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The World Bank

IMPLEMENTATION COMPLETION AND RESULTS REPORT OF COMPONENT 2

ON A

LOAN

IN THE AMOUNT OF USD 125 MILLION

TO THE

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

FOR THE

SRI LANKA AGRICULTURE SECTOR MODERNIZATION

PROJECT (ASMP)

December 05, 2024

ABBREVIATIONS

ADTP	Agriculture Technology Demonstration Parks
AI	Agriculture Instructors
ASMP	Agriculture Sector Modernization Project
BOT	Built Operate and Transfer
CBSL	Central Bank of Sri Lanka
CCPI	Colombo Consumer Price Index
CERC	Contingent Emergency Response Component
CPCC	Central Project Coordination Committee
CPS	Country Partnership Strategy
DAD	Department of Agrarian Development
DCS.	Department of Census and Statistics
DO	Development Officer
DOA	Department of Agriculture
DPMM	Department of Project Management and Monitoring
EAMF	Environmental Assessment and Management Framework
EMP	Environmental Management Plans
EPL	Environmental Protection License
ERD	External Resources Department
ESMPs	Environmental and Social Management Plans
EU	European Union
GDP	Gross Domestic Product
GPS	Global Positioning System
GRM	Grievance Redress Mechanism
IDA	International Development Association
IEEs	Initial Environmental Examination
IPM	Integrated Pest Management
ISP	International Service Provider
LKR	Sri Lankan Rupee
M&E	Monitoring and Evaluation
MG	Matching Grant
MGM	Matching Grant Management
MOA	Ministry of Agriculture
MOF	Ministry of Finance
MOPI	Ministry of Primary Industries
MOUs	Memorandums of Understanding
NCP	North Central Province
NCPI	National Consumer Price Index
NEDA	National Enterprise Development Authority
NPD	National Planning Department
NPV	Net Present Value
PCG	Partial Credit Grant
PCPC	Project Consultancy Procurement Committee
PD	Project Director
PDOA	Provincial Departments of Agriculture
PHPPC	Post-harvest Processing and Packaging Centers
PMU	Project Management Unit
PPC	Project Procurement Committee
PPMU	Provincial Project Management Unit

PUC	Public Unlisted Companies
RC	Review Committee
RDD	Regional Development Department
RF	Results framework
RPF	Resettlement Policy Framework
SOPs	Standard Operating Procedures
TEC	Technical Evaluation Committee
TOT	Training of Trainers
TRG	Technical Review Group
VC	Value chain
VoA	Vote on Account

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Section 01

1 PROJECT CONTEXT, DEVELOPMENT OBJECTIVES AND DESIGN

1.1 Country's Macroeconomic context at Appraisal

1. The project concept, initial groundwork, and discussions unfolded over the course of both 2015 and 2016. Considering the publication of the project appraisal document in 2016, evaluating both years provides a holistic view of the project's evolution and context.

2. During the appraisal, Sri Lanka, a nation covering an area of 65,610 square kilometers and classified as a lower-middle income country, with a mid-year population of 20.9 million experiencing a growth rate of 0.9 percent, exhibited an average per capita Gross Domestic Production of USD 3,924 in the year 2015[1]. The labor force encompassed 8.9 million individuals, indicating a labor force participation rate of 53.8 percent. The unemployment rate, measured as a proportion of the labor force, was recorded at 4.6 percent. These demographic indicators offer insight into the population trends, labor force dynamics, and employment landscape of the country during the year 2015.

3. In 2015, Sri Lanka experienced a real economic growth rate of 4.8 percent, marginally lower than the 4.9 percent recorded in 2014. The expansion of the export sector was impeded by reduced demand from traditional markets and short-term capital outflows. Nevertheless, the adverse effects were partially offset by declining international commodity prices. Subsequently, amidst a period of uncertainty, the Sri Lankan economy exhibited initial signs of stabilization in 2016, attributable to corrective measures implemented by the government and the Central Bank. Adverse weather conditions and a sluggish global economic recovery contributed to a moderated growth rate of 4.4 percent in real terms in 2016[2], compared to 4.8 percent in the preceding year, notwithstanding a consistent upturn in quarterly growth observed from the second quarter onwards amidst tightened fiscal and monetary policies.

4. During the assessment period, the GDP at current market prices was estimated at USD 81.3 billion in 2016, slightly higher than the USD 80.6 billion recorded in 2015. Consequently, there was an 8.1 percent nominal GDP growth in 2016, compared to a 5.7 percent growth in 2015. This increase was primarily due to the rise in the GDP implicit deflator, which increased to 3.6 percent in 2016 from 0.8 percent in 2015. However, the per capita GDP in US dollar terms saw a slight decrease to USD 3,835 in 2016 from USD 3,843 in 2015, mainly because of the depreciation of the domestic currency against the US dollar.

5. In 2015, inflation, as measured by the Colombo Consumers' Price Index, briefly exhibited a negative trend in the fourth quarter owing to subdued commodity prices but concluded the year at 2.8 percent. However, in 2016, inflation, which remained subdued during the initial four months of the year, escalated thereafter, resulting in an annual average of 4.0 percent in 2016 (based on both the National Consumer Price Index (NCPI, 2013=100) and the Colombo Consumer Price Index (CCPI, 2013=100)). The elevated levels of inflation witnessed during certain months in 2016 were primarily attributable to the adverse effects of weather-related disruptions, tax adjustments, and the escalating prices of international commodities. Nonetheless, the mounting demand pressures within the economy were evident in the core inflation persisting at elevated levels.

[1] Central Bank of Sri Lanka. (2015). Annual Report 2015. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2015/en/3_KEI.pdf

[2] Central Bank of Sri Lanka. (2016). Annual Report 2016. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2016/en/3_KEI.pdf

6. However, in 2015, there was an increase in domestic consumption, particularly notable among public sector workers, which led to growth in agriculture and services-related activities by 5.5 percent and 5.3 percent, respectively, while industry-related activities experienced a growth of 3.0 percent. In contrast, in 2016, heightened investment expenditure, notably in the construction sector, propelled economic growth for the year, while consumption expenditure decelerated in response to prevailing policy conditions. Moreover, in 2016, according to production side estimates, growth was primarily steered by the expansion in industry and services-related activities. Services related activities, which constitute 56.5 per cent of real GDP, grew by 4.2 per cent in 2016, Industry related activities, which account for 26.8 per cent of real GDP, recorded a notable growth of 6.7 per cent, while Agriculture, Forestry and Fishing related activities contracted by 4.2 per cent in 2016, resulting in a reduction in their share in real GDP to 7.1 per cent due to Unfavourable weather conditions that prevailed during the year.

7. According to expenditure approach estimates, the growth in real GDP in 2015 was predominantly fueled by an upsurge in consumption demand, while investment activities contributed modestly. Notably, public sector consumption expenditure exhibited a notable increase, largely driven by the augmentation of salaries and wages for public sector employees in 2015. Concurrently, private consumption expenditure experienced growth, primarily attributed to the prevailing low interest rate environment and augmented real wages. In contrast, economic expansion in 2016 was principally propelled by the surge in investment expenditure throughout the year. The notable growth in investment primarily stemmed from the expansion witnessed in construction activities during the same period. Meanwhile, consumption expenditure, the largest expenditure category in the economy, exhibited a restrained growth of 4.1 percent in nominal terms, marking a significant deceleration compared to the 10.3 percent growth recorded in the preceding year. The deceleration in consumption was primarily influenced by the moderation in private sector consumption expenditure due to tightened monetary and fiscal policies. Additionally, public sector consumption expenditure also experienced moderation in 2016, aligned with ongoing fiscal consolidation efforts.

8. In 2015, domestic savings exhibited a decline to 22.6 percent of GDP, down from 24.0 percent of GDP in 2014. This decline was attributed to an increase in government dissaving, stemming from lower-than-anticipated government revenue and an overspend in recurrent expenditure during the period. However, in 2016, amidst various developments, domestic savings saw an improvement, rising to 23.8 percent of nominal GDP. This improvement was driven by enhancements in both private sector savings and government dissaving throughout the year. Consequently, national savings, measured as a percentage of nominal GDP, saw an improvement to 28.9 percent in 2016, compared to 26.0 percent in 2015.

9. In 2015, the number of employed individuals experienced a 1.5 percent increase, reaching 8.554 million compared to 8.424 million in the preceding year[3]. This upturn was primarily observed in the Agriculture and Services sectors, facilitated by the expansion of activities within these domains. The proportion of employed individuals in the Agriculture sector decreased from 28.5 percent in 2014 to 28.2 percent in 2015. Employment opportunities in the Private sector, as well as in the Employer and Self-employed categories, witnessed an increase, whereas they declined in the Public sector and Contributing Family Worker categories in 2015 compared to the previous year. The rise in private sector employment was solely attributable to an increase in employment within Agriculture-related activities. However, in

[3] Central Bank of Sri Lanka. (2015). Annual Report 2015. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2015/en/8_Chapter_04.pdf

2016, employment in the Agriculture sector dwindled to 27.1 percent due to a contraction in agriculture-related activities prompted by unfavorable weather conditions.

10. In 2016, the government initiated various programs to bolster agricultural growth and productivity. These include the national food production plan for 2016-2018, which aims to achieve self-sufficiency in key crops, enhance productivity, ensure fair prices, facilitate market access, mechanize farming, reduce post-harvest losses, strengthen supply chains, expand cultivation, promote high-yielding seeds, and improve farming practices. Additionally, a three-year program called "A Wholesome Agriculture - A Healthy Population - A Toxin-Free Nation" was launched to discourage the use of harmful agrochemicals and reintroduce traditional rice varieties.

1.2 Sectoral Context at Appraisal

11. The agricultural sector in Sri Lanka exhibits a dualistic economy, comprising two distinct sub-sectors: the non-plantation or domestic food crop sub-sector and the plantation sub-sector. The non-plantation sector encompasses a wide range of crops such rice, maize, fruits, vegetables and other crops that are primarily grown on smallholder farms, covering 76% of cultivable land. Approximately 1.65 million smallholder farmers, each managing an average of less than 2 hectares of land, collectively contribute 80 percent of the total annual food production. Additionally, traditional commercial crops, such as cinnamon, pepper, cocoa, and coffee, designated for export agriculture, are cultivated on both small and medium-sized land holdings. In contrast, the plantation sector focuses on tea, rubber, and coconut, occupying 24% of agricultural land. Generally, non-plantation crops are cultivated under irrigated conditions, whereas plantation and export agriculture crops are cultivated in rain-fed regions. The agricultural seasons and irrigation practices are influenced by monsoonal rainfall patterns. Approximately two thirds of the agricultural land is situated in the dry zone, encompassing the northern, eastern, and southeastern regions of the country, where the majority of the nation's irrigation infrastructure is concentrated.

12. With agriculture contributing approximately 7.5 % to GDP (Annual report, CBSL, 2022), 34% agricultural sector land use, and employing about 26.5% of the labor force, it holds a pivotal position in Sri Lanka's economy. The majority of rural residents, accounting for eight in ten Sri Lankans, derive a significant portion of their income from agriculture, underscoring its crucial role in enhancing livelihoods, both directly and indirectly.

13. In the context of the year 2015, Agriculture activities, constituting 7.9 percent of GDP, exhibited a growth of 5.5 percent. This expansion primarily stemmed from significant growth in the cultivation of rice (23.3 percent) and vegetables (24.9 percent), juxtaposed with contractions in fishing (-2.7 percent), rubber cultivation (-10.1 percent), and tea cultivation (-2.6 percent)[4].

14. Value addition from several key subsectors, such as coconut (a growth of 5.1 percent), fruits (a growth of 16.5 percent), and vegetables (a growth of 24.9 percent), experienced an increase in 2015 compared to the previous year, attributed to favorable weather conditions. However, the cultivation of tea witnessed a decline of 2.6 percent, influenced by supply-side factors and demand conditions, including reduced demand from major export destinations. Similarly, rubber cultivation also saw a decline of 10.1 percent, partly due to the deceleration

[4] Central Bank of Sri Lanka. (2015). Annual Report 2015. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2015/en/6_Chapter_02.pdf

of tapping operations by smallholders in response to declining global rubber prices. Conversely, animal production activities expanded in 2015, notably in milk production, driven by favorable producer prices for raw milk and enhanced capacity of milk processing facilities. Nonetheless, value addition from the fisheries sector contracted due to reduced production from both inland and marine fishing activities in 2015 (CBSL Annual Report, 2016).

15. The value addition in Agriculture, Forestry, and Fishing related activities experienced an overall decline of 4.2 percent in 2016 compared to the growth of 4.8 percent observed in the previous year[5]. Consequently, the GDP share of this sector decreased further to 7.1 percent in 2016 from 7.8 percent in 2015. The contraction in the sector was primarily attributable to adverse weather patterns experienced during the year.

16. Notably, the production of paddy (-8.3 percent), tea (-11.0 percent), rubber (-10.7 percent), and coconut (-1.5 percent) were severely impacted during the year. The prolonged drought in tea-growing areas during early 2016, changes in weather patterns with overcast conditions in mid-2016, and severe drought conditions in late 2016 had adverse effects on tea production. Rubber production plummeted to its lowest volume reported in the past 50 years, with a decline in both the extent under tapping and the number of tapping days in response to low international prices for natural rubber, owing to subdued petroleum prices. Coconut production witnessed a marginal dip during the year, with high domestic prices observed due to increased demand from coconut-based industries and high export prices. Conversely, vegetable production saw an increase primarily due to an expansion in the extent cultivated, as adverse weather conditions prompted a shift from other food crops to vegetable growing during the year.

17. In 2015, the government implemented several measures aimed at boosting output in the Agriculture sector. These measures included subsidy programs designed to promote replanting and new planting in the tea, rubber, and coconut sectors, with the goal of enhancing productivity within these industries. Efforts were also undertaken to meet the requirements stipulated by the European Union (EU) to lift the ban on fish exports from Sri Lanka to the EU, which had a notable impact on the country's overall fisheries exports in 2015 and was implemented in June 2016.

18. Meanwhile, in an effort to reduce the use of highly toxic agrochemicals in the agricultural sector, a three-year national program (CBSL Annual Report, 2017) was initiated in early March 2016, operating under the theme "A Wholesome Agriculture - A Healthy Populace - A Toxin-Free Nation." Additionally, there have been proposals to establish 23 Agricultural Development Mega Zones with the aim of enhancing the global competitiveness of Sri Lanka's agricultural products. Aligned with the Western Region Mega polis Master Plan, 13 planning areas have been identified, including a Plantation City and a Forest City. The national food production program for the period 2016-2018 is focused on several objectives. These include achieving self-sufficiency in selected crops such as cereals like rice, implementing measures to enhance productivity, ensuring fair prices for farmers, facilitating access to competitive markets both domestically and internationally, promoting farm mechanization, minimizing post-harvest losses, strengthening the supply chain, expanding cultivated land, promoting the use of high-yielding seeds, and introducing improved farm management practices.

19. The Agriculture Sector Modernization Project (ASMP) in the Democratic Socialist Republic of Sri Lanka stands as a pivotal initiative to uplift the agriculture sector. The project's

[5] Central Bank of Sri Lanka. (2016). Annual Report 2016. Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2016/en/6_Chapter_02.pdf

concept, reflecting the visionary insights of the Director General of Agriculture at that time, incorporated lessons learned from the agriculture sector's experiences leading up to 2016, particularly concerning technology development. The conceptualization was transformed into a proposal and secured the support from the International Development Association (IDA) of the World Bank. It was subsequently approved on June 29, 2016, with credit support amounting to USD125.00 million. This project is strategically designed to usher in a new era of development and progress in Sri Lanka's agriculture sector. The estimated cost of the project was USD 169.84 million. In addition to the IDA financing, the European Union (EU) has committed grant co-financing of EUR 25 million (equivalent to approximately USD 26.5 million) and the grant was received in the year of 2021. The project aligned with the broader goals outlined in the Country Partnership Strategy (CPS) 2013-2016 and anticipates further synergy with the proposed CPS 2017-2020.

20. At its core, the ASMP seeks to address critical challenges and opportunities within Sri Lanka's agricultural landscape. By focusing on key pillars identified in the CPS, namely "Supporting structural shifts in the economy" and "Improved living standards and social inclusion," the project aims to bring about transformative changes in the sector.

1.3 Higher Level Objectives of the Project

21. The proposed agriculture sector project in Sri Lanka aligns with the Country Partnership Strategy (CPS) of 2013-2016, focusing on structural shifts in the economy and improving living standards. It aimed to enhance agricultural productivity, competitiveness, and market access while promoting rural livelihoods and employment opportunities. By improving flood and drought management through climate-smart agriculture, the project seeks to bolster resilience to climate-related challenges. Aligned with the proposed CPS for 2017-2020, the project aimed to diversify the agriculture sector, increase value addition, and enhance competitiveness. It responds to the government's National Program for Food Production 2016-2018, which prioritized increasing agricultural production and productivity while reducing dependency on food imports. The project marks the World Bank's reengagement in Sri Lanka's agriculture sector, emphasizing inclusivity and empowerment of poor farmers, including women. It focused on agriculture diversification, technology improvement, value-chain development, and income generation.

1.4 Project Development Objectives (PDO)

22. The specific development objective of the ASMP is to increase agriculture productivity, improve market access, and enhance value addition of smallholder farmers and agribusiness in the project areas.

1.4.1 *PDO Level Results Indicators*

23. The achievement of the PDO has been measured in the indicator tracking surveys using the following results indicators:

Table 1.1 PDO Level Results Indicators:

Project Development Objective Indicators (Project Level)
Direct project beneficiaries (Number) (Core)
Female beneficiaries (Number - Supplemental) - (Core)
Clients who have adopted an improved agriculture technology promoted by the project – (Productivity Indicator); (Number) - (Core)
Clients who adopted an improved agriculture technology promoted by the project –female (Productivity Indicator) (Number) - (Core)
Increase in average value of sales of agriculture products due to project interventions (Market Access Indicator) (Percentage)
New Jobs generated through investments in agriculture SMEs under the project (Value addition Indicator) (Number; gender disaggregated)
Intermediate Results Indicators (Component Level)
Number of Matching Grants approved (Small Window). (Number)
Number of Matching Grants approved (Large Window). (Number)
Share of project-supported famer producer organizations and agribusiness partnerships making profit (Percentage)
Share of project-supported women-led famer producer organizations and agribusiness partnerships making profit (Percent)
Share of Matching Grant recipients operating based on updated business plans (Percentage)
Targeted clients satisfied with agricultural services (Percentage) - (Core)
Targeted clients satisfied with agricultural services - female (Number) - (Core)
Client days of training provided (Number) (Core)
Client days of training provided – female (Number) (Core)
Share of beneficiaries reporting improved access to markets (Percentage)
Number of new farmer organizations registered (Number)
Number of Technology Parks completed and handed over. (Number)
Research Papers completed and delivered to the CPCC (Number)
Policy Notes prepared and published (Number)
Training in project management taken by project staff at all levels (Person times – cumulative) (Number)

However, due to later stage changes made to the Results Framework indicators, the achievement of the PDO has been measured in the indicator tracking surveys using the following results indicators;

Table 1.2 PDO Level Results Indicators (updated)

Project Development Objective Indicators (Project Level)
Direct project beneficiaries (Number) (Core)
Female beneficiaries (Number - Supplemental) - (Core)
Clients who have adopted an improved agriculture technology promoted by the project – (Productivity Indicator); (Number) - (Core)
Clients who adopted an improved agriculture technology promoted by the project –female (Productivity Indicator) (Number) - (Core)
Increase in average value of sales of agriculture products due to project interventions (Market Access Indicator) (Percentage)
New Jobs generated through investments in agriculture SMEs under the project (Value addition Indicator) (Number; gender disaggregated)
New Jobs generated through investments in agribusiness organizations under the project (Value addition Indicator) (Number; Female)
Component 1: Agriculture Value Chain Development
Number of Small and Cluster Matching Grants Approved (Window A) (Number) of which… Number of Small SME Grants Approved (Window A) (Number) Number of Cluster Grants Approved (Window A) (Number)
Number of Large Matching Grants approved (Window B). (Number)
Share of project-supported famer producer organizations and agribusiness partnerships making profit (Percentage)
Share of project-supported women-led famer producer organizations and agribusiness partnerships making profit (Percent)
Share of Matching Grant recipients operating based on updated business plans (Percentage)
Share of Matching Grant Recipients reporting improved access to markets (Percentage)
Component 2: Productivity Enhancement Diversification and Demonstration
Targeted clients satisfied with agricultural services (Percentage) - (Core)
Targeted clients satisfied with agricultural services - female (Number) - (Core)
Client days of training provided under Components 1 and 2 (Number) – (Core)
Client days of training provided – female under Components 1 and 2 (Number)– (Core)
Share of farmer Producer organizations functional (Percentage)
Number of new farmer producer organizations registered (Number)
Clusters completed in accordance with the Cluster Development Plan (No.)
Number of research reports and policy notes completed (Number)
Commercial partnerships or market contracts signed between producer groups (supported by the Project) and domestic/international agribusiness actors (processors, wholesalers, retailers, exporters, etc.) for selected value chains (Number)
Farmers adopting improved agricultural technology (CRI, Number)
Farmers adopting improved agricultural technology (CRI, Number) Female
Farmers adopting improved agricultural technology (CRI, Number) – Male

Project Development Objective Indicators (Project Level)
Area provided with new/improved irrigation or drainage services. (CRI, ha)
Area provided with new irrigation or drainage services. (CRI, ha)
Area provided with improved irrigation or drainage services. (CRI, ha)
Km of roads constructed and rehabilitated under the project. (kilometers)
Component 3. Project Management and M&E
Training taken by project staff at all levels (training days Cumulative)

1.5 Key Expected Outcomes and Outcome Indicators

24. *Economic and Financial:* The project's development impact was expected to be: increased smallholder returns from agriculture through improved productivity for selected field crops, higher agricultural output through converting conventional farmers from traditional crops to high-value crops, increased value addition, and new market opportunities, fostering increased incomes and employment opportunities. These benefits were anticipated to result from: (a) the adoption of new production technology packages; (b) improved water and soil resource management; (c) improved product processing, packaging, and marketing; (d) improved product quality and reduced post-harvest losses; (e) better access to services, markets, and information; (f) better market differentiation through product certification, brand naming, etc.; and (g) advantages from economies of scale. Indirect benefits were expected to include: (a) strengthened capacity and the organizational level of producers and marketing groups, including strengthened capacity of female farmer entrepreneurs; (b) improved quality and reduced costs of forward and backward linkages of farmers to markets and higher-up value chain operators; (c) increased awareness of technology, climate-smart agriculture, and resources management; (d) new models of small producers and private sector enterprises working together; (e) improved nutrition through diversification of agriculture away from rice and increased production of nutrient-rich products, particularly fruits and vegetables; and (f) improved institutional capacity of key ministries and government agencies to review and formulate sector policy.

25. *Technical:* The project design was built on the concept of agricultural value chain development based on partnerships between the public and private sectors. This concept had proven technically successful and was implemented widely in similar projects across the Bank's portfolio supporting agricultural sector modernization. The approach to supporting entire agricultural value chains was a successful development tool to generate agricultural growth by adding value and solving growth-restricting bottlenecks along the chain of actors from the farmer to the national or international consumer. The project had taken into account that this vertical integration could not function in isolation, and an important aspect of the value chain approach was that it also considered horizontal integration elements in the chain, such as developing the business and commercial attitude of farmers through business training; organizing farmers in groups for joint action and joint production along agreed standards and quality criteria, decision-making, and responsibility; providing and accessing finance for investments; introducing renewable energy for agriculture and processing agro-products; using information technology for sharing information and knowledge; and the general enabling policy and business environment. The matching grants program proposed under the project was

based on good practices and lessons learned from programs in other regions and countries funded by the World Bank and other donors to support farmer producer organizations, rural businesses, and entrepreneurs; introduce innovative partnership and market linkage arrangements; and contribute to increased competitiveness and commercialization of smallholder farmers. The support and capacity building to farmer producer organizations built on an existing program of building farmer companies implemented under MOA. This program provided the basis for identifying capacity-building and other priority needs for farmer producer organizations (farmer companies). Furthermore, the teaching of farm business enterprise management and supporting farmers through upgrading and improving technical and operational processes to meet market requirements (quality, standards) contributed to improving the performance of farmers, enabling access to commercial markets, and increasing farmer incomes via the introduction of new processing technologies, demonstrating cost-effectiveness (low COP) and sustainability of farmer companies.

26. *Social (including Safeguards):* The project was expected to generate positive social benefits and sustainable poverty reduction opportunities for rural communities in lagging rural areas across Sri Lanka. Improved agricultural productivity, organizational development, and value chain development were expected to create additional economic returns for farmer households, motivating the younger generation to engage in agriculture by introducing farmer mechanization, micro-irrigation establishments, and converting subsistence based farming into business. Expected benefits also included employment opportunities for poorer households, individual and collective empowerment through membership in formal farmer producer organizations and partnership arrangements with agribusinesses, improved access to finance, technology, markets, rural infrastructure, and trading facilities, as well as new technical and management skills. Agriculture technology demonstration parks were to be established in formerly conflict-affected and poverty-stricken provinces to provide opportunities for poor farm households and conflict-affected communities. Attention to a more equitable sharing of economic gains from investments in commercial agriculture and modernized value chains was paid during the process of farmer producer organization establishment, with active support from the implementing agencies.

27. *Environment (including Safeguards):* The project was classified as an Environmental Category B. It was expected to bring positive environmental benefits to the project areas through the introduction and expansion of modern technology applications that helped improve cropping patterns and farming methods, increased efficiency in the management of water resources, protected agricultural soils, and rolled out integrated pest management.

1.6 Project Components

28. The project was designed along three components (Annex 1): Component 1: *Agriculture Value Chain Development* which has been implemented under the responsibility of the Ministry of Primary Industries (MOPI) in line with its mandate of promoting commercial and export-oriented agriculture. The component seeks to promote commercial and export-oriented agriculture; attract and leverage investments from farmer producer organizations and agribusinesses for high value agriculture production and value addition; and provide the enabling environment, incentives, and access to finance for such investments through matching grants, technical assistance support, linkages to the commercial banking sector, and a Partial Credit Guarantee (PCG) facility. Component 1 comprises the following sub-components: a) *Investment Preparation Support* encompasses a training program for the matching grants, promotional activities and review conferences, operational costs for the Technical Review Group, international advisory services, salaries and allowances for essential staff, office

equipment and rentals, technical assistance for applicants, and support for environmental and social safeguards within the matching grants program; b) *Matching Grants to Farmer Producer Organizations and Agribusinesses* which would support a matching grants program to attract and leverage investments from farmer producer organizations and agribusinesses; c) *Partial Credit Guarantee* which would support a PCG to share financial risk with Participating Financial Institutions (PFIs) that are interested in lending to beneficiaries of the matching grants program.

29. Component 2: *Productivity Enhancement and Diversification* which has been implemented under the responsibility of the MOA in support of the Government's draft Agriculture Sector Strategy. The component aims at supporting smallholder farmers to produce competitive and marketable commodities, improve their ability to respond to market requirements, and move towards increased commercialization. Component 2 comprises the following sub-components: a) *Farmer Training and Capacity Building* which supports knowledge building and capability improvements of smallholder farmers and the establishment of farmer producer organizations to help them to respond better to market opportunities; b) *Modern Agriculture Technology Parks* which supports the introduction, demonstration, and scale-up of innovative agriculture technology packages that are not yet available or practiced by smallholder farmers and producer organizations but would support productivity improvements, diversification, commercialization, more sustainable and climate resilient production patterns (high value products, new varieties, technology, soil, water, fertilization etc.); c) *Production and Market Infrastructure* that includes upgrading small-scale irrigation and water systems, improving production and market access roads, and constructing village-level storage and handling facilities; d) *Analytical and Policy Advisory Support* which supports to develop an evidence-based policy, legal and regulatory framework, address knowledge gaps as well as policy and regulatory inconsistencies as they may arise from time to time with policy decisions emanating from different parts of the government, and formulate sector and sub-sectoral strategies to provide the suitable enabling environment for a sustainable and competitive modern agriculture and food system.

30. Component 3: *Project Management, Monitoring and Evaluation* which has been supported the implementation of the 1st and 2nd components. This component supports the PMUs of MOPI and MOA and the PPMUs in the participating provinces in project management and coordination, technical supervision, financial management, procurement, social and environmental safeguards, and monitoring and evaluation (M&E).

Table 1.3 Summary of the Project components and sub components:

	Component 1: Agriculture Value Chain Development	Component 2: Productivity Enhancement and Diversification	Component 3: Project Management, Monitoring and Evaluation
Description	Promote commercial and export-oriented agriculture; attract and leverage investments from farmer producer organizations and agribusinesses for high value agriculture production and value addition; and provide the enabling environment, incentives, and access to finance for such investments through matching grants, technical assistance support, linkages to the commercial banking sector, and a Partial Credit Guarantee (PCG) facility.	Supporting smallholder farmers to produce competitive and marketable commodities, improve their ability to respond to market requirements, and move towards increased commercialization.	The component will support the PMUs of MOPI and MOA and the PPMUs in the participating provinces in project management and coordination, technical supervision, financial management, procurement, social and environmental safeguards, and monitoring and evaluation (M&E).
Sub Components			
	1.1: Investment Preparation Support 1.2: Matching Grants to Farmer Producer Organizations and Agribusinesses 1.3: Partial Credit Guarantee	2.1: Farmer Training and Capacity Building 2.2: Modern Agriculture Technology Demonstration Parks (ADTPs) 2.3: Production and Market Infrastructure 2.4: Analytical and Policy Advisory Support	

1.7 Significant changes during implementation

1.7.1 Revised PDO and Key Indicators

31. The revisions made to the indicators in the ASMP results framework were driven by the evolving scope of the project and the need to set more realistic and achievable targets. The PDO 7 was introduced as an extension of PDO 6 to specifically track new jobs generated for females through investments in agribusiness organizations under the project. Some adjustments reflect delays in implementation, particularly due to unforeseen challenges like the COVID-19 pandemic, such as with "Client days of training provided." Additionally, as later-stage activities like the establishment of PUCs were implemented, new intermediate results indicators were created to capture those developments. The inclusion of additional intermediate results indicators ensures that the project's performance and monitoring metrics align more accurately with the present situation, enabling a more effective assessment of progress and realistic outcomes by the project's conclusion (Annex 2).

1.7.1.1 Corrective restructuring

32. During the mid-term review of the project in 2019, some adjustments to the design were done. While the overall concept and approaches under the project remain valid, there are several adjustments that aim to increase the coverage of the project and thereby to increase the benefits and accelerate implementation.

33. Component 1: Agriculture value chain development: Introduction of new financing window for farmer partnerships: Many of the existing Matching Grant (MG) recipients face a constraint to further scaling up due to a lack of reliable supply of raw materials from farmers. It is therefore agreed to develop a new product under the project which will finance farmer groups to make investments to increase productivity. A new operational manual for this product was discussed with the mission. The product would initially be only made available to existing MG recipients, though could be scaled up if successful.

34. Revision of the matching grant manual; several amendments to the MGM were agreed, including adjustment of funding ceilings to reflect changes in the dollar-rupee exchange rate. It was agreed that a new request for proposals would be launched by end November with more generous terms (matching grants up to 60 percent of the total investment cost) to target specific regions where there have been fewer proposals (especially in the north and east) and to target identified functions in strategic value chains.

35. Component 2: Productivity enhancement and diversification demonstrations, expansion to additional districts: There is a strong interest from MOA to expand the geographic coverage of the project. The European Union (EU) has signed the financing agreement with government for Euro 23.13 million to scale up to the five districts of Badulla, Killinochi, Ampara, Kandy and Vavuniya in April 2017. Before proceeding with this Additional Financing, the overall performance of the project needs to improve. Some provisional investigations have taken place in the proposed new districts and it is proposed to formally include these districts in the project to conduct diagnostic activities and pilots. These activities would build on the lessons learned from the ongoing pilots, including the need for more thorough assessments of the targeted value chains which can also draw upon existing VC analysis, including by MOPI. Any involvement of the ISP would require an addendum to their contract.

36. Removal of activities: there are two activities, the creation of an agricultural Center of Excellence and the development of the national information system, for which there has been

little or no progress and for which the MOA is not interested in pursuing under the project. Neither of these will have any impact on the achievement of the PDO and therefore it was agreed to drop these and reallocate the funds to the provisional activities in four new districts.

37. Overall: revising the results framework: based on the experiences under the monitoring and evaluation activities, several changes to the RF had been made. The changes, presented in the Annex 3, adjusted end of project targets, add clarity to the indicator wording and expand on the definitions of indicators.

38. Reallocation of funds between expenditure categories: funds for the farmer outreach program under Component 1, and the geographic expansion under Component 2, financed through a reallocation from the PCG and policy sub-component respectively.

39. Revision of disbursement projections. During 2020, with the COVID-19 Pandemic, there were few changes done to the design. Those changes are; drop the farmer outreach as a separate activity and focus support of farmers within each of the matching grant investments; work on alternative financing arrangements for the one single investment and close the PCG due to lack of demand; strengthening facilities for developing hybrid varieties, breeder seeds and basic seed production;

40. After the COVID 19 pandemic, the Project agreed to support the Government policy of import replacement of selected commodities. As a result, ASMP included hybrid seed production of chili, maize, seed potato production and big onion seed production in some clusters of the Agriculture Technology Demonstration Parks (ATDPs). Furthermore International Service Provider (ISP) of ASMP has proposed introduction of above crops as intercrop or rotational crop for proposed main perennial fruit crops. Therefore development of parental material production by breeders for hybrid seed production and production of breeder seeds & basic seed production is vital for the sustainability of these clusters.

43. Based on these changes, few intermediate indicators were added to amend the results framework which was proposed in the project appraisal document. The added intermediate indicators are; Number of commercial partnerships or market contracts signed between producer groups (supported by the Project) and domestic/international agribusiness actors (processors, wholesalers, retailers, exporters, etc.) for selected value chains (Number), Number of clusters completed in accordance with the Cluster Development Plan (Number), in order to ensure the accuracy of the project outcomes.

41. Partial credit guarantee: There has been no uptake of the PCG, for which USD 7 million was allocated. It was agreed in principle to reduce the size of the PCG and reallocate the funds to the farmer partnership window (above) and matching grants, though before this was done a consultation would be made with all participating banks and the Central Bank in order to confirm whether there is any intent to use. However, in 2021, it was agreed that the project would be restructured to remove the Partial Credit Guarantee (PCG) and reallocate the funds to the MG scheme due to the PCG under Component 1 has had limited demand and has not disbursed. Under Component 2, with the full EU Grant available for scaling up activities in the new districts, the MOA proposed to implement the activities in these new districts without the services on the ISP and instead drawing on the MOA's capacity, with support from local and international consultants. Therefore, again in 2021, another few more intermediate indicators were added to the existing Results Framework. The results framework and indicator table was updated with disaggregated Comp 1 and Comp 2 targets and achievements in several of the intermediate results indicators. Added intermediate indicators are: New Jobs generated through investments in agribusiness organizations under the project – female, Share of farmer Producer

organizations functional (Percentage), Water users provided with new/improved irrigation and drainage services (Number), Area provided with new/improved irrigation or drainage services (acre), km of roads constructed and rehabilitated under the project (Number).

45. In 2022, with the economic crisis prevailed in the country, it was agreed to adjust the grant window size and maximum grant allocations using an exchange rate of Rs. 360 per one USD instead of Rs. 180 per one USD. The revised window size and maximum grant size figures was applicable for all financing agreements or additional financing agreements to be signed with a date on or after June 15th 2022. The percentage of grant allocation versus beneficiary contribution was not affected and remained unchanged. Apart from that, the Table Grape field trials in the northern part of the country which seemed to be feasible at the early stage of the project was terminated due to the context of the current economic crises and it was not justifiable to continue using project funds for this activity as Table grapes was not a priority in the current country situation. In 2022 also, few amendments have been done to the intermediate indicators of Result Framework by dividing few indicators into two parts aiming the feasibility of study the outcomes. Those indicators are; Farmers adopting improved agricultural technology (Number) - Male, Farmers adopting improved agricultural technology (Number) - Female, Area provided with new/improved irrigation or drainage services. (ha), Area provided with new irrigation or drainage services. (ha), Area provided with improved irrigation or drainage services. (ha).

46. In the latter part of 2022, Post-harvest Processing and Packaging Centers (PHPPC) were introduced as postharvest processing and packing facilities are important to ensure sustainability of ATDPs. Additionally, due to the shortage of time and the difficulties implementing complex constructions under the current economic situation the proposed district level post harvesting centers were dropped. Instead, smaller cluster level multipurpose fruit and vegetable collection and pre-processing centers were considered. However, Bank team considered that will not always be needed so they agreed to provide finance to establish simple off-taking centers. Also, with EU funds added to the project for scaling up purpose, new five districts added to the project design namely; Vavuniya, Kilinochchi, Ampara, Kandy and Badulla. Across all five new districts, PMU consultants work to establish 22 clusters in covering Dry chili (5 clusters), Hybrid Maize Seed (2), Jumbo Peanut (2), Soursop (1), Pomegranate (1), Passion Fruit (1), Hass Avocado (2), TEJC Mango (1), Papaya (1), Sour Banana (1), Vegetable (1), Vegetable Seeds (1), Seed Potato (1). These cluster development activities involved scaling up of ISP technologies (dry chili, mango, pomegranate, and banana) as well as pilots of locally developed technologies (jumbo peanut, papaya, soursop, passion, and seed potato). In addition, consultants proposed new technology packages for hybrid maize seeds, cassava, avocado, and vegetable. Jack fruit and lime clusters only involved in value chain development activities based on existing production from multiple sources (e.g., home gardens) without establishing new cultivations. One of the major alterations that was introduced to the project was Project Exit Mechanism while ensuring the sustainability of the project learnings. In that case, to improve sustainability of project investments and new approaches to sector support piloted by ASMP, Component 2 PMU initiated a dialogue with strategic partners including the National Enterprise Development Authority (NEDA), DOA Agribusiness Unit, and others on activities to be undertaken during the extension period. NEDA is uniquely able to provide business management training and advisory services that can help PUCs succeed long-term. ASMP established ATDP in the form of production clusters demonstrating high productive agriculture technologies in combination with modern organizational and marketing arrangements. A critical element in these clusters was the organization of farmers to become eventually registered as public unlisted companies (PUCs) at the registrar of companies. Over 14,000 farmers will eventually benefit directly from capacity building activities, technical assistance and improved financial as well as buyers'

access through the PUCs registration and functioning. The project planned to benefit additional smallholder farmers from the project areas who are not direct beneficiaries through peer-to-peer knowledge sharing and helping them connect to various agencies on demand basis to build their capacity and knowledge. It was expected that successful demonstrations from the ATDPs and capacity building and linkages to the PUCs and additional indirect beneficiaries will attract additional investments into downstream processing through commercial investors, ensuring longer term sustainability of project interventions and farmer institutions supported by the project.

47. During all these years the PDOs remained unchanged while project design and key indicators of the results framework went through several alterations due to the circumstances and challenges which the project and country had to face.

1.7.1.2 Adaptive restructuring

48. A restructuring proposal was initiated by the MOA (after Aug 2020) without the consent of the project counterparts, aiming to divert funds to establish parks under the Department of Agrarian Development and for training purposes. However, the World Bank made the right decision by rejecting the proposal. Consequently, the PMU secured funds allocated to the DOA in line with the project activities outlined in the PAD. This prevented the diversion of funds to other departments or institutions not originally stipulated.

49. The DOA was allocated LKR 1,050 million for the development activities at the Field Crops Research and Development Institute (FCRDI) in Maha Illupppalama, including the development of parental material for hybrid seed production. Additionally, LKR 180 million was allocated to the DOA for the Interprovincial Sita-Eliya Potato Seed Production Program, covering laboratory and field development costs.

50. Due to this proposal, there was approximately a 9-month delay in the implementation of the ISP after August 2020. Nevertheless, the World Bank's decision ultimately proved beneficial hence, and their precise judgment is greatly appreciated.

51. A second restructuring took place with the consent of project counterparts, leading to an increased allocation to Component 2.2 and a scaling-back of island-wide training programs, focusing only on project districts.

52. A third restructuring occurred after the EU provided funds, which were directed to Jaffna programs.

1.7.2 ***Beneficiaries***

53. The project beneficiaries fall into two categories: direct and indirect. Direct beneficiaries comprise the project's target group, while the indirect beneficiaries are further divided into two categories. First, there are adopters who, having gained insight into the benefits through observation, visits, and conversations with beneficiaries, initiate similar activities independently. Second, there are spill-overs who engage in auxiliary businesses around the clusters and other related ventures. Auxiliary businesses can be considered such that agro-processing facilities that add value to agricultural products, transportation and logistics services, supply chain management companies, agricultural equipment rental services, and retail outlets specializing in agricultural products.

Table 1.4 Beneficiary list

Component	Number/type of beneficiaries
Matching grants program (component 1)	– Support approximately 350 existing and newly established farmer producer organizations – Approximately 50 agribusiness partnership arrangements – 15,000 smallholder farm households (through higher productivity, new income opportunities, value added production, and improved market linkages) – Approximately 30 % of the farmer producer organizations will be women-led farmer producer organizations (small matching grants window)
Agriculture technology demonstrations (Component 2)	– At least 18000 farm households were directly benefited (through improved input supply and management, better and more efficient technology, improved market linkages, as well as opportunities for value addition)
Overall and/or indirect	– 20,000 farm households would benefit from project support to establish professional farmer organizations – Government Institutions: Ministry of Primary Industries (MOPI), the Ministry of Agriculture (MOA) and the five participating Provincial Councils through the respective Provincial Ministries of Agriculture – Banks: Commercial banks (to deepen the understanding of investments opportunities and risks in commercial agriculture and participating agribusinesses through their participation in the project's matching grant program and the partial credit guarantee facility)

Source: Project Appraisal Document

1.7.3 Other Significant Changes

54. The project was extended by three years in two steps of one and half years from its original closing date of December 31, 2021 and is scheduled to close on December 31, 2024 due to the drastic challenges arose during the project period. Project implementation has been affected by several major external effects starting with the Easter Bombing in 2019, Covid-19 pandemic, government restrictions in budget allocation, which delayed implementation of the project.

55. During the time 2019-2020, the project faced several issues which delayed implementation reflecting the impacts of Covid-19 in 2020, especially in relation to the extended period of Vote on Account (VoA) budget allocations, and the impact of the change in government including policy shifts with respect to agriculture such as chemical fertilizer ban and import restrictions with an increased focus on achieving food self-sufficiency in a number of critical foodstuffs. During the year 2020, the project was facing the following challenges: a) The VoA allocations for Component 1 during 2020 have significant curtailed and delayed the disbursement of MGs. b) The Feasibility study for Component 2, completed in April 2020, was pending approval by MOA, and therefore progress of Component 2 was stalled. c) The restructuring, agreed in principle during the Mid Term Review, was delayed with the formal request from MOF received in June 2020. This was approved by the World Bank on June 29,

2020 and submitted to MOF for countersigning, d) Continuing uncertainly on the institutional mapping of Component 1, and specifically whether it will remain under MOPI or be shifted to MOA. e) Due to COVID-19 pandemic- Most project implementation activities got temporarily affected by meeting and travel restrictions and most training activities, regular meetings and other field work got disrupted.

56. However, starting from latter part of the year 2021, unprecedented economic crises caused significant delays and required reorientation and re-planning of investments, due to difficulties in accessing inputs and supplies and price distortions. The project focus on improved competitiveness, export earnings and import substitution were well positioned to support the mid-term recovery of the economy. However, price and exchange rate fluctuations and the severe shortage of fertilizer, energy and other essential inputs posed significant pressure on project implementation and the operation of the project supported farmers and businesses.

57. In 2022, it was realized that implementation has been affected by several major external events starting with the Easter Bombing in 2019, Covid-19 pandemic, and government restrictions in budget allocation which have together delayed implementation. A decision on the project extension was critical at this stage. Nevertheless, a significant amount of project activities;

- Were already started, could not be completed before the given closing date.
- The total amount of unused funds project at the given closing date was approximately, USD17 million IDA credit and some USD 7 million EU Grant.
- Most project investments were required investment periods over 6 to 12 months or longer (e.g., the establishment of PUCs, processing/collection facilities, matching grants, etc.) starting any such activities at that time would not be justified.
- Delays and insufficient budget allocation accumulated a backlog of commitments vis-à-vis matching grant recipients, such commitments needed to be met and the investment needed to be completed.
- Most PUCs needed continued support, while they were going through the actual process of marketing their products. This could only happen after their first harvesting, which in many cases was expected in 2023 and 2024.

58. Therefore, the authorities reached a general agreement with the PMUs and the National Planning Department (NPD) and the Department of Treasury Operations of the Ministry of Finance for the need of an 18-month extension of the project.

2 KEY FACTORS AFFECTING IMPLEMENTATION AND OUTCOMES

2.1 Project Preparation, Design and Quality at Entry

59. When considering the component two of the project, one of the former Director General of Agriculture, who currently serves as the Project Director (PD) of the ASMP, presented the innovative A-Park concepts he initiated at the Department of Agriculture (DOA) in Gannoruwa and Bata-atha, along with the Dambulla Kahalla chili seed production initiative involving farmers, to the World Bank. The World Bank was impressed and subsequently, leading to a series of workshops with key stakeholders to further elaborate on the A-Park initiative. A Sri Lankan consultant drafted a formal proposal, ultimately, the World Bank team in Washington developed a project concept inspired by this contextual background.

60. The Agro-Technology Demonstration Park (A-Park) concept proposed in the World Bank's project and the DOA's A-Park initiatives, while related, are distinct. The DOA's concept goes beyond just being a technology transfer park; it incorporates a holistic approach. It is structured as a demonstration park or cluster, focusing on farmer business farms, farmer companies, and export-oriented value chain development. This concept also included machinery grants designed to strengthen private companies, which was initially part of the proposal but later evolved into two separate components, with a third component focused on monitoring.

61. At the time of the project's inception, its concept was both timely and highly relevant for Sri Lanka. During the 2016/17 period, the Sri Lankan economy was experiencing growth, making the project a well-suited and innovative initiative, particularly for an agriculture-based economy. Its focus on advancing agricultural practices was especially beneficial for the rural farming community, offering new opportunities to enhance productivity and contribute to the overall economic development of the country. The project's potential to uplift rural livelihoods and integrate modern agricultural techniques made it a crucial step forward for the nation

62. According to the Ministry of Finance, this project was suggested to the Cabinet of Ministers by the Ministry of Agriculture after the series of discussions with World Bank (WB). Then after receiving the approval of the Cabinet of Ministers then the implementation of the project has begun. First it was ought to begin the component one and then the component two of the project. However with the practical issues such as delay of International Service Provider Selection, Easter Bomb Attack in 2018, COVID-19 Pandemic in 2020 followed by the Economic crisis, component two had to commence first and there by the component one leading to a significant delay in the project completion.

63. Following discussions with the WB, the Cabinet directed the Ministry of Agriculture and the Ministry of Primary Industries to implement the project in 2017. The External Resources Department (ERD) was tasked with leading negotiations with the WB. These negotiations covered several key documents, including: 1) terms and conditions, 2) the disbursement letter, 3) procurement guidelines, 4) the Project Appraisal Document (PAD), and 5) the implementation agreement. While ERD facilitated the process, all relevant stakeholders actively participated in these negotiations to ensure a comprehensive and collaborative approach.

64. When considering the design of the farmer entrepreneurship training, it is comprehensive, focusing on both individual farmer capacity building and farmer organization development (later converted to PUCs). The training program integrates various key aspects of farming as a business, including market understanding, record keeping and financial planning.

The curriculum is well-rounded, combining classroom learning with practical, on-farm training to ensure farmers can apply the knowledge directly in their operations. Additionally, the emphasis on training master trainers and Trainers of Trainers ensures a sustainable model for knowledge transfer. For farmer organizations (later PUCs), the value chain assessments and the focus on commercialization and market opportunities are vital for enhancing group functionality and joint actions. By providing legal support, training, and basic office infrastructure, the program not only strengthens the organizational capacity of farmer groups but also prepares them for future opportunities, such as applying for the Matching Grants Program.

65. The implementation of technology across various provinces considered a range of important factors, ensuring a comprehensive approach to farmer selection and cluster formation. The criteria for farmer selection and project participation were applied consistently across all provinces, although there were some regional variations. In all provinces, Northern, Eastern, UVA, Central, and North Central Province (NCP), applications were filled by prospective farmers, demonstrating uniformity in the initial documentation process.

66. Poverty as a criterion was considered to varying degrees. In the Eastern Province, it was taken into account to some extent, whereas it was not a determining factor in the Northern, UVA, Central, or NCP regions. Gender was a consistently applied criterion across all regions, though the Eastern Province faced some difficulties in applying it. Farming experience, land ownership, and minimum land extent were also uniformly considered in each province, ensuring that participants had sufficient background and resources to participate in the project.

67. Water availability was a key consideration in all provinces, reflecting the importance of irrigation and consistent water access for the success of crop cultivation. The ability of farmers to contribute a portion of the project costs—whether 25% or 50%—was another common requirement in all regions, ensuring farmers had the financial capacity to invest in the technology. Permanent residency, however, was not a requirement in the Northern Province but was considered in the Eastern, UVA, Central, and NCP regions. Similarly, soil fertility and land security were not emphasized in the Northern Province but were important considerations elsewhere, except for land security in the Central Province.

68. Training attendance was mandatory in all regions, ensuring farmers were adequately prepared for the technology implementation. Finally, priority was generally given to full-time farmers, with this criterion explicitly highlighted in the Northern, Central, and NCP regions, indicating a preference for those fully committed to farming as their primary occupation.

69. This structured approach ensured that the farmers selected across the provinces were well-suited to adopt the new technologies, contributing to the long-term sustainability and success of the project

2.1.1 Assessment of the project design

70. The initial plan for the ASMP envisioned only one concept productivity enhancement and diversification demonstrations with agro technology demonstration parks holistically value chain development, the farmers who would then sell their products to private companies, developing value chains then the private companies are to be supported with machine grants embedded as a part of this process towards the end.

71. The proposed project was aligned with the Country Partnership Strategy (CPS) 2013-2016 (Report 66286-LK, May 22, 2012- PAD Reference). It aimed to contribute to two key

CPS focus areas: “Supporting structural shifts in the economy” and “Improved living standards and social inclusion.” This was to be achieved by improving agricultural productivity and competitiveness to strengthen the connections between rural and urban areas, providing and enhancing rural livelihoods and employment opportunities in agriculture and along agricultural value chains, as well as increasing market access for the poor, bottom 40 percent, and vulnerable populations. Additionally, the project aimed to contribute to better flood and drought management through its connections to the water and irrigation sectors and a climate-smart agricultural approach.

72. The overall relevance and significance of the agricultural sector for the Bank’s poverty reduction and shared prosperity agenda in Sri Lanka had been discussed and emphasized in the 2015 Systematic Country Diagnostic. In October 2015, the new government released a National Program for Food Production 2016-2018, which aimed to increase agricultural production and productivity with the goal of reducing dependency on food imports and enhancing the sector’s value added and contribution to the national economy (Central Bank Annual Report, 2016). The program highlighted the need to diversify away from basic staples towards higher-value crops such as fruits, vegetables, specialized crops, aquaculture, and livestock. This diversification was to be achieved by gradually freeing up farmland previously devoted to rice production, which was no longer needed due to increasing productivity. This shift marked a significant and long-overdue move towards greater market and demand orientation, as well as the exploitation of comparative advantage.

73. Through the proposed project, the Bank sought to reengage in the agricultural sector after many years of absence. The project was planned as the first step in a longer-term sector engagement and partnership with the government. Strategically, the project primarily focused on demonstrating agricultural diversification and technology improvements, developing value chains for higher value-added production, improving market linkages, and generating income from agriculture. The Bank was well-positioned to ensure that the agricultural diversification agenda was inclusive, enabling poor farmers, including women, to benefit from investments in value addition, new skills and technology improvements, sustainable crop management, and new financing and marketing arrangements. The project did not initially address structural reform issues in Sri Lanka’s large irrigated rice sector and the plantation estate sector. In these critical agricultural sub-sectors, the Bank planned to engage first through sequenced analytical and technical assistance to build a better understanding and consensus for future policy and institutional reforms and potential investments.

74. So as that, holistically, there was one concept divided later in to three components, Component 1: Agriculture Value Chain Development, Component 2: Productivity Enhancement and Diversification Demonstrations and Component 3: Project Management, Monitoring and Evaluation. The order of execution changed, prioritizing the strengthening of private companies through machinery grants started from the onset of the project. While this adjustment differed from the original plan (which is to be done towards the end), it still resulted in positive outcomes, such as the development of value chains, sale of products to companies happening towards the end of the project.

75. However, if private company strengthening had occurred towards the end of the project, it might have faced some challenges. The initial concept and the followed process have now aligned to a significant extent minimizing any potential deviations. The best examples of companies that received machinery grants and now serve as buyers of ASMP cluster products are Deshani Industries, specializing in moringa value addition; CAP Organics, known for soursop value addition; and C.W. Mackie PLC, which processes Jumbo peanuts.

2.1.2 Adequacy of government's commitment

76. The institutional responsibilities and arrangements for project implementation were established for the participating ministries and provinces at both national and sub-national levels. A Central Project Coordination Committee (CPCC) was set up in the Ministry of National Policies and Economic Affairs, including representatives from various ministries and provincial councils. The CPCC served as the National Steering Committee, ensuring effective coordination, providing policy guidance, mobilizing stakeholders, and overseeing internal audits of the project's main investment components.

77. The CPCC, chaired by the Secretary of the Ministry of National Policies and Economic Affairs, convened quarterly to review project progress and implementation performance. It received feedback from Provincial Councils, coordinated with the ministries involved, and guided knowledge dissemination and sector policy formulation. A secretariat supported the CPCC with day-to-day coordination and management tasks.

78. The Ministry of Primary Industries was responsible for implementing Component 1, including sub-components 1.1 and 1.2. MOPI oversaw following various project-relevant units and entities. Project Management Unit (PMU) was established within MOPI to manage Component 1, handling tasks such as work and budget planning, coordination with the Department of Export Agriculture and regional offices, procurement, financial reporting, field supervision, and capacity building. The PMU was led by a Project Director and included a Deputy Project Director, a Financial Management Specialist, a Procurement Officer, an M&E officer, an Environmental Officer, a Social Development Specialist, and other technical specialists as needed. An office within the PMU managed the day-to-day implementation of the matching grants program, including advertising, solicitation of investment proposals, and providing technical assistance to agro-enterprises and farmer cooperatives. This office reported to the PMU Director and the Board, providing regular updates on implementation progress.

79. A Board of Directors was set up to oversee the application process and approval of matching grants under sub-component 1.2. Chaired by the Secretary of MOPI, the Board included representatives from the Ministry of Finance, Board of Investment, Export Development Board, CBSL, Chamber of Commerce, and relevant Provincial Councils. The Board reviewed and approved grant applications, ensuring they aligned with government policies and project regulations. It convened quarterly to review applications and audit reports.

80. A Technical Review Group (TRG) was appointed, comprising representatives from government technical departments, academia, industry-related enterprises, and other stakeholders. The TRG provided guidance to applicants on technical and business aspects, advised on improving investment proposals, and reviewed finalized plans for soundness and compliance with project regulations, recommending proposals for Board approval. The TRG reported to the Board and was supported by the MOPI-PMU.

81. The Regional Development Department (RDD) of CBSL was responsible for administering the Partial Credit Guarantee (PCG) under Component 1, sub-component 1.3. The RDD received technical assistance to train its staff for this role, although PCG was terminated during year 2020. It also maintained the PCG-Operations Manual, developed a business plan and pricing model, continuously reviewed loan eligibility criteria, established a registration system for loans covered under the PCG, and managed the claims processing system.

82. The Ministry of Agriculture (MOA) set up several project-relevant units to support the implementation of Component 2. Coordinating Committee was established to ensure regular coordination between MOA and the Provincial Councils, based on the principles of the Wadduwa Declaration. This committee included the MOA Project Director and Provincial Secretaries of Agriculture and convened regularly as specified in the ATD-Operations Manual. Project Management Unit (PMU) was also established to manage day-to-day coordination and management of project activities under MOA. The PMU handled annual work and budget planning, coordination with PPMUs, public outreach, community mobilization, procurement, financial management, field supervision, and training. The PMU was composed of a Project Director, Deputy Project Director, and various specialists. The PMU managed training programs for farmers, coordinated the establishment of agriculture technology demonstration parks, and oversaw the selection and implementation of infrastructure rehabilitation investments. It also reported on project progress and outcomes to the Bank, consolidating inputs from the PPMUs. Additionally, the MOA-PMU was responsible for implementing sub-component 2.4, which included analytical and policy advisory support. This involved monitoring economic policy consistency, developing an annual program of studies, and organizing an annual conference on agricultural policy. The policy studies were conducted by a consortium of domestic and international researchers selected through a competitive bidding process.

83. The Provincial Councils of the five provinces (Northern, North-Central, Central, Eastern, Uva) participating under Component 2 were represented in the project through their respective Provincial Ministries of Agriculture. These ministries were responsible for participating as members in the Board of the Matching Grants Program for proposals relevant to their provinces, overseeing the implementation and technical supervision of project activities under sub-components 2.2 and 2.3, and coordinating with the Ministry of Agriculture (MOA) to provide regular progress reports to the Project Management Unit (PMU). To carry out these functions, a Provincial Project Management Unit (PPMU) was established in each province, housed within the Provincial Ministries of Agriculture. The PPMU staff included a provincial project director, a provincial financial management specialist, a provincial environmental and social specialist, and one or two technical specialists.

84. Apart from that, the MOA played a crucial role in organizing the National Steering Committee, which was responsible for key decision-making throughout the project. Additionally, the MOA oversaw the approval of ISP payments, a critical task due to the international procurement involved. Payments were approved after milestone progress had been evaluated. To manage this effectively, given the lack of sufficient staff, the MOA recruited a Technical Review Committee to handle cluster selection, technology transfer, and

project monitoring. This committee evaluated all technical aspects and provided recommendations for international approvals. The MOA also conducted monthly progress reviews and closely monitored key activities, identified delays or bottlenecks, and actively resolved issues to ensure the project stayed on track.

85. The MOF established several project-relevant units to facilitate the implementation of the project. These units play critical roles in reviewing, monitoring, and guiding the project's progress: The NPD is responsible for recommending projects after reviewing appraisal documents and project budgets to secure Cabinet of Ministers' approval. This process ensures that the project aligns with national policies, assesses socio-economic impacts, evaluates project readiness, and conducts a risk assessment. The NPD also represents the project on the National Steering Committee, helping to evaluate progress, identify issues, and propose solutions.

86. External Resources Department (ERD): The ERD is tasked with securing external resources for the project should be a strategic priority following the approvals from both the Cabinet and the NPD. Once these approvals are in place, efforts must be intensified to identify and mobilize external funding and technical support from relevant international organizations, development partners, and private sector stakeholders. This proactive approach will help ensure the project has the necessary resources to achieve its objectives, while also leveraging global expertise and partnerships to enhance its overall impact and sustainability. Additionally, to estimate the project's budget for the upcoming year and verifying that budget proposals from other ministries are realistic before submitting them to the Department of National Budget. The ERD also represents the project on the National Steering Committee, helping to evaluate progress, identify issues, and propose solutions. When challenges arise that cannot be resolved at the steering committee level, the Treasury intervenes to secure special approvals. Additionally, the ERD is responsible for assessing disbursement issues, contributing to the World Bank's wrap-up meetings, and participating in special meetings at both the ministry and Treasury levels to address problems, such as those related to the poly tunnels.

87. Department of Project Management and Monitoring (DPMM): The DPMM reviews the project's monthly and quarterly progress reports and submits them to the Cabinet of Ministers. The department assigns a color-coded rating—green for satisfactory progress and red for poor performance—based on the project's timeliness, cost management, and ongoing challenges. The Cabinet then seeks explanations from the respective line ministry if the project is underperforming. In addition, the DPMM attends National Steering Committee meetings and conducts field visits as part of their project evaluation process.

88. The support provided by implementing agencies across the five regions—Northern, Eastern, UVA, Central, and North Central Province (NCP)—varied in terms of efficiency and consistency. In terms of PMU (Project Management Unit) support for implementation, the Northern and Eastern regions reported moderate levels of support due to delays in input supply and changes to initial plans, with the Eastern Province experiencing canceled funds and infrastructure promises. On the other hand, the UVA, Central, and NCP regions received high levels of PMU support, indicating more effective management of resources in those areas. Fund disbursement from the PMU and World Bank (WB) was consistently high across all regions, with a slight decrease in the Northern Province as the project progressed Supervision, funding, and monitoring from the WB were reported as high in most provinces, though the Northern region again noted a more Satisfactory level of monitoring.

89. Support from the Provincial Directors' Offices varied significantly. It was satisfactory in both the Northern and Eastern provinces, where delays in beneficiary selection and extension support were observed. UVA and Central regions received high levels of support from the start,

while the NCP experienced lower levels of support. This variation suggests that regional administrative challenges impacted the efficacy of local government involvement.

90. Staff adequacy for cluster operations also presented challenges. The Northern Province reported a lack of agricultural scientists and frequent officer changes, leading to disruption. In the Eastern and UVA provinces, satisfactory support was available, but vacant positions and overstretched officers created difficulties in meeting deadlines. Central and NCP also faced challenges with staffing as vacant positions were not filled in a timely manner, negatively affecting project activities.

91. Collaboration with other relevant offices, such as irrigation departments, forest departments, and environmental authorities, received varying degrees of support. In the Northern and Eastern provinces, moderate support was provided, though discussions with the forest department dragged in some cases. UVA and Central provinces experienced high levels of support from relevant departments, such as irrigation and forest departments, while NCP saw high support from the same departments but satisfactory involvement from the Mahaweli.

92. Finally, the linkages between the activities of Component 1 (i.e., the relationship between companies and the project) were weak across all regions. In the Northern Province, promised collaborations with companies like CW Mackey and Jaffna Horticulture did not materialize as agreed, while in the Eastern (Except for Green Cucumber), UVA, Central, and NCP regions, similar low levels of coordination and weak linkages hindered project outcomes.

2.1.3 Assessment of risks

93. The information collected from various provinces provides a comprehensive overview of the current state and future prospects of agricultural technologies and practices among farmers. In the Northern Province, farmers indicated that they would continue utilizing the technology, provided there are no marketing issues. In the Eastern Province, farmers strongly agree that they will persist with the technology. In UVA, at least 90% of farmers are expected to continue using the technology; however, successful clusters will need continuous supervision or follow-up for several months until harvest. Farmers in the Central Province are likely to continue but require further guidance and close supervision for at least two crop cycles. Similarly, successful farmers in the North Central Province will definitely continue using the technologies.

94. Regarding the adoption of technologies by new farmers, the data shows an optimistic outlook across all provinces. In the Northern Province, new farmers are likely to adopt technologies such as jumbo peanut and green chilli, particularly if market conditions are favorable. The Eastern Province indicates that new farmers will adopt these technologies and continue using them. In UVA, new farmers plan to adopt technologies in successful clusters and may increase their land area for cultivation. Farmers in the Central Province expressed confidence that they will be able to afford the initial fixed costs associated with these technologies and will continue using them. New farmers in the North Central Province are also adopting these technologies at their own expense for successful crop varieties.

95. Training support for farmers is vital for ensuring the successful implementation of these technologies. Across the provinces, there are memorandums of understanding (MOUs) with the Department of Agriculture (DOA) and Agricultural Instructors (AIs) to provide ongoing technical support to farmers in the clusters after the project. The DOA (AI) will continue training on technology, while the Development Officer (DO) under the District Director of

Agriculture responsible for monitoring and coordinating the PUC, involving the Ministry of Agriculture (MOA) at a high administrative level.

96. In terms of company involvement, NEDA officers are tasked with supporting the business operations of the PUC in the Northern and Central provinces, while they are also expected to assist in marketing and business development in the Eastern and UVA provinces. However, it is noted that their involvement has not yet been fully established across these regions, and previous efforts, such as farmer business school training conducted by private consultants, have not been successful because it was held online and proper monitoring of the attendance of the farmers has not taken place regarding this activity. Despite these challenges, there is an ongoing commitment to training farmers in the technologies introduced. The data reveals that ISP technologies are deemed superior in many clusters over traditional methods. (refer the 3rd chapter)

97. To date, there has been no concrete discussion regarding continued support for the PUCs under the newly proposed project. Of the 58 PUCs established, 4 are in a critical state, while 5-6 are performing at an average level, maintaining over 10 million LKR in their bank accounts through profit-sharing. For example, Rajanganaya *ambul* banana, Mulaithiuv, Dambulla mango (5 million LKR), passion fruit Galewela (6 million LKR), potato/onion – Odduchuddan (25 million LKR), Kilinochchi chilli (19 million LKR), and jumbo peanut (10 million LKR) are among the more successful PUCs.

98. Nevertheless, the sustainability of the PUCs is uncertain, as many of the EU-funded PUCs were only recently established, and their monitoring has not yet reached an adequate standard. To ensure these PUCs achieve their intended objectives, a robust monitoring and sustainability mechanism must be developed. This system will help track their progress, address any gaps, and support their long-term effectiveness in fulfilling their purpose.

99. The engineering work emphasized capacity building and cost efficiency, with companies installing machinery and training farmers for sustainable operation and maintenance through two trial periods. Installing machinery with higher utilization factor, farm mechanization, ensure storing facilities minimizing post-harvest loses (cold rooms) and establishing micro irrigation facilities and building infrastructure developments such as access roads, irrigation canals, processing centres, upgrading electricity network where those were required.

100. The long-term sustainability of the technologies introduced in these clusters appears to be highly promising. The project is designed with a strong sustainability framework, as it not only introduces innovative agricultural practices but also establishes a market for the products and integrates a linkage company, PUC, to ensure continuity. This creates a stable system where farmers can benefit from both the technology and the guaranteed market access. If farmers fully understand and adopt the project's objectives and sustainable practices, it has the potential to establish lasting improvements in the agricultural sector.

101. For example, the cultivation of crops like Cavendish and *ambul* bananas for export, as well as passion fruit, provides farmers with viable opportunities for long-term income generation. By ensuring the production of high-quality, marketable products for PUC, farmers are positioned to earn significant revenue. Moreover, the project helps reduce the influence of intermediaries, empowering farmers by shifting the bargaining power from buyers to the producers themselves. This model not only promotes sustainability but also strengthens the farmers' economic position, making the entire system more resilient in the long run.

102. However, the adoption of new technologies by farmers in these clusters has been met with some reluctance, largely due to several key factors. Despite the project's potential to significantly benefit the agricultural economy, the rate at which farmers have embraced these innovations has been lower than anticipated. This hesitation stems from the fact that the technologies introduced were unfamiliar to many farmers, making it difficult for them to fully grasp the potential advantages. Furthermore, the underlying objectives and long-term benefits of the project were not clearly understood by the farmers, many of whom viewed agriculture primarily as a subsistence activity rather than an opportunity for modernization and economic growth.

103. Additionally, the project's scope was somewhat misaligned with the farmers' traditional practices and expectations, as they had become accustomed to government subsidies and other forms of support. This lack of clarity around the project's goals made it harder for farmers to see the value in adopting these new technologies. Compounding the issue was the limited coordination between farmers and the extension services responsible for disseminating information. Without proper guidance and consistent support, many farmers were unable to implement the technologies effectively, further hindering the uptake of these innovations.

104. Improving communication and building stronger support networks between farmers and extension services could help bridge this gap and foster a greater understanding of the long-term benefits of technology adoption, encouraging more widespread use in the future.

105. One of the major challenges faced during the implementation of the project activities was the reluctance of farmers, particularly the older generation, to adopt and recognize the value of the newly introduced technologies. Many farmers were resistant to change, lacking the attitudinal shift needed to embrace innovation. To mitigate this, the project facilitated access to farming inputs and other necessary resources, which encouraged a small degree of adoption by reducing the feel of risk of the farmers had in adopting to the newly introduced technologies. This support helped farmers gain a bit more confidence in trying out the new technologies and taking calculated risks, albeit on a limited scale.

2.2 Implementation

106. The soundness of the background analysis supporting the project was robust, incorporating thorough feasibility studies, crop suitability assessments, and relevant background information across the project areas. Feasibility studies were consistently conducted by teams comprising DOA officials, PPMUs, and consultants from local and international bodies, ensuring comprehensive evaluations of potential project sites. The analysis included crop suitability assessments based on soil conditions, land availability, climate, and regional farming practices, all of which were tailored to the specific requirements of each location.

107. Additionally, the farmer selection process followed a rigorous procedure where Agricultural Instructors (AI) were initially involved, with final selections carried out by PPMU officers. This collaborative and multi-tiered approach ensured that the most appropriate farmers and locations were chosen, considering key factors such as water availability, climatic conditions, and land ownership. These systematic evaluations and well-informed decisions, based on local expertise and technical guidance, laid a strong foundation for the successful implementation of the project, enhancing its relevance and sustainability.

108. Apart from that, typically, the NPD, operating under the MOF, is responsible for preparing an appraisal document for the project. This document is essential for presenting the

project to the Cabinet of Ministers for approval, once the respective ministry submits the proposal for a foreign-funded project. The appraisal ensures that the project aligns with national priorities and is ready for implementation before seeking formal approval. However, the project was directly approved by the Cabinet via a formal cabinet paper and proceeded as planned from a legal standpoint.

109. The EU cluster scenario is different; while the feasibility studies were conducted thoroughly across EU clusters, the farmer selection process in these clusters was suboptimal, leading to concerns over the effectiveness of the approach despite the otherwise strong and comprehensive background analysis.

110. Incorporating lessons learned from previous initiatives, the analysis emphasized the importance of collaboration between local institutions and international partners like the WB and the EU, further strengthening the project's design and outcomes.

111. Adapting to government policies on organic agriculture: the project adapted to the new policies promoting organic agriculture (chemical fertilizer ban in 2022) (Annual Report, CBSL 2023) differently in each region. In the Northern Province, only 5% of required organic manure was produced within the clusters, leading to significant yield losses in crops like manioc and chili. The MOA arranged about 20% of fertilizer requirements under special approvals. In the Eastern region, cow dung was used for organic farming, except for green cucumber, which received support from Hayleys. UVA adapted by selecting farmers who could produce organic fertilizers or by purchasing from private companies at a 25% charge. Central and NCP implemented similar strategies, providing compost or purchasing fertilizers at subsidized rates.

112. Collaboration with local suppliers: Local suppliers were involved to varying degrees in addressing equipment delays. The PMU coordinated many of these efforts in the Northern Province, while agreements with suppliers in the Eastern region faced challenges in timely delivery. UVA and NCP collaborated with local suppliers to purchase fertilizers, although agro-well support remained an issue.

113. Natural disasters: The COVID-19 pandemic affected all regions, prompting the use of social media, mobile phones, and virtual meetings to continue project activities. Field staff in the Northern, Eastern, and UVA regions obtained special permissions to travel and provide technical support, while Central and NCP implemented strict health guidelines to continue farmer training and input distribution.

114. Meeting project timelines: Most regions struggled to meet the original project timelines which is 31st of December 2024. In the Northern Province, only 25% of the timeline was met due to input delays. The Eastern Province also faced delays, particularly with irrigation systems, while UVA and Central regions had to revise timelines to retain farmers and reemployment project activities. NCP managed to meet about 75% of the timeline.

115. Additional challenges: Other challenges included market drops and issues with planting materials, particularly in the Northern Province, where maize seed sales failed and only 300 banana plants were received instead of 500. In the Eastern region, political interference in farmer selection was a key issue. UVA and Central regions faced diseases like fusarium wilt in guava and cigar-toga in banana, which were controlled with proper interventions such as censor techniques and ground sanitation methods. NCP had delays in agro-wells for banana and irrigation systems for chili.

116. Beneficiary feedback and project revisions: Feedback from beneficiaries led to several project revisions. These changes did not affect the overall project design but were minor adjustments aimed at steering the project in the right direction. In the Northern Province, papaya spacing was changed to avoid shading, and water pumps were introduced to address water scarcity. In the Eastern region, banana and pomegranate farmers received power sprayers based on their needs. UVA introduced intercropping with passion fruit, while Central revised the tomato variety from 'Thilina' to a hybrid. NCP adjusted papaya spacing and used new drainage systems to control pests and diseases in guava clusters.

117. Insights into local conditions: Emerging local conditions prompted further project adjustments. In the Northern Province, a renovated building was used for PUCs instead of building new ones, and a batch-type drier replaced the planned continuous drier for green chili. UVA switched from organic to GAP cultivation for crops like soursop and introduced high-density planting systems for passion fruit. Central and NCP adapted by replacing crops like pineapple with mango based on elevation and market demand.

118. Capitalizing on emerging opportunities: New opportunities led to changes in crop selection across the regions. In the Northern Province, crops like chili, maize, and onion were introduced to reduce import dependency. UVA began intercropping with cowpea and black gram, while Central moved from organic to GAP soursop cultivation. NCP discontinued some clusters, like aloe vera, and introduced new ones, like passion fruit.

119. The crisis effects on the project were significant, beginning with the import restriction issue and inflation hike. The sudden rise in prices for ordered goods and essential procurements for cultivation processes created major challenges. As a result, the project had to adapt by using locally available resources instead of the desired or most suitable imports. This strategic decision was necessary at the time to safeguard ongoing cultivation activities despite the limitations.

120. The COVID-19 pandemic further complicated the situation, leading to delays in ISP arrivals and negative impacts from travel restrictions, which hindered in-person training sessions for farmers. To address this, the project introduced a Learning Management System (LMS) portal, allowing farmers to receive training through an online platform. This digital solution ensured the continuity of knowledge transfer despite the physical barriers.

121. The fertilizer shortage posed another challenge. When fertilizer supplies dwindled in 2021, the MOA stepped in to procure fertilizer from private companies to meet the immediate needs. Additionally, the MOA supported organic fertilizer production, which proved to be a successful and progressive alternative during the crisis.

115. Further complications arose with delays in the projects' implementation. To overcome these setbacks, the project took decisive actions such as removing underperforming personnel, holding monthly progress meetings to accelerate the work, and convening the National Steering Committee (NSC) to address urgent issues. These solutions helped mitigate the effects of the delays and kept the project moving forward despite the ongoing crises.

122. There was a significant risk posed by private companies attempting to headhunt individuals involved in the project, such as farmers and project officers, by offering attractive compensation packages. Their goal was to gain access to valuable information about the technologies being implemented in the project. This created concerns over the potential leakage of proprietary knowledge and expertise.

123. Additionally, delays in the implementation phase led to further delays in achieving the expected outcomes, which resulted in the project being flagged with a red color code in the Ministry of Finance (MOF) review for past 4-5 years. These delays were particularly problematic in the case of perennial cultivations, as these crops require longer periods to produce results. The extended timelines in these cultivation processes contributed to slower progress, exacerbating the challenges faced by the project and drawing further scrutiny from stakeholders.

124. Apart from the challenges faced by PPMU, the implementation of the Farmer Business School concept through online modules encountered significant obstacles, particularly due to technological issues like unreliable internet connectivity. However, alternative strategies were successfully employed, such as enabling participants to access the modules via Moodle or LMS platforms at PUCs, which helped to mitigate these difficulties effectively.

125. The project encountered several major procurement challenges, particularly during the COVID-19 pandemic and the subsequent economic crisis. The pandemic posed significant obstacles, with travel restrictions impacting the overall project timeline and budget, rated as significant on the impact scale. This resulted in an extension of the procurement process, with communication issues and delays in bidding programs also contributing to the overall challenges, both rated as significant impact.

126. Similarly, the economic crisis presented severe procurement issues, with an overall impact of 50%, escalating to 70% in specific years. Major challenges included the cancellation of tenders due to price inflation, which significantly affected the timeline and budget. Transportation issues, particularly related to fuel shortages, were also significant, impacting project progress and costs. The dollar hike led to further escalation, necessitating the use of available inputs over their suitability, which reflects a significant compromise in procurement strategy. Additionally, contract terminations and restrictions on fertilizer importation contributed to the overall procurement difficulties, all were rated as significant impact on the project.

127. In response to these challenges, several strategies were implemented. For the pandemic, procurement tenders were extended to accommodate delays. The economic crisis prompted a recall of tenders, which also aimed to address the impacts of price inflation and supply chain disruptions. The project sought to cover fertilizer shortages by utilizing available stocks from private companies like Hayleys, which proved to be an effective strategy.

128. General challenges included low supplier reliability, which was addressed by ensuring on-time payments and enhancing the supplier pool through increased advertising. However, the effectiveness of these strategies varied; while some approaches, such as extending tenders and utilizing available stocks, were deemed effective, others required further improvement to ensure the project's resilience in the face of ongoing procurement challenges.

129. To address delayed deliveries of tenders and issues with inferior quality items, several decisive actions are implemented. First, a performance bond may be withdrawn from the supplier, ensuring financial accountability for non-compliance. In more severe cases, contracts may be terminated, and legal actions pursued against the offending supplier to mitigate any negative impacts on the project.

130. Additionally, suppliers who fail to meet delivery deadlines or quality standards may be blocked from future contract eligibility within the project, thereby protecting the integrity of the procurement process. Furthermore, arbitration may be initiated for work contracts due to

supplier faults, allowing for a fair resolution of disputes while safeguarding project interests. These measures collectively aim to uphold high standards of quality and timeliness in the procurement process, ensuring the project's overall success.

131. The project experienced several significant delays that impacted its overall timeline and effectiveness. One major challenge was the delayed hiring of the International Service Provider (ISP), which hindered the project's initial progress. This issue was compounded by the COVID-19 pandemic, which introduced travel restrictions and further exacerbated the ongoing economic crisis.

132. In addition, delays in securing the EU grant presented another obstacle. Ideally, the grant should have been available for the full five years required for project work, but the timing of its disbursement created complications.

133. In 2021, the project team planned to conduct a baseline survey; however, this could not be executed due to the aforementioned COVID-related travel restrictions. It was only in 2022 that the baseline survey was successfully completed, encompassing both ISP and EU districts.

134. Looking ahead to 2023 and 2024, the project initiated an indicator tracking survey. The World Bank insisted on shortening the questionnaire, which led to challenges in gathering sufficient data for final evaluations and outcome tracking. As a result, it became clear that having a dedicated M&E specialist from the WB would be crucial for ensuring comprehensive data collection and effective project oversight.

135. In summary, the project faced a range of challenges, including input delays, procurement issues, adaptation to organic farming policies, and natural disasters, but also made significant adjustments based on feedback and local conditions.

136. Sri Lanka predominantly relies on subsistence and small-scale agriculture, which limits the export potential of its agricultural products. Traditional cultivation practices, often reliant on basic technologies, further restrict productivity. The aim of this project was to introduce a more commercialized and high-tech approach to agriculture in Sri Lanka, with the goal of boosting productivity and increasing export earnings through enhanced market linkages.

137. This project was originally intended to begin in 2016, but a one-year delay occurred due to the ministry's delay in appointing the Project Director. As a result, the project officially commenced in March 2017, with the Project Management Unit (PMU) established in May 2017 and the Provincial Project Management Units (PPMUs) following in July.

138. However, the project team soon learned that international procurement approvals would take approximately eight months to process, further delaying the project’s timeline by an additional 8-9 months. Recognizing the impact of this delay, the team sought and received approval from the World Bank to initiate pilot projects in 2018 while awaiting the international procurements. This strategic decision of the Project Director allowed the project to maintain momentum and begin key activities despite the procurement delays.

139. Although the separation of the PPMU and PMU was initially opposed by the government, this structure proved beneficial. Operating as distinct units allowed for closer monitoring of the processes, which was critical to the project's success.

140. Challenges arose, including issues with officials, insufficient monitoring, and limited maintenance of the clusters following the resignation of key ISP team members. Nevertheless,

the overall project set-up was effective, and the foundational systems established were sound despite the setbacks.

141. From an engineering perspective, the implementation of infrastructure such as elephant fences, agro wells, and tub wells faced several challenges. Initially, elephant fences were constructed with collaboration with private contractors; however, continuous maintenance proved difficult, particularly with long stretches like the 50 km fence in Matale. To address this, the WB proposed a community-based fencing method, which focused on enclosing small clusters of fields. However, this approach led to opposition from other farmers whose crops remained unprotected, as seen in the Matale mango cluster. For agro wells, the challenge lay in acquiring suitable non-private land from the government, as these wells, covering 3-4 acres each, required collective usage by multiple farmers. These wells were constructed by contractors under the government's tender process, with technical supervision provided by authorities such as the Department of Agrarian Development (DAD) and the Mahaweli Authority.

142. The engineering aspects of the project's implementation emphasized capacity building and cost efficiency. Companies installing machinery, such as drip irrigation systems, not only completed the installations but also provided hands-on training for farmers, ensuring sustainable operation and effective maintenance through up to three trial periods. Procurement was managed at both regional and central levels, with PPMUs handling purchases up to 30 million and larger processing procurements, sometimes reaching 150 million, overseen by the PMU. Strategic bulk purchasing of equipment, including dryers, aimed at cost-effectiveness but occasionally caused delays in installation as multiple clusters awaited additional equipment. Overall, the approach balanced immediate needs with long-term sustainability, focusing on equipping farmers with the necessary skills and resources for effective system use while planning for future requirements.

143. The project's engineering work focused on practical infrastructure improvement. Post-harvest processing and packing centers (PPPCs) were constructed in seven districts, grouping clusters of farmers to streamline operations, first time solar tunnel dryer for maize also introduced. Collection centers were also tailored to specific crops. Notably, innovations such as solar tunnel dryers and heat pump for chilli production reduced drying costs by one-third. The project emphasized efficiency and functionality, relying on collaborative decision-making and technical supervision. While geographically dispersed, the engineering efforts were aimed at improving processing and infrastructure to meet the needs of farmers and their crops and selection of processing machineries were undertaken considering cost effectiveness and machinery utilization factor (ability to use the selected machinery for other available crops).

144. Coordination with the PPMU engineers was generally effective, though frequent staff changes and vacancies posed challenges. The solar tunnel driers, heat pumps, and micro sprinklers with a 3m wetting radius for fertigation were particularly successful, demonstrating outstanding effectiveness across all clusters where they were introduced.

145. The technology implementation process in ISP and EU clusters begins with feasibility studies conducted by the ISP. Based on these studies, a comprehensive cluster development plan is prepared and submitted to a review committee (RC) for approval. The RC consists of key figures, including the Director General, a university professor, and a ministry representative. Once the committee reviews and approves the plan, the ISP moves forward with implementing the technology across the selected clusters, ensuring a smooth and organized execution.

146. Prior to the ISP's involvement, pilot clusters were responsible for managing the technical aspects of the implementation. Even today, if technical issues arise within these clusters, mediation is provided when necessary. The selection of technologies for the pilot clusters was primarily based on recommendations from the Department of Agriculture (DOA). The DOA also already provided crop recommendations tailored to specific districts, following established crop recommendation patterns. Once the pilot phase was complete, successful clusters were identified and chosen for further development.

147. In ISP-led clusters, the process was managed by a dedicated team from the ISP, which introduced and implemented its own technologies directly to farmers. The Department of Agriculture played a supportive role, supplying mobilizers to assist in the process. The ISP team was composed of various specialists, including a Cluster Coordinator, District Coordinator, and consultants specializing in business, technology, the environment, GPS, and more. These experts collaborated and reported directly to the ISP, ensuring the technology implementation was effectively carried out across the clusters.

148. When it comes to the outcomes of the project, in Agriculture Specialist's opinion, the ISP clusters demonstrated the most successful implementation of technologies. While the pilot clusters relied on existing technologies, the ISP clusters introduced advanced and innovative solutions that significantly improved agricultural practices. For instance, in mango cultivation, the ISP clusters employed high-density planting techniques, which are more advanced and efficient compared to the traditional commercial spacing methods. This allowed for better land use and increased productivity.

149. The EU clusters also saw success by introducing new crops, such as groundnuts and soursop, accompanied by advanced technology packages. However, the ISP's focus on leveraging cutting-edge technologies across a broader range of crops and practices contributed to its standout success. By directly introducing these innovations to farmers through a well-coordinated team, the ISP clusters effectively transformed agricultural productivity, making them the most impactful in terms of technological advancement and implementation.

150. The capacity building training component of the project has been well-designed and executed with some changes due to COVID-19 pandemic, to both individual farmers on business school concept and entrepreneurship development public unlisted companies. Initially, the training program began with a comprehensive approach, focusing on need assessment, curriculum development, and the creation of handbooks for both trainers and farmers. This phase led to the training of around 3,000 farmers' business school concepts through an extensive 31-day in-person training program. Later, the methodology employed, particularly the hybrid model introduced due to the COVID-19 pandemic was flexible, which combines both online and physical training, has allowed farmers to continue their training while managing their daily routines. However, with the onset of the COVID-19 pandemic, the training model had to be adapted to meet the challenges posed by restrictions on physical gatherings. Over a period of six months, the training program was redesigned into a hybrid model, combining both online and in-person sessions. This shift allowed the continuation of farmer capacity-building efforts while accommodating the restrictions. The newly developed training modules were supported by handbooks for farmers and trainers, as well as Training of Trainers (TOT) sessions to ensure the sustainability of the program. The hybrid model has proven effective, with farmers receiving most of the training online, followed by around 6-day physical sessions to clarify any doubts. The use of YouTube modules in a drama format and learning management systems (LMS) further enhanced the accessibility of training, allowing farmers to participate from their homes. Despite the challenges posed by the pandemic, the

transition from a fully in-person format to a hybrid model has ensured that training continues uninterrupted, reaching a broader audience and meeting the changing needs of farmers.

151. The second type of training for public unlisted companies began with group sessions for the staff and Board of Directors, held at the NIPM. A business process mentoring and counseling consultant was appointed and trainings are given for each PUC, playing a key role in providing ongoing support and helping to develop business plans. This consultant also offered around 10 days practical training in areas such as business management, communication, tax regulations, business registration, and accounting, benefiting both the Board of Directors and the staff.

152. In overall, both physical, online, and hybrid training models have their advantages and disadvantages. However, the hybrid model, with a greater emphasis on the online mode using drama concepts to make learning more engaging, offers significant benefits. It minimizes disruption to farmers' productive time and encourages collective participation, allowing families to engage in the training together. This innovative approach by the project is commendable by the project side. The majority of farmers prefer this method. One aspect of the training that was not adequately grasped by the farmers is record keeping. Different clusters were provided with varying formats, and many farmers did not understand the importance of maintaining proper records. As a result, the importance of record keeping was not consistently implemented across all most all clusters.

153. The responsibilities and duties related to procurement planning and management were guided by established protocols, Standard Operating Procedures (SOPs), and Terms of Reference (TOR). The procurement planning process involved the Ministry consultancy procurement committee, which was responsible for approving requests for indicator tracking surveys and calling committee meetings. The procurement specialist coordinated these activities, ensuring that the tender boards, which operated at various levels—minor procurement committees at the PPMU, PMU, Ministry, and cabinet levels—functioned smoothly.

154. The tender boards, which included appointments for the TEC, played a crucial role in the procurement process. The input approval process saw a significant increase, with procurement approvals for inputs rising from 100 million to 500 million. The Project Procurement Committee (PPC) was responsible for making decisions at the project level and approving procurement that had passed through the TEC. For consultancy services, approvals were managed by the Project Consultancy Procurement Committee (PCPC), which consisted of three PMU officers and a PC officer. When consultancy procurements exceeded 500 million to 1 billion, the approval escalated to the Ministry level. Any procurements above 1 billion required cabinet-level approval from the cabinet secretary.

155. Coordination for procurement was budgeted at 15 million, equivalent to approximately 50,000 USD. The procurement process also adhered to specific review requirements set by the World Bank, which stipulated prior reviews for contracts over USD 1 million and post-reviews for those up to USD 1 million.

156. In terms of procurement management, payment procedures were governed by the conditions outlined in the tenders, which stipulated that payments should typically be completed within 14 weeks. Should there be delays attributable to suppliers, they were subject to a liquidity damage penalty ranging from 1% to 10% of the payment amount. This framework ensured that procurement activities were conducted efficiently and effectively while holding suppliers accountable for delays.

157. When considering the tender procedure, it is a structured process designed to ensure that procurement meets the needs of the user branch, such as the PPMU, under the guidance of the PD.

158. The process begins with thorough planning of the tender based on the specific requirements outlined by the user branch. Once the planning phase is complete, a comprehensive tender document is prepared, which serves as the foundation for the subsequent steps. The tender document is then submitted for approval by the TEC and the Project Procurement Committee. The Tender Board comprised key personnel to ensure effective oversight and decision-making in the procurement process. The PPC includes an external auditor from another government office at the executive grade level, along with a staff officer and a finance officer. The TEC consists of three staff officers: a procurement-related officer, a work-related officer, and a financial officer. This diverse composition allows for a thorough and balanced evaluation of tenders, promoting transparency and accountability throughout the procurement process.

159. Upon receiving the necessary approvals, the tender is publicly advertised to attract potential bidders. The tender remains open for a specified period, during which interested parties can submit their bids. Once the submission period closes, the TEC conducts a detailed evaluation of the bids, focusing on both technical and financial aspects, as well as the qualifications of the bidders. Following the evaluation, the TEC selects the bidder who offers the lowest rate while meeting the required criteria. This selection is then presented to the Project Procurement Committee, which reviews the entire selection process to ensure it was conducted correctly. Based on this review, the PPC provides its approval for the chosen bidder. If the PPC determines that the TEC's selection was not appropriate, an individual evaluation may be conducted to identify a more suitable bidder. Once a bidder is selected, an agreement is signed with the contractor, marking the official commencement of the contract.

160. Subsequently, the contract is implemented according to the agreed terms. Following successful execution of the project deliverables, payment is made to the contractor, leading to the final closure of the tender process. This systematic approach not only enhances transparency but also ensures that the procurement aligns with organizational standards and meets the needs of the user branch.

161. The information outlines the procurement experience for various goods and services, assessing both the ease of procurement and the timeliness of the procurement process. For goods, specifically agricultural inputs, the easiness of procurement is rated as low, indicating significant challenges in acquiring these essential items. The timeliness of procurement for these goods is reported to be at 30%, suggesting that delays are prevalent and that the procurement process is not operating efficiently. In terms of construction work, the procurement easiness remains low, reflecting similar challenges as experienced with goods. However, the timeliness of procurement is reported at 50%, which, while still below optimal levels, indicates a satisfactory improvement compared to the procurement of goods. For services, particularly non-consultancy services such as the ISP training program, farmer business training, and the built operate and transfer (BOT) facilitation for PUCs, the procurement easiness is rated as high. This suggests that these services are more readily accessible compared to goods and construction work. Furthermore, the timeliness of procurement for these services is at an impressive 90%, indicating that they are delivered promptly and efficiently. Consultant firms are evaluated based on their procurement easiness, which is not specifically stated in the provided data but typically would encompass various factors such as cost, quality, and consultant qualifications. However, the timely procurement of

these consultant services is reported to be at 100%, suggesting that these services are procured without delay, meeting the project's needs efficiently.

2.3 Monitoring and Evaluation (M&E) Design, Implementation, and Utilization

162. The M&E framework was designed to ensure that project implementation adhered to the annual action plan. Each PPMU, alongside the M&E specialist, played a key role in tracking progress. Random monitoring visits were conducted, and progress reports were presented on a monthly and quarterly basis to the relevant stakeholders including Ministry of Agriculture, and World Bank Mission. To ensure continuous tracking, temporary OneDrive formats were used until the Monitoring Information System (MIS) was operational. The establishment of a MIS was a core part of the M&E framework, though it required further improvements to generate reports in the required format. The M&E system was further strengthened with the support of a World Bank consultant, who assisted in revising the results framework to establish realistic indicators and targets. The ASMP M&E system thus facilitated ongoing evaluation, adaptation, and learning to enhance project effectiveness and impact.

163. The project's progress was measured by the achievement of specific indicators across provinces, as outlined in the M&E plan. A baseline was established, and an annual indicator tracking survey was conducted to assess progress in each province. In addition, a pilot project evaluation was carried out to assess the effectiveness of ISP technologies and farmer record books. Prior to the project's launch, a diagnostic profile of the districts (2018-2019) was completed to determine their suitability for participation. This assessment considered factors such as potential crops, geographical suitability, district resource profiles, and data from the 2013 agricultural survey conducted by the Department of Census and Statistics (DCS).

164. Decisions regarding the M&E process were guided by mission meetings, where physical progress was calculated based on indicator achievements and reported monthly. Field visits and interviews were conducted periodically to gather firsthand insights. Additionally, a cost-benefit analysis was performed quarterly, using farmer record books and a structured questionnaire with a 10% sample from each pilot, ISP, and EU cluster. This comprehensive approach ensured that the project’s progress and outcomes were systematically tracked and evaluated.

165. The project faced significant challenges, particularly a delay in recruiting the International Service Provider (ISP). To utilize this time effectively, the decision was made to initiate pilot clusters by developing a questionnaire designed to collect data and maintain a comprehensive database of the beneficiaries selected for the project. This proactive approach led to the establishment of a Monitoring Information System, which facilitated the tracking and management of beneficiary information. This system was crucial for planning the ISP cluster baseline and for ongoing monitoring purposes.

166. Another challenge was the lack of personnel at the provincial level to collect essential data. This shortage was exacerbated by the removal of staff without adequate training or the recruitment of new team members. To address this issue, a strategy was needed to ensure that the project could effectively gather and manage data, thereby supporting its overall objectives and improving operational efficiency. At the project appraisal stage, the following were the project development objective indicators and the cumulative target values.

167. During the Mid-term review in 2019, several adjustments to the project's indicator target values, and new project-level results and intermediate results indicators were introduced to better align with the evolving goals of the initiative (Annex 3) that it was suggested at the

project appraisal stage (Annex 2). The newly added indicators in the results framework include: "New Jobs generated through investments in agribusiness organizations under the project – female," "Number of new farmer producer organizations registered," and "Share of farmer producer organizations functional." Other significant additions involve "Farmers adopting improved agricultural technology (Core)," with subcategories for female and male farmers, as well as "Number of commercial partnerships or market contracts signed between producer groups and domestic or international agribusiness actors across selected value chains." Additionally, metrics such as "Water users provided with new/improved irrigation and drainage services," "Area provided with new or improved irrigation or drainage services (Core)," and "km of roads constructed and rehabilitated under the project" were incorporated. Lastly, the framework also included "Number of clusters completed in accordance with the Cluster Development Plan," reflecting the broader scope and infrastructure focus of the project.

168. However, substantial challenges persist in project monitoring and evaluation, as well as in the quality of project reports produced by the PMU. Staffing shortages and discontinuity are hindering the effective functioning of M&E unit.

2.4 Safeguard and Fiduciary Compliance

2.4.1 Safeguard issues, problems that arose and the resolution

169. In 2017, challenges arose in guiding grant applicants to prepare environmental safeguards documents due to language barriers and complex sector-specific guidelines. The resolution involved translating the EAMF into local languages, simplifying sector-specific guidelines into generic EMP templates, and providing training for grant managers. The Bank also facilitated the recruitment of a consultant to assist with these tasks and ensured ongoing communication to address delays in processing IEEs and EPLs.

170. In various years, insufficient staffing for compliance monitoring remained a challenge, leading to delays in submitting safeguard monitoring reports and ensuring compliance with Environmental and Social Management Plans (ESMPs). To address these, missions held in various years recommended hiring additional safeguard staff (Environmental Officers and Social Officers) for field-level monitoring, submitting quarterly monitoring reports, and conducting independent environmental and social audits.

171. The project has effectively established safeguards through the Environmental Assessment and Management Framework (EAMF) and Pest Management Plan (PMP), natural habitat protection and safety of dams and consultation and information disclosure to the all stakeholders including the project beneficiaries which adhere to World Bank safeguard policies. These frameworks are designed to mitigate potential negative environmental impacts and ensure compliance with the Bank's environmental standards. The EAMF guides the selection of activities, sub-projects, and sites based on environmental criteria. The Environmental Management Plans (EMPs) ensure that potential impacts are addressed with proper mitigation measures. This is supported by site-specific assessments, consultations, and reporting processes. The PMP follows Integrated Pest Management (IPM) principles, ensuring safe use of chemicals in line with WHO guidelines. It promotes non-chemical alternatives and includes a training and monitoring program for farmers. The project promotes transparency and inclusivity by engaging stakeholders, including farmers and affected communities, through public consultations, focus groups, and dissemination of information. This participatory approach helps in resolving grievances and ensuring that project interventions are aligned with local needs. All environment and safeguard aspects are deigned to cover by the project design.

172. Despite the strong environment and social safeguard framework, there are several challenges faced in implementing environment and safe guard policies. For the pilot clusters initially criteria based farmer selection followed by ecological surveys in complicated areas were conducted to verify land clearance. Later all cluster were verified with GPS location based confirmation with forest and wildlife officers ensured that land clearance. The process for ensuring contractor awareness and compliance with safeguard policies begins with the inclusion of a detailed safeguard section in the bid document, which outlines the necessary environmental and safety standards. During the pre-bid meeting, a presentation is provided to contractors, covering essential topics such as sanitation, vibration, and dust control. Once a contractor is selected, they receive further personalized instructions before signing the contract, with the district officer personally briefing them on the specific safeguard requirements. Monitoring and supervision are then carried out by district officers, who regularly visit the site to ensure adherence to the agreed standards.

173. Contractors are required to complete monthly checklists that cover construction-related activities and impacts on crop clusters. These checklists are cross-checked by multiple layers of supervision, including the contractor's engineer, the site engineer, and the provincial engineer. This process ensures thorough oversight and accountability, with monthly reviews conducted to track ongoing compliance and address any issues that arise during the project's implementation. The multi-layered approach ensures that safeguard measures are consistently followed, promoting a safe and environmentally conscious project execution. Grievance mechanisms were established to resolve conflicts directly at the site level,. Electric fences were installed to mitigate human-wildlife conflicts, particularly with elephants, although challenges remain in their long-term maintenance. Finally, corrective actions and monthly reporting mechanisms were implemented to track safeguard compliance and address any emerging issues promptly.

2.4.2 Fiduciary compliance

174. In financial point of view the project implementation faced significant challenges, including economic instability, bureaucratic delays, and budgetary constraints. During the process, economic crises disrupted the availability of funds, particularly in foreign currencies, affecting payments to international consultants. To address this issue, direct payment arrangements were made through external entities like the World Bank. Bureaucratic inefficiencies caused delays in fund disbursement as governmental procedures and temporary reallocation of project funds by treasuries hindered smooth financial flows.

175. Despite these obstacles, strategies were effectively implemented to overcome these issues. Approval processes were streamlined, stakeholder coordination was enhanced, and contingency plans were developed to reduce delays and disruptions. These measures strengthened financial oversight and contributed to the project's overall success.

176. Delays in equipment procurement and importation: The procurement and importation delays affected all regions. In the Northern Province, irrigation systems were received before water pumps, causing irrigation failures. In the Eastern region, delays severely affected banana cultivation, leading to the use of garden hoses and flood irrigation as alternatives. UVA and Central regions also experienced delays, with equipment like poly tunnels and irrigation systems arriving late, particularly for chili and banana. NCP faced similar delays, but some recovery was made by exchanging equipment between provinces.

177. Regarding production planning and value addition (Component 2.2), 10% of the budget was allocated to pilot projects. Due to the international procurement process, the implementation was delayed. In the interim, pilot projects were initiated, with Provincial Departments of Agriculture (PDOAs) conducting diagnostic and feasibility studies before launching proposals.

178. The project faced several key challenges across the five regions, Northern, Eastern, UVA, Central, and North Central Province. These challenges included issues related to fertilizer and equipment purchasing, project adaptation to new government policies, delays in procurement, and overcoming natural disasters, among other difficulties.

179. Impact of fertilizer and equipment purchasing issues: The impact of fertilizer and equipment purchasing issues on the smooth functioning of the project varied across regions. In the Northern Province, about 50% of the project was affected in 2022. The Eastern Province saw a much higher impact, with 80%, especially in banana cultivation. UVA was affected by 90%, mainly due to marketing issues stemming from fuel unavailability. The Central and NCP regions were less affected, with 0.5 and 0.6 impact percentages, respectively.

180. Resolution of challenges: The percentage of challenges resolved also varied. In the Northern Province, only 25% of challenges were resolved, with many farmers leaving the project due to input delays. In the Eastern Province, 75% of challenges were addressed, although input delays persisted. UVA and Central regions recovered 70% and 60%, respectively, while NCP resolved 85% of the challenges.

2.4.3 Post-completion Operation/Next Phase

181. The transition from diesel to solar pumps in pilot clusters, the use of locally available technologies and constructors for processing machinery, ensures the sustainability and potential for expansion of these systems.

182. To ensure the successful adoption and sustainability of the new technologies introduced by the project, it is essential to address the current lack of farmer engagement and motivation. Developing stronger market linkages is a critical step in this process. Under the supervision of PUCs and the respective ministries, targeted efforts should be made to identify and establish these market connections. This will not only create incentives for farmers to adopt the technologies but also provide them with the necessary support to sustain their use long-term, fostering a more robust and successful agricultural sector.

183. Another ongoing challenge is the lack of a robust monitoring system for the post-project phase. While government officials, such as Mahaweli officers, Agriculture Instructors (AI), and District Officers (DOs), were involved in the project implementation and are familiar with the technologies, they need to play a more proactive role in guiding and monitoring farmers after the project's conclusion. For the monitoring to be effective, it is crucial that both the officials and farmers undergo a proper attitudinal shift to understand and appreciate the long-term goals of the project.

184. To address this, it would be beneficial to offer focused training to these government officials, even within a short time frame, to instill a deeper understanding of the project's objectives. This would empower them to better support farmers in adopting the technologies and ensure the project's sustainability beyond its implementation phase.

185. A key recommendation for post-completion activities is for the MOA to adopt the ISP-introduced technologies and conduct pilot clusters under its supervision. This approach would ensure that officials responsible for cluster work gain firsthand experience of the advantages and drawbacks, aiding future implementation strategies.

186. Under the new project, it is advised that government workers constitute the majority of project staff, with a smaller PMU in place to ensure project sustainability. This is necessary because government authorities sometimes lack sufficient knowledge about project operations once the original project team has exited upon project completion. To address this, the Ministry has coordinated with relevant organizations and appointed two officers the officer form NEDA and district level DO to monitor each PUC, incorporating this task into the respective authorities' duty lists. Additionally, the MOA has facilitated the legal handover of project assets to the PUCs. Field audits have been conducted, and a continuous capacity-building program for DOs and Agricultural Instructors (AIs) is being implemented to ensure the effective functioning and sustainability of the PUCs.

187. The PUC model has been largely successful, although challenges remain, particularly with developing a business mindset among participants. While 60% of PUCs have shown good progress, 20% require further assistance to get on track, and 20% may not be successful without significant intervention.

188. The project's safeguard perspectives in the post-completion phase of wildlife conflict management, particularly concerning human-elephant interactions, present uncertainties. The WB has provided guidelines for community fencing. Effective upkeep of these fences requires collaboration between communities and local governments. The strategy should involve the

PUCs overseeing monitoring, supervision, and maintenance, with the department of the wildlife providing training to farmers on proper maintenance. Given the responsibilities assigned to the involved parties, it is too early to predict whether the community fencing method will be effectively follow up in future.

SECTION 3

3 ASSESSMENT OF OUTCOMES

3.1 Relevance of Objectives, Design, and Implementation

189. The relevance of the project remained strong throughout its implementation, aligning with Sri Lanka's evolving development priorities. Initially designed to improve agricultural productivity, enhance market access, and foster value addition, the project's objectives were well-suited to the country's needs in 2015/16, especially with the goal of boosting export earnings and modernizing the agricultural sector. Over time, however, significant changes occurred in the socio-economic landscape, including economic crises, import restrictions, and heightened inflation, which required the project to adapt. The project demonstrated flexibility by shifting its focus to include import substitution crops, such as maize, potato, and chili, to reduce the country's dependency on imports and bolster food security. This change in focus, while still supporting export-oriented objectives, reflected the project's ability to remain relevant to Sri Lanka's macroeconomic priorities during times of economic strain. Furthermore, the project responded to the emerging needs for private sector involvement and value chain development, ensuring that its design was flexible enough to cope with these challenges. By retaining its core objectives while adjusting to new economic realities, the project continued to contribute to employment generation, sector growth, and market resilience, making it highly relevant to Sri Lanka's evolving development context. Additionally, the project's flexibility to adapt to changing conditions, such as adjusting to supply chain disruptions, inflationary pressures, and environmental challenges demonstrated its resilience and continued importance in supporting the government's strategy of modernizing agriculture and integrating with global markets.

190. 2020–2021: COVID-19 pandemic and shift to food security

Political context: As the government shifted to address the impacts of COVID-19, priority was given to ensuring food security. The pandemic underscored vulnerabilities in food imports and supply chains, prompting policies to increase domestic production of staple crops like rice and vegetables.

Agricultural priorities: During this period, policies pivoted towards achieving food self-sufficiency. This included support for local farming initiatives to mitigate disruptions in food supply due to global trade restrictions

External factors: The pandemic exacerbated food supply issues, leading the government to prioritize short-term agricultural support measures over long-term growth initiatives.

ASMP focus: The ASMP focus directed to production for domestic market clusters to ensure the food production within the country.

191. 2021: Fertilizer ban and consequences

Political context: In April 2021, a sudden policy shift under President, Hon. Gotabaya Rajapaksa banned chemical fertilizers, aiming to make agriculture fully organic. This decision, intended to save foreign exchange reserves, had severe repercussions on crop yields, especially for rice and tea, two critical staples and exports.

Agricultural priorities: With drastically reduced yields, the government faced a food crisis, reversing the ban later that year. This policy reversal aimed to stabilize the sector, but damage to productivity and farmer livelihoods had already occurred, leading to increased import dependency to meet domestic demand.
ASMP focus: Prior to the 2021 fertilizer ban, the project had proactively initiated practices to incorporate organic fertilizers and reduce dependency on chemical inputs. By using soil test-based fertilizer applications, the project minimized unnecessary fertilizer use, significantly reducing chemical inputs and supporting sustainable soil health, which is a critical advantage during the fertilizer crisis. Fertigation techniques further optimized nutrient delivery, minimizing waste and ensuring precise dosage.

192. 2022–2023: Economic crisis and fuel shortages
Political context: The economic collapse and political unrest in 2022, coupled with fuel shortages, put additional stress on the agriculture sector. This period saw mass protests and a shift in government, further disrupting policy continuity.
Agricultural priorities: In response, priorities shifted towards crisis management. There was a push for sustainable, localized food production to reduce dependency on imports and address inflation. Fuel shortages also highlighted the need for more resilient agricultural practices, as limited access to fuel impacted transportation and irrigation.
ASMP focus: The project encountered substantial challenges, particularly in procurement processes and importing essential machinery and equipment. The fuel shortages further complicated operations, limiting the functionality of fuel-dependent agricultural machinery. The project redirected its focus toward promoting import-substitution crops, aiming to alleviate foreign currency pressures. This approach supported the broader national priority of reducing import dependency while fostering resilience within the agricultural sector amidst supply chain and fuel disruptions.

193. 2024: Current status
Political context: The current administration's focus is on stabilizing the economy and rebuilding confidence across sectors, including agriculture.
Agricultural priorities: Efforts now emphasize sustainable practices, boosting crop resilience, and supporting smallholders to mitigate future risks. The expectations are to support initiatives to stabilize food prices, diversify crops, and reduce import dependency through increased local production capacity. Offering financial support to create new agro-entrepreneurs (50,000), promoting organic and value-added products, and establishing export villages (1000) to increase market reach and knowledge management are prioritized
ASMP focus: The project's PDOs align strongly with the new government's agricultural vision, especially in areas like value addition, and export orientation. By fostering agro-entrepreneurship, supporting value-added products, and creating export villages, ASMP is well-positioned to enhance the sustainability and resilience of the agricultural sector, ensuring alignment with national priorities and maximizing long-term impact if supported by effective post-completion operations.

194. From 2024 Oct to date- The agriculture sector in Sri Lanka has established several key priorities aimed at achieving food security, enhancing productivity, and promoting sustainable practices. These include modernizing farming methods and infrastructure, promoting high-yield crop varieties, and integrating advanced irrigation systems like rainwater conservation and micro-irrigation to maximize resource use efficiently, the policy focuses on supporting smallholders through subsidies, fair market prices, and access to agricultural inputs, including chemical and organic fertilizers. Prioritizing climate resilience, the policy aims to develop crop varieties that withstand changing climate conditions, emphasizing environmentally friendly and sustainable practices component is also to strengthen the entrepreneurship aspect within

agriculture, offering financial support to create new agro-entrepreneurs, promoting organic and value-added products, and establishing export villages to increase market reach and knowledge management are prioritized, aiming to equip extension agents and improve research funding to facilitate technology transfer and better farming practices. This comprehensive approach aligns with broader goals of sustainable land management, environmental conservation, and empowering rural communities (*Jathika Jana Balawegaya* (NPP Sri Lanka). (2024). A thriving nation, a beautiful life: National policy statement (pp. 62–65). https://www.npp.lk/up/policies/en/npppolicystatement.pdf).

195. From the World Bank's perspective, the project aligns closely with the current Country Partnership Strategy (CPS) 2024-2027 and the Government's reform agenda, which focuses on economic stabilization, green growth, and resilience. It directly supports two CPS focus areas: Improving Economic Inclusion and Maintaining and Strengthening Natural and Human Capital for Resilience and Livelihoods. Through initiatives like the creation of over 6,000 long-term jobs in the agriculture sector and fostering agribusiness investments, the project actively contributes to economic inclusion by enhancing private sector-led growth and expanding job opportunities. These efforts integrate seamlessly with the broader CPS objectives for 2024-2027 period, which emphasizes equitable growth and improved livelihoods for vulnerable populations.

196. The project aligns with the Government's goals of economic stabilization and revival through structural reforms and debt restructuring, particularly by supporting green growth and resilience. Its activities reflect key pillars of the Government's reform program, including fostering competitiveness for private sector-led growth, supporting social safety nets for vulnerable populations, and advancing sustainable livelihoods through modernization of the agriculture sector. By addressing these priorities, the project not only contributes to short-term stabilization but also lays the foundation for unlocking Sri Lanka's long-term growth potential through broader structural reforms.

197. In advancing the CPS objective of improving economic inclusion, the project levels the playing field for small and medium enterprises (SMEs) and facilitates private sector growth, crucial for creating job opportunities and mitigating the adverse effects of inflation. Targeted cash transfers to the poorest populations within the Bank's program ensure that the most vulnerable are protected, reinforcing the project's alignment with the CPS's equity-focused goals. The emphasis on export-oriented agriculture and agribusiness development complements macroeconomic stability efforts by generating sustainable income sources and reducing vulnerabilities in rural areas.

198. The project also significantly contributes to the CPS goal of maintaining and strengthening natural and human capital for resilience and livelihoods. Its focus on enhancing agricultural productivity, increasing exports by an estimated $141 million while improving farm productivity and food safety, benefiting 128,000 people align with efforts to promote sustainable rural development and green growth. By supporting resilient livelihoods, particularly in vulnerable rural communities, the project directly addresses the CPS's objective of strengthening human and natural capital. Furthermore, its alignment with ongoing World Bank initiatives, such as the Development Policy Operation (DPO) and the GRID Programmatic ASA, highlights its role in informing future strategies and ensuring sustained progress toward resilience, inclusivity, and sustainability.

199. In an overall, the macroeconomic context in Sri Lanka had shifted significantly due to an economic crisis and an IMF-backed recovery plan. Despite these disruptions, the project's objectives continued to align with the country's needs. The Central Bank's Annual Economic

Review of 2023[6] indicated that agriculture, particularly through modernization, still played a vital role in economic recovery efforts. Sri Lanka's focus on sustainable agricultural practices, improving productivity, and ensuring food security during this period of macroeconomic recovery highlights the project's ongoing relevance. Moreover, the project's goals are intricately linked to current strategies and policies, addressing immediate challenges while building a foundation for long-term resilience and growth. Its alignment with the CPS, the Government's reform agenda, and the World Bank's operational priorities underscores its strategic importance in achieving sustainable development outcomes for Sri Lanka.

3.2 Effectiveness

3.2.1 Achievement of the PDO

200. The project's performance across the five regions: Northern, Eastern, UVA, Central, and North Central Province (NCP) can be categorized based on agriculture productivity, market access, and value addition for smallholder farmers and agribusinesses. These categories offer insights into how the project has impacted each region, highlighting successes and areas requiring further development.

201. Increasing agriculture productivity: The project has been highly successful in increasing agricultural productivity across all regions. In the Northern Province, productivity has risen significantly. Similarly, the Eastern Province has also seen high productivity thus far, though some clusters are yet to be harvested, indicating future potential for even more gains. UVA, Central, and NCP have all reported high productivity, emphasizing the overall effectiveness of the interventions in enhancing agricultural output in these areas.

202. The project has led to a significant increase in technology adoption among farmers, particularly within ISP clusters funded by the IDA and those funded by the EU. Overall technology adoption rates reached 46% in ISP clusters and 40% in EU clusters, indicating strong improvements from the baseline. Over 90% of farmers implemented key recommended practices, such as using improved crop varieties, maintaining proper spacing, and ensuring optimal plant density. District-level differences in adoption were evident, with regions like Polonnaruwa, Mullaitivu, and Vavuniya showing higher rates, while female farmer adoption lagged in ISP clusters compared to EU clusters (ITS, 2024).

203. Farmers expressed high satisfaction with the technological aspects of the project, with over 90% approving of the selected crops and technology package suitability. Despite these successes, challenges remain, particularly in enhancing female participation and strengthening value addition and marketing activities. Female involvement in post-harvest practices and in value addition activities was notably low across clusters. While ASMP has positively impacted technology adoption and farmer satisfaction, further targeted support could help increase female engagement and address the project's identified areas for improvement in post-harvest value addition and market integration

204. Improving market access through PUCs: The establishment of PUCs aimed to improve market access for smallholder farmers, but the degree of success varied between regions. In the Northern Province, market access through PUCs has been satisfactory, but there is still a need for stronger networks and better market access. Most PUCs are in the early stages of activity

[6] Central Bank of Sri Lanka, 2023, Annual Economic Review 2023, Retrieved from https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/aer/2023/en/06_Chapter_01.pdf

and have not yet fully realized their potential. Similarly, the Eastern Province also had moderate success, with PUCs being set up but facing challenges in buyer agreements. In UVA, the PUC concept has shown promise, but overall functioning has been moderate as PUCs still need more training, guidance, and stronger market links. Central Province had a similar performance, where moderate success was observed, but additional support and operations improvements are needed. NCP, however, reported high success in improving market access through its PUCs, showing that some regions are ahead in this area.

205. Enhancing value addition for smallholder farmers and agribusinesses: Enhancing value addition has been another important focus of the project, and its impact has been largely positive. In the Northern Province, value addition efforts have significantly reduced the cost of production for smallholder farmers, contributing to increased profitability. The Eastern Province has also reported high success, with productivity increases, cost reductions, extra income from intercropping, and mechanization leading to lower labor costs. UVA experienced similar benefits, with high improvements in productivity and reduced production costs. Central Province reported satisfactory success, showing positive outcomes but indicating room for improvement. In NCP, value addition has been highly successful, with the project substantially boosting productivity and reducing production costs for smallholders and agribusinesses.

206. Value addition in the perspectives of job creation the also make significant contribution to the project. At the farmer level the project created 35,801 casual labor opportunities, with 13,632 of these positions filled by women. These roles primarily included daily or monthly paid casual labor and seasonal labor positions, reflecting the project's impact on both temporary and long-term employment within the agricultural sector. PUCs led to the creation of 73 permanent jobs, with 32 of these roles filled by women. In addition, 292 casual and seasonal jobs were generated within PUC operations, with significant female representation. Outside the PUC framework, 53 additional permanent jobs were created, including 28 roles for women, along with 735 casual labor positions, of which 103 were female. Overall, ASMP fostered substantial job creation across both PUC and non-PUC levels, reflecting a balanced employment impact across genders. The types of new jobs generated by the project were categorized into skilled and unskilled roles. Skilled jobs included machinery operation, field agronomy practices, and value addition and marketing activities, while unskilled jobs encompassed tasks such as land preparation, planting, and crop management activities (ITS, 2024).

207. In summary, agriculture productivity has increased significantly across all regions, demonstrating the project's success in enhancing yields and farming practices. Additionally, market access through PUCs has showed satisfactory success overall, with many regions still in the early stages of establishing strong networks. Further efforts are required to strengthen market linkages and operational efficiency, particularly through better buyer agreements and additional training. Apart from that, value addition efforts have reduced production costs and improved incomes in most regions, though Central Province showed satisfactory progress and may require additional interventions to fully realize the potential of these activities.

208. The project has conducted case studies to assess the effectiveness of various technologies, such as enhancing guava productivity through high-density espalier cultivation, improving guava quality and marketability with advanced bagging techniques, and empowering communities through the Rajanganaya banana cluster. The details are presented below.

Job creation - Rajanganaya Banana cluster	"The Rajanganaya Banana Cluster, part of the ASMP, has created 476 jobs, including 47 workers at the processing center (91% women) and additional roles in solar installation, land preparation, and irrigation, with earnings ranging from Rs. 40,000 to 100,000 monthly. Approximately 400 farm laborers also work on banana plantations, earning over Rs. 50,000 monthly. The cluster has modernized farming techniques and expanded banana cultivation to 400 acres, with exports starting in November 2022, contributing to rural employment and export growth"	
Technology for productivity- Guava prunning		"Guava cultivation under the high-density double-row system has become increasingly popular in Sri Lanka, supported by the ASMP. This system incorporates two pruning and training methods: the espalier method and the box method. The espalier method proved to be more productive, yielding an average of 12 fruits per tree per month, compared to 8 fruits per tree under the box method. With the average fruit weight ranging between 250-300 grams, trees trained under the espalier method produced approximately 4 kilograms per month, whereas those trained under the box method yielded around 2 kilograms per month. These findings highlight the significant impact of training methods on guava productivity, favoring the espalier system for higher yield."
Technology for productivity-Guava bagging		"Fruit bagging is a major practice in guava cultivation, primarily used to treat fruit fly infestations and improve final fruit quality parameters such as shine, color, and appearance. Farmers apply these bags when the fruits reach the size of a beetle nut. Experimentation has shown that bagging with newly innovated water-resistant bags can lead to improved marketable finishing and higher fruit weight compared to traditional newspaper bags. The ASMP emphasizes promoting these improved bags to enhance productivity and meet international market standards despite their higher cost, as they minimize damage and increase harvest quality."

Source: ASMP reports

209. Under Sub-component 2.4, which focuses on policy advisory support, the project effectively addressed the identified policy gaps, with detailed reports documenting the recommendations. However, the integration of these findings and recommendations into official policies and their implementation at the required levels remains a key consideration. Nevertheless, there is a valuable opportunity to incorporate these insights into the existing policy framework moving forward.

210. Initially, ten policy research initiatives were advertised under IDA funds, and after re-advertisement, eight studies were undertaken to provide analytical and policy advisory support. The procurement process for consultants took longer than anticipated due to unfamiliarity with the procedures. However, with guidance from the WB, the process was successfully completed, resulting in the preparation of eight policy documents (themes: food consumption, food safety, technology adoption, production relations, agricultural productivity, marketing strategies, agricultural land, and labor markets) at the national level together with additional policy document on Farmer Business Model. The key recommendations from these documents are listed in the Annex 4. These documents were submitted to the MOA. Originally, the plan was to submit them to the Central Project Coordination Committee (CPCC), but following the change in government in 2019, the committee was dissolved.

211. Additionally, other policy documents have been developed, such as those by FAO and the EU, though some remain unpublished, like the national agriculture policy. With the change in government, there is still uncertainty regarding the future direction and outcomes of these documents. Of the nine policy documents, the one related to the Farmer Business Model is directly applied in the ASMP and is currently being implemented.

212. Subsequently, in 2024, additional policy studies related to value chain development were identified through discussions at the Exporters' Forum. After refocusing its interests, the World Bank narrowed the scope of the studies, and with some additional ones, the total number now stands at six. These studies are still ongoing.

i. Technical and economic evaluation of new technologies introduced by the ISP under the ASMP vs. existing technologies
ii. Policy research on fruits, vegetables, and other high-value crop sectors to improve value chains of the potential crops for the export markets.
iii. Policy research to identify appropriate partnership agreement models for FPOs and trading partners of specific crop sectors (Fruits, Vegetables, Pulses/oil crops, and spices)
iv. Policy research to identify appropriate financial support system(s) for smallholder farmers, farmer producer organizations/farmer companies of the agriculture sector.
v. Assessment of the impact of ASMP Intervention into local dry chili production on the national dry chili market of Sri Lanka - Strategic analysis of the chili industry
vi. Assignment on compiling a registry / directory of farmer organizations/ farmer cooperatives / farmer societies/ other small holder organizations in operation and available service providers for them, including marketers /exporters, technical & business service providers.

213. As of 2024, these four policy studies are ongoing, with one significant study on agricultural sector restructuring recently completed in mid-2024. This study was assigned by the President's Secretariat at the request of the MOA.

3.2.2 Perceptions and Technology Adoption Among ASMP Followers

214. With a discussion with 39 farmers as followers of the ASMP concept, the data outlines the cultivation details of various crops under the ASMP, including the number of cultivators and the average land extent allocated to each crop. Chilli stands out as a widely cultivated crop, with 11 cultivators dedicating an average of 0.25 acres each to its production. Banana and cucumber share a similar average cultivation area of 1.5 acres per cultivator, though they differ in the number of cultivators, with 5 and 3, respectively. Groundnut is the most extensively cultivated crop in terms of count, with 13 cultivators, each managing an average of 1.5 acres. Papayas are grown by 4 cultivators each with an average land extent of 1 acre. Guava, although grown by only one cultivator, has the largest average cultivation area, spanning 9 acres. This diversity in crop choice and land allocation reflects varied agricultural practices and priorities among the participants of the ASMP.

215. The project has introduced a variety of advanced technologies to enhance agricultural productivity and sustainability. Among these, 'sprinkler irrigation' has seen the highest adoption, utilized by 30 participants, accounting for 77% of the total. 'Double-row high-density planting' is another popular technology, adopted by 20 participants (51%), reflecting its appeal for efficient land use. 'Deep ploughing' is practiced by 15 participants (38%), highlighting its role in soil preparation, while poly mulching is used by 9 participants (23%) to improve soil moisture retention and weed control. Technologies such as 'using hybrid varieties' (7 participants, 18%) and 'intercropping' (6 participants, 15%) illustrate efforts to diversify and enhance crop production. Other practices like 'micro irrigation drip', 'fertigation', 'spacing', and 'insight-proof nets' are each utilized by 6 or fewer participants (15% or less), suggesting these are specialized or situational technologies. Lastly, 'bunch covers, adopted by only 2 participants (5%), represent niche practices aimed at crop-specific protection. The varied adoption rates of these technologies underscore the ASMP's role in offering adaptable solutions to meet diverse farming needs.

216. Awareness about the ASMP has been disseminated through various channels, with the majority of participants, 44% (17 individuals), learning about the project directly from ASMP officials. Neighboring farmers were another key source, contributing to 33% of the awareness, as 13 individuals became informed through farmer-to-farmer communication. Mass media, including outlets such as radio, television, and newspapers, played a role in informing 18% of participants (7 individuals). Additionally, Agriculture Instructors and the DS Office each accounted for 3% of the awareness, with one participant from each group citing them as their source. Overall, the ASMP utilized a mix of direct engagement, interpersonal networks, and media channels to reach 39 participants effectively.

217. To further enhance awareness and participation in the ASMP or such kind of a project, it is recommended to strengthen community-based initiatives and expand media outreach. Leveraging neighboring farmers as peer educators through organized farmer groups or field demonstrations could amplify the program's reach, given their significant role in spreading awareness (33%). The adoption of technologies introduced by the ASMP has elicited overwhelmingly positive opinions, with all participants (100%) identifying high production over a small area as a significant advantage compared to traditional farming practices. This highlights the program's success in promoting efficient land use and increasing yields.

218. Other notable benefits include high input use efficiency (15%) and low risk of pest and disease (10%), reflecting the technologies' contribution to sustainable and resilient farming practices. Additionally, high-density planting was recognized by 10% of participants, showcasing its role in maximizing land productivity. A smaller percentage noted advantages such as easy management (8%) and saving money (3%). However, some participants highlighted challenges, with high initial costs being a concern for 21%, suggesting financial barriers to adoption for certain farmers. These mixed responses underline the need for strategies to make the technologies more accessible, such as financial support or subsidies, while continuing to promote their long-term benefits for sustainable agriculture.

219. Finally, the followers have acknowledged the ASMP as a well-conceived initiative, highlighting its potential to advance sustainable agricultural practices. The concept is widely appreciated, providing a strong foundation for its continued implementation and expansion.

3.3 Efficiency

The study's methodology in capturing the efficiency measures, involved gathering data from both primary and secondary sources. Secondary data, including project documents like baseline reports, progress reports, and tracking indicator surveys, provided essential background and insights into project evolution. Primary data collection encompassed key informant and focus group discussions, along with surveys, to capture direct and indirect beneficiaries' perspectives. These discussions focused on project impacts, technology adoption, and satisfaction, while surveys quantified adoption rates, labor use, and other metrics across beneficiaries. A detailed methodology is provided in the Annex 6.

3.3.1 Cluster formation and technology integration

221. Before proceeding with the quantitative interpretation of cluster performance, it is essential to first clarify the complexities of cluster formation. This is outlined in the following paragraphs. Component 2 of the project aims to introduce modern agricultural practices that, while not yet adopted in Sri Lanka, are proven to thrive in tropical regions. This made the involvement of an international consultant essential for both testing and adopting the new technologies. However, delays in procuring the ISP led to the early introduction of pilot clusters. The differences among the clusters in this project can be categorized based on two key factors: funding sources and the type of technology employed. The funding came from two main sources: IDA (WB) and the European Union. As for the technology, there were three distinct categories: the existing technology with minor modification applied to the pilot clusters (IDA funds), the ISP technology applied in the EU clusters (EU funds), and the clusters which the technology applied by the ISP (IDA funds). The existing technology, funded by IDA, was used in the initial pilot clusters. This technology involved incremental improvements, such as enhanced irrigation systems and soil test-based fertilizer applications. While not radically different from what was already in use in Sri Lanka, these technologies were adapted to fit more commercialized and sophisticated agricultural practices.

222. With the arrival of EU funding, the technology shifted towards a more innovative blend, which combined elements of Sri Lankan practices with the novel approaches introduced by the ISP. This hybrid approach, used in EU-funded clusters, leaned more towards the advanced technologies brought in by the ISP, but with some adjustments to better suit local conditions. Finally, the most advanced form of technology, referred to as ISP technology, was fully introduced once the ISP was completed feasibility studies. Funded by IDA, this modernized agricultural approach was a significant leap forward, incorporating new tools, techniques, and methods designed to increase productivity and align with international market demands.

223. The introduction of EU funding, firstly, some of the existing pilot clusters that had been initially funded by IDA were scaled up with EU funds. In these clusters, the original farmers continued as the pilot cluster context, but new farmers were brought in, utilizing the more advanced EU-funded technology. The second type of cluster formation involved entirely new clusters that were established with EU funding. The EU-funded technology introduced new clusters, and the clusters upgraded with the EU funds were guided and supervised by a specialized consultant team that included both an international expert and local experts (Consultant manager, Agriculture consultant, M&E specialist, Engineer, Value chain and machinery experts, Economist, Social and safeguard specialist, Geo information consultant) all of whom contributed to the development of a tailored technology approach. The technology used in these clusters was a hybrid of ISP innovations and local adaptations, with more emphasis on ISP practices, providing a more customized solution.

224. In this study, farmers and PUCs were ranked as poor, fair, satisfactory, good, excellent based on criteria such as the effectiveness of farmer selection, farmer motivation, future sustainability, and existing marketing arrangements. The Net Present Value (NPV) calculations represented the present value of total profits to date, which led some immature clusters to show negative values, despite performing well overall. Future yield and income forecasts were not conducted because many of the perennial crops are still in their early stages, making predictions for new technologies potentially inaccurate.

225. The NPV values generated and the cluster performance ratings cannot be directly compared for several reasons. Firstly, some clusters, particularly perennial crops introduced

with ISP technology and EU-funded clusters are in the later stages of the project period, some in 2022, but the majority in 2023 and 2024. As a result, most of these clusters with perennials have either not yet reached the production stage or have only recently started bearing yields. Therefore, based on the crop's current state, production levels are predicted, and the NPV value is subsequently estimated.

226. In this context, the performance status of such clusters is evaluated using additional criteria (refer the paragraph 222) and indicated the state (e.g. the cluster is in a good state/satisfactory state etc.) of the cluster rather than providing a specific performance rating. In cases where a crop has yielded for some time and future production is forecasted, the NPV value and performance ratings often align, i.e., a higher NPV (values from the actual productions and/or the predicted values) corresponds to a higher performance rating. However, discrepancies can occur, as seen in the following scenarios. Although the NPV value may be negative, the cluster's performance can still be strong due to high fixed costs, with production and profits remaining robust, which justifies its ranking as good. Clusters with high fixed costs (and negative NPV), despite this, are expected to achieve good yields and generate substantial income. Similarly, clusters with comparable fixed costs and strong performance are also anticipated to deliver good yields and generate significant income.

3.3.2 Financial analysis of pilot clusters

Rank: Fair

227. The key assumptions brought in the analysis are as follows.

- The discount and compound rate is 14%. The Average Weighted Lending Rate (AWLR) of the Central Bank of Sri Lanka reflects the average cost of borrowing and used as the discount rate. It helps assess the project's viability by discounting future cash flows. For this analysis, the AWLR from 2018 to 2024 was averaged, resulting in a 14% discount rate.
- 1 USD = 300 LKR
- The future yield, cost, and income of all recently cultivated perennial crops are based on the Crop Enterprise Budget from the Department of Agriculture, Sri Lanka.
- Perennial crops are expected to generate yields up to the year 2040.
- No income will be generated from mixed crop cultivation in the future.
- The farmer’s fixed-cost contribution is negligible.

228. Altogether, there are 31 pilot clusters, with 27 funded by IDA and 4 by the EU. Of the IDA-funded clusters, the majority 21 clusters, or approximately 77% were initiated during the latter part of 2018 and in 2019, with 1 cluster starting in 2020 and 2 in 2022. As for the EU-funded clusters, 2 were established in 2020, 1 in 2021, and the final one in 2024.The performance and NPV across the pilot clusters reveal varied success rates across different crops and district.

Table 3.1: Pilot clusters funded by IDA

District	#	Crop	Year & Target Bene. #				Actual Bene. #	Performance	NPV (USD)
			18	19	20	21			
Matale	1	Passion fruit		100			**100**	Satisfactory	**1,038**
Matale	2	Onion seed	30	20			**50**	Discontinued	**-**
Matale	3	Hybrid chili seed	10	10			**20**	Excellent	**33,088**
Jaffna	4	Off season green chilli	208				**147**	Satisfactory	**3,172**
Mullaitivu	5	Ground nut	150	150			**300**	Satisfactory	**7,808**
Mullaitivu	6	Passion fruit		50			**50**	Poor	**-919**
Mullaitivu	7	Dry chili cluster				300	**129**	Excellent	**55,029**
Monaragala	8	Passionfruit	75	100			**175**	Satisfactory	**6,097**
Monaragala	9	Pineapple	275				**275**	Satisfactory	**-**
Monaragala	10	Moringa leaves		100			**100**	Satisfactory	**1,018**
Monaragala	11	Bee keeping		150			**150**	Poor	**143**
Monaragala	12	Chilli			300		**300**	Good	**22,657**
Batticaloa	13	Cucumber	500				**500**	Excellent	**282,894**
Batticaloa	14	Green chilli Kaluthavalai	100				**100**	Good	**20,761**
Batticaloa	15	Dry chili		50			**50**	Satisfactory	**8,983**
Batticaloa	16	Ground nut Kathiravelai	100				**100**	Good	**11,353**
Batticaloa	17	Ground nut Karadiannaru		100			**100**	Good	**12,784**
Anuradhapura	18	Green chilli	80				**80**	Satisfactory	**-**
Anuradhapura	19	Bitter gourd	40				**40**	Poor	**-**
Anuradhapura	20	Mushroom	25	25			**50**	Poor	**1,331**
Anuradhapura	21	Aloe vera		100			**100**	Discontinued. later replanted with passionfruit	**-**
Anuradhapura	22	Moringa leaves		100			**100**	Discontinued. later replanted with groundnut	**-**
Anuradhapura	23	Maize seed				100	**100**	Discontinued	**-**
Polonnaruwa	24	Green chilli	40				**40**	Discontinued	**1,255**
Polonnaruwa	25	Bitter gourd	30				**30**	Discontinued	**10.799**
Polonnaruwa	26	Mushroom	40				**40**	Discontinued	**2,012**
Polonnaruwa	27	Aloe vera		100			**100**	Discontinued	**-**
Vuvuniya*	28	Cassava					**100**	Discontinued	**-**
Badulla*	29	Yellow mandarin			50		**50**	Discontented. Farmer selection issue	**10,824**
Badulla*	30	Passion fruit				100	**100**	Satisfactory	**-**
Badulla*	31	Soursop			100		**100**	Discontinued. later replanted with groundnut	**-3,557**

Note: *EU-funded and the rest are IDA funded clusters
18 = 2018, 19=2019, 20=2020, 21= 2021 (years)
Bene. # - beneficiary number

229. The pilot clusters exhibit a range of performance, from "Poor to Satisfactory." The most successful clusters are cucumber in Batticaloa, hybrid chilli seed production in Matale and dry chilli cluster in Mullaitiuv, where NPVs are consistently high. However, several regions and crops have faced challenges, leading to discontinued operations or poor performance, specially in Monaragala, Badulla, Anuradhapura and Polonnaruwa.

3.3.3 Financial analysis of EU clusters

Rating: Satisfactory

207. In total, there are 13 new EU-funded clusters and 7 pilot clusters that were scaled up with EU funding and advanced technology. This brings the total number of EU-supported clusters to 20. Out of the 13 EU-funded new clusters, 1 was in 2021, 11 were initiated in 2023, and 1 was in 2024. Data has been collected up to the end of the Maha 2023/24 season. Among these, 5 clusters are for perennial crops, which have only recently been planted and therefore need more time to reach maturity and yield results. Similarly, 4 clusters are seasonal crops, where production has either just begun or the data is incomplete or inconsistent.

Table 3.2: EU-funded clusters

District	#	Cluster	Target Bene. #			Actual Total Bene. #	NPV (USD)	Performance
			2021	2023	2024			
Kandy	39	Hass avocado		300		**300**	**963**	In a satisfactory state
Kilinochchi	40	Pomegranate		150		**55**	**21,701**	Excellent
Vavuniya	41	TEJC Mango		300		**154**	**12,168**	Good
Badulla	42	Avocado		300		**300**	**-**	In a satisfactory state
Kandy	43	Vegetable seed		75		**9**	**-**	Recently started. The polytunnels under production are in a good state
Kandy	44	*Ambul* banana		200		**54**	**-**	In a satisfactory state
Kilinochchi	45	Chili		300		**300**	**5,424**	Satisfactory
Vavuniya	46	Dried chilli	247			**300**	**25,629**	Excellent
Vavuniya	47	Maize seed		300		**75**	**1,330**	Satisfactory
Badulla	48	Dry chili		300		**300**	**531**	Satisfactory
Badulla	49	Vegetable			100	**100**	**9,883**	Good
Ampara	50	Dry chili		300		**300**	**35,124**	Excellent
Ampara	51	Maize seed		300		**120**	**-**	In a good state

Note: Bene. # - beneficiary number

208. When comparing the seven expanded[7] pilot clusters funded by the EU with the original pilot clusters (Table 6), a clear distinction is observed in both cluster performance and NPV estimates. The NPV for the EU-funded expanded clusters indicates significantly better performance compared to the pilot clusters, demonstrating enhanced financial success and operational outcomes. This highlights the stronger impact of the expanded clusters supported by EU funds.

[7] to indicate growth in the cluster size and resources

Table 3.3: Expanded pilot clusters with EU-funds

District	#	Cluster	Actual	Pilot				Expanded with EU-funds in 2023		
			Total Bene. #	Bene. #	Year	NPV (USD)	Performance	#	NPV (USD)	Performance
Kandy	32	Dry Chili	**344**	44	2021	**580**	Poor	300	**-**	In a poor state, nearing discontinuation.
Kilinochchi	33	Jumbo peanut	**530**	30	2020	**-1,250**	Good	500	**2,212**	Satisfactory
Kilinochchi	34	Passionfruit	**200**	100	2020	**-3,081**	Poor	100	**-5,554**	In a good state
Vavuniya	35	Papaya	**360**	50	2020	**9,656**	Good	500	**9,237**	In a good state
Badulla	36	Seed Potato	**400**	180	2020		Discontinued	220	**-**	In a good state
Ampara	37	Jumbo peanut (pilot cassava)	**600**	100	2020	**12,740**	Discontinued (Cassava)	500	**15,267**	Good (Jumbo peanut)
Ampara	38	Soursop	**260**	100	2020	**-**	Discontinued	200	**4.382**	Satisfactory

Note: Bene. # - beneficiary number

3.3.4 Financial analysis for ISP clusters

Rating: Good

209. There are 16 new IDA-funded clusters and 5 pilot clusters that were expanded with IDA funding and advanced ISP technology, bringing the total number of ISP-supported clusters to 21. The majority of new IDA-funded clusters have been established in 2023. Of the 21 clusters, 17 are planted with 8 types of perennial fruit crops, including 3 banana varieties (Musa spp.), namely *Ambul, Kolikuttu*, and Cavendish, alongside papaya, passion fruit, guava, pomegranate and TEJC mango. These fruit crops have recently been planted and are expected to reach maturity in the coming years. A distinct feature of the ISP clusters is the incorporation of intercropping with high-value seasonal crops, including chilli, ground nut, cowpea, tomato, black gram. This practice has significantly enhanced land-use efficiency, allowing beneficiaries to generate additional income. Among these clusters, the most notable is the Ambul banana cluster in Anuradhapura, which has made remarkable strides in reaching the export market, while all other banana clusters—except the one in Mullaitivu—have faced disease issues.

Table 3.4: IDA Funded clusters with ISP technology

District	#	Cluster	Target B. #	Year	Actual B. #	NPV (USD)	Performance
Matale	57	Guava		2023	**200**	**12,787**	In a good state
Matale	58	TEJC mango instead of MD2 pineapple		2024	**100**	**20,877**	In a good state
Mullaitivu	59	Pomegranate/Chilli	150	2022	**70**	**9,801**	Satisfactory
Mullaitivu	60	Papaya/Chilli	400	2022	**300**	**-589**	Satisfactory
Batticaloa	61	Pomegranate	150	2022	**89**	**9,225**	Satisfactory
Batticaloa	62	Pomegranate	150	2023	**100**	**7,613**	Satisfactory
Jaffna	63	Potato/red onion	500	2024	**500**	**1,265**	Good
Jaffna	64	Organic small banana	500	2022	**500**	**349**	Excellent
Mullaitivu	65	*Kolikuttu* Banana/Chilli	300	2023	**100**	**-**	Satisfactory (Low yield due to sigatoka disease)
Monaragala	66	Cavendish banana	500	2022	**500**	**-2,606**	Excellent

District	#	Cluster	Target B. #	Year	Actual B. #	NPV (USD)	Performance
Monaragala	67	Cavendish banana instead of MD2 pineapple	200	2023	**130**	**-**	Excellent
Batticaloa	68	Cavendish banana	500	2023	**400**	**21,428**	Good
Anuradhapura	69	*Ambul* banana	642	2023		**6,720**	Excellent
Anuradhapura	70	Dry chili	400	2020	**420**	**129,119**	Excellent
Polonnaruwa	71	Dry chili	400	2023	**275**	**547**	Satisfactory
Polonnaruwa	72	Vegetable	300	2023	**108**	**8,752**	Good

Table 3.5: Expanded pilot clusters with ISP technology

District		Cluster	Actual	Target		Pilot		Target			ISP
	#		Total B. #	B. #	Year	NPV (USD)	Performance	B. #	Year	NPV (USD)	Performance
Matale	52	TEJC mango	**430**	202	2018	31,300	**Excellent**	228	2022	16,374	**Excellent**
Jaffna	53	TEJC mango / chili	**378**	200	2019	1,802	**Good**	300	2023	-2,069	**In a good state**
Monaragala	54	TEJC mango	**240**	40	2018	38,097	**Excellent**	240	2022	23,433	**In a good state**
Anuradhapura	55	Guava	**255**	60	2018	25,359	**Excellent**	300	2023	14,119	**In a good state**
Polonnaruwa	56	Papaya	**217**	50	2019	1,251	**Satisfactory**	500	2023	-321	**In a satisfactory state**

3.3.5 Total project cost, benefit and sensitivity analysis

210. The project's NPV is reported as Rs. 76,000 million, indicating a positive return on investment despite some negative cash flow periods. The IRR is recorded at 55% under the existing cash flows, indicating exceptional project viability and efficiency. It stands at 38% and 24% under different scenarios (30% and 50% income reduction), both well above typical benchmarks, further suggesting strong project resilience and viability. With a 50% reduction scenario, total income is still projected at Rs. 14,237 million, highlighting resilience in the project's financials. Despite high fixed costs leading to some periods of negative profits, the project's long-term potential is solid, especially for perennial crops with yields extending to 2040 (Annex 5).

211. The ASMP project demonstrates robust financial performance with a strong NPV and IRR, signaling a well-structured investment with substantial long-term gains. Though initial phases faced high fixed costs, the project's enduring benefits, especially from perennial crops, ensure consistent income generation. The project's success is particularly evident in its capacity to sustain profitability under varying income scenarios, reaffirming its strategic value to agricultural development.

212. However, it must be emphasized that these projected benefits hinge on the assumption that crops perform well and that all cluster farmers actively engage in cultivation, thereby ensuring the expected income. Any risks or uncertainties, including potential reductions in cluster participation or unforeseen challenges, could significantly alter the project’s outcomes.

Therefore, while the current projections are promising, the sustainability of these results is contingent upon continued farmer commitment and effective risk management. This dynamic underscores the importance of proactive monitoring and support to safeguard the project's long-term viability.

3.3.6 Farmer Engagement, Livelihoods, and Market Development

213. Farmer engagement and technology adoption: The data shows high adoption rates for certain technologies, such as the use of recommended varieties (92%) and quality planting materials (93%). Other techniques like mini-sprinkler irrigation systems and precision planting were also widely accepted, with adoption rates of 92% and 73%, respectively. However, land preparation tools and weed control methods had lower adoption rates, with 66% and 60% of farmers adopting these practices. Perceptions about the new technologies were generally positive, with over 50% of farmers rating them as "very good" or "excellent." Importantly, the majority of farmers (over 70%) expressed a willingness to continue using these technologies in the future. The majority of farmers (46%) learned about the ASMP through Project Officers, while 34% were informed by Agriculture Instructors (AI). Other sources like neighbors accounted for 12%, and the remaining were informed by politicians or PUC officers, although these sources were minimal at 1-2%. Training effectiveness was rated highly, with 57.85% of participants rating the training as the "best" and 37.19% considering it "very good." Only a small fraction, about 5%, rated it as "good" or "fair," with no participants rating the training poorly. When asked whether they practiced what they learned, 63.33% of farmers indicated they applied the training well, while about 26% practiced it moderately. Only 2.5% did not practice the training effectively, citing reasons such as lack of resources (22%) and difficulties in recalling technologies due to a gap between training and practice. This overall view emphasizes the success of the project in areas such as technology adoption and training effectiveness, while highlighting the need for additional support in areas like record-keeping and the application of training in practice. On the other hand, the online Farmer Business School (FBS) trainings were largely seen as highly effective, with the majority (65%) of participants giving positive ratings. (Annex 7).

214. Livelihood improvement: The project resulted in significant positive changes across various aspects of the respondents' livelihoods. Many participants reported improvements in food security, transitioning from previously challenging conditions to a more stable food situation. Education for children benefited as well, with many parents noting improved schooling opportunities following the project’s intervention. Housing conditions improved, with more respondents experiencing better living standards and undertaking home improvements. Better financial security for many families was reflected in the improved ability to buy assets like home appliances. Although progress in vehicle and land ownership was modest, more participants were able to invest in these areas after the project. Social recognition within the community increased, and a reduction in debt burdens contributed to greater financial security for participants. Overall, the project enhanced the quality of life by providing better access to resources and opportunities for personal and economic development (Annex 7)

215. Marketing strategies and challenges in cluster operations: A significant number of respondents market their products through their own outlets, supermarkets, and direct exports. Forward sales agreements are also widely used, reflecting a strong preference for securing sales in advance. This demonstrates a diverse approach to marketing, with many producers balancing

between local sales channels and exports, ensuring flexibility and broad market reach. While many producers began cultivation with a marketing guarantee, a considerable portion started without any assurance, indicating that a significant number take on marketing risks without a safety net in place. The primary challenges in marketing include the lack of fixed pricing and difficulties in finding buyers, with some producers also facing transport issues. These concerns highlight the instability in pricing and buyer availability as major hurdles that need to be addressed for smoother market access. Most respondents confirmed that their cluster had developed a PUC, which plays a crucial role in providing organizational support. Expectations from PUCs include securing marketing assurance, improving input supply, and generating additional income, along with quality control and coordination being important areas of focus (Annex 10).

216. Farmers' perception of cluster success: A significant 85% of respondents believed that their cluster was successful. However, for the 15% who did not, market failures were identified by 67% as the major reason, with other issues like poor management (56%) and organic fertilizer problems (44%) contributing to the dissatisfaction. These insights suggest a strong reliance on PUCs for marketing and support, though challenges such as market access and pricing need to be addressed to enhance sustainability and success across the board. (Annex 7)

217. PUC performance and challenges in agricultural value chain development: The PUCs are designed with several key objectives aimed at improving agricultural efficiency and market access. The majority of PUCs focus on increasing productivity by providing good quality seeds and other essential inputs, significantly boosting production levels. In addition, a large number of PUCs are geared towards producing goods for export markets, a critical feature that aligns with the project's long-term goal of positioning farmers for international trade. Value addition and processing of agricultural products are also core functions of these centers, allowing farmers to enhance the quality of their produce and enter higher-value markets.

218. A notable benefit of the PUCs is their ability to provide financial support and increase market access, which helps stabilize prices and improve farmers' bargaining power. However, it is apparent that technical and advisory support, while available, is satisfactorily utilized across the centers, and the number of PUCs that offer job creation and business opportunities remains relatively low. Furthermore, the engagement of farmers in PUC activities is less than optimal, with limited involvement in decision-making processes and a lower than expected number of stakeholders actively participating in PUC management. Infrastructure remains a significant challenge for the majority of PUCs, with nearly half experiencing shortages of buildings, processing centers, and storage facilities. Issues such as insufficient cooling systems and transportation bottlenecks also persist, affecting the efficiency of supply chains. Moreover, the availability of equipment and machinery for quality control and processing is low, further complicating efforts to enhance value-added products.

219. Despite these obstacles, many PUCs have shown satisfactory to good performance in terms of marketing and output collection. However, a significant portion of PUCs continues to struggle with operational challenges, indicating that further improvements in infrastructure, training, and farmer engagement are needed. In terms of sustainability, while a few PUCs have the capacity to function independently, the majority are not yet ready to operate without ongoing external support. Nonetheless, with continued investment in infrastructure and

capacity-building, the PUCs are well-positioned to become a vital component of the agricultural value chain in the near future (Annex 10)

3.4 Justification of Overall Outcome Rating

Rating: Satisfactory

220. The overall outcome rating of the ASMP project can be considered satisfactory based on its relevance, efficacy, and efficiency. The project remained highly relevant by addressing Sri Lanka's agricultural needs and adapting to challenges like food security and market access. In terms of efficacy, the project largely met its development goals, improving crop yields and establishing PUC operations, though some gaps in market coordination and sustainability remain. Efficiency was generally strong, despite delays caused by external crises, with good progress in the use of modern technologies and cost-effective solutions. Despite some underperforming clusters, the project's financial outcomes in most regions, especially in the high-performing clusters, balance out inefficiencies, leading to this positive assessment.

3.5 Overarching Themes, Other Outcomes and Impacts (if any)

3.5.1 (a) Poverty Impacts, Gender Aspects, and Social Development

221. The project faced challenges in promoting gender equality and social inclusion, primarily related to land ownership, across all regions: Northern, Eastern, UVA, Central, and North Central Province (NCP). In most cases, land was registered under the husband's name, limiting women's direct involvement in agricultural activities. However, female participation was generally satisfactory among indirect beneficiaries.

222. To address these challenges, measures were implemented where husbands provided *no objection letters* allowing their wives to use or lease the land for cultivation. In some cases, l*ease agreements* were arranged between husbands and wives, ensuring women could participate in the project activities. These actions were particularly effective in regions like Northern, Eastern, UVA, Central, and NCP, where land ownership issues were prevalent.

223. Despite these hurdles, many women, including widows in some areas, were able to actively engage in the project. While land ownership remained a barrier for direct participation, the strategies adopted, such as *no objection letters* and *lease agreements*—helped increase female involvement and support gender equality and social inclusion within the project.

224. From the perspective of mobilizing private sector investments to complement public sector efforts in enhancing agricultural productivity and social development, the ASMP has demonstrated tangible success. For example, an *ambul* banana exporter has initiated his own cultivation while establishing a network in Embilipitiya, showcasing the project's ability to catalyze private sector engagement. Moreover, followers adopting ASMP technologies, such as high-density cultivation and value-added processing, have contributed substantial private investments (Annex 8: Secondary beneficiary-Followers information). These initiatives not only extend the project's impact but also generate employment and boost income within farming communities, driving broader social and economic progress.

3.5.2 (b) Institutional Change/Strengthening

225. Component 2 has contributed to strengthening the Department of Agriculture by providing capacity-building support. This effort involved allocating LKR 417 million (US$ 1.39 million) for constructing and upgrading facilities at the Field Crop Research and Development Institute (FCRDI) and the Seed and Planting Material Development Center (SPMDC). Additionally, LKR 838 million (US$ 2.79 million) was invested in supplying laboratory equipment to various DOA institutes. The construction of poly-tunnels (11) and the renovation of the quality improvement center are still in the initial phases. Yet, the majority of other construction and renovation activities has either been completed or is nearing completion.

226. The project interventions led to various institutional changes and strengthening across regions. In the Northern region, the establishment of PUCs was viewed as a very good concept, providing a solid legal framework that facilitates business operations. In the Eastern region, while the PUC concept is appreciated for strengthening farmers, it was noted that additional guidance and training are needed to effectively set up these organizations. There is also a crucial need to enhance market linkages sustainably.

227. In UVA, the PUC has been beneficial in empowering farmers as entrepreneurs, significantly increasing their bargaining power. However, there is a recognition of the necessity for skilled personnel to ensure the successful continuation of these initiatives. Training for farmers engaged in PUC activities is challenging and more support is essential for the sustainability of the concept.

228. In the Central region, the PUC framework is similarly seen as good, but it lacks adequate training for farmers to sustain business activities across many clusters. There is a clear demand for further supervision and guidance to establish the concept effectively. In NCP, the setup of PUCs is positively regarded, yet many clusters still require additional training to continue their business activities. Interestingly, non-cluster banana farmers have expressed interest in joining the Banana PUC, indicating a potential expansion of the concept and its influence in the region.

SECTION 4

4 ASSESSMENT OF RISK TO DEVELOPMENT OUTCOME

229. The sustainability of the project is closely tied to the success of the PUCs. One of the key challenges faced by the PUCs is their inability to meet the high expectations of farmers regarding market access and service provision. Many farmers anticipated that the PUCs would handle all aspects of crop distribution and export, but some of these centers have not been able to fulfill that role due to limited resources and infrastructure. Moreover, the PUCs are struggling with the supply chain for export crops, as there is not enough consistent production of fruits to meet the demand. This shortage in supply weakens the PUCs' ability to maintain their operations at full capacity, which in turn threatens their long-term viability.

230. The time since the establishment of the PUCs is relatively short, which means that their level of maturity is still low. Despite this, there are high expectations for the PUCs. As production levels increase and the supply for exports becomes more consistent, the PUCs will gradually strengthen. However, this process takes time, and the some PUCs are not yet at a stage where they can operate independently without external support. To ensure their successful development, it is important that the PUCs are adequately monitored and supervised during this early phase. The project has put in place a mechanism involving NEDA officers and Development Officers (DOs) under the District Director, with guidance from the MOA, to oversee and support the PUCs. This oversight structure provides a solid foundation for nurturing the PUCs' growth, offering hope that they will eventually become self-sustaining and capable of standing on their own. Moreover, the sustainability of the PUCs, it is crucial that they be better integrated into the commercial sector. Developing stronger partnerships with private enterprises could provide the necessary support for scaling operations and improving market access. Additionally, improving the management of fruit maturity for shipping and aligning production levels with export needs could help the PUCs meet market demands more effectively.

231. The sustainability of the project faces several significant risks, particularly in the clusters established during the later phase of the project, especially for perennial crops. The technology introduced by the ISP in mid-2020 was not able to complete its full cycle due to delays. For example, pruning cycles remain incomplete. As the crops continue to grow, it is essential that farmer training is sustained until the technology cycle is fully implemented. Without continued training and support, the initial efforts will not yield the intended results, jeopardizing the project's long-term impact.

232. Another area of risk and uncertainty lies within the training component for trainers of trainers (TOT). As many trained cluster coordinators and mobilizers are expected to leave at the end of the project, there is a concern that this turnover could disrupt knowledge transfer and ongoing training efforts. This lack of continuity may undermine the long-term sustainability of the project and hinder the smooth continuation of its objectives. The TOT provided to Agricultural Instructors (AIs) has varied in effectiveness. While some AIs have excelled in fulfilling their roles, others not delivering the concepts as expected. As a result, the continuity of technology transfer after the project's conclusion remains uncertain in certain areas, highlighting the need for further support and consistency to ensure long-term success.

233. Technological challenges also present a risk. Issues with irrigation systems, including poor water pressure and inadequate pumps, which were already owned by the farmers have hampered the effectiveness of introduced technologies.

234. In conclusion, addressing these risks is critical for ensuring the sustainability and long-term success of the project. Effective training, technological improvements, private sector involvement, and better market coordination are essential to mitigate these challenges and secure the project's future. Thus, government's role specially the DOA, PDOA has a significant role to play. For the PUCs to sustain their operations, they need better support in managing supply chains, developing commercial partnerships, and addressing logistical challenges. These improvements will enhance their capacity to serve farmers and facilitate the success of the project's overall goals.

SECTION 5

5 ASSESSMENT OF BANK AND BORROWER PERFORMANCE

5.1 Bank Performance

5.1.1 Bank Performance in Ensuring Quality at Entry

Rating: Good[8]

235. The project aligned with both the CPS 2013-2016 and the proposed CPS 2017-2020 (as at the time of project appraisal) by focusing on agricultural productivity, diversification, and improving rural livelihoods. As outlined in the CPS 2013-2016, the project supported structural economic shifts by enhancing agricultural competitiveness and linking rural and urban areas, thereby contributing to Sri Lanka's broader economic transformation. It also aimed to improve living standards and promote social inclusion by targeting the bottom 40% of the population and increasing market access for the poor and vulnerable, especially in rural areas. Additionally, the project's emphasis on value addition and crop diversification directly aligns with the CPS 2017-2020, which focuses on promoting agricultural diversification, market orientation, and sector competitiveness to foster sustainable economic growth in the agriculture sector. Moreover, the WB focused on the strategic context and development relevance of the project in light of Sri Lanka's National Program for Food Production (2016-2018). An International Development Association (IDA) mission arrived in 2015 engaged multiple stakeholders to ensure a comprehensive and inclusive project design. The World Bank team conducted consultations with key government representatives and private sector

[8] Poor (1) : Performance is significantly below expectations. There is minimal effort or commitment, leading to substantial issues and challenges in achieving project goals. Key tasks may be incomplete or poorly executed, resulting in negative impacts on outcomes.
Fair (2) : Performance meets some basic expectations but is inconsistent. While some tasks are completed, there are notable deficiencies in execution, coordination, and engagement. The overall contribution is limited, leading to only moderate progress toward project objectives.
Satisfactory (3): Performance meets the minimum acceptable standards. The required tasks are generally completed, and there is a reasonable level of effort and commitment. However, there may be areas that need improvement to enhance effectiveness and achieve better results.
Good (4) : Performance exceeds expectations in many areas. There is a strong commitment to project goals, and most tasks are executed effectively. Coordination is good, and the overall contribution leads to significant progress and positive outcomes.+
Excellent (5) : Performance is outstanding and significantly exceeds expectations. The individual or team demonstrates exceptional effort, innovation, and commitment. All tasks are executed effectively, leading to highly positive outcomes and the successful achievement of project objectives

agribusinesses. They also visited various agro-business operations to gain insights from on-the-ground experiences. This multi-level engagement aimed to gather diverse perspectives on the sector's challenges and opportunities, informing the project's strategic focus on agricultural diversification and modernization in alignment with national priorities. The project effectively incorporated social and environmental safeguards, ensuring that these aspects were integral to its implementation. The project also established clear, rigorous criteria for selecting and approving sub-projects, which enhanced the quality and effectiveness of interventions.

5.1.2 Quality of Supervision

Rating: Satisfactory

236. The World Bank's supervision and support throughout the Sri Lanka Agriculture Sector Modernization Project were comprehensive and structured. An International Development Association (IDA) mission initiated discussions for the project in September 2015. From the outset, various missions were planned and executed, including technical missions, implementation support missions, and reviews, such as the mid-term review and the final project review from the bank side. As per the World Bank's Implementation Support Plan, formal supervision and field visits were scheduled semi-annually, with a technical support mission conducted in early 2020, laying the groundwork for subsequent activities. There has been a total of 12 implementation support missions being conducted up until 2023, with the 12th and 13th missions in 2022 also involving participation from the European Union Delegation for joint support. In addition to general implementation support, the World Bank closely monitored procurement performance as part of these missions. Procurement supervision was conducted specifically during the implementation support missions, where the PMU was required to provide semi-annual progress reports on the procurement plan. These reports included updates on the status of procurement implementation, monitoring reports, performance analysis, and any procurement-related complaints. The project ensured that only procurements included in the agreed Procurement Plan, following applicable guidelines, were financed. This approach ensured both financial transparency and proper resource allocation throughout the project's life cycle. The World Bank's consistent oversight through these missions was crucial in maintaining project integrity and achieving its objectives.

237. Regarding environmental and safeguard aspects, the WB planned to conduct two environmental audits but completed only one, which sufficiently addressed the required context for the Environmental Category B project. Financial disbursements proceeded smoothly, with no issues affecting the process. The WB implemented an efficient and effective monitoring and supervision plan by conducting regular missions. The team in Sri Lanka ensured clear communication with the PMU, PPMUs, and other key project staff regarding progress, challenges, and strategies to address issues, helping to keep the project on track. While the cluster formations took place at different timelines with varying characteristics, closer supervision and clearer guidance could have helped establish a well-structured baseline survey, resolving any confusion and enhancing the project's monitoring and evaluation framework.

5.1.3 Justification of Rating for Overall Bank Performance

Rating: Satisfactory

238. The Bank's performance in supporting the project was satisfactory. The project benefited from professional support during implementation, with timely corrective measures taken as needed. However, despite its overall success, the project experienced some delays, indicating potential gaps in rigorous follow-up procedures by the WB. These delays may have stemmed from insufficient coordination among stakeholders, unanticipated challenges during implementation (political changes, economic crisis and COVID-19 pandemic), or a lack of timely responses to emerging issues (survey clarifications including base line survey and the other surveys conducted). Identifying and addressing these issues were crucial for enhancing project efficiency and ensuring all phases were completed as planned. Moving forward, improved monitoring mechanisms and clearer lines of accountability could help avoid similar delays and inefficiencies in future projects.

5.2 Borrower Performance

5.1.4 Government Performance

Rating: Satisfactory

239. The Borrower Performance Evaluation for the Agriculture Sector Modernization Project (ASMP) demonstrates an interplay of strengths, challenges, and lessons learned throughout its implementation. The Government of Sri Lanka, represented by key entities such as the NPD, ERD, and the DPMM, played a crucial role as the borrower of the project. These entities, through coordination, oversight, and direct involvement, were instrumental in driving the project toward achieving its objectives of modernizing agriculture, promoting agricultural productivity, and creating sustainable economic linkages for farmers. However, their performance was shaped by a range of external factors, internal challenges, and both successful and limited interventions.

240. During the preparation and approval stages of the project proposal, several institutions played pivotal roles. The project's appraisal document and budget were thoroughly reviewed by NPD to ensure alignment with national policies and socio-economic priorities. Recommendations were made based on assessments of the project's readiness and risks. The project then received cabinet approval and moved forward with the legal framework in place. Two ministries were involved at the project's entry, each with its own steering committee, and an oversight committee was led by the Secretary of the Treasury. At the entry level NPD assessed that the project was very timely and appropriate concept for the Sri Lanka as during 2015/16 period the Sri Lankan economy was growing and this concept was very innovative to the Sri Lankan community. Project's alignment with the national in agricultural development was assessed by the steering committee whether the project is aligned with the national level policies. Any potential issues with stakeholders were addressed to maintain its relevance and consistency with the broader goals of agricultural modernization and economic progress.

241. Following approvals from the NPD and the Cabinet, the ERD stepped in to fulfill its responsibilities. Discussions with the Cabinet and the WB led to the MOA and MOPI being instructed to implement the project in 2017. Negotiations were conducted across several key documents, including the terms and conditions, disbursement letters, procurement guidelines, and the project appraisal document. These negotiations involved multiple stakeholders, and the

process was facilitated to ensure all parties were aligned and prepared for the project's implementation.

242. The ERD played a pivotal role in the project's activities, particularly in estimating the budget requirements for the upcoming years. It was responsible for ensuring that the budget estimations provided by other ministries were realistic before submitting them to the Budget Department. The ERD also actively participated in the National Steering Committee, where it evaluated the project's progress, identified issues, and contributed to proposing appropriate solutions. In cases where certain issues could not be resolved within the steering committee, the Treasury stepped in with the ERD to secure special approvals. Additionally, the ERD evaluated disbursement issues and contributed to the missions of the World Bank, offering solutions to challenges that arose during the project's implementation. The department was also involved in special meetings at the line ministry or treasury level to address issues.

243. The DPMM took on its role once the implementation phase of the project began and played a crucial role in overseeing the progress of the project. It regularly reviewed the monthly and quarterly project progress reports and submitted its findings to the Cabinet of Ministers. After each review, the DPMM assigned a color code to the project to indicate its implementation status: green for very good progress and red for poor performance. This evaluation was based on key factors such as time, cost, and the prevailing issues affecting the project. In instances of poor performance (currently rated red), the Cabinet would request an explanation from the respective line ministry regarding the delays or issues hindering progress. In addition to its reporting duties, the DPMM participated in National Steering Committee meetings and conducted field visits to selected sites during the evaluation process to assess the on-the-ground progress of the project. These activities were critical in ensuring that the project adhered to its objectives and timelines, and provided transparency in project monitoring and accountability.

244. The financial disbursement process for the ASMP proceeded smoothly, adhering to the established protocols typical of international development projects. Funds from the World Bank were efficiently channeled through the CBSL's dollar account, converted, and transferred to the Ministry of Finance for allocation to the relevant ministries responsible for project implementation. This ensured that reimbursements for project expenditures were timely and transparent. The annual allocation of funds through the national budget further streamlined the process, with the CBSL authorized to release amounts within the allocated budget, ensuring that all disbursements were compliant with parliamentary oversight and approval when necessary. The borrower successfully disbursed 89% of the total World Bank project funding, amounting to USD 103 million out of the USD 120 million allocated. Additionally, the project made use of the Contingent Emergency Response Component (CERC), which allowed the reallocation of USD 10 million to during the economic crisis, while maintaining smooth financial operations for the project's core activities. The EU funds followed a similar path, with 70% of the allocated budget already disbursed, ensuring that project activities remained well-supported as the project neared completion. Regular financial audits, reporting, and monitoring by the borrower ensured that all funds were utilized effectively, with no major issues or delays in the disbursement process.

245. Accordingly, while the borrower's performance in terms of financial management, coordination, and adherence to protocols proceeded smoothly, the project was rated subpar for several periods suggest that insufficient follow-up and corrective actions were taken to address issues flagged during implementation. Despite the successful management of disbursements and budget processes, the lack of proactive intervention to avoid poor ratings reflects a gap in sustained oversight and responsiveness. Therefore, although the borrower demonstrated strong

commitment in certain areas, the overall rating of satisfactory is appropriate given the recurring challenges and missed opportunities for improvement.

5.1.5 Implementing Agencies Performance

Rating: Satisfactory

246. The MOA demonstrated a mixed performance in the implementation support of the ASMP. While their role in overseeing the project's overall direction was crucial, the implementation faced delays and challenges that impacted the project's outcomes. One of the key issues was the extended time taken for the ISP process, which delayed the project's full implementation until 2019, despite the pilot cluster work starting earlier. This delay had a cascading effect on the project's timeline and the timely realization of expected outcomes.

247. The MOA effectively took on the responsibility of organizing the National Steering Committee and playing a central role in key decision-making processes. Their involvement in the approval of ISP payments and monitoring of milestone progress was notable. However, they had to recruit additional staff to form a technical review committee to address the shortfall in technical capacity for evaluating cluster selection, technology transfer, and monitoring. The need for this additional support highlights a gap in the Ministry's internal capacity to manage complex international projects like ASMP independently.

248. In terms of monitoring and supervision, the MOA was actively involved in monthly progress monitoring and addressing delays or bottlenecks in the project. However, the recurring delays in implementation, particularly in perennial cultivation projects, indicated that more proactive monitoring and issue resolution were needed. The Ministry did respond by removing underperforming staff and pushing forward through regular progress meetings, but these measures came late in the project timeline.

249. There were also external challenges, such as import restrictions, inflation, and the COVID-19 pandemic, which affected procurement and training activities. The MOA took adaptive measures, including sourcing locally available goods and creating an online learning platform to continue farmer training during travel restrictions. This adaptability in the face of external crises showed the Ministry's ability to respond to unforeseen challenges effectively.

250. The Ministry's handling of the fertilizer issue was commendable. When there was a shortage of fertilizer, the MOA intervened by purchasing fertilizers from private companies and supporting organic fertilizer production, which showed progress. This action was critical in maintaining the continuity of agricultural activities under the project.

251. On the downside, the sustainability of the PUCs created under the project remains a concern. While some PUCs have shown promise, many others are struggling due to a lack of technical support from the DOA. The Ministry's efforts to appoint officers to monitor the PUCs and hand over assets legally are steps in the right direction, but more consistent technical and managerial support will be needed to ensure long-term sustainability.

252. In conclusion, the MOA played a key role in driving the ASMP forward, especially in terms of strategic oversight and crisis management. However, their performance was hampered by delays, capacity issues, and a lack of long-term sustainability planning for certain project components, particularly the PUCs. The success of collective processing units and the export achievements demonstrate that the project had significant potential, but these were not fully realized due to the challenges faced during implementation.

5.1.6 Justification of Rating for Overall Borrower Performance

Rating: Satisfactory

253. As the implementing bodies under the Ministry of Agriculture (MOA), the Project Management Unit (PMU) and the respective Provincial Project Management Units (PPMUs) played central roles in project execution. In addition to these, various committees were established to guide and coordinate the project's activities, including the Coordinating Committee (comprising MOA, PMU-Project Director, and Provincial Secretaries of Agriculture), the Steering Committee (involving MOA, DOA, and DAD), and the Provincial Steering Committee (PSC) (chaired by the Chief Secretary of the province with heads of all stakeholder institutions as members).

254. While these committees were expected to significantly contribute to the project, especially the Provincial Departments of Agriculture (PDOAs) and the Department of Agriculture (DOA), their contribution did not meet the anticipated levels. Despite being part of the project's coordination and advisory framework, their involvement, particularly in areas like farmer selection, technology dissemination, and capacity building, was less active than expected. This gap in engagement, especially from the DOA and PDOAs, limited the project's overall impact, as their technical expertise and support could have played a more pivotal role in achieving project objectives. Consequently, the rate given is thus satisfactory, indicating that while there was some level of engagement, and it fell short of the necessary support for long-term sustainability.

SECTION 6

6 LESSONS LEARNED

255. The ISP, which commenced its clusters in mid-2020, focused on modernizing agriculture by introducing advanced technologies and export-oriented crops. Initially, the project selected five key fruits with high export potential: banana, mango, apple guava, papaya, and pineapple. Later, it expanded to include import substitution crops such as maize, potato, onion, chili, and food security crops like vegetables. One of the primary goals was to implement modern technology through demonstration plots, encouraging farmers to learn by doing. The project aimed to avoid conventional farming practices in favor of advanced agricultural techniques that could enhance productivity and support export markets.

256. However, several challenges were encountered during the project. A significant issue was related to irrigation technology. While mini sprinklers and drip tapes were introduced for long- and short-term crops, farmers struggled with inadequate water pressure from pumps, which affected the effective use of irrigation systems. This highlighted the need for better infrastructure and farmer training in irrigation management. Later, the project supported farmers with solar pumps. Another key challenge was technology adoption and training. Though there was strong demand from farmers for the modern technologies, issues such as insufficient supervision and time allocated for training on irrigation, pruning, and other technology packages surfaced. Additionally, some field officers were hesitant to adopt these new technologies, slowing progress.

257. Institutional weaknesses also posed risks to the project. The lack of adequately trained field officers, along with insufficient government support from the DOA, resulted in gaps in the supervision and monitoring of technology adoption in the field. Though cluster coordinators and mobilizers were trained, many began leaving their roles, further disrupting continuity. Without proper oversight, the long-term sustainability of the technologies introduced could be at risk. The project highlighted the need for greater involvement from the DOA and PDOA in training Agricultural Instructors (AIs) and monitoring field activities to ensure successful implementation.

258. Despite these challenges, there are numerous success stories, with many beneficiaries not only successfully adopting the practices but exceeding expectations in their implementation. The project's reach extended beyond its initial scope, inspiring new farmers and investors to embrace modern agricultural practices, thus contributing to the project’s broader impact. These "followers" observed the progress and success of ASMP clusters and subsequently adopted the introduced technologies, demonstrating the project’s influence beyond direct participants. The followers come from diverse backgrounds, including both agricultural and non-agricultural sectors, and some Sri Lankans living abroad have shown interest in investing, contacting the project through social media platforms (Annex 8).

259. In addition to these successes, the spillovers or secondary beneficiaries of the project were a remarkable achievement. These are individuals and entities indirectly impacted by the project beyond the direct cluster beneficiaries. The spillovers included farmers, transporters, processors, input suppliers, and small and medium ventures, all of whom benefited from the project's innovations and market linkages. These groups adopted the technology, practices, and processes introduced by the project through indirect exposure, demonstrating the broader impact. Moreover, the project’s influence extended to value chain actors, such as input suppliers and labor markets. Permanent jobs were created within PUCs, along with casual labor opportunities at both the farmer level and within the PUCs. These spillovers signified the

project's broader economic reach, fostering employment and facilitating the growth of supporting industries, ultimately amplifying the project's sustainability and contribution to the agricultural sector.

260. However, the PUCs, which were expected to handle export supply chains, faced issues with inadequate supply, preventing them from fully realizing their potential. The project acknowledged that while markets were not the problem, the challenge lay in maintaining a consistent and sufficient supply for export. The sustainability of the PUCs, and the overall success of the project, will depend on improving production levels and fostering stronger partnerships with the private sector. Monitoring and supervision mechanisms were put in place with NEDA officers and Development Officers under the guidance of the Ministry of Agriculture to address these challenges and provide hope for future sustainability. Overall, the project emphasized the need for time, training, and proper support to ensure the technologies could stand alone and thrive in the long run.

261. The project's potential to scale and integrate with the private sector presents another key challenge. Future modernization efforts must focus on fostering deeper private sector engagement to ensure the project's growth and sustainability, a factor that has not been fully addressed. Additionally, market challenges remain significant, as the local market is not yet equipped to support the production volumes necessary for successful export expansion. A lack of coordination in managing crop maturity for shipping also poses risks to export quality and profitability. While the Middle East has served as an entry market, it does not impose the rigorous quality standards required for expanding into more competitive markets, underscoring the need for improved quality control and market preparation.

262. In summary, the project offers valuable lessons. It faced several challenges, from technology adoption and irrigation issues to institutional weaknesses. However, it also yielded positive outcomes, including successful adoption by many beneficiaries, spillover effects, and growing private sector interest. These lessons will be crucial for the future of agricultural modernization in Sri Lanka.

263. Proper record-keeping from the outset of the project is essential. It significantly contributes to effective monitoring and evaluation throughout the project's lifecycle, providing a clear framework to make informed adjustments and enhance project outcomes. Additionally, the design of the baseline study should be well-conceptualized to capture the diverse nature of different cluster formations within the project. Such a survey would offer a clearer overview of the project, ensuring more effective tracking of progress.

264. The success of the project is largely dependent on the active participation and performance of the beneficiaries. Therefore, selecting beneficiaries whose skills and profiles align with the specific requirements of the project is a key to ensuring its success. A more strategic approach to beneficiary identification could significantly enhance the project's ability to meet its objectives.

7 ANNEXES

Annex 1: Projected project cost (USD million)

The International Development Association (IDA) of the World Bank was supposed to provide credit support amounting to USD125.00 million for ASMP. The local farmer organizations were expected to contribute a significant amount of USD 44.10 million. The Borrowers contribution was supposed to be USD0.74 million. In total, the project's financing amounts to USD169.84 million. The breakdown of the total financing amount is outlined in Table 3, detailing the main components and subcomponents. An approximately additional financing of USD 26 Million has been granted by the European Union (EU) through WB to the ASMP to support the establishment of ATDPs in five new districts (Sub component 2.2).

	Cost Including Contingencies	**% of Total**	**IDA Financing**	**% Financing**
A. Agricultural Value Chain Development				
Preparation Support	7.41	4.4	7.41	100.0
Matching Grants to Farmer Producer Organizations and Agribusinesses	88.20	51.9	44.10	50.0
Partial Credit Guarantee	7.12	4.2	7.12	100.0
Subtotal Agricultural Value Chain Development	102.73	60.5	58.63	57.1
B. Productivity Enhancement, Diversification & Commercialization				
Farmer and Farmer Organization Capacity Building	6.20	3.6	6.20	100.0
Modern Agriculture Technology Demonstration Parks (ADTPs)	33.43	19.3	33.43	100.0
Production & Market Infrastructure	14.71	10.6	14.71	100.0
Analytical and Policy Advisory Support	4.28	2.5	4.28	100.0
Subtotal Productivity Enhancement, Diversification & Commercialization	58.63	36.0	58.63	100.00
C. Project Management, M&E				
Central Project Coordination Committee	0.32	0.2	0.32	100.0
Ministry of Primary Industries	2.56	1.5	2.42	94.5
Ministry of Agriculture	2.56	1.5	2.42	94.5
Provincial Project Management Units	3.04	1.8	2.59	85.2
Subtotal Project Management, Monitoring and Evaluation	8.48	5.0	7.75	91.3
TOTAL	169.84	100.0	125.00	73.6

Source: Directly extracted from the PAD

Annex 2: PDO level Indicators at the beginning of the project and the projected values

Indicator Category	Indicator Name	Baseline	Cumulative Target Values				
			YR1	YR2	YR3	YR4	YR5 End Target
Project Development Objective Indicators	Direct project beneficiaries (Number) (Core)	0	1,500	25,000	55,000	90,000	110,000
	Female beneficiaries (Number - Supplemental) - (Core)	0	200	5,000	14,000	30,000	40,000
	Clients who have adopted an improved agriculture technology promoted by the project – (Productivity Indicator); (Number) - (Core)	0	500	5,000	15,000	35,000	80,000
	Clients who adopted an improved agriculture technology promoted by the project – female (Productivity Indicator) (Number) - (Core)	0	0	800	3,000	16,000	24,000
	Increase in average value of sales of agriculture products due to project interventions (Market Access Indicator) (Percentage)	0	0	0	10	-	25
	New Jobs generated through investments in agriculture SMEs under the project (Value addition Indicator) (Number; gender disaggregated)	0	0	0	2,500	-	12,500
Intermediate Results Indicators	Number of Matching Grants approved (Small Window). (Number)	0	25	150	275	350	350
	Number of Matching Grants approved (Large Window). (Number)	0	10	15	21	50	50
	Share of project-supported famer producer organizations and agribusiness partnerships making profit (Percentage)	0	0	-	50	-	70
	Share of project-supported women-led famer producer organizations and agribusiness partnerships making profit (Percent)	0	0	0	50	-	70
	Share of Matching Grant recipients operating based on updated business plans (Percentage)	0	0	0	50	60	70
	Targeted clients satisfied with agricultural services (Percentage) - (Core)	0	-	-	60	-	75
	Targeted clients satisfied with agricultural services - female (Number) - (Core)	0	-	-	60	-	75
	Client days of training provided (Number) (Core)	10,000	80,000	150,000	250,000	300,000	350,000
	Client days of training provided – female (Number) (Core)	3,000	24,000	50,000	90,000	130,000	150,000
	Share of beneficiaries reporting improved access to markets (Percentage)	0	0	-	20	-	30
	Number of new farmer organizations registered (Number)	0	25	50	100	150	250
	Number of Technology Parks completed and handed over. (Number)	0	0	0	2	4	7
	Research Papers completed and delivered to the CPCC (Number)	0	0	2	5	8	10
	Policy Notes prepared and published (Number)	0	2	5	10	15	17
	Training in project management taken by project staff at all levels (Person times – cumulative) (Number)	0	120	250	300	300	300

Annex 3: Changes identified in the PDO-level indicators and target values over the project period

Indicator Type	Indicator Name	Baseline	Cumulative Target Values				
			YR1	YR2	YR3	YR4	YR5 End Target
Project Development Objective Indicators	Direct project beneficiaries (Number) (Core)	0	1,500	25,000	55,000	90,000	110,000
	Female beneficiaries (Number - Supplemental) - (Core)	0	200	5,000	14,000	~~30000~~ 25000	~~40000~~ 33000
	Clients who have adopted an improved agriculture technology promoted by the project – (Productivity Indicator); (Number) - (Core)	0	500	5,000	15,000	35,000	80,000
	Clients who adopted an improved agriculture technology promoted by the project – female (Productivity Indicator) (Number) - (Core)	0	0	800	3,000	16,000	24,000
	Increase in average value of sales of agriculture products due to project interventions (Market Access Indicator) (Percentage)	0	0	0	10	-	25
	New Jobs generated through investments in agriculture SMEs under the project (Value addition Indicator) (Number; gender disaggregated)	0	0	0	2,500	5000	~~12500~~ 10000
	New Jobs generated through investments in agribusiness organizations under the project – female						
Intermediate Results Indicators	Number of Matching Grants approved (Small Window). (Number)	0	25	150	275	350	350
	Number of Matching Grants approved (Large Window). (Number)	0	10	15	21	50	50
	Share of Matching Grant recipients operating based on approved business plans (Percentage)		0	0	50	60	~~70~~ 80
	Share of matching grant recipients reporting improved access to markets (percentage)		0	0	20	30	~~30~~ 50
	Number of new farmer producer organizations registered (Number)		0	0	35	60	80
	Share of farmer Producer organizations functional (Percentage)		-	-	-	-	75
	Share of project-supported famer producer organizations and agribusiness partnerships making profit (Percentage)	0	0	-	50	-	70
	~~Share of project-supported women-led famer producer organizations and agribusiness partnerships making profit (Percent)~~ – This has considered from 2022	~~0~~	~~0~~	~~0~~	~~50~~	-	~~70~~
	Targeted clients satisfied with agricultural services (Percentage) - (Core)	0	0	0	~~60~~ 30	60	75
	Targeted clients satisfied with agricultural services - female (Number) - (Core)	0	0	0	~~60~~ 30	60	75
	Client days of training provided (Number) (Core)	~~10,000~~	~~80000~~ 15000	~~150000~~ 30000	~~250000~~ 60000	~~300000~~ 100000	~~350000~~ 150000
	Client days of training provided – female (Number) (Core)	~~3,000~~	~~24000~~ 4500	~~50000~~ 9000	~~90000~~ 18000	~~130000~~ 30000	~~150000~~ 45000
	Farmers adopting improved agricultural technology (Number) - (Core)	-	-	-	-	-	60000
	Farmers adopting improved agricultural technology (Number) - (Core) Female						

Indicator Type	Indicator Name	Baseline	Cumulative Target Values				
			YR1	YR2	YR3	YR4	YR5 End Target
	Farmers adopting improved agricultural technology (Number) - (Core) Male						
	Number of commercial partnerships or market contracts signed between producer groups (supported by the Project) and domestic/international agribusiness actors (processors, wholesalers, retailers, exporters, etc.) for selected value chains (Number)	-	-	-	-	-	90
	Water users provided with new/improved irrigation and drainage services. (Number)	-	-	-	-	6000	8000
	Area provided with new/improved irrigation or drainage services. (Acre) - (Core) From 2022 in 'ha'	-	-	-	-	5520	8000
	Area provided with new irrigation or drainage services. (Acre) - (Core) From 2022 in 'ha'						
	Area provided with improved irrigation or drainage services. (Acre) - (Core) From 2022 in 'ha'						
	Km of roads constructed and rehabilitated under the project. (Number)	-	-	-	-	50	60
	Number of clusters completed in accordance with the Cluster Development Plan (Number)	-	-	-	-	-	21
	Research Papers completed and delivered to the CPCC (Number)	0	~~0~~ 2	~~2~~ 5	~~5~~ 10	~~8~~ 15	~~10~~ 25
	Policy Notes prepared and published (Number)	0	~~2~~ 0	~~5~~ 2	~~10~~ 5	~~15~~ 8	~~17~~ 10
	Training in project management taken by project staff at all levels (Person times – cumulative) (Number) (Training days Cumulative)	0	~~120~~	~~250~~	~~300~~	~~300~~ 500	~~300~~ 500

Annex 4: Summary: Policy documents

i . Food consumption, nutrition, and health
The report identified rapid urbanization, the proliferation of fast-food chains, and advertising as key contributors to poor nutrition and the rise of non-communicable diseases (NCDs). It stressed the need for stricter food safety regulations, the promotion of healthy dietary practices, and enhanced public awareness of nutrition. Multi-sectoral collaboration for food security, culturally appropriate food availability, and increased micronutrient intake through crop biodiversity were prioritized. Strengthening legislation on food advertising and enhancing nutrition education in schools were pivotal actions.

ii. Modernization of food safety assurance system
Sri Lanka's fragmented food safety system, managed by multiple ministries, lacked comprehensive oversight. The report recommended establishing a Food Safety Authority to enforce a National Food Safety Policy that would encompass the entire food chain. Strengthening inspection services, improving laboratory capacities, and addressing cross-ministerial coordination were deemed critical. The adoption of internationally recognized standards such as HACCP and GAP was highlighted as essential to modernizing food safety.

iii. Agricultural technology adoption: The study focused on bridging gaps in research, extension, and technology transfer. It recommended developing labor-saving technologies, enhancing mechanization, and fostering public-private collaborations for innovation. Policies were suggested to integrate modern communication tools, establish local technology hubs, and promote the adoption of high-value crops. Strengthening farmer-extension linkages and aligning national agricultural policies with research priorities were considered essential for sustainable development.

iv. Policies related to agricultural production relations:
The research identified critical gaps in agricultural production policies, including inefficient land use, inadequate seed sector regulation, outdated fertilizer policies, and limited mechanization incentives. Recommendations included implementing land-use planning, crop zoning, and dynamic irrigation scheduling to enhance resource allocation. For the seed sector, updating seed policies, promoting public-private R&D partnerships, and ensuring quality control were essential. Fertilizer recommendations emphasized soil fertility management and targeting subsidies more effectively. Mechanization strategies highlighted the need for farmer training and cooperative equipment lending centers. Agricultural extension reforms focused on integrating market-oriented approaches and strengthening e-agriculture through ICT investment. These measures aimed to improve productivity, sustainability, and competitiveness in the agricultural sector.

v. Agricultural productivity in crop sub-sectors
The report addressed the need to enhance agricultural productivity by integrating research with market demands and improving mechanization. It recommended developing cost-effective farm technologies, enhancing seed quality, and addressing price volatility. Revitalizing public extension services and encouraging private sector involvement in value chain improvements were key priorities. The importance of adapting to international trade regulations and fostering innovation through partnerships was also highlighted.

vi. Innovative marketing strategy
The agricultural marketing system was dominated by oligopolistic structures in rice and traditional marketing for other crops. The report called for strengthening warehouse receipt financing, developing market-led production plans, and improving export diversification. Enhancing branding, facilitating organic certification, and promoting public-private partnerships in agro-marketing were deemed necessary for competitive market integration. The report also underscored the importance of direct marketing and digital platforms like e-NAM[9] for improving efficiency.
vii. Policy research on agricultural lands: The research highlighted inefficiencies in Sri Lanka's agricultural land management, including fragmented landholdings, underutilized arable land, and a lack of cohesive policy frameworks. It emphasized the need for zoning regulations to optimize land use and strengthening land tenure security to encourage investment. The study also advocated for consolidating fragmented land to enable mechanization and economies of scale while promoting sustainable land management practices that balance agricultural productivity with environmental conservation.

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[9] **e-NAM (National Agriculture Market)** refers to an electronic trading platform designed to integrate various agricultural markets across a country to create a unified national market for agricultural commodities. Originally implemented in India**,** e-NAM facilitates transparent online trading of produce, ensuring better price discovery, improved market access, and reducing the role of intermediaries.

viii. Policy research on agricultural labor markets

This policy study examined gaps in Sri Lanka's agricultural labor policies, particularly in mechanization. It emphasized the creation of customer hiring centers for machinery to alleviate capital constraints and the establishment of savings schemes for migrant workers to invest in mechanization. The DOAs services were recommended for enhancement through tax exemptions on machinery parts and fostering international partnerships. Strengthening community support and transforming farmer organizations into focal points for mechanization were also critical strategies.

ix. Policy research on farmer producer organization (FPO) models

This study examined the potential of FPOs to enhance smallholder farmers' market access and productivity but identified barriers such as weak governance, financial instability, and limited technical support. It recommended capacity building through training in governance, financial management, and marketing to strengthen FPO leadership. The report emphasized improving access to finance and markets via public-private partnerships and integrating FPOs into national agricultural policy frameworks while advocating the use of ICT tools to facilitate knowledge sharing and market linkages.

Annex 5: Total project costs and benefits

i. Total Project Costs

		2019	2020	2021	2022	2023	2024	EU	2024+EU	TOTAL
C/N	Description									
2.3	Infrastructure Development	720,430,060	377,742,960	77,993,332	141,821,860	308,925,611	158,430,000	12,176,000	170,606,000	**1,797,519,823**
	Machinery, Equipment, Furniture	1,026,143,573	713,163,742	991,526,040	1,694,360,173	3,928,097,929	2,143,210,000	200,214,000	2,343,424,000	**10,696,715,457**
2.1	Trainning	45,414,189	29,340,072	14,126,556	29,772,211	66,024,621	79,220,000	3,441,000	82,661,000	**267,338,648**
2.4	Policy and Consultation	44,725,548	22,316,073		337,650	203,000	9,900,000		9,900,000	**77,482,271**
3.1	Project Management	431,575,980	1,559,935,973	145,747,807	236,224,878	307,667,219	127,920,000		127,920,000	**2,809,071,857**
	Consultancy (Local/Foreign)	215,622,338	215,622,338	215,622,338	215,622,338	215,622,338	215,622,338	215,622,338	215,622,338	**1,293,734,025**
	Other (if)					117,474,657	11,655,026		11,655,026	**129,129,684**

Source: PMU, ASMP

ii. Financial analysis for the total project including a sensitivity analysis

		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
	Project cost																						
2.3	Infrastructure Development	720	378	78	142	309	170.61																
	Machinery, Equipment, Furniture	1,026	713	992	1,694	3,928	2,343.42																
2.1	Trainning	45	29	14	30	66	82.66																
2.4	Policy and Consultation	45	22	-	0	0	9.90																
3.1	Project Management	432	1,560	146	236	308	127.92																
	Consultancy (Local/Foreign)	216	216	216	216	216	215.62																
	Other (if)	-	-	-	-	117	11.66																
	Total project cost (Rs Mn)	**2,484**	**2,918**	**1,445**	**2,318**	**4,944**	**2,962**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Variable cost (farmer contributi	127	119	642	1,906	3,564	3,237	3,092	3,061	3,304	2,965	2,971	1,428	906	902	594	820	584	584	564	564	409	409
	Total cost (Rs Mn)	2,611	3,037	2,087	4,224	8,508	6,199	3,092	3,061	3,304	2,965	2,971	1,428	906	902	594	820	584	584	564	564	409	409
	Total Income (Rs Mn)	164	285	1,689	5,231	12,738	10,955	10,432	10,277	38,098	30,989	32,829	5,746	3,828	3,897	2,908	3,688	2,626	2,596	2,410	2,260	1,610	1,542
	Profit (Rs Mn)	(2,447)	(2,753)	(398)	1,007	4,230	4,757	7,340	7,217	34,793	28,024	29,858	4,318	2,923	2,995	2,314	2,869	2,042	2,012	1,847	1,697	1,202	1,133
	Present value of Profits (Rs Mn)	(4,712)	(4,649)	(589)	1,309	4,822	4,757	6,439	5,553	23,484	16,592	15,507	1,967	1,168	1,050	712	774	483	418	336	271	168	139
	NPV (Rs. Mn)	**76,000**																					
	IRR	**55%**																					
	Sensitivity anlysis																						
	Total Income (Rs Mn) - (30%) reducti	115	199	1,182	3,662	8,917	7,669	7,303	7,194	26,668	21,692	22,980	4,022	2,680	2,728	2,036	2,582	1,838	1,817	1,687	1,582	1,127	1,079
	Profit	(2,496)	(2,838)	(904)	(562)	408	1,470	4,210	4,133	23,364	18,727	20,009	2,594	1,774	1,826	1,442	1,762	1,254	1,233	1,124	1,019	719	671
	Present value of Profits (Rs Mn)	(4,807)	(4,793)	(1,340)	(730)	466	1,470	3,693	3,181	15,770	11,088	10,392	1,182	709	640	443	475	297	256	205	163	101	82
	NPV (Rs. Mn)	**38,942**																					
	IRR	**38%**																					
	Total Income (Rs Mn) - (50%) reducti	82.10	142.45	844.51	2,615.74	6,369.05	5,477.52	5,216.09	5,138.57	19,048.76	15,494.49	16,414.42	2,873.17	1,914.07	1,948.27	1,454.17	1,844.17	1,312.75	1,297.75	1,205.20	1,130.20	805.20	771.00
	Profit	(2,529.29)	(2,895.02)	(1,242.06)	(1,608.24)	(2,139.14)	(721.01)	2,123.85	2,078.01	15,744.55	12,529.28	13,443.47	1,445.14	1,008.48	1,046.48	860.31	1,024.57	729.05	714.05	641.50	566.50	396.60	362.40
	Present value of Profits (Rs Mn)	(4,870)	(4,890)	(1,840)	(2,090)	(2,439)	(721)	1,863	1,599	10,627	7,418	6,982	658	403	367	265	276	173	148	117	90	56	45
	NPV (Rs. Mn)	**14,237**																					
	IRR	**24%**																					

Annex 6: Methodology

For the section 3.3

The discount rate used in the financial analysis:

The Average Weighted Lending Rate (AWLR) of the Central Bank of Sri Lanka reflects the average cost of borrowing and can be used as the discount rate. It helps assess the project's viability by discounting future cash flows.. For this analysis, the AWLR from 2018 to 2024 was averaged, resulting in a 14% discount rate.

Information Collection Methods

Secondary Documents

1. The initial secondary documents served as references to gain a foundational understanding of the project. The other secondary documents, which are progressive with time helped summarize key changes and critical points that require elaboration in the completion report. The list of documents includes:

    a. Initial proposal/concept
    b. Project appraisal document (PAD) - 2016
    c. Final aid memoirs (14 no's)
    d. Operational manual for component 2 (ASMP 2)
    e. Baseline report for component 2 (ASMP 2)
    f. Tracking indicator survey reports (2023 and 2024)
    g. Periodical progress reports from World Bank missions in each province
    h. Crop manuals (ISP technologies)
    i. Policy briefs/notes/reports
    j. Pilot cluster evaluation
    k. Financial documents at PMU
    l. Documents of procurement procedures

Primary Data Collection

2. Primary data collection is twofold: Discussions (key informant discussions and focus group discussions), and surveys (non-cluster beneficiaries categorized as direct beneficiaries and spill overs, adopters and value chain actors as indirect beneficiaries). Both the focus group discussions and key informant discussions are qualitative research methods used to gather insights from participants. Key informant discussions focus on gathering detailed information from individual experts, while focus group discussions aim to explore shared experiences and perspectives within a group setting (see the survey plan below).

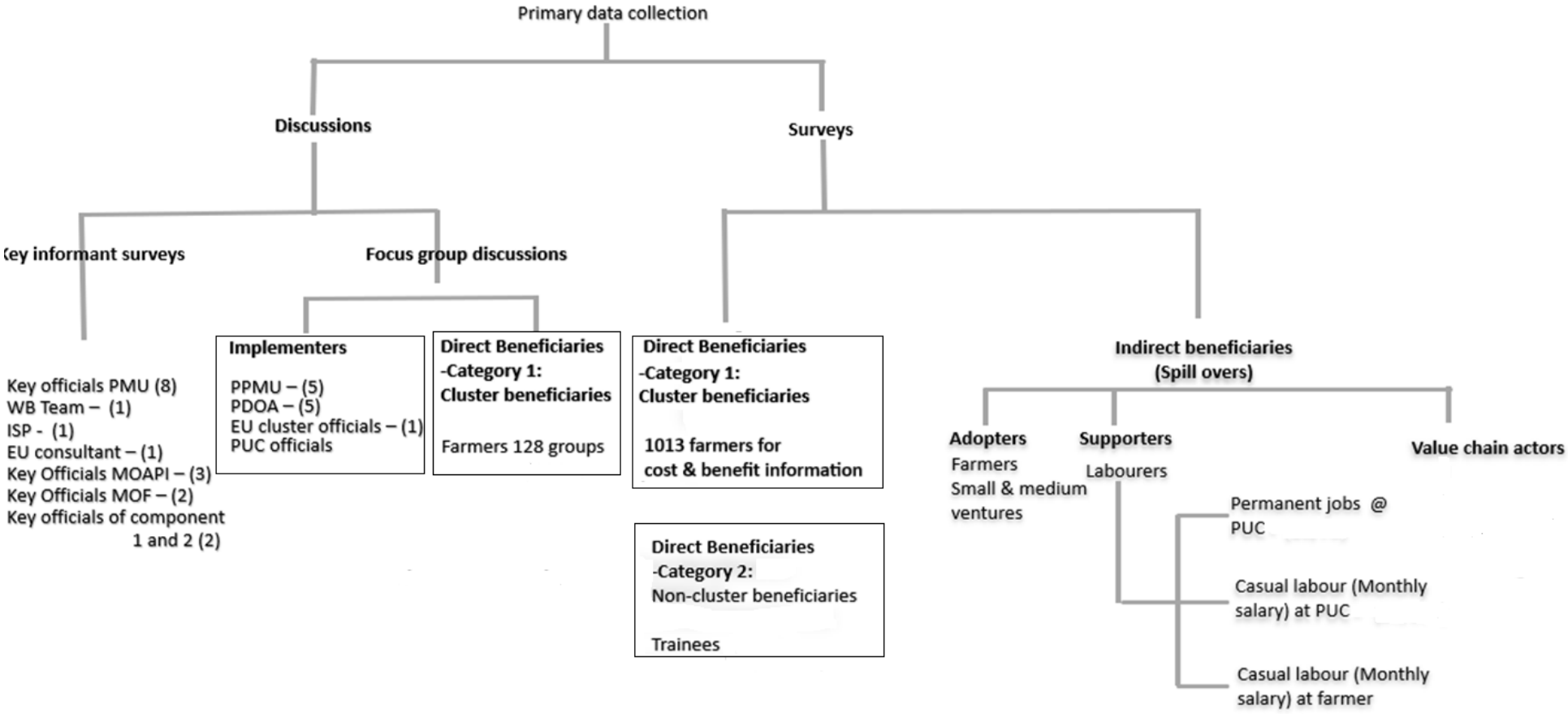


Figure 1: Survey Plan

Note: The study initially planned for 128 farmer focus groups for perception analysis, and a sample of 1,185 farmers for gathering C&B information. However, due to unavoidable circumstances in the field, the final count was 121 focus groups with a total of 1,013 farmers.

Sampling framework for direct beneficiary category 1 (Cluster beneficiaries -farmer focus groups)

Cluster Classification	District	Cluster	Cluster type	Total cluster beneficiary target	Cluster category total	Sample size (50%)	Proportionate sample from each cluster	Adjus. sample size for maintain min, 10	No. of Focus Groups (09-10 per group)	Individual sample for no cluster bene.
Export Oriented production clusters	Matale	TEJC Mango production	Pilot + ISP	430	7172	365	22	22	2	9
	Jaffna	TJC Mango production/ chili	Pilot + EU	500			25	25	3	9
	Monaragala	TEJC Mango production	Pilot + ISP	240			12	12	2	9
	Matale	TJC Mango instead of MD2 pine apple	ISP	200			10	10	1	9
	Jaffna	Organic Small Banana Production	EU	500			25	25	3	9
	Anuradhapura	Small Banana Production cluster	ISP	642			33	33	3	9
	Monaragala	Cavendish Banana Production Cluster	ISP	500			25	25	3	9
	Batticaloa	Cavendish Banana production	ISP	500			25	25	3	9
	Monaragala	Cavendish Banana instead of MD2 pine apple	ISP	200			10	10	1	9
	Batticaloa	Cucumber Production	Pilot	500			25	25	3	9
	Matale	Guava Production Cluster	ISP	200			10	10	1	9
	Anuradhapura	Guava Production cluster	Pilot + ISP	360			18	18	2	9
	Mullaitivu	Papaya/Chilli Production Cluster	ISP	400			20	20	2	9
	Polonnaruwa	Papaya Production cluster	Pilot + ISP	350			18	18	2	9
	Vavuniya	TJC Mango	EU	300			15	15	2	9
	Kandy	Ambul Banana	EU	200			10	10	1	9
	Kandy	Hass Avocado production Cluster	EU	300			15	15	2	9
	Badulla	Avocado Cluster	EU	300			15	15	2	9
	Vavuniya	Papaya Production	Pilot + EU	550			28	28	3	9

Cluster Classification	District	Cluster	Cluster type	Total cluster beneficiary target	Cluster category total	Sample size (50%)	Proportionate sample from each cluster	Adjus. sample size for maintain min, 10	No. of Focus Groups (09-10 per group)	Individual sample for no cluster bene.
Import substitution production clusters	Mullaitivu	Ground Nut production	Pilot	300	6466	363	17	17	2	
	Batticaloa	Groundnut Production Kathiravelai	Pilot	100			6	10	1	
	Batticaloa	Groundnut Production Karadiannaru (Scale up)	Pilot	100			6	10	1	
	Mullaitivu	Dry chili cluster	Pilot	300			17	17	2	
	Monaragala	Chilli Production	Pilot	300			17	17	2	
	Batticaloa	Dry chili production	Pilot	50			3	10	1	
	Anuradhapura	Dry Chili Production cluster	ISP	400			22	22	2	9
	Polonnaruwa	Dry Chili Production	ISP	400			22	22	2	9
	Mullaitivu	Pomegranate/Chilli Production Cluster	ISP	150			8	10	1	9
	Batticaloa	Pomegranate Production Kalawanchikudi	ISP	150			8	10	1	9
	Batticaloa	Pomegranate Production - Chenkaladi	ISP	150			8	10	1	9
	Matale	Hybrid Chili seed production	Pilot	20			1	10	1	
	Matale	onion seed production	Pilot	50			3	10	1	
	Anuradhapura	Maize seed Production	Pilot	100			6	10	1	
	Badulla	Yellow mandarin	Pilot	50			3	10	1	
	Badulla	Seed Potato Cultivation -	Pilot + EU	400			22	22	2	10
	Kandy	Dry Chili Production (2021)	Pilot + EU	344			19	19	2	10
	Kilinochchi	Chili Production cluster	EU	300			17	17	2	10
	Vavuniya	Dried chili production	EU	247			14	14	2	10
	Badulla	Dry Chili Production Cluster	EU	300			17	17	2	10
	Ampara	Dry Chili Production Cluster	EU	300			17	17	2	10
	Kilinochchi	Jumbo peanut production cluster	Pilot + EU	530			30	30	3	10
	Ampara	Jumbo peanut Production (pilot casava 100)	Pilot + EU	600			34	34	3	10
	Kilinochchi	Pomegranate Cluster	EU	150			8	10	1	10
	Kandy	Vegetable seed production	EU	75			4	10	1	10
	Vavuniya	Maize Seed Production	EU	300			17	17	2	10
	Ampara	Maize seed production Cluster	EU	300			17	17	2	10

Cluster Classification	District	Cluster	Cluster type	Total cluster beneficiary target	Cluster category total	Sample size (50%)	Proportionate sample from each cluster	Adjus. sample size for maintain min, 10	No. of Focus Groups (09-10 per group)	Individual sample for no cluster bene.
Production for Domestic Market clusters	Jaffna	Potato Red onion Production Cluster	EU	500	3938	351	45	**45**	4	9
	Mullaitivu	Passon fruit Production	Pilot	50			4	10	1	
	Monaragala	Passionfruit production	Pilot	175			16	16	2	
	Matale	Passion fruits production	Pilot	100			9	10	1	
	Monaragala	Pineapple production	Pilot	275			25	25	3	
	Mullaitivu	Kolikuttu Banana/Chilli Production	ISP	300			27	27	3	9
	Monaragala	Moringa Leaves Production	Pilot	100			9	10	1	
	Anuradhapura	Moringa Leaves production	Pilot	100			9	10	1	
	Batticaloa	Green chilli Production Kaluthavalai	Pilot	100			9	10	1	
	Anuradhapura	Green chilli production	Pilot	80			7	10	1	
	Polonnaruwa	Green chilli production	Pilot	40			4	10	1	
	Jaffna	Off season Green Chilli production	Pilot	208			19	19	2	
	Anuradhapura	Bitter gourd Production	Pilot	40			4	10	1	
	Polonnaruwa	Bitter gourd Production	Pilot	30			3	10	1	
	Anuradhapura	Mushroom production	Pilot	50			4	10	1	
	Polonnaruwa	Mushroom production	Pilot	40			4	10	1	
	Anuradhapura	Aloe vera Production converted to passionfruit	Pilot	100			9	10	1	
	Polonnaruwa	Aloe vera cultivation	Pilot	100			9	10	1	
	Polonnaruwa	Vegetable Production cluster	ISP	300			27	27	3	9
	Monaragala	Bee keeping	Pilot	150			13	13	2	
	Vavuniya	Cassava Production	Pilot	100			9	10	1	
	Badulla	Passion fruit production	Pilot	100			9	10	1	
	Badulla	Soursop production	Pilot	100			9	10	1	
	Kilinochchi	Passion fruit production cluster	Pilot + EU	200			18	18	2	**10**
	Ampara	Soursop Production Cluster	Pilot + EU	300			27	27	3	**10**
	Badulla	Vegetable cluster	EU	300			27	27	3	**10**
Total				**17576**	**17576**	**1079**	**1079**	**1185**	**128**	**382**

Note: The study initially planned for 128 farmer focus groups for perception analysis, and a sample of 1,185 farmers for gathering C&B information. However, due to unavoidable circumstances in the field, the final count was 121 focus groups with a total of 1,013 farmers.

Key Informant Discussions

3. Key informants selected from various stakeholder groups involved in the ASMP. These include officers from the Project Management Unit (PMU), Provincial Project Management Units (PPMUs) in 5 provinces, Officials from 5 Provincial Director of Agriculture (PDOA) offices who engaged in ASMP activities, representatives from public unlisted companies, exporters, key personnel from input supplying private companies, and PMU members of Component 1.

    a. Key officials from the Project Management Unit (PMU) of Component 2
        Project Director
        M&E Specialist
        Policy Specialist
        Engineer
        Finance Manager
        Environmental and Social Safeguard Specialist
        Procurement Specialist
        Agriculture Scientist
        Training Specialist
        Internal Auditor
    b. Key officials from the WB team
    c. International Service Provider (ISP)
    c. National EU Cluster Manager
    d. Key officer/s from MOAPI
    e. Key officer/s from Ministry of Finance (MOF)
    g. Key officials from the Department of Project Management and Monitoring
    h. Key Officials from the Department of External Resources
    f. Key officials from the PMU of Component 1
        Project Director
        M&E Specialist
    b. Exporters/Buyers
    c. Processors
    d. Key personnel from input supplying private companies
    e. Other types of vendors
    f. Key officer/s from relevant Banks
    g. Key officers from relevant Mahaweli systems

Focus Group Discussions

4. Focus group discussions involve bringing together a small group of participants in a similar working environment to achieve a common goal to discuss a specific topics or issues that need a better understanding of the evaluation of project activities. Participants selected based on their relevance to the topic and may represent diverse backgrounds or viewpoints. The group discussion is facilitated by a moderator who guides the conversation using a predetermined set of questions or key topics covering the structure of the completion report. The aim is to encourage interaction and dialogue among participants, allowing for the exploration of shared experiences, opinions, perceptions, and future directions about the project activities. The list of focus group discussions to be held includes:

Implementers

a. Officials from Provincial Project Management Units (PPMUs) - 5 provinces
    - Deputy Project Director
    - M&E Specialist
        - Social mobilizer
    - Agri-Scientist
    - Social Science and Environmental Specialist
    - Engineer
    - Accountant
    - Business Development Consultant
    - ISP District Coordinator
        - Cluster Leader
        - Fruit Desk Officer
        - Formation Officer

b. Officials from the Provincial Director of Agriculture (PDOA) offices involved in ASMP activities
    - Provincial Director
    - Deputy Directors
    - ADAs
    - Agriculture Instructors

c. Officials from EU clusters
    - Locally Hired Consultants
    - Consultant Project Manager
    - Consultant Monitoring Information System/ M&E EU District
    - Consultant Engineering Expert Engineer
    - Agribusiness and Value Chain Consultant
    - Agricultural Economist
    - Consultant Environmental and Social Safeguard
    - GIS Expert
    - Consultant Agronomy
    - Institutional Development Specialist
    - Consultant Training Specialist
    - International Experts
        - *Consultant – Hass Avocado – Dr. Germancadaviv*
        - *Foreign Consultant for Technology Development- Dr Julion*

d. Representatives from Public Unlisted Companies (PUCs)

5. Data collect from focus group discussions analyzed thematically, identifying common themes, patterns, and areas of agreement or disagreement among participants.

Direct beneficiary category 1 – Cluster beneficiaries/farmer/farm households[10]

[10] The terms "farmer," "farm household," or "cluster beneficiary" are used interchangeably throughout the report.

6. The purpose of this farmer focus group discussion is to obtain an overview of the project, via validating the perspectives provided by the stakeholders. Therefore, the discussions planned in such a manner as to obtain the relevant information and present it in Annex 1. Out of the total 72 clusters, the failures are expected to be excluded as clarified by the PPMUs.

7. Taking into account the scope of the study, receiving an overall perception of the project, focus group discussions sufficiently covered the requirement. Individual survey results are available from the most recent indicator tracking survey conducted in 2024. Information extracted the tracking indicator survey report representing 10% of population (total number of beneficiaries), has been considered quantitatively for the following aspects. Therefore, individual aspects can be covered in the below sections that have been considered. However, the cost and returns from crop cultivation, has been taken **individual basis** at the end of the focus group discussions.

    i. Crops covered in the previous year to the survey conducted for two/three seasons (average sales increase)
    ii. Hired labor information
    iii. Existing technology level of the farm with a complete list of operations with a comprehensive guide to rate as traditional, moderate and advanced
    iv. Types of existing irrigation system
    v. Pre and post-harvest measures used (a complete list) covering the level of adoption
    vi. Present status of marketing and selling mechanism (a full list with level of adoption
    vii. Project interventions and the level of satisfaction
    viii. Level of use of the given technology package

Surveys

8. Surveys were conducted to gather individual perceptions and targeted two groups: Direct beneficiary category 2, i.e., non-cluster beneficiaries, and indirect beneficiaries (spill overs).

Direct beneficiary category 2: Non-cluster beneficiaries

9. This category includes beneficiaries who received only training (no in-kind benefits). The sample size determination is detailed in section 4.3. Given the low complexity and the limited number of questions to be asked, telephone interviews with individuals are expected to be conducted.

Indirect beneficiaries

10. Quantifying the indirect beneficiaries (spill overs) was quite challenging; therefore, only prominent beneficiaries were selected to align with the report expectations. There was no exact way of counting the number, making it challenging to construct a sampling frame due to unknown population size. The key categories of indirect beneficiaries are summarized as follows:

a. Supporters
    - *Labors*
    - *Individuals engaged in related sectors, such as transportation or logistics, who benefit from increased demand for their services.*

- *Other small/medium business ventures - local retailers/vendors who experience increased sales due to higher purchasing power among farmers and project beneficiaries.*
- *Service providers, such as financial institutions or agricultural input suppliers, who see growth in their client base.*

b. Adopters

- *Farmers who adopt the novel technologies introduced by the project through observation or word of mouth from neighboring farmers and peers.*

c. Value chain actors

- *Farmers who integrate value-added components into their agricultural activities, such as processing facilities or packaging services, to enhance the value of their produce.*

Survey Instruments

11. Semi-structured questionnaires were developed to facilitate data collection from the focus groups, key informants and beneficiaries. The questionnaires were included with open-ended questions covering various aspects of the ASMP, such as project objectives, implementation processes, challenges faced, successes achieved, and future prospects.

Sampling and Data Collection Process

12. Focus group discussions and key informant interviews were conducted either in person or virtually, based on participant preferences and availability. However, farmer focus group discussions were conducted in person. Interviews were arranged at mutually convenient times and locations to ensure participation.

13. The farmer focus group discussion (cluster beneficiaries) sampling procedure was as follows: The 72 total clusters were divided into three strata, i.e., production categories—export-oriented production, import substitution production, and production for the local market. The total number of beneficiaries in each category was considered the population, and using a sample size calculator, the total sample for each production category was determined. A 95% confidence level and a 5% margin of error was used, along with a population proportion of 50% for estimating the sample size. The sample size generated for each production category was then allocated proportionately to the number of beneficiaries in the respective clusters. Accordingly, 128 farmer focus groups are expected to be conducted, represented by 1,185 cluster farmers (see Table 2 of Detailed methodology for sampling procedure). Farmers were selected randomly, making the sampling procedure a stratified random sampling method. The farmer focus group discussions were conducted in person, with farmer groups convening either at a designated location (such as one farmer's place) or at the PPMU.

14. The non-cluster beneficiary sample was drawn by considering the aggregated number of beneficiaries as the population size. Using a sample size estimation calculator, the required sample size was generated. A 95% confidence level and a 5% margin of error were used, along with a population proportion of 50% for estimating the sample size.. After rounding, the final sample size was 382. The samples were drawn randomly (see Table 2 of Detailed methodology for the sampling procedure).

15. Indirect beneficiaries were selected through snowball sampling (M&E and farmers) to achieve a diverse sample. While the intention is to meet them in person, practical constraints may require virtual participation for beneficiaries located at long distances. Annex 1 represents the sampling frame for data collection.

Annex 7: Summary of findings from farmer focus group discussions

Number of famer focus groups conducted = 121
Number of farmers participated = 1013

i. Awareness and participation (from the farmer survey)

How do you come to know about ASMP?

	No.	%
AI	302	34
ARPA	25	3
Project office	412	46
Neighbour	108	12
Politician	9	1
PUC Officer	14	2
Other	28	3
Total	**898**	

Note: ARPA-Agriculture Research and Production Assistant, the primary field-level officer

From the focus groups (# of focus groups conducted =121)

ii. Trainings and farmer participation

Maximum number of training classes attends (in general) 10

Effectiveness of the trainings (1=Bad, 5= Best)

Rank		No. of FG	%
Bad	1		
Fair	2		
Good	3	6	5
Very good	4	45	37
Best	5	70	58
Total		**121**	**100**

Did you practiced everything learnt in the training

		No. of FG	%
Not at all	1	-	-
	2	3	3
	3	10	8
	4	31	26
Well practiced	5	76	63
Total		**120**	**100**

If not why

Reason	#	%
Lack of resources	13	22
Lack of understanding	6	10
Difficult to recall the technologies as gap between training and practicing is high	13	22
No perceived benefit/Not practical	4	7
No/lack of trust on the introduced technology	12	20
Other) Select all that apply	12	20
Total	**60**	**100**

iii. Extension support

Interactions	Days
ASMP Officials visit to your farm # per quarter	9
Your visit to ASMP office	3
AI officer visits to your farm	5
Your visits to AI office	3

iv. Summary of the effectiveness of the extension service (%)

Usefulness of the visits (benefits)	ASMP Officer visits to farm	Farmer visits to ASMP Office	AI Officer visits to farm	Farmer visits to AI office
None	1	15	10	21
fair	0	3	2	6
good	5	16	10	21
better	28	28	34	23
High	66	38	44	30

v. Marketing Arrangements

How do you market your product? (Please mention as a %)

Market share as a %	Through PUC	Own sales	Forward sales agreements	Own outlets	Super markets	To collectors	Supplying to exporters	Direct exports	Other
<25	7	4	34	28	0	4	41	34	0
<50	0	5	80	66	0	5	52	44	0
<75	0	0	121	100	0	0	119	100	0
<100	0	0	0	0	0	0	0	0	0
	7	9	235	194	0	9	212	178	0

Did you start your cultivation with a marketing assurance(Y/N)

Category	count	%
Y	58	48
N	63	52
Total	**121**	

Issues in marketing

Issue	%
No Issue	24
No fixed price to the product	62
No buyers	12
Transport issues	2
Total	100

vi. Farmer perception on PUC and performance

What do you expect from PUC?

Expectations	# of FG (of 121)	%
Marketing assurance	87	72
Input supply	59	49
Processing	28	23
Quality control	31	26
Coordination	32	26
Training	35	29
Extra income	36	30

What is your suggestion to improve PUC

Suggestions	# of FG (of 121)	%
Increase market access	85	70
Negotiation for good price	70	58
Need more funds	32	26
More export market contacts	45	37
Need more training	42	35
Other	4	3

vii. Perception about the cluster

Do you think your cluster is success ? (Y/ N)

Y/N	# of FG	%
Y	103	85
N	18	15
Total	**121**	**100**

If no what is the reason:

Reason	Count	%
Technology failure	4	22
Market failure	12	67
Issues in Corona period	4	22
Organic fertilizer issue	8	44
Economic and political turbulence issues	4	22
Poor management	10	56
Other	4	22

viii. Satisfaction about the project support and management

Category		Count	%
Delayed	1	5	4
	2	11	9
	3	23	19
	4	31	26
On time	5	51	42
Total		**121**	**100**

Timely input deliverables:

Category		count	%
Not at all	1	0	0
	2	3	2
	3	17	14
	4	30	25
Sufficient	5	71	59
Total		**121**	**100**

ix. Any suggestions for project sustainability

What support do you need to continue crop production?

Type of support	Count	%
Marketing support	25	24
Need export market	10	10
Assistance for post-harvest losses	2	2
Drying machine	3	3
Need storage facilities until the market	4	4
Need tractor and other machineries	3	3
Need solar panel	5	5
Awareness for pest control	5	5
More training on new technology	14	14
Continuous input supply	29	28
Electric fence	1	1
Tractor / Transportation facilities	2	2

Total	**103**	**100**

Do you believe that without any further support you can continue?
(1=Continue as is, 2=Improve/3=Develop, 4=Expand, 5=Not sure)

	Category	# FG	%
1	Continue as is	44	37
2	Improve	25	21
3	Develop	3	3
4	Expand	10	8
5	Not sure	38	32
	Total	**120**	**100**

x. Followers of the project (These individuals are not directly supported by the project, but they observe the practices and initiate similar efforts on their own)

How many followers do you have who are also engaged in similar activities?

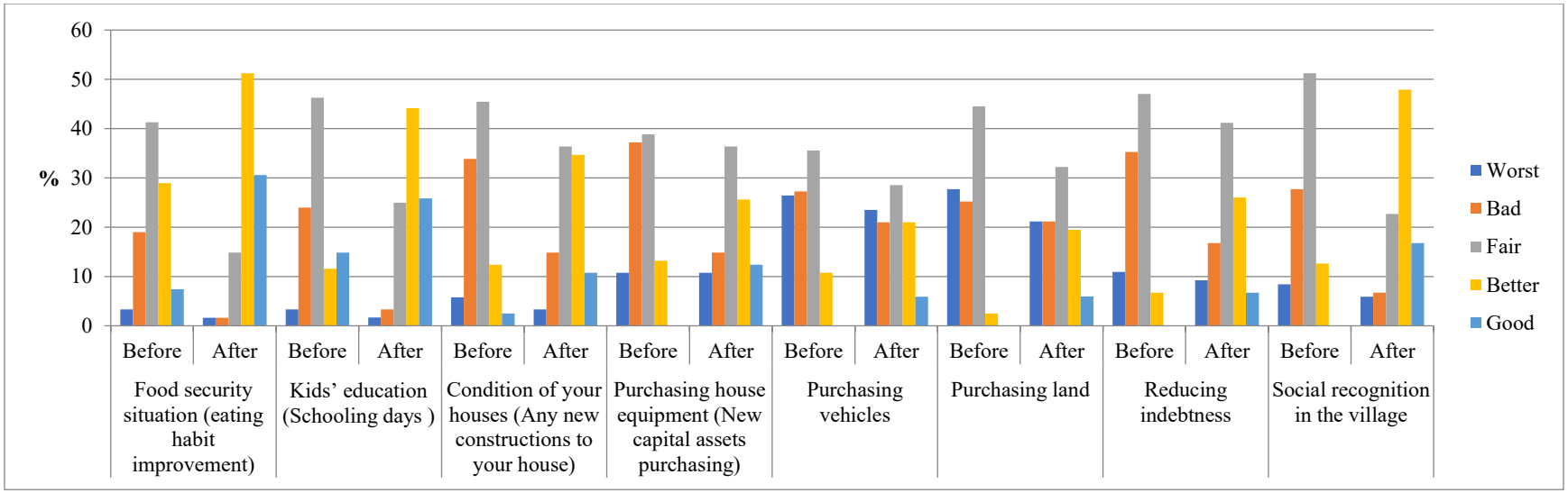
Crop type	Number of followers
Dry chili	500
Ground nut	212
Jumbo peanut	203
Cucumber	160
Bitter gourd	10
Big onion seed	0
Hybrid chili seed	25
Vegetable	165
Potato seed	75
Maize seed	5
Vegetable seed	15
TEJC mango	52
Passion fruits	97
Papaya	7
Moringa leaves	-
Yellow mandarin	-
Guava	12
Aloe vera	-
Hass avocado	105
Ambul banana	89
Kolikuttu banana & chilli	46
Cavendish banana	134
Pomegranate	25
Cassava	2
Pineapple	150
Soursop–intercrop with ginger	11
Organic soursop with organic turmeric & mustard	-
Potato & red onion	34

Crop type	Number of followers
Pomegranate & chilli	-
Papaya & chilli	57
Bee keeping	-
Mushroom	95
Total	**2286**

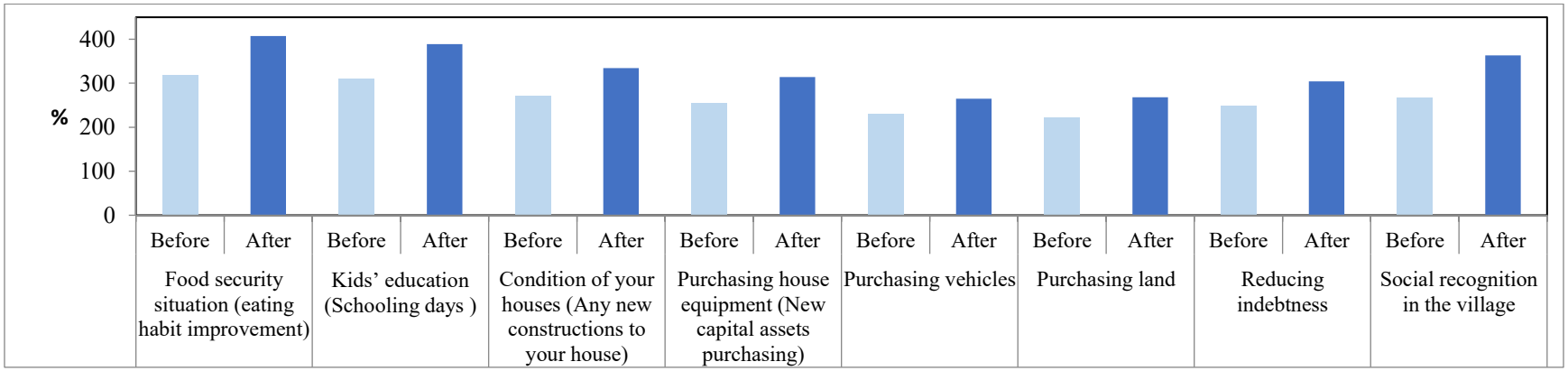
xi. Risk and environmental shocks handling by the Project

Type of impact	**Y (%)**	**N (%)**	**What specific support you received from ASMP**	**What were your actions to protect your income**
COVID -19	32	68	No support	Used mostly family labour
Organic fertilizer policy impact	49	51	1. Organic fertilizer was provided 2.Fertilizer was given at 25% subsidy 3. Training was provided to make organic fertilizer	1. Applied homemade organic fertilizer 2. Used poultry manure, cattle manure
Fuel crisis	59	41	Hired machineries for land preparation at low cost/ free	1. Used family labour 2. Shared fuel through PUCs 3. Did not harvest 4. Fuel only used to farming activities
Economic crisis	78	22	1. Provide fertilizer at 25% subsidy 2. Provide planting materials 3. Promoted to use solar power	1. Reduced the use of expensive inputs (fertilizer) 2. More use of family labour 3. Changed the crop 4. Used savings 5. Only quality product harvested (not all)

xii. Livelihood improvement



xiii. Livelihood Improvement (with a rating)



Annex 8: Secondary beneficiary (followers' information)

i. Secondary beneficiary: Followers list

Province	Cluster	Farmer name	Mobile no	Address	Acre	Production (kg)*
Eastern	Cucumber	S. Dayasan	0771164822	Vaaharai	1	7000
	Cucumber	Kanesarasa	0762933156	Vaaharai	1	3500
	Cucumber	J. Thanusan	0754642223	Vaaharai	1	2000
	Cucumber	L. Punniyarasa	0771395269	Vaaharai	1	2200
Northern (mullai agri business)	Groundnut	S.Kunaselan	0772256725	Thandiyamallai, Oddusuddan	2	850
	Jumbo peanut	N. Vinoja	0775568619	Thandiyamallai, Oddusuddan	3	950
	Groundnut	T. Tharmalinkam	0771165581	Thandiyamallai, Oddusuddan	3	700
	Groundnut	T. Nadarasa	0778094483	Thandiyamallai, Oddusuddan	2.5	800
	Groundnut	Thadshayini	0770687331	Thandiyamallai, Oddusuddan	2.5	900
Central	Passionfruit	Nishantha	0775961042	Moragolla	1	
	Passionfruit	S.Seelawathi	0768039350	Bambaragaswewa	0.5	
	Mango	Dimuth Renuka	0777148147	Vilachchiya	2	
	Guava	A.G.Jayasena	0707248114	Kandalama	0.5	
	Passionfruit	Gihan Lakmitha	0773948313	Bambaragaswewa	0.25	
	Passionfruit	Thilakarathne	0768474557	Udagama/ Aguruwelayaya	1	
	Guava	Danushka	0767319002	Uthsahana	0.5	
	Papaw	Sampath	0776304441	Dambulla	10	
UVA Giradurukotte	Passionfruit	V.M. Samarapala Jayasinghe	0781668861	190, Rotalawela, Divulapelessa	1/2	
	Passionfruit	Y.M. Dansekara Bandara	0761756739	2/202, Rotalawela, Divulapelessa	1/2	
	Passionfruit	Lakshan Madushanka	0703026547	3/230, Rotalawela, Divulapelessa	1/2	
	Passionfruit	Ashani Shriyathilka	0703026547	359, Rotalawela, Divulapelessa	1/2	
	Passionfruit	H.M. Vimalaratne	0729265813	5/133, Rotalawela, Divulapelessa	1/2	
	Passionfruit	Mr. V.M. Volly Jayarathna	0700704083	2/190, Rotalawela, Divulapelessa	1/2	
	Passionfruit	A.M.C.C Kumara	0719553369	336, Rotalawela, Divulapelessa	1/2	
	Passionfruit	D.M. Gnanaratne	0729065814	2/132, Rotalawela, Divulapelessa	1/2	

Note: * Production in 2024 yala season

ii. List of all categories of secondary beneficiaries

Province	cluster name	Collector	exporter	companies	labours	followers
Northern	TEJC mango	5	2	5	45	10
	organic small banana	8	5	8	75	15
	potato red onion	5		3	25	25
	off season green chilli	7		5	30	3
	papaya cluster	3	3	5	15	5
	Ground nut production	8	1	9	80	45
	Dry chilli	2		3	20	7
	Pomegranate				25	1
	passion fruit	3	4	3	30	7
	Kolikuttu banana	3	2	2	30	3
	Chilli	4		2	20	8
	Jumbo peanut	3	1	3	10	25
	Pomegranate				7	1
	passion fruit	5	5	5	80	22
	cassava	2	3	1	80	3
	TEJC mango				5	2
	papaya cluster	4	7	4	75	7
	Dry chilli	5		2	70	5
	Maize			3	80	3
Easterm	Dry chilli	4		2	25	20
	Jumbo peanut	3			75	50
	Maize					
	Soursop					
	Cucumber	2		2	60	40
	Green chilli kaluthavalai	4		2	25	30
	Dry chilli	3			20	50
	Ground nut kathiraveli	2	2	3	15	20
	Ground nut karadiyannaru	5		2	20	20
	Cavendish banana	7	2	4	75	50
	Pomegranate production kalUVAnchi kudi	2			15	20
	pomogrannate,senkaladi	1			15	20
North Central	Small banana	2	2	1	600	50
	Guava	3	2	1	320	10
	Dry chilli production	1		1	420	1300
	Maize seed production				100	
	Moringa leaves production	2	2	1	50	
	Green chilli production				80	
	Bitter gurd production				40	
	Mushroom production			1	5	5
	Aloe vera production	1		1	10	
	Papaya	3	1	1	250	5
	Dry chilli production			1	250	290
	Green chilli production				40	
	Bitter gourd production				30	
	Mushroom production	1			3	
	Aloe vera production	1			15	
	Vegetable production			1	150	

Annex 9: Cluster summaries

i. Cluster spread: Central and Northern Provinces

Cluster name	Crop type	Central Province													
		Matale							Kandy						
		2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024
Dry chili	Seasonal											1	1		
Green chilli	Seasonal														
Ground nut	Seasonal														
Jumbo peanut	Seasonal														
Potato & Red onion	Seasonal														
Cucumber	Seasonal														
Bitter gourd	Seasonal														
Big onion seed	Seed	1	1												
Hybrid chili seed	Seed				1										
Jumbo peanut seed	Seed														
Potato seed	Seed														
Maize seed	Seed														
Vegetable seed	Seed													1	
TEJC Mango	Perennial	1	1			1		1							
Passion fruits	Perennial		1												
Papaya	Perennial														
Yellow Manderine	Perennial														
Guava	Perennial						1								
Hass Avocado	Perennial													1	
Ambul Banana	Perennial													1	
Cavendish Banana	Perennial														
Kolikuttu Banana	Perennial														
Pomegranate	Perennial														
Pineapple	Perennial														
Sour sop	Perennial														
Moringa leaves	Perennial														
Aloevera	Perennial														
Cassava	Annual														
Bee keeping	Other														
Mushroom	Other														
Total clusters by district		**2**	**3**	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**3**	**0**

Cluster name	Crop type	Northern Province													
		Jaffna							Mullathiu						
		2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024
Dry chili	Seasonal											1			
Green chilli	Seasonal	1													
Ground nut	Seasonal								1	1					
Jumbo peanut	Seasonal														
Potato & Red onion	Seasonal			1											
Cucumber	Seasonal														
Bitter gourd	Seasonal														
Big onion seed	Seed														
Hybrid chili seed	Seed														
Jumbo peanut seed	Seed														
Potato seed	Seed														
Maize seed	Seed														
Vegetable seed	Seed														
TEJC Mango	Perennial		1				1								
Passion fruits	Perennial									1					
Papaya	Perennial												1		
Yellow Manderine	Perennial														
Guava	Perennial														
Hass Avocado	Perennial														
Ambul Banana	Perennial					1									
Cavendish Banana	Perennial														
Kolikuttu Banana	Perennial													1	
Pomegranate	Perennial												1		
Pineapple	Perennial														
Sour sop	Perennial														
Moringa leaves	Perennial														
Aloevera	Perennial														
Cassava	Annual														
Bee keeping	Other														
Mushroom	Other														
Total clusters by district		**1**	**1**	**1**	**0**	**1**	**1**	**0**	**1**	**2**	**0**	**1**	**2**	**1**	**0**

Cluster name	Crop type	Northern Province													
		Kilinochchi							Vavuniya						
		2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024
Dry chili	Seasonal						1					1			
Green chilli	Seasonal						1								
Ground nut	Seasonal														
Jumbo peanut	Seasonal			1			1								
Potato & Red onion	Seasonal														
Cucumber	Seasonal														
Bitter gourd	Seasonal														
Big onion seed	Seed														
Hybrid chili seed	Seed														
Jumbo peanut seed	Seed														
Potato seed	Seed														
Maize seed	Seed						1						1		
Vegetable seed	Seed														
TEJC Mango	Perennial													1	
Passion fruits	Perennial			1			1								
Papaya	Perennial										1			1	
Yellow Manderine	Perennial														
Guava	Perennial														
Hass Avocado	Perennial														
Ambul Banana	Perennial														
Cavendish Banana	Perennial														
Kolikuttu Banana	Perennial														
Pomegranate	Perennial						1								
Pineapple	Perennial														
Sour sop	Perennial														
Moringa leaves	Perennial														
Aloevera	Perennial														
Cassava	Annual											1			
Bee keeping	Other														
Mushroom	Other														
Total clusters by district		**0**	**0**	**2**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**2**	**1**	**2**	**0**

Blue colour cells – Pilot clusters, Orange colour cells – ISP clusters. Gray colour cells – EU clusters

ii. Cluster spread: Uva, Eastern and North Central Provinces

Cluster name	Crop type	Uva Province														Eastern Province														North Central Province														Total No. of clusters by crop - with scale ups
		Monaragala							Badulla							Batticaloa							Ampara							Apura							Polonnaruwa							
		2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024	2018	2019	2020	2021	2022	2023	2024	
Dry chili	Seasonal													1			1											1							1						1			10
Green chilli	Seasonal			1												1														1								1						6
Ground nut	Seasonal															1	1																			1							5
Jumbo peanut	Seasonal																											1															3
Potato & Red onion	Seasonal																																											1
Cucumber	Seasonal															1																												1
Bitter gourd	Seasonal																													1							1							2
Big onion seed	Seed																																											2
Hybrid chili seed	Seed																																											1
Jumbo peanut seed	Seed																																											0
Potato seed	Seed										1			1																														2
Maize seed	Seed																											1					1											4
Vegetable seed	Seed														1																											1			3
TEJC Mango	Perennial	1				1																																						9
Passion fruits	Perennial	1	1									1																																8
Papaya	Perennial																																									1			6
Yellow Manderine	Perennial										1																																		1
Guava	Perennial																													1					1										3
Hass Avocado	Perennial													1																															2
Ambul Banana	Perennial																																		1										3
Cavendish Banana	Perennial					1	1														1																							3
Kolikuttu Banana	Perennial																																												1
Pomegranate	Perennial																				2																							4
Pineapple	Perennial	1	1																																									2
Sour sop	Perennial										1																1			1															3
Moringa leaves	Perennial		1																												1														2
Aloevera	Perennial																														1								1						2
Cassava	Annual																										1																		2
Bee keeping	Other		1																																									1
Mushroom	Other																													1	1						1							3
Total clusters by district		**3**	**4**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**1**	**0**	**3**	**1**	**3**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**4**	**3**	**0**	**1**	**0**	**2**	**3**	**4**	**2**	**0**	**0**	**1**	**2**	**0**	**95**

Blue colour cells – Pilot clusters, Orange colour cells – ISP clusters. Gray colour cells – ISP clusters

iii. Seasonal crop clusters

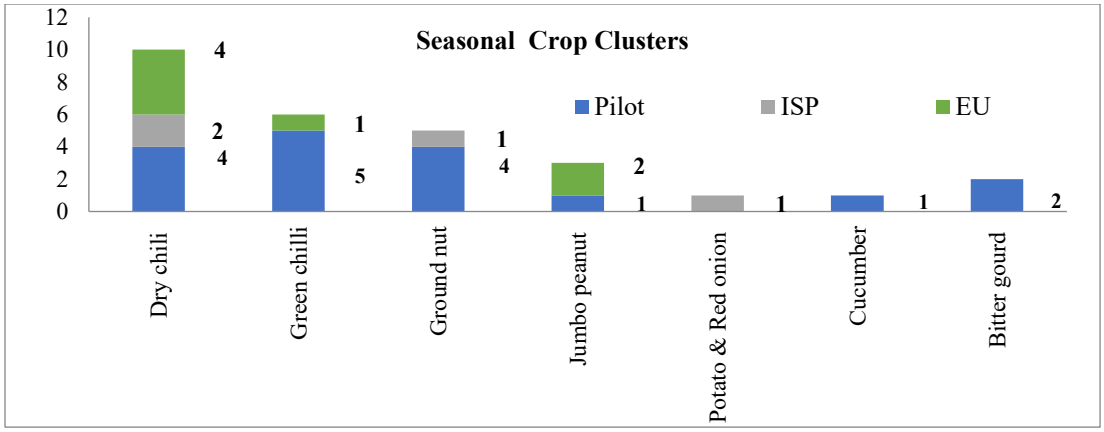


Figure 7.2: Seasonal Crop Clusters

iv. Fruit production clusters

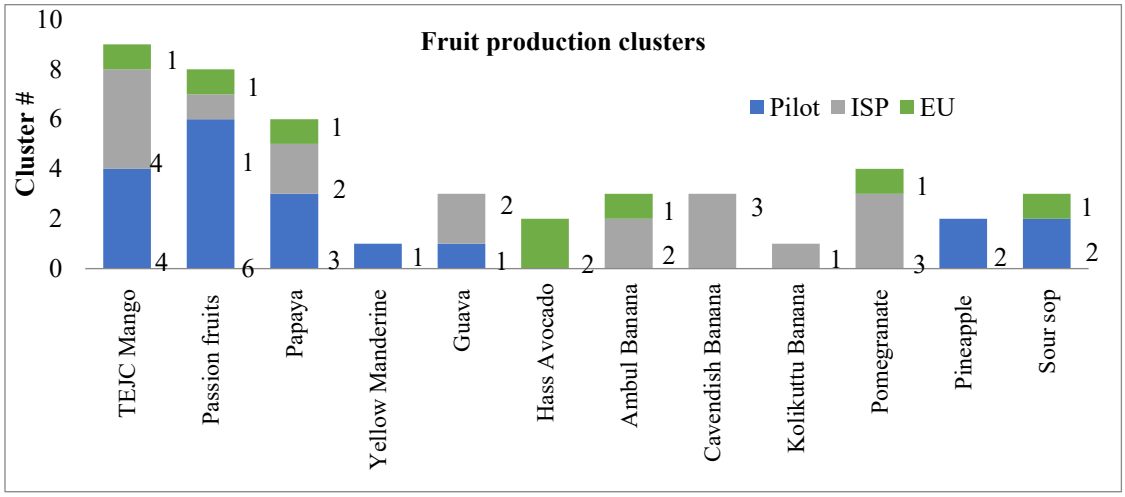


Figure 7.3: Fruit Production Clusters

iv. Seed production clusters

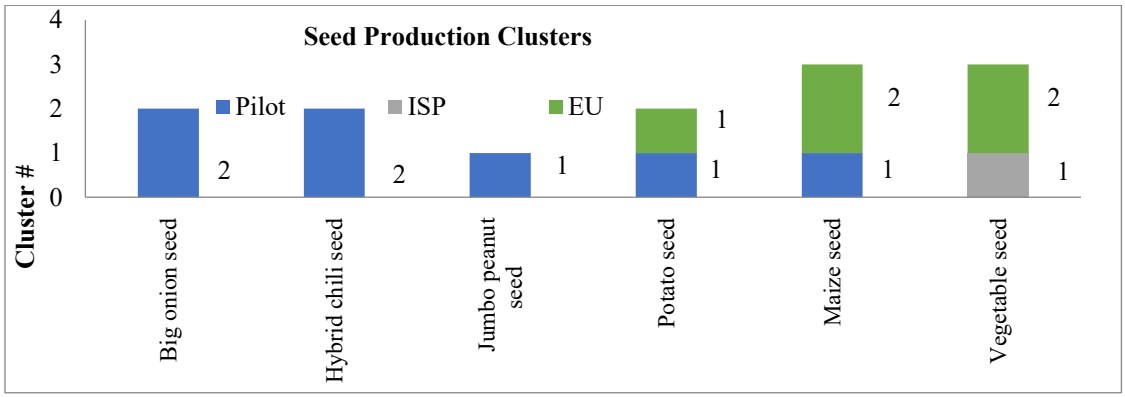


Figure 7.4: Seed Production Clusters