
Country: **Liberia**



NATIONAL RICE INVESTMENT ACTION PLAN (NRIAP)

Strategic priorities, aligns with National Rice Development Strategy (NRDS), and attract investments

May, 2026

Table of Content

TABLE OF CONTENT	2
LIST OF TABLES OF FIGURES	3
<i>Figures.....</i>	3
<i>Tables.....</i>	3
ACRONYMS AND ABBREVIATIONS	4
EXECUTIVE SUMMARY	5
1.0 INTRODUCTION	12
1.1 CURRENT STATE OF THE RICE SECTOR	12
1.2 PROBLEM STATEMENT	12
1.3 NATIONAL RICE POLICY	13
1.4 STAKEHOLDER ANALYSIS	13
1.5 JUSTIFICATION FOR INCREASED INVESTMENT IN RICE VALUE CHAINS.....	13
1.6 PLAN OF ACTION.....	14
2.0 VISION, GOAL, AND OBJECTIVES.....	15
2.1 VISION	15
2.2 GOALS AND OBJECTIVES.....	15
3.0 ACTION PLAN	16
ACTION 1: HIGH-QUALITY SEED SYSTEMS AND PADDY PRODUCTION	16
ACTION 2: FINANCIAL INCLUSION AND BLENDED CAPITAL FACILITY	16
ACTION 3: MECHANIZATION HUBS AND SERVICE CENTERS	17
ACTION 4: APPLIED RESEARCH, TECHNOLOGY, AND INNOVATION	17
ACTION 5: STORAGE FACILITIES AND EFFICIENT LOGISTICS	18
ACTION 6: LOWLAND IRRIGATION INFRASTRUCTURE AND WATER CONTROL.....	18
4.0 FINANCING STRATEGY	24
4.1 COST ESTIMATES OF THE INVESTMENT PLAN.....	24
4.2 SOURCES OF FUNDING: PUBLIC BUDGET, PRIVATE SECTOR, AND DONORS	24
4.3 FUNDING GAPS AND FINANCING SCENARIOS.....	25
4.4 INVESTMENT READINESS AND BANKABLE PROJECTS	27
5.0 IMPLEMENTATION ARRANGEMENTS	30
5.1 OPERATIONALIZATION OF THE INVESTMENT PRIORITIES	30
5.2 COORDINATION MECHANISMS	30
5.3 COORDINATION WITH THE PRIVATE SECTOR AND DEVELOPMENT PARTNERS	31
5.4 IMPLEMENTATION TIMELINE AND PHASING	31
5.5 CAPACITY NEEDS AND SUPPORT.....	34
5.6 RESOURCE MOBILIZATION STRATEGY.....	35
5.7 COMMUNICATION PLAN	35
6.0 CONCLUSIONS.....	36
ANNEXES	37
<i>Annex 1: Monitoring and Evaluation: Key performance indicators (KPIs)</i>	<i>40</i>



Annex 2: Consultation Summary	42
Annex 3: Detailed budget tables	44

List of Tables of Figures

Figures

Figure 1: Coordination Mechanism.....	32
---------------------------------------	----

Tables

Table 1: Summary of Priority Actions for Liberia's Rice Sector Transformation for the Year 2026-2035.....	8
Table 2: Summary of National Rice Action Plan	21
Table 3: Summary of Indicative Budget for the Implementation of the National Rice Action Plan.....	29
Table 4: List of Funding Sources	33
Table 5: Major Rice Programs, Funding Amounts and Timelines.....	34
Table 6: List of Bankable Proposals and Concept Notes.....	36
Table 7: Implementation Timeline and Phasing.....	40



Acronyms and Abbreviations

Acronym	Full Meaning
AEDB	Agriculture Enterprise Development Bank
AfDB	African Development Bank
BP	Bilateral Partner
CARI	Central Agriculture Research Institute
CSA	Climate Smart Agriculture
DFI	Development Finance Institute
ECOWAS	Economic Community of West Africa
EPA	Environmental Protection Authority
ERO	ECOWAS Rice Observatory
FAO	Food and Agriculture Organization
FDA	Forestry Development Authority
IFAD	International Fund for Agricultural Development
LACRA	Liberia Agriculture Commodity Regulatory Authority
LiSA	Liberia Standards Authority
LLA	Liberia Land Authority
MDB	Multilateral Development Bank
MDP	Multilateral Development Partner
MFDP	Ministry of Finance and Development Planning
MIA	Ministry of Internal Affairs
MOA	Ministry of Agriculture
MOCI	Ministry of Commerce and Industry
MOJ	Ministry of Justice
MSME	Micro, Small, and Medium Enterprises
NIC	National Investment Commission
NRDS II	National Rice Development Strategy II
NRIAP	National Rice Investment Action Plan
PPP	Public-Private Partnership
PPOs	Private Philanthropic Organizations
PSLSP	Private Sector-Led Service Provision
SDCA	Seed Development and Certification Agency
TTI	Technical Training Institute
TU	Tubman University
UL	University of Liberia



Executive Summary

Liberia's rice sector represents one of the most significant opportunities for agrifood transformation in Sub-Saharan Africa. Rice is one of the country's most-consumed staples, with annual demand exceeding 650,000 metric tonnes of milled rice and growing steadily. While Liberia has made significant strides to achieve rice self-sufficiency, domestic production has failed to meet national demand, meeting less than 40 – 60% of demand, leading to a deficit of over 370,000 metric tonnes, which signifies heavy reliance on imports. This persistent gap, currently filled by imports, exposes Liberia to foreign-exchange pressures, price volatility, and lost domestic value addition.

The National Rice Investment Action Plan (NRIAP) translates the priorities of the National Agriculture Development Plan, the Liberia's National Rice Development Strategy II (NRDS II) and the ECOWAS Regional Rice Roadmap into a coherent, investment-ready framework. The Plan shifts the focus from isolated interventions to a systems-based transformation that addresses binding constraints across production, processing, markets, data governance, and finance. Its objective is to close Liberia's structural rice supply gap, crowd-in private investments, strengthen regional competitiveness, and deliver inclusive, climate-resilient growth.

Liberia's rice sector is investment-ready but not investment-complete. Private capital has expanded milling and processing, yet capacity utilization remains low because upstream supply and market systems have not kept pace. Most of the irrigable land is under irrigation, average yields remain less than 2 t/ha, and post-harvest losses can reach 20–40% in some clusters. Weak mechanization, low adoption of certified seed, fragmented markets, and limited access to long-term finance mechanisms further constrain profitability and scale. The NRIAP addresses these bottlenecks through **six (6) mutually** reinforcing actions.

The indicative ten-year investment envelope for full NRIAP implementation is estimated at US\$498.38 million, **benchmarked** against comparable large-scale programmes supported by the World Bank, AfDB, and IFAD in Liberia. This envelope combines public expenditure, concessional finance, and mobilized private capital, which seeks to crowd in private investments alongside public and DFI funding.

With supportive policy direction, active private-sector participation, and NRDS II institutional structures in place, the priority now is catalytic financing and coordinated partnerships to unlock scale.

The NRIAP provides a clear, credible roadmap for development partners, DFIs, commercial financiers, and private investors to co-finance Liberia's transition toward rice self-sufficiency and regional leadership, while delivering robust economic, social, and climate returns.

By 2035, the NRIAP will deliver:

- About 650,000 Metric tonnes of rice are needed, of which only 200,000 to 250,000 Metric tonnes are produced locally, thus resulting in a supply gap of 350,000 to 400,000 Metric tonnes and huge dependence on imports.
- Average yield remains lower than 2 t/ha in irrigated and well-served clusters.
- +US\$200 million in foreign exchange spent on imports annually.



Table 3: Summary of Priority Actions for Liberia's Rice Sector Transformation for the Year 2026-2035

Action	Activities	Estimated Cost	Indicative Cost Share (%)	Financing Sources	Lead Institution	Timeline	Expected Results / Outcomes
I. High-Quality Seed Systems & Paddy Production	I.1 National Seed Multiplication & Certification I.1.1 Conduct research to ID suitable seeds for multiplication. I.1.2 Establish breeder & foundation seed programs I.1.3 Conduct tests for seed viability, purity, & Quality I.1.4 Operationalize SDCA for seed development and certification. I.1.5 Support PPP-based land development/land tenure management activities for seed multiplication (private + community out-growers). I.1.6 Timely planting of seeds to achieve optimal growth and yield. I.2 Integrated Input Distribution Networks & Paddy Production I.2.1 Develop & incentivize last-mile agro-dealer networks to ensure timely access and use of best crop management practices in fertilization, weed control, and pest management throughout the growing seasons. I.2.2 Establish demonstration plots across 5 production clusters I.2.3 Best harvesting practices to ensure maximum yield and quality I.2.4 Introduce digital ordering and tracking platforms I.2.5 Develop 50,000 ha of lowland rice in five years I.3 Industrial Processing and Modern Milling Optimization I.3.1 Perform feasibility and mill diagnostics (conduct national mill mapping to determine functional, abandoned, and damage mill across the country)	328.3 US\$m	66%	Public Budget, MDP, DFI	SDCA, CARI, MOA, ERO	2025 – 2031	- Increased availability of certified, climate-resilient seed. - Improved yields (2x potential). - Reduced reliance on informal seed systems. - Improved farmer access to seeds and fertilizers. - Higher input adoption rates. - Increased productivity. - Improved seed quality control. - Reduced counterfeit inputs. - Enhanced competitiveness of domestic rice. - Increased lending to rice value chain actors.

	1.3.2 Leverage existing mills in the process of updating productive clusters, ensuring that the supply of paddy to these mills is consistent. 1.3.3 Set up MSME threshing and parboiling clusters to ensure last-mile service delivery for threshing and parboiling before aggregation. 1.3.4 Upgrade/construct 5 industrial mills and equip them with specialized processing equipment. 1.3.5 Energy cost Reduction & Efficiency through the introduction of solar-hybrid upgrades. 1.4 Quality Assurance in seed and paddy production 1.4.1 Develop quality milling systems and standardized procedures to improve packaging, compliance, and consumers' acceptability. 1.4.2 Develop systems and hire Seed Inspectors to regularly inspect/monitor field productivity.						
2. Financial Inclusion & Blended Capital Facility	2.1 Conduct a Feasibility Study for the establishment of AEDB 2.1.1 Assess the viability for the establishment of AEDB operations 2.1.2 Propose actions to resolve challenges to agriculture lending in Liberia's rice sector 2.2 Raise innovative blended capital required 2.2.1 De-risk lending to aggregators, millers, and input suppliers by introducing instruments such as credit legislation (collateral guarantee from rural communities), inventory factoring & first-loss guarantee fund, etc. 2.2.2 Provide innovative funds such as matching grants, catalytic grants, and establish 200+ youth and women-led cooperatives, and physically challenged groups	90.75US\$m	18%	Public Budget, DFI, MDP, BP	MOA, MFDP, Central Bank	2026 - 2035	• Reduced financing risk. • Crowding-in private investment • Increased inclusion. • Improved productivity. • Accelerated adoption of climate-smart technologies

	2.2.3 Establish a revolving liquidity facility for aggregation and processing activities that are linked to structured offtake agreements 2.2.4 Support acquisition of irrigation kits, CSA tools, and small equipment						
3. Mechanization Hubs & Service Centers	3.1 Establish required Infrastructure for the 5 Mechanization hubs & Services Centers 3.1.1 Conduct a feasibility study and plan the design of the mechanization hub, ensuring private and public sector inputs 3.1.2 Select site & complete Infrastructure design and Construction for 5 mechanization hubs, each comprising buildings with storage facilities, workshop setups, and maintenance areas. 3.2 Procurement of Specialized Machinery and Equipment 3.2.1 Procure and deploy 200+ tractors, power tillers, and harvesters (lowland-adapted), as well as spare parts 3.2.2 Deploy machinery and equipment through private Sector-Led service providers (PSLSP model) 3.2.3 Set up and launch the operation of the hub 3.3 Training and Capacity Building 3.3.1 Hire youths and women to operate and maintain machineries 3.3.2 Provide training and capacity-building skills for operators, mechanics, and service providers. 3.2.3 Develop spare parts and servicing networks 3.4 Technology Transfer 3.4.1 Develop a partnership with 2 research stations/institutions and private companies to engage in knowledge-sharing initiatives. 3.4.2 Develop Curricular and teaching materials focusing on the operation of the hub	27.935US\$m	6%	Public Budget, MDB, DFI, BP	MOA, Private Actors	2026 – 2029	• Increased opportunities for organized service delivery to the farming population. • Increased opportunities for mechanized farming. • Reduced equipment downtime. • Sustainable mechanization ecosystem. • Increased employment opportunities for youths and women. • Improved service delivery. • Increased knowledge and improved practices over time. • Increased incomes, reduced poverty. • Increase access to accurate data

	3.4.3 Continuous knowledge sharing initiatives such as demonstrations, field days, etc 3.5 Market Linkage and Value-Added Intervention 3.5.1 Map out nearby processors and create connections between the producer and processors 3.5.2 Establish Aggregation centers at the hub to ease access to the market for producers and raw material to processors. 3.6 Monitoring and Evaluation 3.6.1 Establish an AI-powered digitized collection system that is synchronized with a centralized database. 3.6.2 Provide regular training to local operators on data collection, entry, and use methods, strategies, and policies 3.6.3 Conduct bi-annual M & E visits to mechanization hubs						
4. Applied Research, Technology & Innovation	4.1 CARI Institutional Strengthening 4.1.1 Assess status ID gaps and plan for corrections or improvement 4.1.2 Construct/renovate Infrastructure into a modern solarized seed laboratory. 4.1.3 Equip the laboratory with modern equipment to conduct viability, germination, purity, and seed health 4.1.4 Provide training to researchers and junior scientists in best practices and operational efficiency, based on needs. 4.2 Conduct Genetic Studies and Seed Testing 4.2.1 Deploy innovative strategies such as an AI-enabled advisory platform / SMS-messaging to provide useful information about weather, GAP, pest alerts, among others 4.2.2 Reach 100,000+ farmers via mobile platforms	6.35US\$m	1 %	Public Budget, MDP, BP	CARI, SDCA, MOA	2028 – 2035	• Continuous development of improved varieties. • Data-driven policy and planning. • Improved farmer decision-making. • Increased yields. • Enhanced climate resilience

5. Storage Facilities & Efficient Logistics	5.1 Strategic Warehouse Construction 5.1.1 Conduct feasibility to determine appropriate location for storage facilities in 3 regions (based on production level, access, and within a specific cluster) 5.1.2 Construct warehouses in 3 rice producing regions of Liberia 5.1.3 Equipped warehouses with clean, renewable energy storage solutions (solar energy) 5.2 Install the cooling and Ventilation system at the storage facility 5.2.1 Plan and design a cooling and ventilation system at the storage facilities 5.2.2 Install cooling and ventilation systems, with electrical and automated controls 5.2.3 Test and commission the systems 5.3 Enhance Logistics for the effective operation of the facility 5.3.1 Determine vehicle need based on the operational scale of the facility 5.3.2 Procure and supply a vehicle for aggregation and market purposes 5.4 Training & Capacity building 5.4.1 Conduct a capacity need assessment for operators to determine their capabilities to utilize storage facilities and systems. 5.4.2 Train operators to use the system and operate the facility at its full capacity.	4.05US\$m	1%	Public Budget, MFDP, MDB, BP, DFI	MOA, Private Actors	2026 – 2028	• Reduced post-harvest losses (30–40% → <15%); • Improved grain quality and storage efficiency. • Enhance warehouses' operational efficiency. • Lower logistics costs. • Reduced spoilage. • Improved supply chain reliability. • Optimal use of warehouse systems and facilities;
6. Lowland Irrigation Infrastructure & Water Control (USD 1.27M)	6.1 Develop Innovative Irrigation Schemes 6.1.1 Assess current irrigation infrastructure in the productive cluster across the country. 6.1.2 Develop designs, GIS maps, and diagrams for intervention in existing and newly proposed sites, with full participation of intended user groups, specifically private sector-led groups.	40.99US\$m	8%	Public Budget, MFI, MDB, BF	MOA	2026 - 2035	• Expanded irrigated area. • Increased dry-season production. • Improved production stability. • Improved water management. • Reduced climate risks.

	6.2 Establish irrigation Systems and enhance water use 6.2.1 Develop drainage, canal systems, solar pumps, boreholes, and gravity-fed systems across 50,000+ hectares 6.2.2 Implement flood control and water retention systems 6.2.3 Establish water user groups for large irrigation facilities (e.g., dams) and train farmers on irrigation management and scheduling 6.3 Institute monitoring and evaluation mechanisms 6.3.1 Introduce a tracking and reporting system to collect data on water use and impact						Increased cropping intensity (2–3 cycles/year).
Total Investment Requirement (10 years)		498.38US\$m	100%				

I.0 INTRODUCTION

I.1 Current state of the rice sector

Rice is the fundamental staple of Liberia, consumed by nearly the entire population. Liberia maintains one of the highest per capita consumption rates in Africa at 133 kg per annum, yet domestic production consistently lags behind a national demand exceeding 600,000 MT. Consequently, the country spends approximately USD 200 million annually on rice imports, straining foreign exchange reserves and leaving the macroeconomy vulnerable to global price volatility and supply chain shocks.

The Government's National Agriculture Development Plan (NADP) and the Liberia National Rice Development Strategy (LNRDS II) serve as the central platforms for accelerating self-sufficiency. These strategies focus on expanding irrigation, mechanization, and certified seed systems, with a strategic pivot toward unlocking the high-yield potential of Liberia's lowland ecologies. The country is also promoting integrated agribusiness hubs to link smallholders, processors, and financiers within coordinated production corridors.

While Liberia has a rich history of agricultural potential, progress has been hindered by structural challenges, including low productivity and limited private investment. Achieving Liberia's agricultural transformation now depends on a disciplined, USD 498.38 million investment roadmap to modernize value chains and reduce long-standing import dependence.

I.2 Problem statement

The persistent inability of Liberia's rice sector to achieve national self-sufficiency is rooted in a series of interconnected systemic constraints that span the entire value chain. At the primary production level, the landscape is defined by a significant productivity gap, where yields remain stagnant due to the overwhelming dominance of traditional, rain-fed upland farming systems. This reliance on manual labour and subsistence-level practices, coupled with a lack of standardized irrigation and water management, leaves the sector vulnerable to climate variability and restricts production to a single annual cropping and agroforestry cycle. Furthermore, the limited adoption of improved agricultural inputs, specifically certified high-yield seeds and fertilizers, is exacerbated by a lack of accessible mechanization services, effectively capping the output potential of smallholder farmers.

Beyond the farm gate, the sector suffers from substantial value leakage caused by inefficiencies in post-harvest handling and mid-stream processing. The absence of modern drying, threshing, and climate-controlled storage facilities results in high physical losses and inconsistent grain quality, which undermines the marketability of the domestic crop. While there has been marginal growth in milling capacity, these facilities often operate at sub-optimal levels due to fragmented paddy aggregation systems, unreliable energy infrastructure, and outdated processing technologies. These bottlenecks prevent domestic rice from achieving the uniform quality and price competitiveness required to displace polished imports in high-demand urban centers.

These challenges are further compounded by deep-seated infrastructure deficits that inflate transaction costs across the value chain. A fragmented rural road network and weak input distribution systems create a "hidden tax" on domestic production, hindering the efficient flow of seeds to the farm and the movement of harvested paddy to processing hubs. This logistical friction, paired with limited access to tailored trade finance, reinforces a high-cost environment that traps the sector in a

cycle of low productivity. Ultimately, these structural barriers sustain Liberia's heavy dependence on global rice markets, despite a robust domestic demand and a clear multi-million-dollar opportunity for import substitution.

1.3 National Rice Policy

Liberia's rice policy is anchored in a suite of national strategies that provide long-term direction for the sector. Primary among these are the Liberia National Rice Development Strategy II (LNRDS II) and the National Agriculture Development Plan (NADP 2024–2030). These frameworks define the country's commitment to transforming rice from a subsistence crop into a competitive, private-sector-led agribusiness, with a goal to reach 1.3 million MT in production by 2030 from the cultivation of 50,000 hectares of lowlands to increase 70% rice self-sufficiency to reduce rice imports.

The National Rice Investment Action Plan (NRIAP) builds directly on this framework by translating the strategic objectives of the LNRDS II and NADP into concrete, bankable investment packages. By doing so, the NRIAP ensures policy coherence, embedding its actions in nationally approved strategies while leveraging Public-Private Partnerships (PPPs) to achieve broader economic growth and food security.

1.4 Stakeholder analysis

The successful implementation of the NRIAP depends on effective coordination among a diverse set of stakeholders spanning the public and private sectors.

Government institutions provide strategic leadership, policy direction, and resource mobilization. Research institutions, particularly the Central Agricultural Research Institute (CARI), play a critical role in developing and disseminating improved technologies and practices. Regulatory bodies, including the Seed Certification and Development Agency, the Liberia Agricultural Commodity Regulatory Authority (LACRA), and the Liberia Standards Authority (LiSA), ensure quality standards, market regulation, and compliance. The Ministry of Agriculture provides overall governance, policy guidance, coordination of the sector, and promotion of the sector, thereby ensuring national food security, improved farmers' livelihoods, and economic growth are achieved.

At the operational level, farmer organizations, agribusiness firms, financial institutions, and service providers drive production, input distribution, processing, and market access. Development partners and civil society organizations provide technical assistance, financing support, and capacity building, while community actors facilitate grassroots adoption and inclusion, particularly for women and youth.

This multi-stakeholder ecosystem forms the foundation for a coordinated and inclusive transformation of Liberia's rice sector.

A comprehensive stakeholder mapping is presented in Annex 6.

1.5 Justification for increased investment in rice value chains

Scaling investment across Liberia's rice value chain is critical to reversing structural underperformance, reducing import dependence, and strengthening national food security and economic resilience.

Targeted investments are required to increase productivity through climate-smart agricultural practices, expand cultivated areas—particularly in lowland ecologies—improve access to certified inputs and mechanization, reduce post-harvest losses, and strengthen aggregation and processing

capacity. Investments in enabling infrastructure, including irrigation, energy, storage, and transport, are also essential to improving market efficiency and competitiveness.

While ongoing government and donor programmes are broadly aligned with these priorities, their impact remains limited by fragmentation and insufficient scale. A coordinated investment framework under the NRIAP provides an opportunity to deepen synergies, crowd in private capital, and deliver a sustained transformation of the rice sector.

I.6 Plan of Action

The subsequent sections of this report outline a set of bankable investment areas spanning the entire rice value chain—from input systems and large-scale mechanization to integrated processing hubs and innovative financing structures. These investment opportunities are designed to provide a clear, actionable roadmap for mobilizing capital, enabling coordinated implementation, and delivering measurable impact.

Together, they position Liberia's rice sector as a structured, investment-ready opportunity, capable of attracting both public and private financing while delivering sustainable returns, improved livelihoods, and enhanced food security.

2.0 Vision, Goal, and Objectives

2.1 Vision

By 2035, Liberia will be self-sufficient and globally competitive in rice production, supported by a modern, climate-smart industry that supplies high-quality rice at affordable prices to all citizens.

This vision transforms the rice sector into a primary driver of broad-based economic growth, ensuring that domestic output not only meets national demand but also empowers a multiplicity of rice farmers and agribusinesses.

This alignment seeks to position Liberia as a regional leader in rice production, transitioning the crop from a subsistence staple into a vibrant, market-led investment program that secures national food security and sovereignty.

2.2 Goals and Objectives

The long-term goals of the NRIAP are anchored in the pillars of food security, job creation, and trade balance. These goals translate the national agricultural ambition into the following concrete outcomes:

- **National Self-Sufficiency:** Meet 100% of domestic rice demand through local production by 2035. This involves scaling domestic output to exceed the 1.3 million MT target, effectively closing the current 300,000 MT import gap and keeping pace with population growth.
- **Productivity Enhancement:** Significantly increase average yields by transitioning from traditional practices to Good Agronomic Practices (GAP). This will be achieved through the widespread adoption of certified, high-yielding seed varieties, expanded irrigation infrastructure in lowland ecologies, and the deployment of solar-powered mechanization.
- **Processing and Value Addition:** Ensure that 100% of paddy produced is milled and branded domestically to meet urban quality standards. The objective is to optimize existing milling hardware while expanding capacity through integrated processing hubs to eliminate the reliance on imports.
- **Jobs, Income, and Inclusion:** Generate sustainable livelihoods along the entire value chain, with a specific mandate for gender-transformative approaches that empower women and youth. The plan aims to raise smallholder net incomes by reducing post-harvest losses and establishing structured, high-value market linkages.
- **Macroeconomic and Fiscal Impact:** Eliminate the USD 200 million annual rice import bill to strengthen Liberia's foreign exchange reserves and improve the national trade balance. This will reduce the economy's exposure to global price shocks and stabilize domestic food prices.
- **Value Chain Integration:** Strengthen the "bridge" between inputs, finance, and technology so that at least 90% of rice entering the market is locally processed, fortified, and competitively branded.
- **Climate Resilience and Sustainability:** Expand the irrigated lowland area and promote climate-smart water control systems to ensure production stability regardless of seasonal variability or changing weather patterns.

Each of these objectives is linked to measurable indicators, including production tonnage, hectares under irrigation, and jobs created, aligned with the National Agriculture Development Plan (NADP) and Liberia's broader 2035 development targets.

3.0 Action Plan

Action 1: High-Quality Seed Systems and Paddy Production

Strategic Rationale: This is the foundational "unlock" for the entire sector, addressing 74% of the total investment need. It transitions Liberia from traditional, low-yield seeds to climate-resilient, consumer-preferred varieties that can compete with imports.

Sub-Action 1.1: National Seed Multiplication and Certification: Establishing seed multiplication farms and operationalizing the Seed Certification and Development Agency to regulate the sub-sector, conducting research to identify suitable seeds for multiplication, Establish breeder and foundation seed programs, seed testing to determine viability, purity and quality, operationalize SDCA for Seed Development and Certificate purposes, support for PPP- based land development activities to enhance seed multiplication between private and community out growers, regulated by SDCA, and the timely planting of seeds to achieve optimal growth and yield. The required budget for this activity is estimated at USD 58.74 M.

Sub-Action 1.2: Integrated Input Distribution Networks and Paddy Production: Develop and incentivize a "last-mile" agro-dealer network to ensure farmers have timely access to certified seeds and specialized fertilizers, establish a demonstration farm within 5 production clusters, employing best practices in harvesting to acquire maximum yield and quality, and introduce digital ordering and tracking platforms. The required budget for this activity is estimated at USD 238.28 M.

Sub-Action 1.3: Industrial Processing and Modern Milling Optimization: perform feasibility and mill diagnostics, update production clusters to ensure strategic deployment of mills, set up MSME threshing & parboiling clusters, upgrade/construct mills, with add-on cost-effective energy systems as well as quality and grading systems. Perform feasibility and mill diagnostics, upgrade existing mills, upgrade MSME milling and parboiling clusters, add energy efficiency, and promote quality, packaging, and efficiency. The required budget for this activity is estimated at USD 25.35 M.

Sub-Action 1.4: Quality Assurance Laboratories: Building and equipping four regional labs for grading and seed health testing to ensure international standards. The required budget for this activity is estimated at USD 5.93 M.

Total Investment Requirement: USD 328.30 M.

Action 2: Financial Inclusion and Blended Capital Facility

Strategic Rationale: Access to finance is the primary barrier to private sector scaling. This action creates the "bridge" for high-level investors to enter the rice value chain by mitigating early-stage risk.

Sub-Action 2.1: Conduct a Feasibility Study: Carry out a thorough feasibility study to assess the viability of the project prior to the establishment of Liberia Agriculture Enterprise Development Bank (AEDB) and proposed actions to resolve lending challenges. The required budget for this activity is estimated at USD 0.3M.

Sub-Action 2.2: Raise Innovative blended capital: De-risk lending to the sector, provide innovative blended funds, establish revolving funds, and support acquisition of tools and small equipment. The required budget for this activity is estimated at USD 90.45M.

Total Investment Requirement: USD 90.75M

Action 3: Mechanization Hubs and Service Centers

Strategic Rationale: Liberia's rice production is currently constrained by manual labour (drudgery). This action deploys modern technology through a Private-Sector-Led Service Provider (PSLSP) model.

Sub-Action 3.1: Establish required Infrastructure for the mechanization Hubs: Conduct a feasibility study and design the hub to respond to basic needs, complete infrastructure design and construction. The required budget for this activity is estimated at USD 0.2M.

Sub-Action 3.2: Procurement of Specialized Machinery & Equipment: Deploying a fleet of 200+ power tillers, tractors, and harvesters specifically designed for lowland ecologies. The required budget for this activity is estimated at USD 10.3 M.

Sub-Action 3.3: Training and Capacity Building: Develop the skills and abilities of youth and women to operate and maintain machinery and equipment to ensure equipment longevity. The required budget for this activity is estimated at USD 7.86M.

Sub-Action 3.4: Technology Transfer: Create two partnerships with research stations/institutions and private sector companies and engage in two knowledge-sharing initiatives. The required budget for this activity is estimated at USD 0.97M.

Sub-Action 3.5: Market Linkage: Establishment of five market aggregation centers and development of market linkages for farmers. The required budget for this activity is estimated at USD 5.17M.

Sub-Action 3.6: Monitoring and Evaluation: Consistently evaluate impacts over the period of the five years and ensure data collection. The required budget for this activity is estimated at USD 3.44M

Total Investment Requirement: USD 27.94

Action 4: Applied Research, Technology, and Innovation

Strategic Rationale: To remain globally competitive, the sector must continuously adapt to climate change and evolving pest profiles.

Sub-Action 4.1: CARI Institutional Strengthening: Establish and upgrade **CARI's capacity** to conduct genetics studies, Seed testing, and varietal enhancement. This will be made possible through the construction of modern labs and equipping them to operate, as well as providing training to researchers and junior scientists based on their needs. The required budget for this activity is estimated at USD 1.45 M.

Sub-Action 4.2: Extension Services delivery: Deploy innovative strategies to provide information about real-time weather and Good Agronomic Practices (GAP) to 100,000+ farmers via mobile platforms. The required budget for this activity is estimated at USD 4.9M

Total Investment Requirement: USD 6.35M

Action 5: Storage Facilities and Efficient Logistics

Strategic Rationale: Post-harvest losses in Liberia can reach 30–40%. This action stabilizes the supply chain by preserving grain quality between the farm gate and the mill.

Sub-Action 5.1: Strategic Warehouse Construction: Conduct a comprehensive feasibility study for the construction of warehouses and construct warehouses in three rice-producing regions in Liberia. The required budget for this activity is estimated at USD 2.15M

Sub-Action 5.2: Cold Chain and Logistics Optimization at Storage Facilities: Invest in Cold Chain and ventilation systems to reduce post-harvest loss and maintain quality. The required budget for this activity is estimated at USD 1.2M.

Sub-Action 5.3: Enhance Efficient Logistics: Purchase/Provide Vehicles for aggregation, market operations, and service provision. The required budget for this activity is estimated at USD 0.31M

Sub-Action 5.4: Training and Capacity Building: Provide training to operators for efficient use of storage facilities and systems. The required budget for this activity is estimated at USD 0.39

Total Investment Requirement: USD 4.05M

Action 6: Lowland Irrigation Infrastructure and Water Control

Strategic Rationale: Year-round production is impossible without water control. This action targets high-potential lowland areas to enable double or triple cropping.

Sub-Action 6.1: Develop an innovative irrigation scheme: Assess current irrigation infrastructure and develop a detailed plan for enhanced irrigation infrastructure. The required budget for this activity is estimated at USD 0.14M

Sub-Action 6.2: Establish irrigation system and enhance water use: Repair or install irrigation system and train farmers on efficient water use and best irrigation practices. The required budget for this activity is estimated at USD 38.54M

Sub-Action 6.3: Institute monitoring and evaluation mechanisms: Establish systems to track water use and system performance to evaluate its impact on rice production. The required budget for this activity is estimated at USD 2.31M

Total Investment Requirement: USD 40.99M

Table 4: Summary of National Rice Action Plan

Investment Area	Proposed Activities	Proposed Actions	Expected Results / Outcomes
Action 1: High-Quality Seed Systems & Paddy Production (USD\$328.30)	1.1 National Seed Multiplication & Certification	1.1.1 Conduct research to ID suitable seeds for multiplication 1.1.2 Establish breeder & foundation seed programs 1.1.3 Conduct tests for seed viability, purity, & Quality 1.1.4 Operationalize SDCA for seed development and certification 1.1.5 Support PPP-based land development/land tenure management activities for seed multiplication (private + community out-growers). 1.1.6 Timely planting of seeds to achieve optimal growth and yield.	Increased availability of certified, climate-resilient seed; improved yields (2x potential); reduced reliance on informal seed systems
	1.2 Integrated Input Distribution Networks & Paddy Production	1.2.1 Develop & incentivize last-mile agro-dealer networks to ensure timely access and use of best crop management practices in fertilization, weed control, and pest management throughout the growing seasons. 1.2.2 Establish demonstration plots across 5 production clusters. 1.2.3 Best harvesting practices to ensure maximum yield and quality. 1.2.4 Introduce digital ordering and tracking platforms. 1.2.5 Develop 50,000 ha of lowland rice in five years.	Improved farmer access to seeds and fertilizers; higher input adoption rates; increased productivity.
	1.3 Industrial Processing and Modern Milling Optimization	1.3.1 Perform feasibility and mill diagnostics (conduct national mill mapping to determine functional, abandoned, and damage mill across the country).	Improved seed quality control, reduced counterfeit inputs, and enhanced competitiveness of domestic rice.

		1.3.2 Leverage existing mills in the process of updating productive clusters, ensuring that the supply of paddy to these mills is consistent. 1.3.3 Set up MSME threshing and parboiling clusters to ensure last-mile service delivery for threshing and parboiling before aggregation. 1.3.4 Upgrade/construct 5 industrial mills and equip them with specialized processing equipment. 1.3.5 Energy cost Reduction & Efficiency through the introduction of solar-hybrid upgrades	
	1.4 Quality Assurance in seed and paddy production	1.4.1 Develop quality milling systems and standardized procedures to improve packaging, compliance, and consumers' acceptability 1.4.2 Develop systems and hire Seed Inspectors to regularly inspect/monitor field productivity	
Action 2: Financial Inclusion & Blended Capital Facility (USD 90.75M)	2.1 Conduct a Feasibility Study for the establishment of AEDB	2.1.1 Assess the viability for the establishment of AEDB operations. 2.1.2 Propose actions to resolve challenges to agriculture lending in Liberia's rice sector.	Increased lending to rice value chain actors; reduced financing risk; crowding-in private investment
	2.2 Raise innovative blended capital required	2.2.1 De-risk lending to aggregators, millers, and input suppliers by introducing instruments such as credit legislation (collateral guarantee from rural communities), inventory factoring & first-loss guarantee fund, etc. 2.2.2 Provide innovative funds such as matching grants, catalytic grants, and establish 200+ youth and women-led cooperatives and physically challenged groups. 2.2.3 Establish a revolving liquidity facility for aggregation and processing activities that are linked to structured offtake agreements.	Increased inclusion; improved productivity; accelerated adoption of climate-smart technologies

Action 3: Mechanization Hubs & Service Centers (USD 27.94M)		2.2.4 Support acquisition of irrigation kits, CSA tools, and small equipment	
	3.1 Establish required Infrastructure for the 5 Mechanization hubs & Services Centers	3.1.1 Conduct a feasibility study and plan the design of the mechanization hub, ensuring private and public sector inputs 3.1.2 Select site & complete Infrastructure design and Construction for 5 mechanization hubs, each comprising buildings with storage facilities, workshop setups, and maintenance areas.	Increased opportunities for organized service delivery to the farming population
	3.2 Procurement of Specialized Machinery and Equipment	3.2.1 Procure and deploy 200+ tractors, power tillers, and harvesters (lowland-adapted), as well as spare parts 3.2.2 Deploy machinery and equipment through private sector service providers (PSSP model) 3.2.3 Set up and launch the operation of the hub	Increased opportunities for mechanized farming, reduced equipment downtime; sustainable mechanization ecosystem.
	3.3 Training and Capacity Building	3.3.1 Hire youths and women to operate and maintain machineries 3.3.2 Provide training and capacity-building skills for operators, mechanics, and service providers. 3.2.3 Develop spare parts and servicing networks	Increased employment opportunities for youths and women; improved service delivery.
	3.4 Technology Transfer	3.4.1 Develop a partnership with 2 research stations/institutions and private companies to engage in knowledge-sharing initiatives. 3.4.2 Develop Curricular and teaching materials focusing on the operation of the hub 3.4.3 Continuous knowledge sharing initiatives such as demonstrations, field days, etc	Increased knowledge and improved practices over time.
	3.5 Market Linkage and Value-Added Intervention	3.5.1 Map out nearby processors and create connections between the producer and processors. 3.5.2 Establish Aggregation centers at the hub to ease access to the market for producers and raw material to processors.	Increased incomes, Reduced poverty

	3.6 Monitoring and Evaluation		3.6.1 Establish an AI-powered digitized collection system that is synchronized with a centralized database. 3.6.2 Provide regular training to local operators on data collection, entry, and use methods, strategies, and policies 3.6.3 Conduct bi-annual M & E visits to mechanization hubs	Increase access to accurate data.
Action 4: Applied Research, Technology & Innovation (USD 6.35M)	4.1 CARI Institutional Strengthening		4.1.1 Assess current status ID gaps and plan for corrections or improvement 4.1.2 Construct/renovate Infrastructure into a modern solarized seed laboratory. 4.1.3 Equip the laboratory with modern equipment to conduct viability, germination, purity, and seed health 4.1.4 Provide training to researchers and junior scientists in best practices and operational efficiency, based on needs.	Continuous development of improved varieties; data-driven policy and planning.
	4.2 Provide Extension Services Delivery		4.2.1 Deploy innovative strategies such as an AI-enabled advisory platform / SMS-messaging to provide useful information about weather, GAP, pest alerts, among others. 4.2.2 Reach 100,000+ farmers via mobile platforms.	Improved farmer decision-making; increased yields; enhanced climate resilience.
Action 5: Storage Facilities & Efficient Logistics (USD 4.05M)	5.1 Strategic Warehouse Construction		5.1.1 Conduct feasibility to determine appropriate location for storage facilities in 3 regions (based on production level, access, and within a specific cluster). 5.1.2 Construct warehouses in 3 rice producing regions of Liberia 5.1.3 Equipped warehouses with clean, renewable energy storage solutions (solar energy)	Reduced post-harvest losses (30–40% → <15%); improved grain quality and storage efficiency.
	5.2 Install the cooling and Ventilation system at the storage facility		5.2.1 Plan and design a cooling and ventilation system at the storage facilities	Enhance warehouses' operational efficiency.

		5.2.2 Install cooling and ventilation systems, with electrical and automated controls	
		5.2.3 Test and commission the systems	
	5.3 Enhance Logistics for the effective operation of the facility	5.3.1 Determine vehicle need based on the operational scale of the facility 5.3.2 Procure and supply a vehicle for aggregation and market purposes	Lower logistics costs; reduced spoilage; improved supply chain reliability.
	5.4 Training & Capacity building	5.4.1 Conduct a capacity need assessment for operators to determine their capabilities to utilize storage facilities and systems. 5.4.2 Train operators to use the system and operate the facility at its full capacity.	Optimal use of warehouse systems and facilities;
Action 6: Lowland Irrigation Infrastructure & Water Control (USD 40.99M)	6.1 Develop Innovative Irrigation Schemes	6.1.1 Assess current irrigation infrastructure in the productive cluster across the country. 6.1.2 Develop designs, GIS maps, and diagrams for intervention in existing and newly proposed sites, with full participation of intended user groups, specifically private sector-led groups	Expanded irrigated area; increased dry-season production; improved production stability.
	6.2 Establish irrigation Systems and enhance water use	6.2.1 Develop drainage, canal systems, solar pumps, boreholes, and gravity-fed systems across 50,000+ hectares 6.2.2 Implement flood control and water retention systems 6.2.3 Establish water user groups for large irrigation facilities (e.g., dams) and train farmers on irrigation management and scheduling	Improved water management; reduced climate risks; increased cropping intensity (2–3 cycles/year).
	6.3 Institute monitoring and evaluation mechanisms	6.3.1 Introduce a tracking and reporting system to collect data on water use and impact.	

4.0 Financing Strategy

4.1 Cost Estimates of the Investment Plan

The total estimated cost of implementing Liberia's National Rice Investment Action Plan (NRIAP) is \$498.38 million over the period from 2026–2035, with a focus on seven priority actions to achieve rice self-sufficiency. These estimates are derived from estimates projected in the National Agriculture Development Plan (NADP) for lowland development, seed development, benchmarked against similar AfDB/World Bank-supported irrigation and agribusiness projects in West Africa. A detailed, year-by-year budget breakdown is provided in Annex I.

Table 3: Summary of Indicative Budget for the Implementation of the National Rice Action Plan

NRIAP Investment Area	Budget (USD Mil)	Timeframe	Percentage Contribution to Total
High Quality Seed & Paddy Production	328.35	2025 – 2029	66%
Increasing access to finance	90.75	2026 - 2035	18%
Mechanization Hub	27.94	2025 – 2028	6%
Research and innovation in new & resistant varieties	6.35	2026 – 2035	1%
Storage facilities & efficient logistics to reduce post-harvest losses	4.05	2026 – 2030	1%
Irrigation Infrastructure in the Lowland	40.99	2026 - 2035	8%
Total	498.38		100%

4.2 Sources of funding: public budget, private sector, and donors

Funding will be mobilized through a balanced mix of public budgets, private investments, and development partner contributions, leveraging each source's proven track record in Liberia's rice value chain. This approach ensures sustainability by aligning with ongoing or past projects for credibility and continuity.

Table 4: List of Funding Sources

Funding Source	Target Share	What They Fund in the Rice Value Chain
Public Sector (GoL) Funding	10–45%	Budget lines under MoA, LACRA, LiSA, SDCA, CARI, and counterpart funding are planned to cater to 30% value chain specific interventions like irrigation, paddy production, seed system development, storage, among others, and 60% of cross-cutting issues, including access to finance, gender, mechanization hubs operations, staff development and management, etc.
Financial Partners Funding	40 – 55%	AfDB, World Bank, IFAD, JICA, FAO, and others are financing 45% of value chain-specific activities like irrigation, seed system strengthening, storage, and 40% of cross-cutting activities like capacity building,

		mechanization, blended financing schemes to ensure access to finance, credit guarantees, etc.
Private Sector	30 – 60%	Access to credit, public-private investments for mechanization-lending schemes, private sector seed production, innovative irrigation schemes, and access to inputs, among others.
Farmers & Cooperatives	20 – 25%	Own contributions for inputs, small equipment, local storage, and co-financing of small-scale irrigation and mechanization services via cooperatives.

4.3 Funding Gaps and Financing Scenarios

Liberia has attracted substantial rice-related financing over the past decade through IFAD, the World Bank, AfDB, USAID, JICA, and private investors. Major ongoing and completed programmes include AfDB's Smallholder Agriculture Productivity Enhancement and Commercialization (SAPEC) project, World Bank & IFAD-supported Smallholder Transformation Agribusiness Revitalization Project (STAR-P), and private investments such as System of Rice Intensification (SRI) initiatives.

The table below lists major programs, funding amounts, and timelines. It distinguishes disbursed funding (confirmed commitments) from pledged or ongoing efforts:

Table 5: Major Rice Programs, Funding Amounts, and Timelines

Program (Rice Focus)	Funder (s)	Amount (USD)	Time Frame	Status
Smallholder Agriculture Transformation and Agribusiness Revitalization Project (STAR-P) ¹	World Bank (WB)/ International Fund for Agricultural Development (IFAD)	\$25M + 23M Additional Funding (AF)	2019–2029	Ongoing
Rural Economic Transformation Project (RETRAP) ²	IFAD	\$55M + 30M under AF	2021–2029	Ongoing
Building Climate Resilience Project (BCRP) ³	IFAD & Adaptation Fund Grant	8.84M	2019 – 2026	
Smallholder Agriculture Development for Food and Nutrition Security (SADFONS) ⁴	AfDB & GAFSP	37.6M	2021 – 2027	Ongoing

¹<https://www.moa.gov.lr/general/smallholders-agriculture-transformation-and-agribusiness-revitalization-project-starp->

² [Rural Economic Transformation Project\(RETRAP/WB\) | Ministry of Agriculture](#)

³ [Building Climate Resilience Project \(BCRP\) | Ministry of Agriculture](#)

⁴ [Smallholder Agriculture Development for Food and Nutrition Security \(SADFONS\) - Project in Liberia](#)

Smallholder Agricultural Productivity Enhancement and Commercialization (SAPEC) Project ⁵	AfDB	56 M	2012 – 2022	Completed
RICOWAS Rice Project ⁶	Adaptation Fund	14M (regional support)		Ongoing
Feed the Future Liberia Food Security Program	USAID	\$95 million	2018–2025	Completed
Sustainable Agriculture and Food Systems Development	European Union	\$40 million	2019–2026	Ongoing
Agricultural Technical Cooperation Programs	Japan International Cooperation Agency	\$10–15 million	2017–2024	Completed
Sustainable Economic Development Programs	German Agency for International Cooperation	\$15 million	2018–2025	Government ministries and the private sector
Food Systems Resilience and Climate Programs	Rockefeller Foundation	\$5–10 million	2019–2025	Research institutions and development partners
Seed Systems Development and Market Access Programs	Alliance for a Green Revolution in Africa	\$10 million (regional support)	2017–2025	Completed
Agribusiness Investment Support	International Finance Corporation	\$10–30 million (investment portfolio)	Ongoing	Ongoing
Agricultural Infrastructure Financing	African Development Bank	\$20–50 million	2020–2027	Ongoing
Agricultural Development Programs	Islamic Development Bank	\$20 million	2018–2026	
Climate-Smart Agriculture Investments	KfW Development Bank	\$15 million	2019–2026	
Rural Infrastructure Development	OPEC Fund for	\$10–20 million	2018–2025	Completed

⁵ [Smallholder Agricultural Productivity Enhancement and Commercialization \(SAPEC\) - Project in Liberia](#)

⁶ [RICOWAS | Welcome at Sahara and Sahel Observatory](#)

	International Development			
--	---------------------------	--	--	--

Although this funding provides foundational sources of investment in the sector, all public and private funding are minimum in relation to the full NRIAP requirement equivalent to the US\$498.38 million investment envelope. To address this gap, the NRIAP proposes three progressive scenarios.

Scenario 1: Minimum-Level Financing. A reliance on public and donor funds that prioritizes investment in mechanization, seed systems, extension, and basic aggregation services to existing facilities already available around the country. This scenario is projected to deliver productivity gains in high-potential zones such as Bong, Nimba, and Lofa, enabling Liberia to achieve 70% rice self-sufficiency by 2035.

Scenario 2: Medium-Level financing. A balanced scenario that combines public and donor funding with significant private investment and blended finance is also projected. It supports full NRIAP rollout across production, processing, logistics, and markets, resulting in expanded irrigation, functional seed markets, strong private-sector participation, and improved post-harvest efficiency. Under this scenario, Liberia rice sector is expected to achieve around 90% self-sufficiency, price stability, and regionally competitive value chains.

Scenario 3: Maximum-Level Financing. This scenario constitutes Private-Led Accelerated Growth that mobilizes higher levels of private capital alongside public and blended finance to support large-scale PPPs and other innovative investment mechanisms in irrigation, commercial farming, modern milling clusters, export logistics, and trade facilitation. This scenario enables surplus production, high-capacity utilization, improved quality standards, and positions Liberia to achieve full 100% self-sufficiency, as well as develop its potential toward rice exportation.

4.4 Investment Readiness and Bankable Projects

To support the successful implementation of the NRIAP, it is essential to identify which rice sector interventions are ready for investment and which require further development. The table below assesses Liberia's key rice activities in terms of investment readiness, highlighting opportunities for immediate financing and those that will require additional planning or infrastructure support. This overview guides investors toward projects that will accelerate productivity gains, strengthen value chains, and contribute directly to achieving the specific objectives and milestones of the NRIAP action plans.

Table 6: List of Bankable Proposals and Concept Notes

Activity	Current State in Liberia	Investment Readiness	Notes / Justification
I.1 National Seed Multiplication and Certification Program	SDCA is already legislated and functional; seed-funding is required for staffing and to commence operations	Investment Ready	Already functional; can be leveraged to accelerate certified seed production and supply.
I.2 Integrate input distribution networks and paddy production	Existence of input vendors across the country ready to deploy to rural communities; Vast arable lowland available for production	Investment Ready	Can scale using the existing extension system; requires investment to fund lowland production.
I.3 Industrial Processing and Modern Milling Optimization	Availability of some data on existing/functional mills	Investment Ready	ERO has sufficient information about the operational mill in the country

Activity	Current State in Liberia	Investment Readiness	Notes / Justification
1.4 Quality Assurance Laboratory	The existence of a Standard Authority and an Agency to drive quality seed production	Investment Ready	Need to recruit Seed Inspectors and develop a standard procedure to define quality.
2.2 Raise innovative blended capital required	Feasibility for AEDB completed; Legislation passed for the establishment of AEDB	Investment Ready	The AEDB offers an opportunity for structural lending to the sector to spur growth.
3.2 Mechanization Centres & Equipment	Some machines are already procured by GOL and expected to be deployed in the soonest possible time; many farmers still rely on manual labour.	Investment Ready	The need to fast-track implementation is keen to ensure the realization of the sector's goal.
3.3 Training and Capacity Building	A limited number of trained persons in the operation of machines	Investment Ready	Youthful population with potential to satisfy manpower needs at the hub
3.4 Technology Transfer	A limited number of technology transfer centers in Liberia	Partially Ready	Availability of Agriculture TTIs across the country
3.5 Market Linkage	Currently poor linkages between producer to service and market opportunities	Investment Ready	Availability of huge producers across the country
4.1 CARI Institutional Strengthening	Operates under the Supervision of the CARI Board and MOA. Currently functional with limited funds	Investment Ready	Functional, but has limited funding that impedes its research capacity, especially due to a low number of staff and inefficient labs.
4.2 Conduct Genetic Studies and Seed Testing	Currently ongoing at CARI on a small scale	Investment Ready	Need to upscale research in genetic studies and seed testing
4.3 Extension Services delivery	Existing Extension delivery with the DRDRE of MOA. Low agent-to-farmer ratio	Investment Ready	Extension service delivery will bridge the gap of information from Research to the farmer and vice versa.
5.1 Strategic Warehouse & Efficient Logistics	Lack of large-scale rice warehouses in Liberia, storage is achieved on a small scale by individual farmers or processors.	Investment Ready	Warehouses are needed to reduce post-harvest losses; Strategically locating warehouses represents an efficient use of resources.
5.2 Cold Chain and Logistics Optimization at Storage Facilities	Storage conditions are poor, achieved on a small-scale level	Investment Ready	Efficient storage conditions are needed to ensure the reduction of post-harvest losses and increase the marketability of local rice production.
5.3 Enhance Efficient Logistics	Limitations of specialized vehicles for aggregation, marketing, and service provision	Investment Ready	Specialized vehicles will contribute to an increased supply of local rice and income for small farmers.
5.4 Training and Capacity Building for Storage Equipment Operations	Lack of commercial storage operations in Liberia	Investment Ready	Users will need the necessary skills to operate the newly deployed storage equipment.
6.1 Develop an Innovative Irrigation Scheme	Limited quantities of lowland irrigated	Investment Ready	The number of irrigated lowlands will contribute to increasing production and productivity.

Activity	Current State in Liberia	Investment Readiness	Notes / Justification
6.2 Establish an irrigation system and enhance water use	limited quantities of lowland irrigated and inefficient use of water	Investment Ready	Increased production and productivity; enhance water conservation and environmental sustainability, economic and social benefits, etc.
6.3 Institute monitoring and evaluation mechanisms	Existing monitoring and evaluation unit in the MOA and related agencies	Investment Ready	Scattered M&E system, data contributes to learning and decision making

Short-Term projects are ready to finance, with completed designs, budgets, and institutional arrangements. These include Gbedin-type irrigation rehabilitation and lowland development in priority basins, and NRDS II seed system pilots led by SDCA and CARI to scale breeder, foundation, certified seed production, and the operation of operationalization of AEDB.

Mid-Term projects comprise structured, bankable proposals with defined objectives, activities, budgets, and indicative funders, requiring limited additional appraisal. These cover seed quality infrastructure and capacity building at SDCA and CARI, irrigated lowland development across productive regions, establishment of the mechanization hubs in the 5 productive regions, quality upgrading and value addition in milling, and establishment of storage centers. Together, these form the core NRIAP bankable portfolio for grants, concessional finance, and PPPs.

Long-Term concepts include early-stage ideas such as newly constructed/proposed Irrigation Schemes and new milling centers, and advanced traceability platforms. These will be developed into full concept notes during the first two years of implementation, ensuring a rolling pipeline for future financing rounds.

5.0 Implementation Arrangements

5.1 Operationalization of the investment priorities

The implementation plan provides a clear roadmap for translating the identified investment priorities into actionable, coordinated, and measurable interventions across Liberia's rice sector. The plan supports the operationalization of investment priorities by sequencing activities across short-term, medium-term, and long-term timelines, identifying shovel-ready interventions, and establishing the systems needed for efficient delivery. It translates each action area into implementable steps that address key sector constraints, such as limited irrigation coverage, weak processing and storage systems, low adoption of improved practices, and inadequate market infrastructure, to achieve the goal of rice self-sufficiency by 2035.

This implementation approach is fully aligned with Liberia's existing national frameworks, including the National Agriculture Development Plan (NADP) Liberia National Rice Development Strategy II (LNRDS II). It also reflects coordination structures already established under the Ministry of Agriculture (MoA), Liberia's Rice Observatory (ERO), CARI, National Investment Commission (NIC), Ministry of Commerce and Industry (MOCI), Forestry Development Authority (FDA), Environment Protection Authority (EPA), Ministry of Internal Affairs (MIA), Liberia Land Authority (LLA), University of Liberia (UL), Tubman University (TU), Food and Agriculture Organization (FAO) and other sector stakeholders. Furthermore, the plan aligns with regional priorities under the ECOWAS Regional Rice Roadmap (2025–2035), ensuring that national actions reinforce broader West African frameworks for production, trade, and food system resilience.

5.2 Coordination Mechanisms

Effective coordination is central to the successful implementation of the NRIAP and to ensuring that rice investment actions are delivered in a harmonised and efficient manner. The coordination framework clarifies institutional roles, reporting lines, and collaboration mechanisms across national institutions, farmers' organizations, the private sector, and development partner levels, helping to align interventions, avoid duplication, and promote shared accountability.

The National Rice Platform is led by the Minister of Agriculture (MOA). At the top level is composed of the Minister of Commerce and Industry (MOCI), the Minister of Finance and Development Planning (MFDP), Ministry of State (MOS), Liberian Agricultural Commodity Regulatory Authority (LACRA) and Cooperative Development Agency (CDA) with the responsibility of actively regulating rice production and imports. Reporting to the National Rice Platform is the Steering Committee, which is comprised of technicians from the MOA, Ministry of Finance and Development Planning (MFDP), Ministry of Local Government (MLG), Ministry of Commerce and Industry (MOCI), Ministry of Public Works (MPW), Central Agriculture Research Institute (CARI), Environmental Protection Agency (EPA), Liberia Land Authority (LLA), the National Rice Federation (NRF) and the Farmer Union Network (FUN). This committee meets on a quarterly basis.

A key role within this Steering Committee is the Rice Desk Officer, located in the Crop Resource Division, and the Director for Policy from the Department of Planning and Development. In close collaboration with the National Rice Federation, they are to organize meetings of the Steering Committee and take all necessary steps to implement projects: set up a project formulation and design committee, organize resource mobilization and financing, M&E, and the mid-term review. They equally

communicate with and receive input from the Agriculture Coordination Committee, the Agriculture Donor Working Group, and especially the Rice Sector Technical Working Group, which is facilitated by the Director for Sector Coordination in times when no Rice Desk Officer is employed. Major outputs are a National Annual Operational Plan (NAOP), from which concept notes will be developed for resource mobilization and implementation.

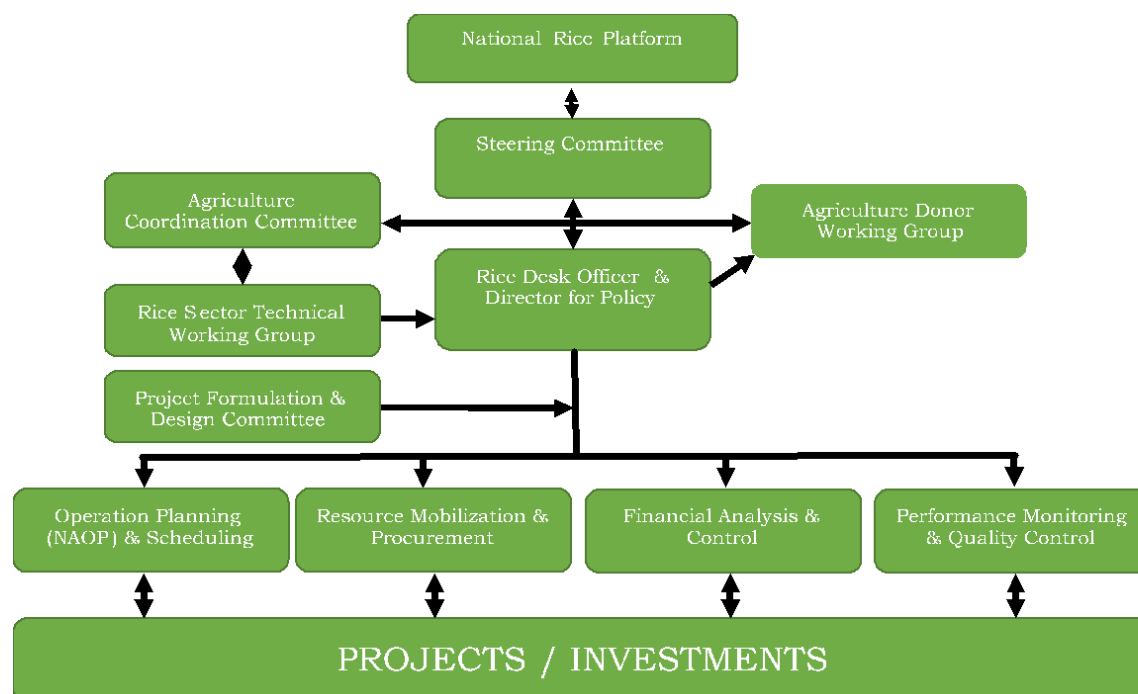


Figure 2: Coordination Mechanism⁷

5.3 Coordination with the private sector and development partners

The private sector and development partners are Key drivers of finance, scale, and innovativeness under the NRIAP. Engagement with the private sector will be structured through biannual public–private investment forums, PPPs in irrigation, mechanization, processing, and digital infrastructure, and contract farming and aggregation models that link farmers to markets. Joint quality assurance programs will align millers, input suppliers, and regulators.

Development partner coordination will focus on aligning donor programs to NRIAP priorities, co-financing infrastructure and systems, and conducting joint technical missions and annual reviews to harmonize approaches, avoid duplication, and streamline reporting.

5.4 Implementation Timeline and Phasing

The implementation of the NRIAP will follow a phased approach from 2026 to 2035, ensuring that interventions are sequenced logically to build foundational capacity, expand production systems, strengthen the value chain, and complete large-scale infrastructure works. Investments are grouped into short-term (1–2 years), medium-term (3–5 years), and long-term (6–10 years) phases, allowing for efficient resource allocation, technical planning, and timely delivery of results. Priority interventions, particularly shovel-ready or critical to unlocking subsequent activities, will be fast-

⁷ Based on Coordination Mechanism as prescribed by the NRDS II

tracked to ensure early impact and momentum. The detailed implementation timeline and phasing are presented in **Annexe 9**.

The fast-tracked, shovel-ready interventions build upon ongoing initiatives under the NADP and other existing programs in Liberia's rice sector, ensuring they can be rapidly scaled. Building on these fast-tracked interventions, additional activities can now be rolled out sequentially, creating opportunities to further enhance productivity, reduce post-harvest losses, strengthen market linkages, and progressively align with both national and ECOWAS rice sector objectives.

Table 7: Implementation Timeline and Phasing

Investment Area	Key Activities	Lead Agency	Supporting Partners	Start – End Dates	Status (Planned/Ongoing)
Seeds Systems	Suitable seed selection & multiplication	SDCA ⁸	CARI / ERO ⁹	2026 – 2028	Planned
	Breeding & Foundation Seed Programs	CARI	MOA / SDCA / ERO	2025-2027	Ongoing
	Regular Seed Testing activities	CARI	MOA / SDCA / ERO	2025 - 2027	Ongoing
	Operationalize SDCA	MOA	MFDP / BP / MDP ¹⁰	2026	Ongoing
	PPP Seed Multiplication (Register and Certified Seeds)	ERO	GoL / MDP / BP / DFI / PPOs ¹¹	2026 -2028	Planned
	Cultivate 50,000 – 70,000 Ha	ERO	MOA / MDP / BP/ DFI / PPOs	2025 – 2035	Ongoing
	Incentivize Last Mile Seed & Input Distribution	ERO	MOA /MDP / BP / DFI /PPOs	2026 – 2035	Planned
	Set up Demonstration Farms	ERO	MOA / MDP / BP/ DFI / PPOs	2026 – 2030	Planned
	Introduce Ordering & tracking platforms.	MOA	LACRA / MOCI / BP/ MDP / ERO ¹²	2027 – 2035	Planned
	National Mill Mapping Study	MOA	ERO / LISGIS / MDP / BP/ PPOs	2026	Planned
	Develop a cluster in proximity to existing functional mills	MOA	ERO / MDP / BP	2026	Planned
	Set-Up MSME threshing & parboiling Service Delivery Scheme	ERO	MOA / MDP / BP/ DFI / PPOs	2027 – 2035	Planned
	Upgrade/Construct 5 industrial mills.	ERO	MOA / MDP / BP/ DFI / PPOs	2027 – 2028	Planned
	Hybrid Solar Energy Installations at Mills	ERO	MOA / MDP / BP/ DFI / PPOs	2027 - 2028	Planned

⁸ SDCA, Seed Development and Certification Agency

⁹ CARI, Central Agriculture Research Institute; ERO, ECOWAS Rice Observatory

¹⁰ MFDP, Ministry of Finance and Development Planning; BP, Bilateral Partners; MDP, Multilateral Development Partners

¹¹ DFI, Development Finance Institute/s; PPOs, Private Philanthropic Organizations

¹² LACRA, Liberia Agriculture Commodity Regulatory Authority

	Quality Milling Systems & Standards	SDCA / LiSA ¹³	MOA / LACRA / ERO	2026 – 2028	Ongoing
	Recruit Seed Inspectors	SDCA	MOA / MFDP	2026 – 2027	Planned
Increasing Access to Finance	Conduct feasibility to establish AEDB	MOA	MDP / BP/ DFI / ERO / MOJ ¹⁴	2025	Completed
	Develop AEDB risk mgt. plan	MOA	MDP / BP/ DFI / ERO / MOJ	2025	Completed
	Develop de-risk lending instruments.	MOA	MFDP / DFI / BP / ERO / MOJ	2026 – 2029	Ongoing
	Provide innovative funds (grants & matching grants, revolving funds, & soft loans)	MOA	AEDB / DFI / MFDP / MDB ¹⁵	2027 – 2030	Planned
Mechanizing the Rice Sector	Conduct a feasibility study for a PPP-mechanized hub	MOA	ERO / DFI / MDP / BP	2025	Completed
	Site selection and design for 5 mechanization hubs	MOA	ERO / DFI / MDP / BP	2025	Completed
	Procure and deploy machines.	MOA	MFDP / LACRA / ERO	2025- 2027	Ongoing
	Hire Private actors and turn-over facilities for hub operations	MOA	ERO / MFDP / MOJ	2026 – 2027	Ongoing
	Hire & Train staff at mechanization hubs.	Private Actors	ERO / MOA	2026 – 2027	Planned
	Develop spare part sourcing and service provision networks	Private Actors	ERO / MOA	2027 – 2028	Planned
	Develop a partnership with 2 research stations/institutions	Private Actors	ERO / MOA/ CARI & TTIs ¹⁶	2028 - 2029	Planned
	Develop curriculum & Teaching materials.	CARI	MOA / ERO / TTIs / Private Actors	2028 - 2029	Planned
	Engage in knowledge-sharing initiatives.	Private Actors	TTIs / ERO	2029 - 2030	Planned
	Map out processors and create linkage b/w producer & processors	Private Actors	ERO / MOA	2029 - 2030	Planned
	Establish an aggregation center.	Private Actors	ERO / MOA	2029 – 2030	Planned
	Develop AI-powered databases that are centralized.	MOA	ERO / Private Actors / MDP / BP / LACRA / MOCI / MFDP	2026 - 2027	Planned
	Conduct M&E visits to hubs.	MOA	ERO / Private Actors / MDP / BP	2026 - 2030	Planned
Applied Research, Technology & Innovation	Capacity assessment for CARI's	MOA	CARI / MFDP / MDP / BP	2025 - 2026	Planned
	Construct/renovate a modern seed Lab at CARI	CARI	MFDP / MOA / MDP /BP	2025 – 2028	Ongoing
	Equip the laboratory for seed testing.	CARI	MFDP / MOA / MDP /BP	2025 – 2027	Ongoing

¹³ LiSA, Liberia Standards Authority

¹⁴ MOJ, Ministry of Justice

¹⁵ AEDB, Agriculture Enterprise Development Bank

¹⁶ TTIs, Technical Training Institutes

	Train Researchers in best practices	CARI	MFDP / MOA / MDP / BP	2026 – 2035	Ongoing
	Conduct genetic & Varietal enhancement studies.	CARI	MOA / ERO / MDP / BP	2026 – 2030	Planned
	Collaborate with universities /research institutions to conduct trials & adaptive research.	CARI	MOA / ERO / MDP / BP / ERO	2027 - 2030	Ongoing
	Set-up & deploy Advisory platforms / SMS-messaging on GAP and farm alerts	CARI	MOA / ERO / MDP / BP	2027 - 2030	Ongoing
Storage Facilities & Efficient Logistics	Conduct a feasibility study to determine the location for a storage facility.	MOA	ERO / MDP / BP	2025	Completed
	Construct Warehouses	MOA	MFDP / MDP / BP / DFI / ERO / Private Actors	2026 - 2028	Planned
	Equip warehouses with hybrid solar infrastructure.	MOA	MFDP / MDP / BP / DFI / ERO / Private Actors	2026 - 2028	Planned
	Design, Install & commission cooling & ventilation System	MOA	MFDP / MDP / BP / DFI / ERO / Private Actors	2026 - 2028	Planned
	Procure and deploy vehicles.	MOA / Private Actors	MDP / BP / DFI / ERO / private Actors	2027 - 2028	Planned
	Train operator to effectively use the storage facility	MOA	MDP / BP / DFI / ERO	2028 – 2030	Planned
Lowland Irrigation Infrastructure & Water Control	Assess current irrigation infrastructure within the cluster areas	MOA	ERO / MDP / BP / DFI	2025 - 2027	Ongoing
	Develop irrigation designs & map per site.	MOA	ERO / MDP / BP / DFI	2025 - 2026	Completed
	Develop an irrigation system for 50,000 Ha	MOA	ERO / MDP / BP / DFI	2025 – 2028	Ongoing
	Establish Water User groups	MOA	ERO /MDP / BP / DFI	2026 – 2030	Planned
	Track and report water use data	MOA	ERO / MDP / BP / DFI	2026 – 2035	Planned

5.5 Capacity Needs and Support

Effective implementation of the NRIAP will require targeted capacity strengthening across institutions, value chain actors, and farming communities to ensure that investments are sustainable and scalable. At the institutional level, enhanced capacities are needed within MOA, ERO, smallholder farmers' groups, and implementing agencies in programme management, procurement, contract supervision, monitoring and evaluation, irrigation management, and private-sector engagement. Additional technical support will be required to strengthen engineering, regulatory, and quality assurance functions, as well as the application of environmental and social safeguards.

At the community and market levels, farmers, cooperatives, and private-sector actors will require sustained training and advisory support to adopt improved production, post-harvest, and business practices. This includes building farmer capacity in GAP, climate-smart agriculture, and water management; strengthening cooperatives in governance, aggregation, and marketing; and supporting agro-dealers, processors, and mechanization service providers in business management, equipment operation, and quality control. Development partners, research institutions, and universities will

provide technical assistance, applied training, and knowledge exchange to reinforce these capacities over time, ensuring effective delivery and long-term impact of the NRIAP.

5.6 Resource Mobilization Strategy

The successful implementation of the NRIAP will depend on a coordinated and diversified resource mobilization strategy that combines domestic public financing, development partner support, and private-sector investment. National budget allocations through MOA, MFDP, and other line ministries will anchor internal financing, supporting core functions such as extension services, coordination, monitoring and evaluation, and partial funding for irrigation, mechanization, and research. Development partners will complement these efforts through technical assistance, co-financing, and concessional resources for large-scale infrastructure, seed systems, climate-resilient technologies, capacity building, and value chain development, aligned with national priorities through joint programming arrangements.

Private-sector participation will be actively mobilised to scale investment in input supply, seed production, mechanization services, processing, storage, and market systems, supported by incentives, PPP arrangements, and structured offtake mechanisms. To broaden the financing base, the NRIAP will also deploy innovative and blended finance instruments such as guarantees, risk-sharing facilities, impact investment funds, and performance-based contracting to reduce investment risks and crowd in commercial capital. Together, these financing pathways provide a sustainable framework to support NRIAP investments during 2026–2035 and advance national rice self-sufficiency.

5.7 Communication Plan

The communication plan will enhance strategic partnerships and effective communication related to agriculture potential in Liberia. It ensures transparent, timely, and coordinated information sharing throughout NRIAP implementation. The NRIAP communication plan will boost media engagement, foster private-sector-led initiatives, seek to strengthen institutional capacity, and modernize communication systems and promotion. These would be achieved through multi-dimensional actions, including the formation of partnerships, conducting site visits, increased digital presence, privately owned structures, team training, rebranding, inter-agency collaboration, and data sharing.

6.0 Conclusions

Rice is one of Liberia's most politically and socially sensitive staples, consumed by almost every household and closely linked to inflation, social stability, and poverty outcomes. Today, the country spends over US\$200 million annually on rice imports, exports jobs and foreign exchange, and remains vulnerable to external price shocks.

With an estimated financing envelope of US\$498.38 million, the NRIAP provides an opportunity to transform this vulnerability into opportunity by:

- Scaling up productivity to 3 t/ha by expanding irrigated area to stabilize production and reduce climate risk.
- Ensuring that all paddy is processed domestically through modern, energy-efficient mills and value-added clusters.
- Building a competitive seed, mechanization, and service ecosystem that underpins commercialization and youth-led agribusiness growth.
- Strengthening market systems, SPS/quality standards, and trade corridors to enable Liberia to reduce import dependency in rice by 70%, and move toward achieving self-sufficiency in line with the ECOWAS Regional Rice Roadmap by 2035.

In doing so, the NRIAP directly supports national goals on food security, job creation, trade balance, industrialization, and resilience, and offers a de-risk entry point into a large, growing, and politically prioritized market for investors and development partners. Realizing the NRIAP's vision requires joint commitment and timely action:

- The Governments must ensure policy coherence, predictability, and adequate seed funding for the operational institutions, such as the Seed Development and Certification Agency (NRDC), to provide long-term governance of the rice sector.
- Development partners (AfDB, World Bank, IFAD, JICA, EU, USAID, GCF, and others) are called upon to fund and scale the bankable pipeline of TWG-developed projects and to anchor broader programme lending to the NRIAP.
- Private investors, millers, seed companies, mechanization and energy service providers, and financial institutions are encouraged to leverage RSIF and PPP frameworks to invest in irrigation, processing clusters, mechanization hubs, storage, and digital platforms.
- Farmers, cooperatives, women's, and youth groups are central to adoption. With targeted extension, incentives, and inclusive financing, they will convert investment into productivity, jobs, and income gains.

Together, these stakeholders can close the supply gap, stabilize prices, and unlock rice's full economic promise.

Annexes

Annex I: Monitoring and Evaluation: Key performance indicators (KPIs)

Indicator Category	KPI	Definition	Unit of Measurement	Baseline	Annual Target	Endline Target	Data Source	Frequency
Productivity	Average rice yield per hectare	Measure of productivity per unit area	Tons/ha	2.1	---	4.5	MoA, administrative data, Surveys	Annual
Input Access	% of farmers using certified seed	Share of producers using improved seed	%	30%	---	70%	Seed distribution reports, Extension reports	Annual
Infrastructure	Hectares under irrigation for rice	Area developed or rehabilitated for irrigation	Ha	15,000	----	40,000	Irrigation authority	Biannual
Market	Volume of locally processed rice sold	Commercialization of domestic rice	Metric tons	50,000	---	200,000	Rice processors' association (millers) report, Market survey	Annual
Capacity	No. of farmers trained; No of stakeholders trained	Training in good practices, mechanization, etc.	Number	5,000	---	25,000	Training / Project reports	Quarterly
Finance	Volume of agri-credit to the rice value chain	Total value of loans and grants disbursed	USD	\$1M	---	\$10M	Banks, MFIs	Annual
Gender/Youth	Number of jobs created; no of youth businesses and/or income generating activities	Inclusive targeting of vulnerable groups	%	20%	-----	50%	Program M&E Reports	

Annex 2: Consultation Summary

Stakeholder (Group/Individual)	Summary of Feedback	Response of the Project Team	Follow-up Action/Next Steps
Ministry of Agriculture	Supportive, requires inclusive engagements in the NRIAP development process	Will provide more data as work progresses	Schedule follow-up meeting – Open doors for inquiry
A Technical Working Session with Key players of the National Rice Federation of Liberia (7 members)	Supportive, requested access to the reports and plan under the assignment	Completed a joint review, suggested inclusion, and justified key areas needing changes	Will make further input in the draft and share additional information
Jobson Momo, SDCA	Responsive	Considers SDCA a significant contributor to Liberia's revenue once the seed Registration and Certification become operational. Requires seed funding to achieve that goal. He indicated that Aromatic Rice has been proposed as a prioritized variety for production in Liberia.	Available for further inquiry
Taway BLama, Farmer	Responsive	Complained about high labour cost, limited access to finance, low yield; Need to prioritize financing for farming initiatives, land preparation, opportunities for post-harvest processing, and better prices for paddy.	Available for further inquiry
Emmanuel Johnson	Responsive, provided adequate information about challenges and issues faced by local input dealers	He mentioned poor sector coordination and requires more involvement of private players, expressing the need for urgent operationalization of mechanization and service centers, as power tillers and other machines provided to farmers in the past had significant challenges with maintenance & repair.	Available for further inquiry

Aaron Wilson, Farmer – Sustainable Agriculture & Nutrition Organization (SANO), Grand Gedeh County	Provided key information about production priorities and challenges /opportunities within the production and market sectors in south-eastern Liberia.	Lack of access to processing, local rice mills faced significant challenges that are technical in nature. Yield stands at 1.5 t/ha; bad road challenges rice movement, forcing him and other farmers to the local village miller.	Available for further engagements
Johnson Younge Blin, Ministry of Commerce and Industry (MOCI)	Responsive, provides key information on rice importation, market & price	Confirm that local Production is not tracked at MOA, but the quality support system at LiSA is designed to help small farmers achieve standardization in production. Has participated in joint field visits with MOA and suggests that more has been done to ensure rice marketability. national demand.	He would like to participate further in any rice-related activities in the future.

Annex 3: Detailed budget tables

Investment Area 1: High-Quality Seed Systems & Paddy Production												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ mil)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
1.1 National Seed Multiplication & Certification	1.1.1 Conduct research to ID suitable seeds for multiplication (Innovative Research inputs and Assistancy)	0.07	0.05	0.07	0.12	0.14	0.04	0.04	0.04	0.04	0.04	0.66
	1.1.2 Establish breeder & foundation seed programs (Programs Development Cost)	3.83	11.39	11.84	8.09	0.62	0.17	0.16	0.16	0.19	0.19	36.62
	1.1.3 Conduct tests for seeds viability, purity & Quality	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
	1.1.4 Operationalize SDCA for seed development and certification (Staff Salary + Vehicle + Office Operation & Running Cost)	0.83	0.62	0.62	0.72	0.65	0.65	0.65	0.75	0.75	0.75	6.97
	1.1.5 Support PPP-based land development activities for seed multiplication (private + community out-growers) (3000 Ha for 3 years@1000/Ha)	3.96	1.98	1.98	1.98	1.98	1.98	0.00	0.00	0.00	0.00	13.86
	1.1.6 Timely planting of seeds to achieve optimal growth and yield	0.10	0.20	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
Subtotal – Activity 1.1		8.79	14.24	14.81	10.91	3.38	2.84	0.85	0.96	0.98	0.98	58.74
1.2 Integrated Input Distribution Networks & Paddy production	1.2.1 Develop & incentivize last-mile agro-dealer networks	0.63	1.20	1.05	1.05	0.66	0.23	0.18	0.18	0.18	0.18	5.49
	1.2.2 Establish demonstration plots across 5 production clusters (each at 5 Hectares)	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.11

	1.2.3 Best harvesting practices to ensure maximum yield and quality	1.50	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.54
	1.2.4 Introduce digital ordering and tracking platforms	0.02	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.15
	1.2.5 Develop 70,000 ha of lowland rice in five years	66.00	33.00	33.00	33.00	33.00	33.00	0.00	0.00	0.00	0.00	231.00
Subtotal – Activity 1.2		68.15	34.26	34.07	34.07	33.68	33.25	0.20	0.20	0.20	0.20	238.28
1.3 Industrial Processing and Modern Milling Optimization	1.3.1 Perform feasibility and mill diagnostics (conduct national mill mapping)	0.03	0.20	0.25	0.25	0.30	0.00	0.00	0.00	0.00	0.00	1.03
	1.3.2 Leverage existing mills & update productive clusters	0.02	0.02	0.50	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.84
	1.3.3 Set-Up last mile MSME threshing and parboiling clusters	0.20	0.21	0.47	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.58
	1.3.4 Upgrade/construct 5 industrial mills and equipped them with specialized processing equipment	0.15	2.00	5.00	7.50	3.45	0.00	0.00	0.00	0.00	0.00	18.10
	1.3.5 Energy cost Reduction & Efficiency through introduction of solar-hybrid upgrades	0.20	1.00	1.00	1.00	0.20	0.20	0.20	0.00	0.00	0.00	3.80
Subtotal – Activity 1.3		0.60	3.43	7.22	9.15	4.05	0.30	0.30	0.10	0.10	0.10	25.35
1.4 Quality Assurance in seed and paddy production	1.4.1 Develop quality milling systems and standardized procedures	0.00	0.20	0.05	0.08	0.18	0.28	0.15	0.15	0.15	0.20	1.43
	1.4.2 Develop systems and hire Seed Inspectors to regularly inspect/monitor field productivity	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	4.50
Subtotal – Activity 1.4		0.45	0.65	0.50	0.53	0.63	0.73	0.60	0.60	0.60	0.65	5.93
TOTAL – Investment Area 1		77.99	52.58	56.60	54.66	41.74	37.11	1.95	1.86	1.88	1.93	328.30

Investment Area 2: Financial Inclusion & Blended Capital Facility												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
2.1 Conduct a Feasibility Study for establish of AEDB	2.1.1 Assess the viability for the establishment of AEDB operations	0.25	0	0	0	0	0	0	0		0	0.25
	2.1.2 Propose actions to resolve challenges to agriculture lending in Liberia's rice sector.	0.05	0	0	0	0	0	0	0		0	0.05
Subtotal – Activity 2.1		0.3	0	0	0	0	0	0	0	0	0	0.3
2.2 innovative blended capital required	2.2.1 De-risk lending to aggregators, millers and input	1	2.5	2.5	2.4	1.8	1.15	1	0.55	0.29	0.26	13.45
	2.2.2 Provide innovative funds such as matching grants, catalytic grants	0.15	2.75	3	2.75	1	0	0	0	0	0	9.65
	2.2.3 Establish revolving liquidity facility for aggregation and processing activities	0.5	40	3.75	1.5	0.85	0.5	0.5	0.25	0	0	47.85
	2.2.4 Support acquisition of irrigation kits, CSA tools, and small equipment	0.9	4.2	4.2	4.2	3.2	1.7	1	0.05	0.05	0	19.5
Subtotal – Activity 2.2		2.55	49.45	13.45	10.85	6.85	3.35	2.5	0.85	0.34	0.26	90.45
TOTAL – Investment Area (Action 2)		2.85	49.45	13.45	10.85	6.85	3.35	2.5	0.85	0.34	0.26	90.75

Investment Area 2: Financial Inclusion & Blended Capital Facility												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
2.1 Conduct a Feasibility Study for establish of AEDB	2.1.1 Assess the viability for the establishment of AEDB operations	0.3	0	0	0	0	0	0	0		0	0.3
	2.1.2 Propose actions to resolve challenges to agriculture lending in Liberia's rice sector.	0	40	0	0	0	0	0	0		0	40
Subtotal – Activity 2.1		0.3	40	0	0	0	0	0	0	0	0	40.3
2.2 Raise innovative blended capital required	2.2.1 De-risk lending to aggregators, millers and input	1	2.5	2.5	2.4	1.8	1.15	1	0.55	0.29	0.26	13.45
	2.2.2 Provide innovative funds such as matching grants, catalytic grants	0.15	2.75	3	2.75	1	0	0	0	0	0	9.65
	2.2.3 Establish revolving liquidity facility for aggregation and processing activities	0.5	1.75	2	1.5	0.85	0.5	0.5	0.25	0	0	7.85
	2.2.4 Support acquisition of irrigation kits, CSA tools, and small equipment	0.9	4.2	4.2	4.2	3.2	1.7	1	0.05	0.05	0	19.5
Subtotal – Activity 2.2		2.55	11.2	11.7	10.85	6.85	3.35	2.5	0.85	0.34	0.26	50.45
TOTAL – Investment Area (Action 2)		2.85	51.2	11.7	10.85	6.85	3.35	2.5	0.85	0.34	0.26	90.75

Investment Area 3: Mechanization Hub and Service Centers												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
3.1 Establish required Infrastructure for the Mechanization hubs & Services Centers	3.1.1 Conduct feasibility study and plan the design of the mechanization hub, ensuring private and public sector inputs	0.05	0.05	0	0	0	0	0	0		0	0.1
	3.1.2 Select site & complete Infrastructure design and Construction for 5 mechanizations hubs	0.05	0.05	0	0	0	0	0	0	0	0	0.1
Subtotal – Activity 3.1		0.1	0.1	0	0	0	0	0	0	0	0	0.2
3.2 Procurement of Specialized Machinery and Equipment	3.2.1 Procure and deploy 200+ tractors, power tillers, and harvesters (lowland-adapted), as well as spare parts	0.75	2.00	2.00	0.75	0.75	0.75	0.75	0.75	0.75	0.75	10
	3.2.2 Deploy machineries and equipment through private sector-Led service providers (PSLSP model)	0.015	0.04	0.04	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.2
	3.2.3 Set up and launch the operation of the hub	0	0	0.1	0	0	0	0	0	0	0	0.1
Subtotal – Activity 3.2		0.765	2.04	2.14	0.765	0.765	0.765	0.765	0.765	0.765	0.765	10.3
3.3 Training and Capacity Building	3.3.1 Hire youths and women to operate and maintain machineries	0.3	0.3	0.45	0.45	0.45	0.6	0.6	0.6	0.6	0.6	4.95
	3.3.2 Provide training and capacity building skills for operators, mechanics and services providers.	0.01	0.5	0.5	0.3	0.3	0.2	0.1	0.05	0.05	0.05	2.06
	3.2.3 Develop spare parts and servicing networks	0.05	0.15	0.15	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.85
Subtotal – Activity 3.3		0.36	0.95	1.1	0.95	0.8	0.85	0.75	0.7	0.7	0.7	7.86

3.4 Technology Transfer	3.4.1 Develop partnership with 2 research stations/institutions and private companies to engage in knowledge sharing initiatives.	0	0	0.05	0.07	0.08	0.08	0.09	0.09	0.1	0.1	0.66
	3.4.2 Develop Curricular and teaching materials focusing on operation of the hub	0	0.05	0.15	0	0	0	0	0	0	0.03	0.23
	3.4.3 Continuous knowledge sharing initiatives such as demonstration, field days, etc	0	0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.08
Subtotal – Activity 3.4		0	0.05	0.21	0.08	0.09	0.09	0.1	0.1	0.11	0.14	0.97
3.5 Market Linkage and value addition Intervention	3.5.1 Map out nearby processors and create connections between producer and processors	0	0.02	0.15	0	0	0	0	0	0	0	0.17
	3.5.2 Establish Aggregation centers at the hub to ease access to market for producers and raw material to processors	0	0	2	3	0	0	0	0	0	0	5
Subtotal – Activity 3.5		0	0.02	2.15	3	0	0	0	0	0	0	5.17
3.6 Monitoring and Evaluation	3.6.1 Establish an AI-powered digitize collection system that is synchronized with centralized databased.	0.22	0.35	0.35	0.155	0.155	0.155	0.155	0.25	0.25	0.25	2.29
	3.6.2 Provide regular training to local operators on data collection, entry and use methods, strategies and policies	0.05	0.2	0.2	0.075	0.075	0.075	0.075	0.08	0.08	0.08	0.99
	3.6.3 Conduct bi-annual M & E visits to mechanization hubs	0	0.025	0.025	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.155
Subtotal – Activity 3.6		0.27	0.575	0.575	0.245	0.245	0.245	0.245	0.345	0.345	0.345	3.435
TOTAL – Investment Area (Action 3)		1.495	3.735	6.175	5.04	1.9	1.95	1.86	1.91	1.92	1.95	27.935

Investment Area 4: Applied Research, Technology & Innovation												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
4.1 Institutional Strengthening	4.1.1 Assess current status ID gaps and plan for corrections or improvement	0.02	0.05	0	0	0	0	0	0		0	0.07
	4.1.2 Construct/renovate Infrastructure into a modern solarize seed laboratory.	0	0	0.01	0.01	0.01	0.5	0.5	0.01	0.01	0.01	1.06
	4.1.3 Equip Laboratory with modern equipment to conduct viability, germination, purity, and seed health	0	0	0	0	0.03	0.03	0.01	0	0	0	0.07
	4.1.4 Provide training to researchers and junior scientist in best practices and operational efficiency, based on needs.	0	0.05	0	0.05	0	0.05	0	0.05	0	0.05	0.25
Subtotal – Activity 4.1		0.02	0.1	0.01	0.06	0.04	0.58	0.51	0.06	0.01	0.06	1.45
4.2 Provide Extension Services Delivery	4.2.1 Deploy innovative strategies such as an AI-enabled advisory platforms / SMS-messaging to provide useful information about weather, GAP, pest alerts, among others	0	0	1.5	0.6	0.6	0.6	0.375	0.375	0.375	0.375	4.8
	4.2.2 Reach 100,000+ farmers via mobile platforms	0	0	0.005	0.005	0.005	0.015	0.015	0.015	0.02	0.02	0.1
Subtotal – Activity 4.2		0	0	1.505	0.605	0.605	0.615	0.39	0.39	0.395	0.395	4.9
TOTAL – Investment Area (Action 4)		0.02	0.1	1.515	0.665	0.645	1.195	0.9	0.45	0.405	0.455	6.35

Investment Area 5: Storage Facilities & Efficient Logistics												
ACTIVITIES		INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
5.1 Strategic Warehouse Construction	5.1.1 Conduct feasibility to determine appropriate location for storage facilities in 3 regions (based on production level, access and within specific cluster) (SEED4LIBERIA)	0.2	0	0	0	0	0	0	0	0	0	0.2
	5.1.2 Construct warehouses in 3 rice producing regions of Liberia	0	1.5	0	0	0	0	0	0	0	0	1.5
	5.1.3 Equipped warehouses with clean renewable energy storage solutions (solar energy) (RETRAP)	0	0.45	0	0	0	0	0	0	0	0	0.45
Subtotal – Activity 5.1		0.2	1.95	0	0	0	0	0	0	0	0	2.15
5.2 Install Cooling and Ventilation system at storage facility	5.2.1 Plan and design cooling and ventilation system at the storage facilities	0.1	0	0	0	0	0	0	0	0	0	0.1
	5.2.2 Install cooling and ventilation systems, with electrical and automated controls	0	1.05	0	0	0	0	0	0	0	0	1.05
	5.2.3 Test and commission the systems	0	0.05	0	0	0	0	0	0	0	0	0.05
Subtotal – Activity 5.2		0.1	1.1	0	0	0	0	0	0	0	0	1.2
5.3 Enhance Logistics for effective operation of the facility	5.3.1 Determine vehicle need based on operational scale of the facility	0.01	0	0	0	0	0	0	0	0	0	0.01
	5.3.2 Procure and supply vehicle for aggregation and market purposes (3 Vehicle/storage facility)	0	0.3	0	0	0	0	0	0	0	0	0.3
Subtotal – Activity 5.3		0.01	0.3	0	0	0	0	0	0	0	0	0.31
5.4 Training & Capacity building	5.4.1 Conduct capacity need assessment for operators to determine their capabilities to utilized storage facilities and systems.	0	0.01	0	0.005	0	0.005	0	0.005	0	0.005	0.03

5.4.2 Train operators to use system and operate facility at its full capacity.	0	0	0.09	0	0.09	0	0.09	0	0.09	0	0.36
Subtotal – Activity 5.4	0	0.01	0.09	0.005	0.09	0.005	0.09	0.005	0.09	0.005	0.39
TOTAL – Investment Area (Action 5)	0.31	3.36	0.09	0.005	0.09	0.005	0.09	0.005	0.09	0.005	4.05

Investment Area 6: Lowland Irrigation Infrastructure & Water Control												
ACTIVITIES	ACTIONS	INDICATIVE COST (US\$ bn)										TOTAL (US\$ mil)
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
6.1 Innovative Schemes	6.1.1 Assess current irrigation infrastructure in productive cluster across the country.	0.05	0	0	0	0	0	0	0		0	0.05
	6.1.2 Develop designs, GIS maps and diagrams for intervention in existing and newly proposed site, with full participation of intended user groups, specifically private sector-led groups	0	0.09	0	0	0	0	0	0	0	0	0.09
Subtotal – Activity 6.1		0.05	0.09	0	0	0	0	0	0	0	0	0.14
6.2 Establish irrigation Systems and enhance water use	6.2.1 Develop drainage, canal systems, solar pumps, boreholes, and gravity-fed systems across 73,000+ hectares	10.6	5.3	5.3	5.3	5.3	5.3	0	0	0	0	37.1
	6.2.2 Implement flood control and water retention systems	0.013	0.006	0.006	0.006	0.006	0.006	0.00	0.00	0.00	0.00	0.04
	6.2.3 Establish water user groups for large irrigation facilities (eg. Dams) and train farmers on irrigation management and scheduling (app. 100 groups)	0.4	0.2	0.2	0.2	0.2	0.2	0	0	0	0	1.4

Subtotal – Activity 6.2		11.01 272	5.50 636	5.506 36	5.506 36	5.506 36	5.506 36	0	0	0	0	38.54452
6.3 Institute monitoring and evaluation mechanisms	6.3.1 Introduce tracking and reporting system to collect data on water use and impact	0.22	0.35	0.35	0.16	0.16	0.16	0.16	0.25	0.25	0.25	2.31
Subtotal – Activity 6.3		0.22	0.35	0.35	0.16	0.16	0.16	0.16	0.25	0.25	0.25	2.31
TOTAL – Investment Area (Action 6)		11.28 272	5.94 636	5.856 36	5.666 36	5.666 36	5.666 36	0.16	0.25	0.25	0.25	40.99452