Development Department at Ulubari, Guwahati, 3.Assam State Agricultural Marketing Board at Ulubari, Guwahati, 4.Director, Sericulture department of Khanapara, Guwahati	4	60.18	Completed
2	Kamrup/ Jorhat	1. Renovation and Extension of Room for proposed OPIU at Second Floor of D.R.Office, AAU, Jorhat, 2.Renovation/ Refurbishment for setting up OPIU in Director of Handloom &Textile office, Guwahati	2	31.47	Completed
3	Jorhat	Balance Estimate for Renovation and extension for rooms for proposed OPIU at second floor of D.R. Office, AAU, Jorhat	1	3.11	Completed
3	Kamrup	Need based renovation/refurbishment for setting up of the Operational Project Implementation Unit (OPIU) of Horiculture & Food Proccessing	1	7.65	Completed
4	Kamrup	Refurbishment for OPIU office at ASWC Head Office (5th floor) Guwahati	1	3.21	Completed
	Total		**9**	**105.62**	

G. Fish Seed Multiplication Centres & other Fishery related infrastructure

Sl	Location of Fish Seed Multiplication Centre & Dist.	Contract Amount (Rs lakh)	Status
1	Fish seed Multiplication Centre at Raha, Nagaon	71.31	Completed
2	Fish Seed Multiplication Centre Rangia Fish Farm, Kamrup	74.52	Completed
3	Community Hall & Electrification, Sanitary and Water Supply works of Community Hall at Rangia Fish Farm, Kamrup	25.81	Completed
4	Fish Seed Multiplication Centre Islamabad Fish Farm, Bagha, Cachar	72.98	Completed
5	Beel fisheries outlet at FISHFED, Kamrup	11.88	Completed
6	CSC cum integration center for Co-Operative member empanelled with Fisheries HQ at FISHFED in Kamrup	62.72	Completed
7	Multiplication Centre at Bokakhat Fish seed Farm, Golaghat	60.27	Completed
	Total	**379.49**	

H. Milk Testing labs

Sl	Name and location of laboratory	Status
1	State Level Milk Testing Laboratory, Khanpara	Completed
2	District Laboratory, Bebejia, Nagaon	Completed
3	District Laboratory, Manja, Karbi Anglong	Completed
4	District Laboratory, Bokakhat, Golaghat	Completed
5	District Laboratory, Ghongoor, Cachar	Completed
	Total	Completed

I. ASCL building

Name of the work	Amount (Rs lakh)	Status
Multi Storied Office Building Of Assam Seeds Corporation Limited in Agriculture Campus, Khanapara	1450	completed

J. Common Facility Centres

Sl	CFC name & Dist.	Capacity	Sanctioned Amount (Rs lakh)	Status
1	Subanshiri Enterprises Pvt Ltd, Lakhimpur (Mustard processing)	10MT/Day	435.11	Completed
2	Biswanath Mustard Oil Pvt Ltd, Biswanath	6MT/Day	261.26	Completed
3	Hamren Natural Food Processors Pvt Ltd, Karbi Anglong	160 kg/hr	129.68	Completed
4	Morigaon Integrated Fruits and Vegetables Processing Pvt Ltd	300 kg/hr	316.54	Completed
5	Borhomthuri Pvt Ltd, Kamrup (M) (silk processing)	Eri yarn: 720 Kg Eri plain fabric: 3600 mtr Muga Yarn: 284.4 kg Muga plain fabric: 900 mtr	550.38	Completed
6	Brahmaputra Rice Cluster Pvt Ltd	4MT/hr	789.55	Completed
7	Jorhat Agro Pvt Ltd (Rice)	4MT/hr	738.69	Completed
8	Dimoru Valley Agro Pvt Ltd (Rice)	5MT/hr	820.75	Completed
		Total	**4041.96**	

J. Farm Machinery Training Centres

Sl	Name of Centre & location	Amount (Rs lakh)	Status
1	Farm Machinery Testing and Training Centre, AAU, Jorhat	203.56	Completed
2	Farm Machinery Training Centre, Sarat Chandra Sinha College of Agriculture, Dhubri	185.54	Completed
3	Farm Machinery Training Centre, KVK Nagaon	185.58	Completed
	Total	**574.68**	

G. Fish/Animal Feed Testing Laboratory

Sl	Name of the work	Amount (Rs lakh)	Status
1	Modern feed testing laboratory at College of Veterinary Science, Khanapara, Guwahati	94.23	Completed

H. Fish based Integrated Farming Systems Model

Sl	Name of the work	Amount (Rs lakh)	Status
1	Fish based Integrated Farming Systems Model at College of Veterinary Science, Khanpara, Guwahati	185.04	Completed

Annexure-6

Summary of Procurements under APART Under all OPIUs & PCU				
Sl No	**Name of Organization**	**Type of Procurement**	**Total no of Procurement (Rs. Nos)**	**Value of Signed Contracts (Rs. Lakhs)**
1	**PCU**	RFQ Goods/GeM/etc.	134.00	468.87
		RFQ Works	10.00	273.70
		RFB Goods	-	-
		RFB Works	1.00	129.88
		Non Consultancy Services	2.00	30.15
		Consulting Services	41.00	17901.00
		Total	**188.00**	**18803.60**
2	**PWRD**	RFQ Goods/GeM/etc.	74.00	16.44
		RFQ Works	27.00	358.84
		RFB Goods	-	-
		RFB Works	307.00	67842.03
		Non Consultancy Services	-	-
		Consulting Services	7.00	873.29
		Total	**415.00**	**69090.60**
3	**WAMUL**	RFQ Goods/GeM/etc.	454.00	2433.83
		RFQ Works	-	
		RFB Goods	14.00	2201.42
		RFB Works	-	
		Non Consultancy Services	41.00	90.18
		Consulting Services	2.00	31.11
		Total	**511.00**	**4756.54**
4	**I&C**	RFQ Goods/GeM/etc.	176.00	584.60
		RFQ Works	-	-
		RFB Goods	5.00	774.42
		RFB Works	-	-
		Non Consultancy Services	7.00	103.97
		Consulting Services	4.00	2084.43
		Community Procurement (RFQ+RFB)	32.00	1846.94
		Total	**224.00**	**5394.36**
5	**AGRI**	RFQ Goods/GeM/etc.	10.00	203.64
		RFQ Works	96.00	3823.63
		RFB Goods	10.00	1546.10
		RFB Works	1.00	18.39
		Direct Selection	21.00	2084.17
		Non Consultancy Services	1.00	34.81
		Consulting Services	3.00	1574.80
		Procurement at Districts Level (RFQ, Direct Selection, Empanelment, etc.)	1504.00	2322.27
		Total	**1646.00**	**11607.81**
6	**AAU**	RFQ Goods/GeM/etc.	282.00	1609.72
		RFQ Works	6.00	177.17
		RFB Goods	4.00	599.84
		RFB Works	6.00	870.32
		Non Consultancy Services	19.00	143.29
		Consulting Services	-	-
		Total	**317.00**	**3400.34**
7	**NDDB**	RFQ Goods/GeM/etc.	1.00	8.71
		RFQ Works	-	-
		RFB Goods	6.00	2982.13
		RFB Works	1.00	1546.76
		Non Consultancy Services	-	-
		Consulting Services	-	-
		Total	**8.00**	**4537.60**
8	**HORTI**	RFQ Goods/GeM/etc.	60.00	1203.04
		RFQ Works	10.00	46.06
		RFB Goods	6.00	1968.68
		RFB Works	-	-
		Non Consultancy Services	-	-
		Consulting Services	-	-
		Direct Selection	15.00	703.71
		Procurement at Districts Level (RFQ, Direct Selection, etc.)	944.00	1873.51
		Total	**1035.00**	**5795.00**
9	**FISH**	RFQ Goods/GeM/etc.	6.00	22.63
		RFQ Works	2.00	52.41
		RFB Goods	51.00	268.81
		RFB Works	33.00	227.41

Summary of Procurements under APART Under all OPIUs & PCU				
Sl No	**Name of Organization**	**Type of Procurement**	**Total no of Procurement (Rs. Nos)**	**Value of Signed Contracts (Rs. Lakhs)**
		Non Consultancy Services	15.00	110.56
		Consulting Services	-	-
		Total	**107.00**	**681.82**
10	**AHVD & ALPCo**	RFQ Goods/GeM/etc.	133.00	826.01
		RFQ Works	17.00	415.99
		RFB Goods	1.00	135.77
		RFB Works	1.00	11.90
		Non Consultancy Services	83.00	44.31
		Consulting Services	-	-
		Total	**235.00**	**1433.98**
11	**ASWC**	RFQ Goods/GeM/etc.	72.00	117.20
		RFQ Works	-	-
		RFB Goods	-	-
		RFB Works	-	-
		Non Consultancy Services	1	38.65
		Consulting Services	-	-
		Total	**72.00**	**155.85**
12	**ASAMB**	RFQ Goods/GeM/etc.	37.00	16.52
		RFQ Works	-	-
		RFB Goods	-	-
		RFB Works	-	-
		Non Consultancy Services	-	-
		Consulting Services	1.00	21.83
		Total	**38.00**	**38.35**
13	**DDD**	RFQ Goods/GeM/etc.	37.00	96.43
		RFQ Works	7.00	37.14
		RFB Goods	-	-
		RFB Works	-	-
		Non Consultancy Services	-	-
		Consulting Services	-	-
		Total	**44.00**	**133.57**
14	**SERI**	RFQ Goods/GeM/etc.	39.00	303.61
		RFQ Works		
		RFB Goods		
		RFB Works	13.00	131.35
		Non Consultancy Services	17.00	48.19
		Consulting Services	3.00	71.60
		Total	**72.00**	**554.75**
15	**H&T**	RFQ Goods/GeM/etc.	25.00	60.81
		RFQ Works	2.00	0.45
		RFB Goods	-	-
		RFB Works	-	-
		Non Consultancy Services	3.00	24.00
		Consulting Services	2.00	340.09
		Total	**32.00**	**425.35**
		Grand Total (Rs. Lakh)	**4944.00**	**126809.51**
		Say Rs. In Crore	**49.44**	**1268.10**

Link to OM on Community Procurement Guidelines:
https://www.arias.in/download/APART/Office%20Memorandum%20on%20Community%20Procurement%20by%20FPCs%20,%20IAs%20-%2021.01.2021.pdf

Annexure-7: APART and Monitoring Indicators

Results Framework																	
Project Development Objective Indicators and Achievements																	
Cumulative Target Values and Achievements																	
Indicator Name	**Base-line**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**
		YR1		**YR2**		**YR3**		**YR4**		**YR5**		**YR6**		**YR 7**		**End Target (#1)**	
Farmers reached with agricultural assets orservices (number) **(CRI)**	0	50,000	**0**	100,000	**175,329**	200,000	**350,358**	300,000	**407,275**	400,000	**451,480**	500,000	**593,987**	700,000	**671,380**	700,000	**664,392 (deduplicated)**
Of which female beneficiaries (number)	0	30,000	**0**	30,000	**41,460**	60,000	**96,171**	90,000	**107,298**	120,000	**119,161**	150,000	**169,166**	210,000	**195,606**	210,000	**244,573**
Increase in price premium of commodities sold by beneficiaries in the selected value chains (%)	0	0	**0**	5	**0**	15	**13.8**	15	**13.8**	20	**15**	20	**15**	20	**47.49**	20	**47.49**
Share of selected commodities sold through new marketing channels (%)	0	0	**0**	5	**9.50**	15	**18.97**	15	**22.69**	20	**24**	20	**24**	25	**24**	25	**30.78**
Farmers adopting improved agricultural technology (number) **(CRI)**	0	0	**0**	30,000	**700**	80,000	**34,672**	108,000	**40,477**	240,000	**55,845**	360,000	**224,758**	360,000	**281,780**	360,000	**363,137**
Of which female beneficiaries (number)	0	0	**0**	9,000	**234**	24,000	**2,324**	32,400	**2,990**	72,000	**10,914**	108,000	**37,994**	108,000	**60,911**	108,000	**80,902**

***#1:** EOPT achievements at closing in 8th year are based on PMIS data*

Intermediate Results Indicators																	
Cumulative Target Values and Achievements and Achievements																	
Indicator Name	**Base-line**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**
		YR1		**YR2**		**YR3**		**YR4**		**YR5**		**YR6**		**YR 7**		**End Target**	
Component A: Enabling Agri Enterprise Development																	
Agribusiness investment leads facilitated through the Assam Bureau of Investment Promotion (ABIP) (number)	0	0	**0**	20	**0**	60	**18**	100	**32**	200	**224**	250	**322**	300	**466**	300	**466**
Enterprises set up with the support of Enterprise Development and Promotion Facility (EDPF) (number)	0	0	**0**	0	**0**	200	**120**	400	**204**	800	**1878**	1,000	**1878**	1,500	**1878**	1,500	**1,878**
Investment made and leveraged by the Agribusiness Fund (amount in USD M)	**Dropped in Restructuring-3**																
Component B: Facilitating Agro Cluster Development																	
Joint actions undertaken by firms in a cluster (number)	0	0	**0**	28	**6**	96	**12**	164	**314**	232	**330**	300	**639**	300	**695**	500	**695**
Agro-industrial development plans developed (number)	0	0	**0**	7	**0**	17	**0**	17	**18**	17	**18**	17	**18**	17	**18**	17	**18**
Firms mobilized into industry associations (number)	0	0	**0**	1,000	**120**	1,700	**1,362**	1,700	**2,038**	1,700	**2,468**	1,700	**2,742**	1,700	**2,845**	1,700	**2,845**
Negotiable warehouse receipts issued to project beneficiaries (number)	**Total 644 WH receipts issued under a pilot program conducted in ASWC, Twzpur Centre**																

Intermediate Results Indicators																	
Cumulative Target Values and Achievements and Achievements																	
Indicator Name	**Base-line**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**	**Target**	**Acieve.**
		YR1		**YR2**		**YR3**		**YR4**		**YR5**		**YR6**		**YR 7**		**End Target**	
Trading volume through improved markets (%)	0	5	**0**	5	**0**	10	**0**	15	**0**	15	**0**	20	**0**	20	**14**	20	**14**
Rural roads upgraded with climate resilient technologies (KM)	0	0	**0**	50	**12**	100	**40**	150	**47**	200	**175.46**	200	**175.46**	200	**213.5**	200	**213.5**
Component C: Fostering Market Led Production and Resilience Enhancement																	
Climate resilient technologies demonstrated in the project areas (Number)	0	7	**7**	15	**11**	25	**18**	25	**18**	25	**18**	25	**26**	25	**27**	25	**27**
Farmer Producer Organizations (FPOs) supported by the Project																	
FPOs (Number)	0	0	**0**	0	**0**	30	**0**	50	**44**	125	**125**	125	**125**	125	**125**	125	**125**
Members (Number)	0	0	**0**	0	**0**	12,000	**0**	20,000	**24,506**	50,000	**59,357**	60,000	**60,094**	60,000	**60,094**	60,000	**60,702**
Volume throughput of the Common Service Centers (CSCs) (tons per annum)																	
Pork	0	0	**0**	700	**0**	3,200	**0**	**Dropped in Restructuring-2 due to ASF outbreak**									
Fish	0	0	**0**	0	**0**	2,000	**0**	3,500	**0**	5,500	**5,400**	6,000	**8,429**	10,000	**10,272**	10,000	**10,272**
Milk	27	30	**30**	45	**36**	90	**38**	175	**73**	315	**74**	505	**186**	10,000	**28,470**	10,000	**56,575**
Agricultural Commodities (#2)	0	0	**0**	0	**0**	17,000	**0**	19,000	**0**	22,000	**1,731**	26,000	**8,686**	30,000	**9,823**	30,000	**27,016**
Producers provided financial education / counselling.	0	2,500	**0**	10,000	**0**	30,000	**15,839**	70,000	**20,001**	150,000	**27,321**	200,000	**130,009**	250,000	**200,479**	250,000	**200,479**
Producers with increased access to financial services (number), of which at least 30% are female.	0	0	**0**	0	**0**	0	**1,276**	0	**3,845**	50,000	**23,325**	100,000	**38,447**	125,000	**117,259**	125,000	**117,259**
Quarantine and COVID care centers in Assam are operational (Yes/No)	No	-	**-**	-	**-**	-	**-**	Yes	**Yes**	Yes	**Yes**	Yes	**Yes**	Yes	**Yes**	Yes	**Yes**
Component D: Project Management, Monitoring and Learning																	
Grievances registered related to delivery of project benefits that are actually addressed (Percentage).**(CRI)**	0	70	100	80	100	80	100	100	100	100	100	100	100	100	100	100	100

#2: As End Target has been reduced to 30,000, the proportionate year wise figures furnished in PAD and Retstructuing-2 have been updated maintaining the ratio of earlier break up linked the end target of 30,000.