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GLOBAL QUALITY AND STANDARDS PROGRAMME

Annual report - 2025

GQSP Vietnam

Project Overview

Final Report covering:	Jan - Dec 2025
Project number:	230131
Date of report:	Dec. 2025
Title of Project / Programme Component:	Global Quality and Standards Programme – Vietnam (GQSP Viet Nam) Increasing quality and standards compliance capacity of Tropical fruit value chains Phase II
Total UNIDO Budget (latest revised; excl. spc):	€ 1,300,000
Completion date as per original project document:	December 2026
Completion date:	December 2026
Objective of the project:	Enhanced competitiveness and sustainability of Vietnamese tropical fruit exports through innovation, diversification, quality improvement, and standards compliance that meet modern market requirements

Acronyms

BSO	Business Support Organization
CA	Controlled Atmosphere
CDC	Community Development Center
CRM	Certified Reference Material
DAA	Digital Agriculture Alliance
DAE	Department of Agriculture and Environment
EGM	Expert Group Meeting
ESMP	Environmental and Social Management Plan
EU	European Union
GAP	Good Agricultural Practice
GIS	Geographic Information Systems
GQSP	Global Quality and Standards Programme
GSP	Good Standardization Practices
ISO	International Organization for Standardization
ISPAE	Institute of Strategy and Policy on Agricultural and Environment
KPI	Key Performance Indicator
LIMS	Laboratory Information Management System
M&E	Monitoring and Evaluation
MA	Modified Atmosphere
MAE	Ministry of Agriculture and Environment
MAP	Modified Atmosphere Packaging
NAEC	National Agricultural Extension Center
NAFIQPM	National Agro-Forestry-Fishery Quality, Processing and Market Development Authority
NSB	National Standards Bodies
PHC	Packing House Code
PPPD	Plant Production and Protection Department
PPD	Public Private Dialogue
PSAV	Partnership for Sustainable Agriculture in Vietnam
PT	Proficiency Testing
PUC	Production unit codes
QA	Quality Assurance
QC	Quality Control
QI	Quality Infrastructure
QP	Quality Policy
QS4ID index	Quality Infrastructure for Sustainable Development Index
R&D	Research and Development
SCA	Standards Compliance Analytics
SECO	State Secretariat for Economic Affairs
SIPPO	Swiss Import Promotion Programme
SME	Small and Medium Enterprises
SOFRI	Southern Horticultural Research Institute
SOP	Standard Operating Procedures
SPCC	Southern Pesticide Control and Testing Centre

STAMEQ	Commission for the Standards, Metrology and Quality of Viet Nam
TCVN	Vietnam national standard system
TFNet	International Tropical Fruit Innovation Network
TIGITECH	Dong Thap Center for Applied Research and Scientific Technology Services
TMA	Trade Market Access
UNIDO	United Nations Industrial Development Organization
US	United States
USD	United States dollar
USP	Unique Selling Point
VASS	Vietnam Academy of Agricultural Sciences
VC	Value chain
VHT	Vapor Heat Treatment
VIAEP	Vietnam Institute of Agricultural Engineering and Post-Harvest Technology
VMA	Vietnam Mango Association
VMI	Vietnam Metrology Institute
VSQI	Viet Nam Standards and Quality Institute
VTFIN	Vietnam Tropical Fruit Innovation Network

Executive Summary

The Global Quality and Standards Programme (GQSP) is a SECO-UNIDO-initiative which has a systematic approach to strengthen the quality and standards compliance capacity to facilitate market access for SMEs in developing and transitional economies. In Vietnam, the phase 1 of the project “Increasing quality and standards compliance capacity of Mango value chain in the Mekong River Delta”, made significant inroads into improving market access of mango exports to selected target export markets. Phase 2 of the project “Increasing quality and standards compliance capacity of Tropical fruit value chains in Vietnam” aims to build upon these successes and expand across the tropical fruit sector to include Durian, Passion fruit and Pomelo in addition to Mango.

- OUTCOME 1: Technical competence and sustainability of the Quality Infrastructure System and conformity assessment services related to tropical fruit export industry enhanced.
- OUTCOME 2: Enhanced ability of the tropical fruit export value chain to meet the markets requirements and compete in target markets (national and export) through compliance with technical regulations and other quality requirements, adaptation to change, innovation and new technology.
- OUTCOME 3: Improved culture of quality through conducive policy, market innovation and organizational structure enabling effective export development.

The Global Quality and Standards Programme (GQSP) Viet Nam – Phase 2 is implemented by UNIDO in partnership with the Ministry of Agriculture and Environment (MAE) of which the Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP) serving as the national project owner. The project works closely with key national partners, including the Departments of Plant Production Protection (PPPD), the National Agro-Forestry-Fisheries Quality Assurance Department (NAFIQPM), the National Agricultural Extension Center (NAEC), the Institute of Strategy and Policy on Agricultural and Environment (ISPAE), and the Commission for Standards, Metrology and Quality (STAMEQ).

In addition, the project collaborates with industry associations such as Vinafruit, the Digital Agriculture Alliance (DAA), the Vietnam Mango Association, and the Durian Association, as well as provincial stakeholders and technical experts. Through these partnerships, GQSP Viet Nam – Phase 2 aims to strengthen the national quality infrastructure, promote innovation, enhance quality systems, and build sustainable and competitive export value chains for Vietnam’s tropical fruit sector.

Outcome 1 – Strengthening Quality Infrastructure

Outcome 1 enhanced the technical competence and sustainability of Vietnam’s Quality Infrastructure (QI) system and conformity assessment services for the tropical fruit export industry. The project strengthened laboratory capacity, with two testing centers (TIGITECH and SPCC) maintaining ISO/IEC 17025 accreditation and providing their services for 2886 SMEs in 2025 and 16 laboratories participating in an international Proficiency Testing (PT) program organized by the Chinese Academy of Quality Inspection and Testing, improving analytical reliability and alignment with international standards. A comprehensive assessment of Certified Reference Material (CRM) production capacity for 12 testing centers was completed to guide future domestic CRM development. The PUC & PHC management system integrating growing

area diaries and packing house traceability has been scaled up to 9,437 PUCs and 1,827 PHCs, 6,434 growers and 1,707 SMEs supported to access markets, and now covers a total area of 376,000 hectares, reducing rejection notification time from one week to one minute and supporting compliance with import requirements of 20 export markets. Together, these results have strengthened Vietnam's technical foundations for quality assurance, traceability, and market compliance.

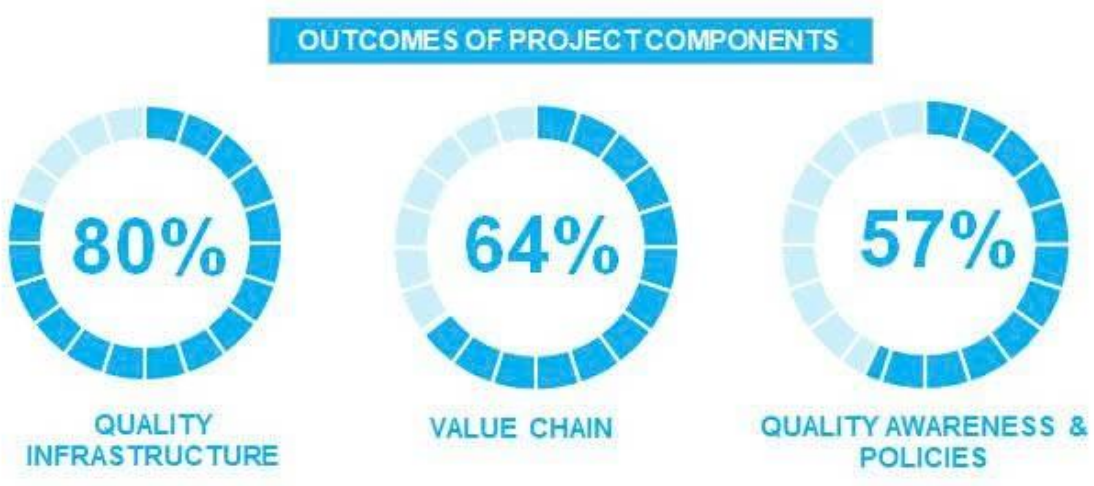
Outcome 2.

Outcome 2 focuses on strengthening the capacity of tropical fruit export value chains to meet international market requirements through Standard Operating Procedure (SOP) development & training, quality assurance systems, innovation & technology adoption, and value addition. A total of 18 SOPs, of which 12 new SOPs were developed for durian, passion fruit, and pomelo; 6 updated SOPs for mango accompanied by extensive training programs for 683 value chain actors and eight demonstration models at farms and packing houses. The project provided technical assistance to 22 SMEs and cooperatives, improving post-harvest handling, processing efficiency, and export capacity. Key achievements included a 10–15% increase in export-grade fruit of supported SMEs and the official opening of the Australian market for Vietnamese pomelo in October 2025. The introduction of innovations such as Modified Atmosphere (MA) storage, the V-Goldcoat natural coating for durian, V- Fruitcoat for passion fruit, SOFRI-METARHIZIUM, SOFRI-NA1 and SOFRI-VK1 further enhanced product quality, shelf life, and environmental sustainability. Collectively, these interventions have significantly improved SME compliance, competitiveness, and export diversification in Vietnam's tropical fruit sector.

Outcome 3 – Creating a Culture for Quality

Outcome 3 continued promoting culture of quality. Under this outcome, the project worked with SIPPO to strengthen Business Support Organizations (BSOs) such as Vinafruit and the Digital Agriculture Alliance (DAA) through institutional assessments. In partnership with STAMEQ and VSQI, two national standards for frozen durian — TCVN 14579:2025 (Frozen Durian) and TCVN 14580:2025 (Code of Practice for Processing of Frozen Durian) were developed and published to align national standards with international requirements. The project also organized the Vietnam Fruit and Vegetable Export Forum 2025, co-hosted with VIAEP and VEAS, attracting more than 200 participants from government, industry, and logistics sectors to discuss market access and competitiveness. Furthermore, progress was made on reviewing the National Quality Policy (NQP) and supporting MAE's working groups on food systems, innovation, and One Health.

Monitoring indicators



SOME HIGHLIGHTED RESULTS

Export-grade fruit increased by **10-15%**
Overall postharvest loss reduced by **5–10%**

Export value of 4 supported VCs increased by **27%** (durian **+15%**, mango **+45%**, passion fruit **+37%**, pomelo **+12%**)

22 SMEs & cooperatives received technical assistance

2 labs supported, provided testing services for **2886 SMEs**
16 labs participated in PT program

18 SOPs developed and updated, and **683 VC actors** trained on SOPs
8 models of SOP adoption at both orchards and packing houses

6,434 growers and 1,707 SMEs supported to access markets
9,437 PUCs and **1,827 PHCs** granted

2 new national standards for frozen durian developed

1 National Quality Policy reviewed

Training program on QA delivered to **60 QC staff** and **20 experts** from SIAEP and SOFRI

03 preservation technologies
03 pest and disease control products

1548 (43.3%) women raised awareness and enhanced capacity

36 climate-adaptive practices & measures adopted

1. Introduction

The UNIDO-SECO Global Quality and Standards Program (GQSP) is a systematic approach to strengthen the quality and standards compliance capacity to facilitate market access for SMEs. The GQSP Viet Nam Phase 1 (2020-2023) focused on “Increasing quality and standards compliance capacity of Mango value chain in Mekong River Delta” and achieved significant outcomes. To build on the achievements of GQSP Phase 1 (2020-2023), GQSP Viet Nam Phase 2 expands the learnings to a wider tropical fruit industry following logical progression. The objective of the second phase is *enhanced competitiveness and sustainability of Vietnamese tropical fruit exports through innovation, diversification, quality improvement, and standards compliance that meet modern market requirements.*

Following the above general outline of the GQSP program, the GQSP Vietnam Phase 2 incorporates the identified opportunities for:

- Upscaling the developed models for adoption whilst adapting the learnings to other tropical fruit enterprises.
- Integrate new technology (*post-harvest, digitalization, processing*), adaptive change and innovations into the models improving the diversification, efficiency, effectiveness and the ability of chains to meet modern market requirements.
- Increase sustainability and adoption of phase 1 by building capacity through education and institutionalization of knowledge.
- Capitalize on the synergies between the tropical fruit industries and upscaling cross cutting issues, sustainability, climate change, value addition digitalization and capacity building to effectively reach wider audience with greater impact.

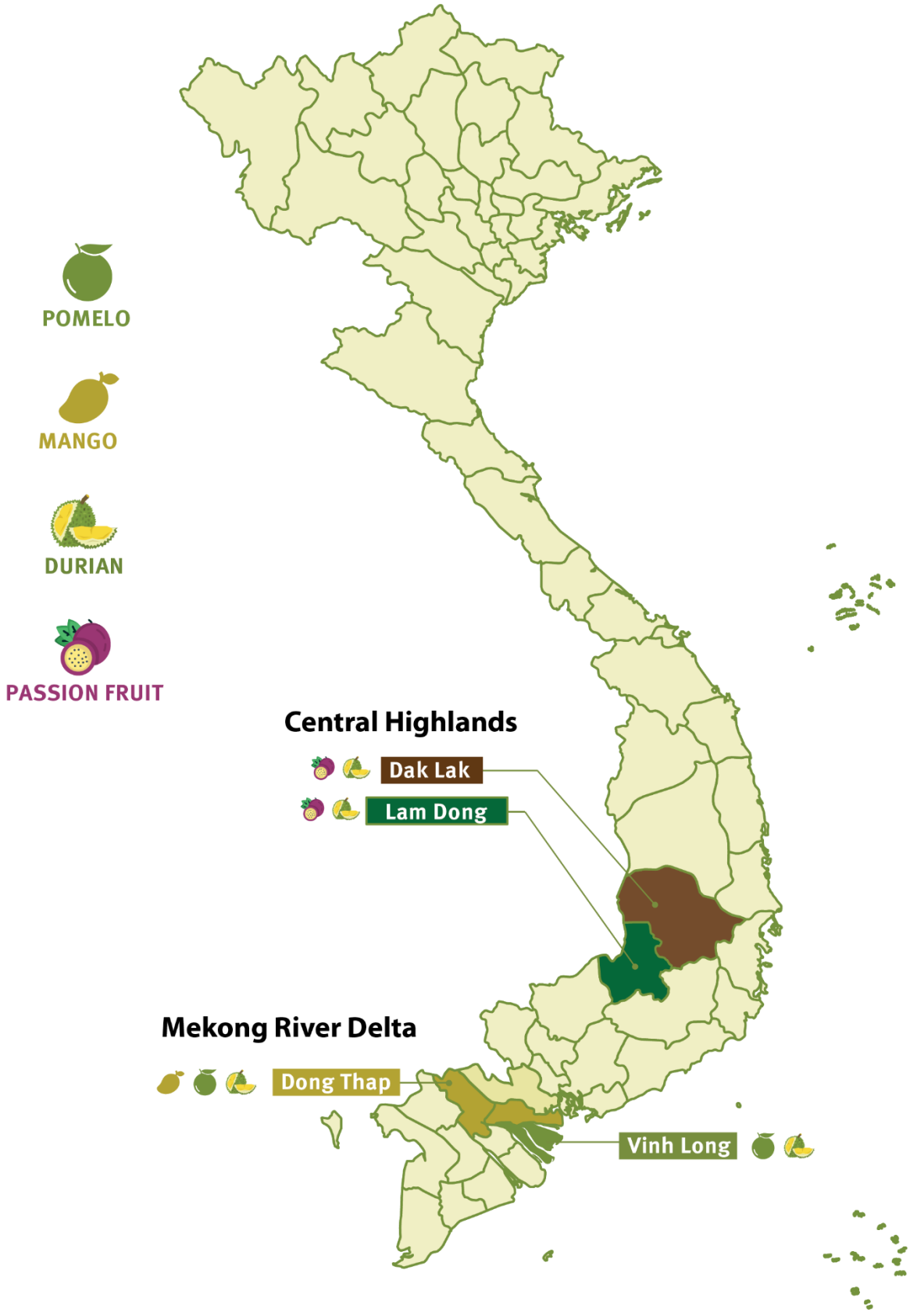
To meet the needs and goals of the Vietnamese tropical fruit industry development, the project outcomes aligned with global program are:

Outcome 1: Technical competence and sustainability of the Quality Infrastructure System and conformity assessment services related to tropical fruit export industry enhanced.

Outcome 2: Enhanced ability of the tropical fruit export value chain to meet the markets requirement and compete in target markets (national and export) through compliance with technical regulations and other quality requirements, adaptation to change, innovation and new technology.

Outcome 3: Improved culture for quality through conducive policy, market innovation and organizational structure enabling effective export development.

The project provinces include Mekong River Delta (Vinh Long, Dong Thap) and Central Highlands (Dak Lak and Lam Dong)



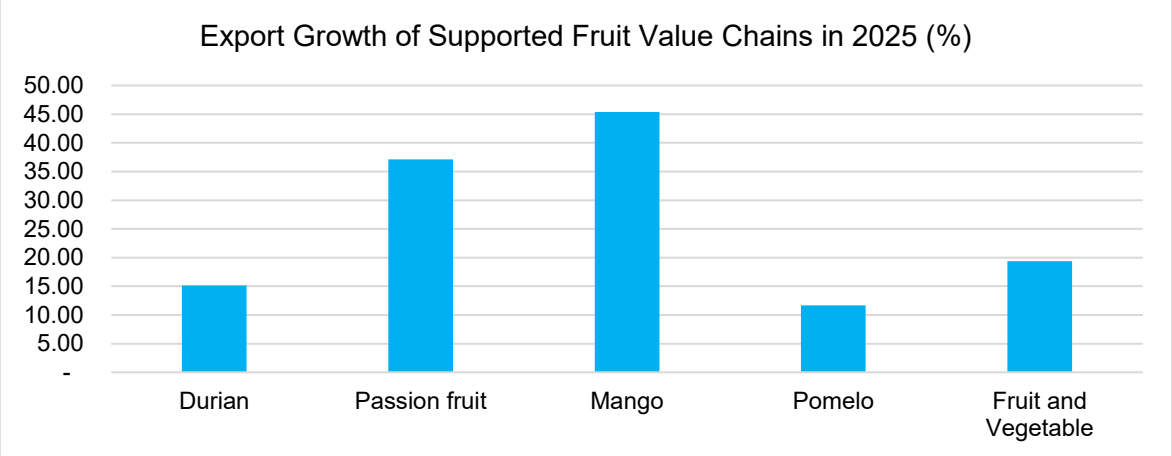
Country Context

Overview of the tropical fruit sector in 2025

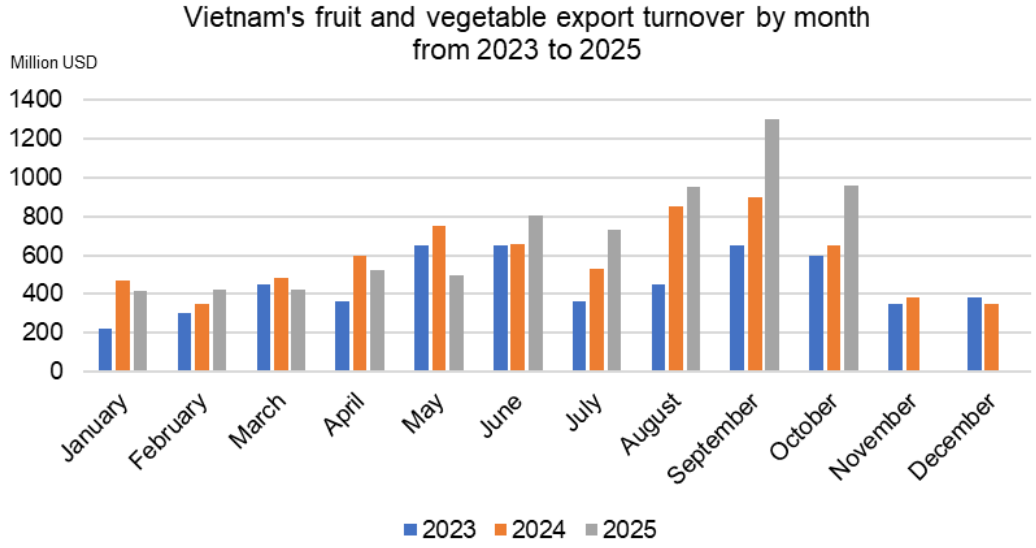
Vietnam's tropical fruit sector continues to play a pivotal role in the country's agricultural economy and export growth. Fruit and vegetable exports in 2025 reached 8.5 billion USD, increase nearly 20% compared to 2024. The tropical fruit segment, led by durian, banana, coconut, pomelo, lychee, dragon fruit, and mango, accounted for the largest share. Durian alone contributed USD 3.8 billion, confirming its position as Vietnam's top fruit export. The total fruit cultivation area stands at approximately 1.3 million ha, producing more than 15 million tons annually.

These results reinforce Vietnam's growing competitiveness in global tropical fruit markets and the government's strategy to position fruit as a core driver of agricultural transformation and rural income growth.

In 2025, exports of the supported value chains grew strongly, led by durian (USD 3.8 bil, +15%), mango (USD 378 mil, +45%), passion fruit (USD 240 mil, +37%), pomelo (USD 67mil,+12%).



Source: VINAFRUIT, 2025



Source: General Department of Vietnam Customs, 2025

Shifts in export markets and trade dynamics

The fruit export market landscape in 2025 is marked by shifting patterns in key destinations:

China remains the largest importer, accounting for more than 62% of Vietnam's total fruit export value, but its share has gradually declined as Vietnam diversifies to other markets. Export growth to Japan, the U.S., and the EU is accelerating, reflecting improved compliance with sanitary and phytosanitary (SPS) standards and investments in quality assurance systems.

Exports to the U.S. increased by nearly 60%, and to the EU and Japan by 20-40%, while shipments to China decreased slightly due to stricter import controls and logistical constraints.

Processed fruit products (dried, frozen, juices, purees) are emerging as a new growth driver, supported by increasing demand for shelf-stable and sustainably packaged goods.

However, challenges such as non-tariff barriers, residue detection, and certification requirements remain obstacles for many small exporters.

Emerging issues in the fruit sector in 2025

Despite robust growth, the sector faces many critical challenges:

- Post-harvest losses and quality variation remain high due to limited cold-chain and packaging infrastructure.
- Seed and nursery management for export-oriented fruits (durian, pomelo, and mango, passion fruit) are inconsistent, affecting yield and quality stability.
- Fragmented smallholder production limits the ability to comply with export market requirements and scale sustainable certification.
- Climate-induced disruptions such as salinity intrusion, drought, and heat stress continue to threaten major fruit-producing areas in the Mekong Delta and Central Highlands.

Climate change and the low-emission transition

Vietnam remains one of the countries most vulnerable to climate change. In 2025, irregular rainfall, prolonged heatwaves, and saltwater intrusion in the Mekong Delta are intensifying, affecting fruit production in key provinces such as Vinh Long and Dong Thap. Meanwhile, highland provinces like Dak Lak and Lam Dong are experiencing increasing temperature extremes and unpredictable dry seasons.

The Ministry of Agriculture and Environment (MAE) has launched a Low-Emission Crop Production Program (2025–2035, Vision 2050). This program sets targets to reduce greenhouse gas emissions from crop production by 15 % by 2035, with fruit crops explicitly included in emission-reduction pilots.

For the tropical fruit sector, this marks an important transition toward climate-smart and low-emission production systems, integrating optimized fertilizer use, soil carbon management, and circular waste utilization. Participation in these models is expected to enhance market access and potentially attract carbon finance incentives.

Institutional restructuring

The merger of the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Natural Resources and Environment (MONRE) into the new Ministry of Agriculture and Environment (MAE) represents a significant institutional restructuring within the Government of Viet Nam.

Within this new structure, several key project partners have also undergone organizational realignment. The Plant Protection Department (PPD) and the Department of Crop Production (DCP) have been merged to form a consolidated department of Crop Production and Plant Protection (PPPD) responsible for both crop production management and plant health, facilitating a more integrated approach to production, pest management, and quality assurance. Similarly, the Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP) has been merged into the Vietnam Academy of Agricultural Sciences (VASS), strengthening the linkage between research, innovation, and applied technologies in post-harvest and processing.

At the provincial level, parallel restructuring has taken place. In several provinces, the Departments of Agriculture and Rural Development (DARDs) have merged with environmental and rural development divisions to form Departments of Agriculture and Environment (DAEs). Furthermore, the local governance structure now operates under two administrative layers – provincial and commune authorities. The table below presents the changes across the project provinces.

Before	Now (from 1 July 2025)
Dak Lak, Phu Yen	Dak Lak
Dak Nong, Lam Dong, Binh Thuan	Lam Dong
Tien Giang, Dong Thap	Dong Thap
Ben Tre, Vinh Long, Tra Vinh	Vinh Long
Hanoi	Hanoi
Ho Chi Minh, Vung Tau, Binh Duong	Ho Chi Minh

2. Project Implementation

2.1. Progress by outcomes

2.1.1. Outcome 1: Strengthening Quality Infrastructure

This outcome continues to enhance the technical competence and sustainability of the Quality Infrastructure (QI) system and conformity assessment services related to the tropical fruit export industry by strengthening the capacity of testing laboratories, improving the traceability system, and promoting local production of Certified Reference Materials (CRMs) in line with industry needs.

a. Laboratory Support System

Progress to date:

Key indicators

2 labs supported, provided testing services for **2886 SMEs**

16 labs participated in PT program

The two supported testing centers (TIGITECH and SPCC) continued to get accreditation ISO 17025. These two centers have provided testing services for 2886 SMEs in 2025.

In addition, the project has supported 16 Vietnamese laboratories to participate in the international Proficiency Testing (PT) Program organized by the Analysis Capability Assessment System (ACAS) of the Chinese Academy of Quality Inspection and Testing (CAQIT). This initiative is part of the broader effort to enhance analytical competence and ensure comparability and reliability of food safety testing results among laboratories in Belt and Road countries.

The PT program covered key analytes relevant to food safety and international trade, including lead (Pb), cadmium (Cd), chromium (Cr), and chloramphenicol — contaminants and residues of significant concern in food exports. By participating in this internationally recognized PT scheme, the laboratories were able to benchmark their analytical performance against global standards, identify areas for improvement, and strengthen their quality assurance systems in line with ISO/IEC 17025 requirements.

Participation in the PT program would:

- Enhance laboratory capabilities in food safety testing and improved confidence in analytical data.
- Promote mutual recognition of test results among laboratories and regulatory authorities.
- Support regulatory harmonization and technical cooperation between Vietnam and partner countries.
- Contribute to reducing technical trade barriers, thereby facilitating safer and more reliable food imports and exports for consumers.

Beyond the immediate technical outcomes, the PT program also fosters South–South cooperation by promoting knowledge exchange, mutual learning, and capacity building among laboratories including others from 12 countries.

16 participating laboratories include:

- Food Chemistry Department – National Institute of Nutrition (NIN)
- National Institute for Food Control (NIFC)
- Quality Assurance and Testing Centre 1 (QUATEST 1)
- Southern Pesticide Control and Testing Centre (SPCC)
- Center for Applied Research and Scientific Technology Services of Dong Thap Province (TIGITECH)
- VinaCert Testing Laboratory in Ha Noi
- VinaCert Testing Laboratory in Ho Chi Minh City
- National Authority for Agro-Forestry-Fishery Quality, Processing and Market Development - Center 1 (NAFI 1)
- Northern Pesticide Control and Testing Centre
- VinaCert Center for Analysis and Inspection of Goods Quality (VAIQ)
- Reference Testing and Agrifood Quality Services Center (RETAQ)
- Southern Shrimp JSC
- Minh Phu Lab
- Minh Phu Supply chain Testing Laboratory in Soc Trang
- Minh Phu Supply chain Testing Laboratory in Ben Tre
- Hai Tam Laboratory Co. Ltd.

Testing sample provided for PT program by ACAS – CAQIT

Analysts at the NIN testing center analysed the samples from the PT program

b. Packing House Codes & Production Unit Codes Management System

Progress to date:

Key indicators

6,434 growers and 1,707 SMEs supported to access markets

9,437 PUCs & 1,827 PHCs granted

Supporting 6,434 growers and 1,707 packing houses

Notification time for rejection cases reduced to **one minute**

Compliance ensured with import requirements of **20 markets**

Real-time monitoring of farming & packing activities for >**45 crops**

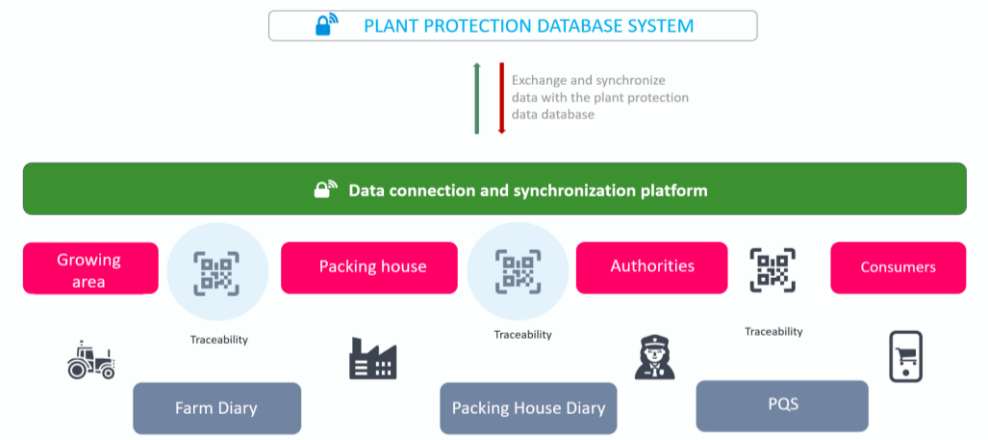
Draft Decree on the Management of PUCs and PHCs

The project has supported the integration of a real-time traceability system with the management of Production Unit Codes (PUCs) and Packing House Codes (PHCs) through two key tools: the Farm Diary and the Packing House Diary. In the production unit, farmers record the entire production process in the Farm Diary, this data is linked to the production unit code to ensure transparency. When the product moves to the packing house, the processing and packaging process continues to be recorded in the Packing House Diary, along with the packing house code. All data from these links are connected and synchronized on a common platform, then exchanged with the National Plant Protection Database System. Regulatory authorities access information through the plant quarantine system (PQS) for monitoring and verification, while consumers can scan QR codes attached to products to look up their origins, thereby creating comprehensive transparency and enhancing market confidence. The system aims to create a seamless, comprehensive tool that streamlines

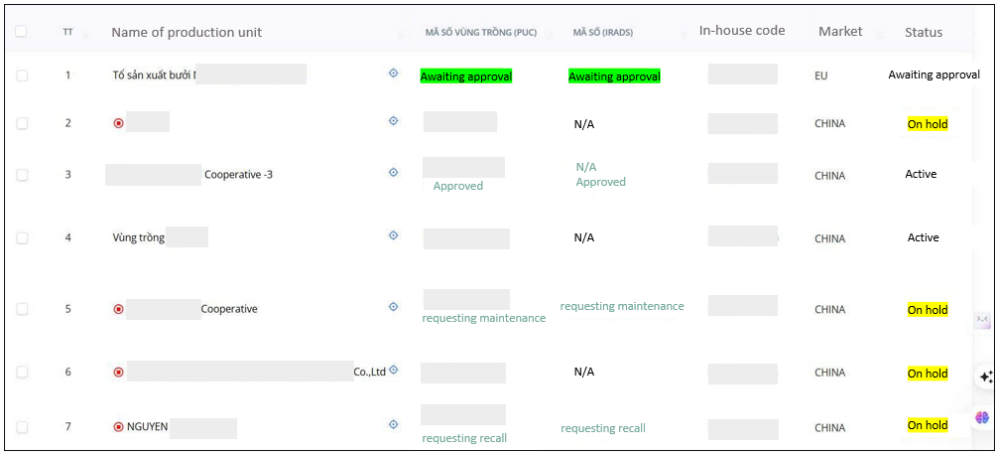
across the entire agricultural chain. The system has been scaled up to grant 9,437 PUCs and 1,827 PHCs, covering a total growing area of 376,000 hectares and supporting 6,434 growers and 1,707 SMEs and cooperatives in accessing export markets in 20 countries, while reducing rejection notification time from one week to just one minute. It is now under the management and operation of the Plant Production and Protection Department (PPPD), Ministry of Agriculture and Environment (MAE). This also contributed to the Draft Degree on the Management of PUCs and PHCs to be issued in 2026.

The functions of the system:

- **First, record-keeping:**
  The system records all necessary parameters and activities throughout the cultivation process and processing process — for example, pesticide application, harvesting, irrigation, post-harvest handling, packing, and other related operations.
- **Second, analytics & reports:**
  All recorded data are compiled and analyzed to generate reports that support management tasks and decision-making.
- **Third, traceability:**
  Based on these reports, the system produces detailed traceability reports to meet food safety requirements, while also enhancing risk management capacity in agricultural product recalls and incident handling.



Packing House Codes & Production Unit Codes Management System



The system displays the real-time status of PUCs, PHCs helping reduce notification time on rejection cases

c. Assessment of Certified Reference Material local production capacity

Progress to date:

Key indicators

Survey conducted at **20 testing centers**

In-depth assessments completed at **12 key testing centers**

Training on **ISO 17034** delivered for VMI

The project, in collaboration with the Commission for Standards, Metrology and Quality of Viet Nam (STAMEQ), has undertaken a comprehensive assessment of Vietnam's capacity for Certified Reference Material (CRM) production and the domestic demand for CRMs in the food testing sector.

An online survey was conducted with 20 testing centers nationwide to gather data on current CRM usage, needs, and challenges. In addition, the project's expert team carried out in-depth assessments at 12 key testing centers to obtain deeper insights into technical capabilities, infrastructure readiness, and existing quality management systems related to CRM use and production. A training on ISO 17034 –**General requirements for the competence of reference material producers** was delivered to Vietnam Metrology Institute (VMI) to enhance institutional competence in the production and quality assurance of reference materials.

Based on these activities, the project prepared a detailed report on findings and recommendations, which also includes international case studies and best practices to inform Vietnam's strategy for CRM development. The assessment focused on:

- Identifying priority CRMs needed to support food safety testing and quality assurance.
- Mapping potential CRM producers and assessing their technical and institutional readiness.
- Analyzing the gaps, challenges, and opportunities in establishing a sustainable CRM production system in Vietnam.
- Providing policy recommendations.

In-depth assessments at RETAQ's lab and NIN's lab

Training on ISO 17034 at Vietnam Metrology Institute

Assessments and implications for the industry

The progress of this outcome was on track. Almost of the activities have been implemented as planned and over-achieved the targeted indicators (see the detailed below monitoring indicators).

The outcome has contributed to improving Vietnam's quality infrastructure for tropical fruit exports. These advancements have enhanced the **technical capacity, transparency, and data-driven management of the value chain**. Reliable testing and traceability systems **reduce the risk of export rejections** and **increase market confidence** among buyers in China, the U.S., Japan, and the EU. In the longer term, this provides the industry with a competitive advantage in high-value markets, encourages private investment in testing and digital tools, and strengthens the country's position in global value chains.

Monitoring activity indicators

Outcome/output/activity	Indicator	Achieved 2024	Achieved 2025	Target by 2026
OUTCOME 1: Technical competence and sustainability of the Quality Infrastructure System and conformity assessment services related to tropical fruit export industry enhanced.				
Output 1.1: Laboratory support system strengthened				
1.1.1 Identification of pesticide residue requirements for the selected products in different markets and recommend updates for PPD's Trade Market Access (TMA) dossiers	Number of factsheets produced, Number of VC actors raised awareness	2 factsheets 229 VC actors	134 VC actors	4 factsheets 500 VC actors
1.1.2 Identify and plan cross-cutting training topics (e.g. good laboratory practices, lab management, etc.) to improve the analysist/testing skills, business management, and to increase the accuracy of the testing results; plan for training program	Number of training activities	2	1	5
1.1.3 Improving efficiency of laboratory documentation systems.	Number of labs adopting new systems	2		2
1.1.4 Feasibility study on national/regional PT schemes and production of CRM	Number of reports and recommendations		1	2
Output 1.2: Analytical capacities for planning and management of compliance improved through developing a tropical fruit model within the national database				
1.2.1 Support conceptualization and development of an integrated database on national agriculture sector, integrating various information and data from existing but separate databases	Technical framework of the data platform architecture	1		1
1.2.2 Advice on technical data harmonization and data input requirements (e.g. on GIS mapping data, certificate management (VietGAP, GlobalGAP), fertilizer and pesticide management, seasonality and production data, market information, etc.)	Data technical manual	1		1

1.2.3 Support the development of analytical capacity/mechanism to provide analytical outputs on tropical fruits (policy brief, industry briefs, etc.) as evidence in support of policy decisions and private sector investment in collaboration with MARD and research institutions`	SCA country report			1
1.2.4 Workshop demonstrations of case study capacity and potential to end users in areas such as predictive modelling, policy support tool and/or certificate management	No. of workshops	2		3
Output 1.3 Traceability tool implemented into commercial value chains				
1.3.1 Modification of farm diary so it is applicable for vertical integration through the tropical fruits value chain	Integrated system and number of register accounts, number of actors trained	1 system 4585 accounts 395 actors	1 system 8701 accounts	1 system 7000 accounts 500 actors
1.3.2 Integration and field applications of internal traceability system with farm diary	Number of apps and models produced. Number of institutions and inspectors trained		1 app 34 DAEs 170 inspectors	1 app 15 DARDs 75 inspectors trained

2.1.2. Outcome 2: Enhancing SME compliance

This outcome has further strengthened the capacity of the tropical fruit export value chain to meet market requirements and enhance competitiveness in target export markets through key interventions, including: developing and providing training on Standard Operating Procedures (SOPs) for industry-wide adoption; establishing competitive and compliant export value chains; developing quality assurance (QA) systems; and promoting innovations and new technologies.

a. Standard Operation Procedures (SOPs) development, training and adoption

Progress to date:

Key indicators

12 new SOPs developed for passion fruit, durian, and pomelo

6 SOPs updated for mango

15 SOP training sessions delivered to **683 value chain actors**

02 specialized training courses were organized for **63 extension officers and community facilitators**

8 demonstration models of SOP adoption at both orchards and packing houses

A total of 12 new Standard Operating Procedures (SOPs) were developed for passion fruit, durian, and pomelo, by project partners — the Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP) and the Southern Horticultural Research Institute (SOFRI) — under the technical guidance of UNIDO experts. These SOPs cover all stages of the value chain, including farming practices, packing house operations, disease management, cold chain management, and transportation. They serve as comprehensive guidelines to ensure that all tasks, applications, and practices along the value chain are consistent and able to produce products that meet modern market and export requirements.

To operationalize the developed SOPs, the institutes, in collaboration with SMEs, PPPD, and the SPS Office, organized 15 training programs to strengthen the capacity of value chain actors and institutional partners in applying standardized practices across tropical fruit export chains. The program included both Training of Trainers (ToT) and Training of End-user (ToE) to ensure the effective transfer and application of SOPs from technical experts to field practitioners. Of which, 02 specialized training courses were organized for 63 extension officers and community facilitators in collaboration with the National Agricultural Extension Center (NAEC). These courses focused on enhancing participants' technical knowledge and practical skills to support the implementation and dissemination of SOPs at the local level.

The project has also implemented eight SOP adoption models at orchards and packing houses, with SOFRI overseeing six models and VIAEP overseeing the remaining two. It establishes a structured process for introducing, adapting, and scaling up SOP implementation through demonstration sites, peer learning, and continuous technical support. This model ensures that SOPs are not only effectively adopted but also institutionalized within local production systems.

Furthermore, discussions are currently underway with the Ho Chi Minh City University of Agriculture and Forestry (NLU) to mainstream and organize SOP training sessions for students. This initiative aims to integrate practical knowledge of standardized practices and

quality management into academic learning, preparing future professionals to apply SOPs effectively within tropical fruit value chains. The collaboration is expected to strengthen the linkage between education, research, and industry needs in the context of sustainable and competitive agricultural exports.

ToT training on SOPs for durian

Training on SOPs for durian at Chanh Thu company conducted by VIAEP at Chanh Thu's packing house


Ant-management hanging traps installed in Mr. Pham Minh Duc's orchard following the passion-fruit SOP

Mr. Bui Quoc Viet's durian orchard applying the field practice SOPs developed by SOFRI



Training on SOP for Extention officers and community facilitators

Adopting SOPs at Pomelo orchard in Vinh Long province

The application of Standard Operating Procedures (SOPs) for Da Xanh pomelo production at Mr. Ho Van Loi's orchard, integrating balanced NPK fertilizer use, increased organic fertilizer application, and the combination of plant protection chemicals with biological agents (*Trichoderma*, *Bacillus*) — has delivered notable results:

- Improved tree recovery after harvest, with leaf SPAD index values ranging from 63.15 to 69.56, representing an increase of 3.3–6.1% compared with the control.
- Significant reduction in fruit canker incidence, recorded at 4.9–7.16%, equivalent to a 55–64% decrease compared with the control (8.01–16.49%).
- Very low incidence of yellow leaf/root rot disease, only 2.85–6.38%, much lower than the control plots.
- Increased yields 20,90 tons/ha, higher than the control plot at 18,00 tons/ha.
- Improved fruit quality, reflected in higher total soluble solids (TSS) of 10.98–11.42%, which is 5–10% higher than the control.

These results demonstrate the strong potential of SOP-based integrated management to boost productivity, reduce disease incidence, and enhance fruit quality and sustainability in pomelo cultivation.

Mr. Ho Van Loi's pomelo orchard adopting Field Practices SOP developed by SOFRI

Improved Passion Fruit Production Through Preventive and Biological Measures in Lam Dong province

The model applies a “prevention over treatment” approach, with SOPs designed to reduce pathogen pressure, strengthen plant health, and support stable growth. Key measures include field sanitation, balanced nutrition with organic fertilizers and antagonistic fungi, regular biological disease prevention using *Trichoderma* and chitosan, improved soil moisture management through enhanced drainage, and preventive spraying that alternates biological and chemical products to limit resistance.

The model applies a “prevention over treatment” principle, with SOPs focused on reducing pathogen pressure, strengthening root and canopy health, and creating conditions for stable growth. Key measures include:

- **Field sanitation:** Removal of diseased fruits, dry branches, and fallen leaves; pruning to improve ventilation and reduce humidity.
- **Balanced nutrition:** Increased use of decomposed organic fertilizers and antagonistic fungi; reduced excess nitrogen; supplemented Ca, Mg, and Silica to strengthen plant tissues.
- **Biological disease prevention:** Application of *Trichoderma* every 20–30 days to suppress soilborne pathogens; use of chitosan before the rainy season to activate plant immunity.
- **Moisture management:** Improved drainage through raised beds, mulching, and emergency pumping to prevent root suffocation and rot.
- **Preventive spraying:** Alternating biological and chemical products before and during the rainy season to minimize resistance.

Key Results (compared with control plots):

- **Disease reduction:** 30–60% decrease in anthracnose and brown spot; 20–35% reduction in Phytophthora shoot rot and leaf blight.
- **Yield and quality improvement:** Overall yield increased by 10–25%; proportion of Grade I fruits increased by 7–15%.
- **Lower pesticide costs:** Chemical pesticide use reduced by 15–25% due to a biological-first prevention approach.
- **Greater resilience:** Reduced weather-related risks, less leaf drop, and lower plant mortality after heavy rains or flooding.

Mr. Ho Duy Quang’s passion fruit adopting Field Practice SOP developed by SOFRI

b. Technical support to SMEs to address quality issues and improve packing house efficiency

Progress to date:

Key indicators

Technical assistance for **22 SMEs** and cooperatives

A study tour on building an efficient export system organized in Australia to strengthen the capacity of **3 Vietnamese exporters**

Export-grade fruit increased by **10-15%**

Overall postharvest loss reduced by **5–10%**

The project's experts have continued providing technical assistance to 22 SMEs and cooperatives to address the key quality issues, which commonly affect tropical fruit exports and improve packing house efficiency. Their support focuses on improving sorting and grading practices to increase the rate of high-grade fruits for export, optimizing packing house operations to increase efficiency and, and introducing improved methods for temperature management, disease control, preservation, packaging, and transportation to reduce post-harvest losses. Experts also work directly with processors and farmers to reduce waste and low-grade output, ensure more uniform ripening, and implement effective disease and fungi control measures.

List of 22 supported SMEs:

1. Vina T&T Company
2. Chanh Thu Company
3. Hoang Phat Company
4. Green Power Company
5. Chu Chin Company
6. Kim Nhung Company
7. Trang Group
8. Western Farm Company
9. Ben Tre Green Pomelo Cooperative
10. Blue Ocean Company
11. HSC Company
12. Hao Hanh company
13. Hoa Loc Company
14. Thanh Binh company
15. Pico Company
16. Fosacha Company
17. Truong Thinh Cooperative
18. Van Xuan Company
19. DT-Pro Company
20. Tong Phat Company
21. Dinh Tran Japan Company
22. GAP Cu Lao Gieng Cooperative

Hoang Phat's mango packing house

Improved Post-Harvest Handling and Cold Chain Management for Passion Fruit in Lam Dong province

The project supported Van Xuan Agri Company in Lam Dong province to apply Standard Operating Procedures (SOPs) for transportation, cold chain management, and packing operations. These improvements have delivered strong gains in efficiency, product quality, and export capacity across the company's passion fruit supply chain.

Key Results:

- **Reduced transit time:** from **12–48 hours** to **6–18 hours**, ensuring faster delivery and fresher produce.
- **Lower fruit damage:** bruising reduced from **12.6% to 3.4%**, significantly improving appearance and quality.
- **Improved temperature control:** core temperature maintained at **8–10°C** after just **6 hours** of pre-cooling.
- **Extended storage life:** increased to **up to 35 days**, enabling longer-distance exports and reducing post-harvest losses.
- **Higher export-grade proportion:** increased from **72% to 91%**.
- **Reduced post-harvest loss:** overall losses decreased by **5–10%**.

VIAEP's expert provided technical guidance for adopting SOPs at Van Xuan Agri packing house

Improving Post-Harvest and Processing Practices and applying advanced technology at the mango packing houses

Through targeted technical support, the project strengthened the post-harvest and processing capacity of mango enterprises, enabling them to upgrade technology, enhance compliance, and increase efficiency.

Key Technical Improvements Implemented:

- **Hoang Phat Company** installed a project-recommended forced-air cooling system following VHT, reducing after-treatment time by **4.5–5 hours**, lowering operational costs, and increasing treatment efficiency.
- **Fochasa Packhouse** optimized its hot water treatment protocol by maintaining **52°C for 5 minutes** and upgraded packaging boxes from four to five layers and better strength and moisure resistence. These improvements **eliminated box damage (from 7–8% to 0%)** and extended storage life **up to 50 days**.
- **DT-Pro Packhouse** applied project-advised adjustments—shortening roller length and recalibrating thermometers, fans, and conveyor speed—resulting in a reduction of **mango bruising and physical damage from 3–5% to less than 1%**.

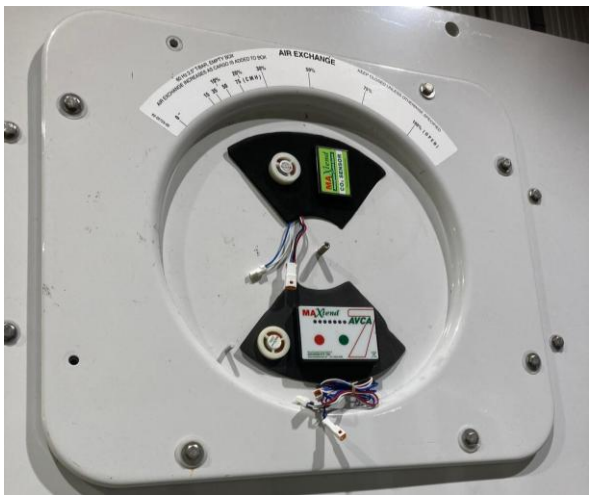
These technical enhancements helped improve compliance and competitiveness, contributing to the successful export of over 2,600 tons of mangoes from these 3 exporters to high-end markets such as Japan, Korea, and Australia during the first nine months of 2025.


Pilot adopting of forced air-cooling system after VHT treatment to reduce waiting time by 4-5 hours at Hoang Phat

Fosacha's mango batch to Australia achieved good results following improvements in processing and packaging as advised by experts

In addition, a study tour on building an efficient export system was also organized in Australia to strengthen the capacity of 3 Vietnamese exporters. The program included training on Controlled Atmosphere (CA) container technology, exposure to Australia's wholesale and modern retail systems, and discussions to identify export opportunities for Vietnamese fruits. Through this activity, participants gained practical insights into international logistics, quality management, and market systems to enhance the competitiveness of Vietnam's tropical fruit exports.


Wholesale market system and Modern retail system in Australia

Training on Controlled Atmosphere in container technology

c. Developing and Implementing Quality Assurance system

Key indicators

A comprehensive set of QA documents was developed for training purposes.

02 training sessions were delivered to **60 QC staff** from **14 companies and cooperatives**

20 experts from SIAEP and SOFRI received capacity-building training

Recognizing that most exporters have not yet established a quality assurance (QA) system, the project has developed a comprehensive set of QA documents and selected Hoang Phat Company as a pilot enterprise for providing training and on-site coaching on QA system development. Training and mentoring sessions have been conducted directly at the factory for both management and quality staff. The expert team is now monitoring the results of the system's practical implementation during the off-season (from November 2025 to February 2026) to finalize the QA documentation customized for Hoang Phat. In addition, training on QA systems was also organized for 60 QC staff from 14 companies, cooperatives and 20 staff of SIAEP and SOFRI. Based on these outcomes, a round table discussion will be organized to share the results and promote adoption among other fruit exporters, starting from December 2025 onward.

On-site coaching on QA system development at Hoang Phat Company

Training on QA systems

d. Unlocking the Australia market for Vietnamese pomelo and Strengthening Exports to Opened Markets

The unlocking of the Australian market for Vietnamese pomelo marks a significant milestone in Vietnam's fruit export journey. Following the official signing of the market access agreement between the Vietnamese and Australian governments on 20 October 2025, this achievement reflects over two years of rigorous technical assessments, bilateral negotiations, and coordinated efforts among government agencies, industry experts, and businesses. With support from the GQSP Vietnam project, key interventions such as the development of Standard Operating Procedures (SOPs), hands-on training for farmers and exporters, and technical guidance on production and post-harvest processes have played a pivotal role in meeting Australia's stringent import requirements.

The delegation of Vietnamese Ministry of Agriculture and Environment led by Vice Minister, Hoang Trung and the delegation of the Australian Embassy led by Ambassador H.E Gillian Bird signed the conditions for exporting Vietnamese pomelo to Australia

Pomelo is the 6th fruit allowed to be exported to Australia.

The project's technical experts also provided direct support to the consortium of Green Pomelo Cooperative and Blue Ocean Company in preparing the first export consignments, including farm and packing house registration (PUC and PHC), disease control measures, and post-harvest treatment. The first air-freight shipment of 89 boxes (approximately one ton) was prepared on 12 November 2025, followed by a sea-freight batch of 1,672 boxes prepared on 21 November 2025. However, due to a last-minute notification from the Australian government requesting additional review, the shipment was postponed.

Preparing pomelo at Da Xanh Pomelo cooperative's packing house for the 1st export batch

Fruit prepared with consumption instructions provided on the outer label

Rapid expansion of Vietnamese pomelo exports to high-value markets

Since the first pomelo export to the U.S. market in 2022, supported by the project, exports have expanded rapidly and reached impressive volumes. From an initial shipment of only 29 tons in 2022, exports to the United States increased to 2,632 tons in 2023, peaked at 3,855 tons in 2024, and remained strong at 3,485 tons in 2025, resulting in a cumulative export volume of approximately 10,000 tons during 2022–2025. In parallel, exports to other newly opened and high-potential markets, including New Zealand and South Korea, have shown positive and steady growth. New Zealand imports reached 429 tons in 2023, increased further to 638 tons in 2024, and totaled 1,288 tons over 2023–2025, while exports to South Korea rose from 158 tons in 2024 to 471 tons in 2025, reaching a total of 629 tons. These results reflect the project's effective support in strengthening compliance with phytosanitary and quality requirements and in consolidating market access for Vietnamese pomelo in diversified, high-value export markets.

Vietnamese green-skinned pomelos have had access to the U.S. market since 2022

Project-supported packing house preparing pomelos for high-value export markets

e. Introduced innovations and advance technology

Progress to date

Key indicators

02 new natural **coating technologies** for durian and passion fruit

Modified Atmosphere Packaging for passion fruit extends shelf life by **5–7 days**

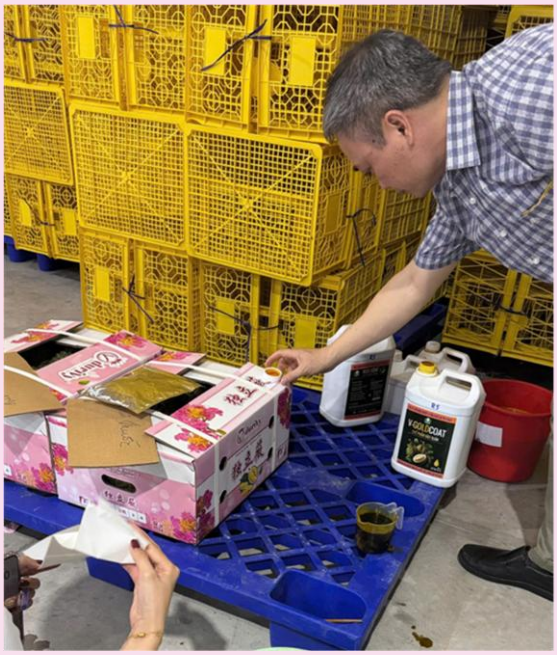
03 innovative pest and disease control products

The Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP) introduced and adopted 03 key innovations in fruit preservation and value addition in the demonstration models, building on R&D results from the previous phase. Two natural coating technologies — V-Goldcoat for durian (Ri6) and V-Fruitcoat for passion fruit (Dai Nong 1) — were developed, validated, and proven to achieve around 80% of the antifungal efficacy of chemical fungicides, while remaining completely safe and maintaining the fruits' natural appearance. These coatings were fully characterized for physical stability, antifungal performance, and compatibility with packing-house operations, and have been officially registered under TCCS 2025 (company standard), as well as published in the Vietnam Journal of Agriculture and Environment (August 2025) and presented at the National Conference on Agricultural Engineering and Postharvest Technology 2025. In addition, VIAEP integrated other innovations including Modified Atmosphere Packaging (MAP), which extends shelf life by 5–7 days, and developed ripeness index charts for passion fruit and mango to support grading and harvest management. These technologies have been incorporated into Standard Operating Procedures (SOPs) to improve product quality, reduce post-harvest losses, and promote sustainable waste utilization and high-value product development, contributing to more efficient and competitive tropical fruit value chains.

VIAEP's experts researching on preservation technologies for passion fruit

Introducing and Adopting an Innovative Natural Coating Technology for Fruit Export

VIAEP has conducted research and development on natural fruit-coating products as an innovative post-harvest solution. In collaboration with Chanh Thu Group, the institute piloted the application of the V-Goldcoat natural coating for 'Ri6' durian exports. To evaluate its performance, two 1-ton pilot export batches were carried out in two packing houses located in Dong Thap and Vinh Long provinces, allowing a comparison between this locally developed, environmentally friendly coating and a conventional chemical-based coating.



VIAEP's expert provided technical guidance to Chanh Thu to adopt new coating technology

The **V-Goldcoat** innovation demonstrated excellent potential to replace chemical coatings in export supply chains. It provided strong protective performance while maintaining fruit quality, appearance, and compliance with international market standards.

Key Results:

- Antifungal efficacy: approximately 80% of the chemical coating.
- Cracking: eliminated (100% reduction).
- Fruit color: 100% retention of bright yellow peel without auramine O (a banned dye).

Fruit after coating

The Southern Horticultural Research Institute (SOFRI) also introduced 03 innovative pest and disease control products to adopt in the project's demonstration farm models to improve fruit quality and resilience to climate change. For pest control, SOFRI-METARHIZIUM, together with Emamectin benzoate (Comda Gold 5WG) and plant oils, to manage thrips and mealybugs effectively. For disease management, SOFRI-NA1 and SOFRI-VK1 were applied to the soil to control root-rot and soil-borne diseases, while Streptomycin sulfate was used against canker disease. The use of organic fertilizers and biological products also helped reduce nematode damage, improve soil health and lower dependence on chemical inputs. These combined measures increased yield and fruit quality, reduced chemical pesticide use, and supported sustainable, enhanced farm resilience to climate-related stresses environmentally friendly production.

Integrated Soil Health and Quality Enhancement for Durian in Dong Thap

Applying SOFRI's pest & disease control products and SOPs in the **Ri6 durian demonstration model** at Mr. Nguyen Van Bay's orchard in **Dong Thap province** — focusing on balanced NPK fertilizer application, increased use of organic fertilizers, and the integration of biological agents (*Paecilomyces*, *Trichoderma*) — have generated strong results:

🪱 Significant reduction in nematode populations, decreasing from 130 individuals/200 ml soil to 16 and from 23 individuals/g root to 9, demonstrating effective soil health improvement.

🌳 Enhanced tree vigor and yield, with productivity reaching 172.01kg/tree, an increase from 139.11 kg/tree in the control plots.

🍐 Improved fruit quality, with pulp lightness (L) = 72.46, yellowness (b)=48.96, and total soluble solids (Brix) = 29.78%, indicating superior color and sweetness.

✅ No detectable residues of plant protection chemicals or cadmium (Cd) were found in durian pulp, confirming the safety and compliance of the production system.

Microbial formulations for disease control developed by SOFRI

f. Introduction of MA technology

Exporting fresh fruit by sea aims to reduce air freight costs to increase the competitiveness of fruit, however, with the use of conventional refrigerated containers currently available in

Vietnam, there has not been much improvement to increase fruit preservation time, to maintain quality and increase competitiveness as well as business efficiency.

The project has also introduced new Modified Atmosphere (MA) technology to Vietnam's mango export industry. This innovation has the potential to transform the industry's capacity for long-distance sea freight of yellow-skinned mango varieties, thereby opening new market opportunities in Korea, Japan, Australia, and the United States. To advance this initiative, the project has facilitated study visits for three exporters (Hoang Phat, Blue Ocean and Fosacha) to Australia to learn about MA technology and has collaborated with three logistics companies and three shipping lines in Ho Chi Minh City to prepare for a forthcoming workshop. The workshop will serve to introduce the technology and identify suitable partners for joint testing and application during the main mango season from March to May 2026.

Assessment and Implications for the industry

The progress of this outcome was on track. Almost of the activities have been implemented as planned and over-achieved the targeted indicators (see the details below monitoring indicators).

Under Outcome 2, the project significantly strengthened the **competitiveness and compliance capacity** of tropical fruit SMEs through the development of 18 **Standard Operating Procedures (SOPs)**, targeted technical assistance, the establishment of multiple demonstration chains that applied improved practices in farming, sorting, grading, post-harvest handling, disease and cold-chain management and the introduction and training on building QA systems. The integration of innovations such as **Modified Atmosphere (MA) storage**, **bio-based coating technologies**, and **climate-resilient pest management** further enhanced product quality, shelf life, and environmental sustainability. Notably, the successful **opening of the Australian market for Vietnamese pomelo** marked a key milestone in export diversification. These interventions have enabled SMEs to better **meet international standards**, reduce post-harvest losses, and lower operational costs, thereby improving their competitiveness in high-value markets.

Monitoring Activity Indicator

Outcome/output/activity	Indicator	Achieved 2024	Achieved 2025	Target by 2026
OUTCOME 2: Enhanced ability of the tropical fruit export value chain to meet the markets requirement and compete in target markets (national and export) through compliance with technical regulations and other quality requirements, adaptation to change, innovation and new technology				
Output 2.1. SOP for selected tropical fruits VCs developed and promoted for adoption by the industry				
2.1.1 Modification of existing mango and development of new tropical fruit SOPs and modules incorporate learnings from GQSP 1 demonstration trials and additional practice for management changing conditions	Number of SOP documents and training packages produced, Number of VC actors raised awareness	11 SOPs for passion fruit, durian and pomelo drafted 6 SOPs for mango updated 250 actors trained 2 training packages	12 SOPs for passion fruit, durian and pomelo developed 15 training packages 683 actors trained	8 SOPs for passion, durian, 2 SOPs for pomelo 10 training packages 1200 VC actors raised awareness
2.1.2 Facilitate the development of communication, awareness and promotional plan on SOPs with key institutions and industry representatives	Number of promotion plans developed			2
2.1.3 Institutionalization of SOPs through extension services and learning institutions (i.e. University) and adoption into their curriculum.	Number of institutions access to SOPs	1 DAE 3 institutions	6 DAE 3 institutes 2 universities	4 DAEs, 10 institutions and 5 universities
2.1.4 Address some key impediments to adoption via targeted training courses amongst some of the value chain actors	Number of training workshops conducted	3	12	12
Output 2.2. Competitive and compliant export value chains established				
2.2.1 Address identified issues by modifying chains	Number of demonstration chains implementing modifications	5	8	12
2.2.2 Introduction of new technology in storage and transportation (e.g. controlled atmosphere)	Number of new technologies introduced; Number of Chains adopting improved technology	2 preservation technologies are being R&D	3 preservation technologies developed 2 chains adopting new technologies	1 new technology 2 chains adopting new technology
2.2.3 Support local institutions to develop/modify and apply cold chain parameters for selected Vietnamese's tropical fruits (e.g. mango cultivars and pomelo. Development of accessible (digital, publication) quality reference material for	Number of guide charts produced		2 guide charts on fruit maturity	4

Outcome/output/activity	Indicator	Achieved 2024	Achieved 2025	Target by 2026
value chain maturity standards, quality/grading, cool chain etc.				
2.2.4 Development and implementation of a Quality Assurance (QA) system into the demonstration chains that provides practical tools for the management of quality from the diverse sources.	Number of chains adopting a QA systems; number of training conducted, number of participants trained		2 training courses 80 participants trained	12 chains 12 training courses 100 participants trained
2.2.5 Work with chains to ascertain what level of certifications are required for their expansion into new market segments and provide support for higher levels of certification needed to meet market requirements.	Number of chain partners attaining high certification.			4
2.2.6 Develop and conduct a series of training modules that are targeted at producers, service providers and policy makers on sustainability in export systems.	Number of training events organized, number of participants trained.		15 training courses 683 participanst trained	25 training courses 40 trainers trained
Output 2.3. Investment for competitiveness and climate change adaptation facilitated				
2.3.1 Support businesses in identifying and analysing investment opportunities, investment planning and facilitating investment into value chain technical expertise.	Number of businesses received advice, number of investment plans	10 businesses 4 investment plans	22 businesses 2 investment plans	30 businesses 12 investment plans
2.3.2 Advocate and support to access to financial products for VC actors to facilitate investments in adoption of SOPs and technologies, as well as to create financial cushion during farm maintenance periods	Number of financial products introduced		1	2
2.3.3 Conduct a climate change impact assessment on selected tropical fruit industries	Assessment report	1		1
2.3.4 Facilitate a roundtable dialogue on national strategies and necessary investments for adaptation of tropical fruits to climate change impacts	Number of events	1	1	3
Output 2.4. Value addition and adaptation through innovation and technology facilitated				

Outcome/output/activity	Indicator	Achieved 2024	Achieved 2025	Target by 2026
2.4.1 Analysis current losses and potential for value adding in areas such as (improvement in quality, presentation, reduced losses, efficiency gains, marketing and processing, waste-to-product)	Report and recommendations (Number of new innovations/technologies introduced)	1		1
2.4.2 Develop a business model for value addition within tropical fruit sector.	Number of businesses adopting new model		1	2
2.4.3 Provide Technical assistance for implementation, evaluation and improvement of new and existing value additional practices.	Number of business implementing value added activities.	10	20	19
2.4.4 Organize a series of workshops targeting the processing value/ additon sector on innovation, business management, value addition options, food safety and compliance.	Number of workshops conducted.	2	1	4

2.1.3. Outcome 3: Creating a culture for quality

This outcome continued promote through strengthening collective capacity of tropical fruit sector, facilitating public-private dialogues on the key issues of the fruit sector; developing National Quality/Laboratory Policy. This outcome continued promote through strengthening collective capacity of tropical fruit sector, facilitating public-private dialogues on the key issues of the fruit sector, and developing National Quality/Laboratory Policy.

a. Strengthening Fruit Associations

Progress to date:

Under the collaboration with SIPPO, the project supported activities aimed at strengthening Business Support Organizations (BSOs) in the fruit export sector. Specifically, it facilitated SIPPO's assessment of two key BSOs — **VinaFruit** and the **Digital Agriculture Alliance (DAA)** — to identify their institutional needs, service gaps, and areas for potential intervention. The project also actively engaged these BSOs in project activities, enabling them to gain hands-on experience, strengthen their technical capacities, and enhance their role in supporting exporters.

SIPPO's assessment meeting with VinaFruit

b. National Fruit Standards

GQSP Vietnam, in collaboration with the Vietnam Standards and Quality Institute (VSQI), developed two national standards - TCVN 14579:2025 (Frozen Durian) and TCVN 14580:2025 (Code of Practice for Processing Frozen Durian) - published in November 2025. The development process was conducted with the engagement of three technical committees

with 15 members from 10 agencies, and stakeholder consultations generating 30 comments from government bodies, research institutes, universities, associations, and over 10 enterprises in Dak Lak, Ben Tre, and Tien Giang. Two scientific workshops were organized with 40 participants further refined the drafts before final appraisal by a council. To support adoption, the project organized two training workshops for nearly 100 stakeholders, helping strengthen industry capacity to implement the new standards and improve the competitiveness of Vietnam's frozen durian exports.

Expert meeting/committee to review the national standards for frozen durian

c. Fruit & Vegetable Export Forum 2025

The Vietnam Fruit and Vegetable Export Forum 2025 "Unlocking the opportunities for the development of modern retail markets for Viet Nam's fruit & vegetable exports", jointly organized by UNIDO, the Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP), and VEAS under the framework of GQSP Vietnam, served as a key platform to promote dialogue on enhancing market access and competitiveness for Vietnam's fruit and vegetable sector. Held alongside HortEx Vietnam 2025, the forum gathered 217 participants, including policymakers, exporters, retailers, industry associations, logistics providers, and technical experts. Discussions centered on strategies to integrate Vietnamese fruits and vegetables into modern retail systems, strengthen compliance with international standards, and promote sustainable export growth. The forum highlighted the increasing importance of modern retail channels as a driver of value addition and long-term market stability, while addressing challenges related to phytosanitary compliance, standard certification, and supply chain efficiency, and sharing policy directions and best practices for aligning with global retail requirements.

Vietnam Fruit and Vegetable Export Forum 2025

GQSP Vietnam and partners provide SME consultations through designated stop-corners at HortEx 2025

d. Workshop "Improvement of Packing for Fruit Export"

The Workshop "Improvement of Packing for Fruit Export," jointly organized by UNIDO, the Vietnam Institute of Agricultural Engineering and Post-Harvest Technology (VIAEP), the Vietnam Packaging Association (VINPAS), and My Lan Group under the framework of GQSP Viet Nam, examined the current status of packaging and packing practices in Viet Nam's fruit export sector. The workshop attracted 233 participants, including policymakers, industry associations, exporters, retailers, logistics providers, technical service suppliers, and research institutions. It identified key challenges and capacity gaps, highlighted opportunities for innovation, and promoted the adoption of improved and more sustainable packaging solutions. Through technical discussions, experience sharing, and expert insights, the workshop

supported Vietnamese fruit exporters in enhancing product quality, meeting international market requirements, reducing post-harvest losses, and strengthening the competitiveness and sustainability of the sector.

Workshop "Improvement of Packing for Fruit Export"

Innovative and more sustainable packaging solutions introduced to the industry

e. Tropical Fruit Innovation Network

Although the project was prepared to initiate the mapping of key actors within the innovation system to identify "who's who" and develop a comprehensive understanding of the tropical fruit innovation ecosystem, this activity was temporarily postponed due to the major institutional restructuring taking place across government and sectoral levels. The planned mapping was designed to cover a broad spectrum of stakeholders — including government agencies, public and private R&D institutions, academia, financial institutions, industry associations, and private enterprises — to ensure an inclusive and coordinated foundation for establishing the Vietnam Tropical Fruit Innovation Network (VTFIN).

In the meantime, the project took proactive steps to maintain momentum by actively engaging with the International Tropical Fruit Innovation Network (TFNet), fostering knowledge exchange, collaboration, and sharing of best practices on innovation, quality, and sustainability. In addition, the project also established the zalo group on Tropical Fruit Export Network, bringing together about 80 exporters, cooperatives, service providers and experts, etc. to strengthen market linkages, share technical know-how, and coordinate efforts in export readiness, quality assurance, and market intelligence.

International Symposium on Tropical fruit 2025 organized by TFNet

Assessment and implications for the industry

Outcome 3 remained well on track, with most of activities implemented as planned and targets exceeded except the kick-off of mapping activity for the establishment of VTFIN.

The outcome has strengthened the **collective capacity** and **institutional collaboration** of Viet Nam's tropical fruit sector. These efforts have enhanced industry's ability to align with **international standards**, foster **innovation** and **collaboration**, and improve **policy** responsiveness to emerging challenges. The establishment of **networks** and **dialogue platforms** under this outcome has empowered stakeholders to address common constraints, promote strategic export planning, and build a unified vision for the sustainable growth of Viet Nam's tropical fruit industry. Collectively, these achievements have laid the groundwork for a more **competitive**, **resilient**, and **innovation-driven** sector that is better positioned to seize global market opportunities.

Monitoring indicators tables

Outcome/output/activity	Indicator	Achieved 2024	Achieved 2025	Target by 2026
OUTCOME 3: Improved culture of quality through conducive policy, market innovation and organizational structure enabling effective export development				
Output 3.1 Collective capacity of tropical fruit sector, especially women and youth strengthened				
3.1.1 Support establishment and capacity building of representative organizations at farmer, processing/exporter levels.	Number of new organisations established; number of organisations strengthened	2 new sub mango associations 3 associations strengthened	1 association strengthen	5 new organizations 5 associations strengthened
3.1.2 Facilitate and ensure representation of key stakeholder groups and representative bodies on national and local public-private dialogue platforms, to contribute to the analysis of current policy roles, constraints, benefits that impact on export development.	Number of PPD dialogues organized	2	2	5
3.1.3 Conduct feasibility study on the impact and sustainability of PPD E-training platform for market access	Report produced.	1 report drafting		1
3.1.4 Support MARD to implement action plan on food system.	Number of inputs provided; Number of working group meetings.	input provided, 3 working groups participated	input provided, 3 working groups participated	input provided, 3 working groups participated
3.1.5 Organize workshop for key stakeholders involved packaging industry to review and develop standards for export packaging.	Report and recommendations		1	1
Output 3.2. Innovative market development and promotional plan of the Tropical Fruit sector developed				
3.2.1 Support formulation of a tropical fruit sector promotional/awareness strategy, domestic, tourist and internationally.	Number of promotional/awareness strategy supported, number of promotion event supported	1 strategy 2 fruit festivals supported	2 strategies 4 workshop and conferences	1 strategy 4 events
3.2.2 Technical assistance for development of sector strategy and action plan for export development	Number of export development strategies and action plans		2	2
Output 3.3 National Quality/Laboratory Policy developed				

3.3.1 Support implementation of National quality Policy	Number of Quality Policy	Reviewing the draft NQP	1 NQI Policy reviewed	1
3.3.2 Review national fruit standards in line with international practice	Number of report conducted	1		1
3.3.3 Support development of standards frozen durian, maturity standards for fresh mango, durian, pomelo and passionfruit.	Number of standards/ guidelines/ Reference material developed, number of technical meeting organized, number of participants trained	2 national standards for durian 7 technical meetings	1 scientific meeting 2 dissemination workshops 100 participants trained 2 maturity charts for mango, passionfruit	4 standards 20 technical meetings 160 participants trained

3. Synergies

3.1. Synergies with GQSP Global Program

The GQSP Coordinator Retreat, held from 22–25 September 2025 at UNIDO Headquarters in Vienna, served as a strategic platform for exchange, learning, and coordination among national teams implementing the Global Quality and Standards Programme (GQSP). The event brought together national coordinators from 12 participating countries, including Viet Nam, along with the UNIDO Project Management Unit (PMU) and technical experts. Participants exchanged knowledge, shared experiences and lessons learned, and discussed opportunities to strengthen collaboration and synergies across countries. Key themes of the retreat focused on advancing quality infrastructure (QI), enhancing standards compliance, promoting a culture of quality, and leveraging innovation, digitalization, and gender inclusion to build more sustainable and resilient quality systems.

A major focus of the retreat was on the introduction and use of global quality tools that enable benchmarking, learning, and data-driven decision-making. These included the QI4SD Index and LabNet for assessing and connecting national QI systems; the updated Standards Compliance Analytics (SCA) and QIMAP tools to strengthen SME compliance and traceability; and the Culture for Quality (C4Q) framework linking quality to sustainability and market access. The integration of these tools aims to harmonize approaches, promote innovation, and provide countries with practical instruments to measure performance, identify gaps, and design targeted interventions. Viet Nam will follow up by localizing the updated QI4SD Index and SCA tool, and by exploring the adoption of the C4Q methodology and communication materials for broader quality awareness and outreach.

3.2. Synergies with other country projects

The project continued to strengthen cooperation with complementary international initiatives to leverage expertise, foster innovation, and enhance the overall impact of interventions under the GQSP framework. Collaboration with the Swiss Import Promotion Programme (SIPPO) was maintained to strengthen the capacity of Business Support Organizations (BSOs) in export promotion and market linkage development.

In parallel, the partnership with Syngenta progressed towards the registration of the Scholar® product for post-harvest treatment, contributing to improved quality assurance and compliance with export market requirements.

Continued technical exchange was also pursued with the VietFruit Project of New Zealand, focusing on the development of Standard Operating Procedures (SOPs) for passion fruit.

Notably, cooperation with the Finland Partnership was established with the aim of connecting Finnish and Vietnamese companies to collaboratively address key challenges in Vietnam's tropical fruit value chains. Priority areas of cooperation were identified based on key findings and recommendations from the GQSP project, including packaging, processing, cold chain systems, laboratory testing and conformity assessment services, and climate adaptation solutions. The first business booster event between enterprises from both countries is planned for early 2026, marking an important step toward fostering sustainable, innovation-driven, and mutually beneficial trade collaboration.

The project also worked closely with the National Metrology Institute of South Africa (NMISA) to generate strong technical synergy in supporting STAMEQ to advance activities related to certified reference materials (CRMs). Through international knowledge sharing, specialized technical advice, and capacity-building trainings aligned with ISO 17034, the collaboration between the project and NMISA strengthens the capabilities of testing laboratories and CRM-producing organizations in Vietnam. This partnership not only helps STAMEQ establish a

reliable and systematic CRM framework, but also contributes to enhancing the national quality infrastructure to better serve trade, conformity assessment, and priority industrial sectors

4. Main challenges encountered and measures taken

Challenges encountered	Mitigation measures
Restructuring of the government leading to the critical changes in the partners, especially the changed focal points and merged departments.	Adaptive workplan and implementation reflecting to the new restructure,
Some current technology (for example: Modified technology, Control Atmosphere technology, post- harvest treatment registered chemicals) to advance activities is not commercially available in Vietnam	Develop linkage with international companies that can introduce new technology to the industry. Promote technology localization and collaboration with research institutions and startups to adapt or co-develop affordable solutions.
Field activities such as demonstration models, training, and technical support must align with the seasonal calendar of fruit production to ensure relevance and effectiveness.	Strictly adhere to the developed workplan and prioritize crops that are in-season or approaching harvest to maximize practical impact and participation.

5. Lessons learned

Lesson learned	Implications for the future
Public-private partnerships drive innovation and market relevance Collaborations with private sector actors helped align interventions with real market demands and created practical use cases for applying quality standards.	Scaling should involve more structured public-private and include SMEs in innovation, quality assurance, and traceability systems.
Capacity building needs to be institutionalized While training courses enhanced knowledge and skills, limited integration into national curricula or institutional SOPs reduced long-term impact.	Embed capacity-building efforts within national extension systems, universities, or vocational programs for lasting effects.

6. Gender equality and women empowerment

The project continued with two-fold gender strategies:

(1) Gender mainstreaming throughout the project cycle across all the activities.

(2) Empowering women-led cooperatives, companies and women processors through capacity building, knowledge & skills enhancing, investments support and business development services.

Through specific interventions and activities as below:

- Inclusive training programs were conducted under the SOP Training of Trainers (ToT) and Training of End-user (ToE) schemes, ensuring strong participation of women.
- 43.3% (1548 women) of participants participated in project's capacity building activities is women

- Capacity-building sessions focused on practical skills such as SOP implementation, coating application, cold chain management, and export documentation, equipping women with technical and managerial competencies in postharvest handling and export operations.
- Gender balance principles were integrated into the development and implementation of SOPs ensuring equal access to training, resources, and opportunities for both men and women.
- Women farmers and exporters actively participated in 8 pilot demonstration models.
- Facilitated and ensure representation of women led groups, entrepreneurs, and representative bodies on national and local public-private dialogues to support the industry's export

7. Environmental protection and climate action

Under the GQSP Vietnam project, several activities contributed to environmental protection and climate resilience across both production and postharvest stages.

Environmentally Friendly and Sustainable Production Practices

- Development and implementation of SOPs for pomelo, durian, and passion fruit that emphasize sustainable field practices, balanced nutrient management, and integrated pest and disease control.
- Established six dissemination models promoting sustainable field practices.
- 36 climate-adaptive practices and innovative measures were introduced and adopted that strengthen crop resilience and reduce vulnerability to extreme weather. Key measures include:
    - Applied biological control agents (Metarhizium anisopliae, Trichoderma spp., Paecilomyces lilacinus, Bacillus subtilis) to reduce chemical use and protect soil biodiversity.
    - Promoted organic fertilizers to enhance soil fertility and long-term sustainability.
    - Adopted Integrated Pest Management (IPM) to lower pesticide residues and ensure environmental and worker safety.
    - Implemented pruning, canopy, and weed management to reduce pest pressure and minimize chemical treatments.
    - Conducted soil and water testing for cadmium to monitor contamination risks and ensure safe production.
    - Maintained grass cover and mulching in orchards to prevent erosion, retain soil moisture, and support carbon sequestration.

Environmentally Responsible Postharvest and Processing Innovations

- Development of natural coating technologies — *V-Goldcoat* (durian) and *V-Fruitcoat* (passion fruit) — providing safe, biodegradable alternatives to chemical fungicides, reducing postharvest chemical contamination and environmental impact.
- Elimination of auramine O and other harmful synthetic substances from postharvest treatments to improve food safety and reduce hazardous waste.
- Integration of Modified Atmosphere Packaging (MAP) that extends shelf life by 5–7 days, helping to reduce food waste and carbon emissions associated with transport and storage losses.
- Incorporation of climate-resilience modules into the SOPs, addressing postharvest management under changing climatic conditions and promoting resource-efficient operations.
- Promotion of energy-efficient cold chain management and optimized pre-cooling procedures to maintain product quality while minimizing energy use.
- Series of SOP trainings to disseminate environmentally sound postharvest technologies and build awareness on sustainable practices within the fruit export sector.
- Research and publication on eco-innovative postharvest solutions to support evidence-based policy and promote broader adoption of green technologies in the fruit industry.

Building Climate Resilience through Quality Standards for Frozen Durian

Vietnam's durian sector is expanding quickly across the Mekong Delta and Central Highlands, regions increasingly affected by erratic rainfall, drought, and shifting harvest seasons. These climate stresses have impacted flowering, fruit setting, and post-harvest quality, prompting many producers to adopt frozen durian processing as a strategy to stabilize income and reduce losses.

To support this growing segment, GQSP Vietnam facilitated the development of two new national standards: **TCVN 14579:2025 Frozen Durian – Technical Requirements** and **TCVN 14580:2025 Code of Practice for the Processing of Frozen Durian**. Together, they establish clear product specifications, good manufacturing and hygiene practices, and guidance on cold chain management and HACCP systems, strengthening the quality infrastructure needed for safe, high-quality frozen durian.

As freezing and cold storage are energy-intensive, the new code of practice integrates energy monitoring and equipment maintenance to reduce emissions and improve efficiency, supporting Vietnam's broader climate goals. By linking quality assurance with environmental responsibility, these standards help producers adapt to climate variability while enhancing competitiveness and ensuring safer, traceable, higher-value frozen durian products.

All operations in frozen durian processing facilities must comply with national standards to meet quality and climate action requirements

8. Sustainability

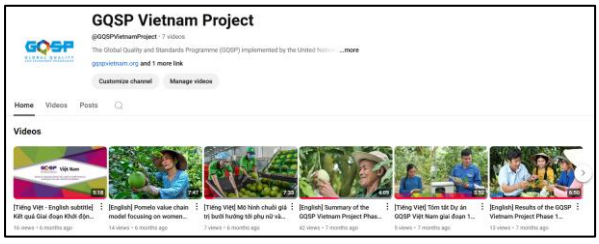
The project works closely with the private sector to ensure that interventions and activities are practical, relevant and commercially sustainable thus providing strong incentive for industry investment. Continued improvements in areas such as the supporting quality infrastructure, traceability and compliance will not only underpin the industry's ability to meet international market requirements but enable it to adapt to changing market conditions. Strong industry representation will enable a greater strategic approach to export development and provide a conduit to the government for greater input into effective policy and regulation supporting the industry.

9. Communication

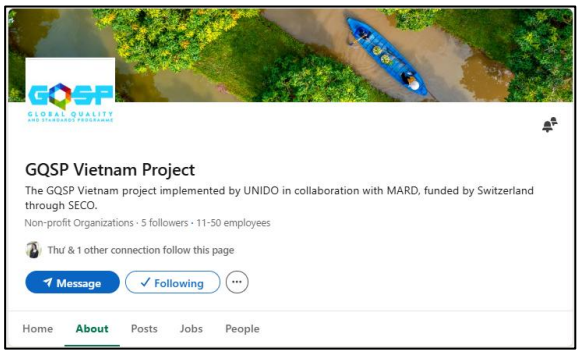
- Social media: Twitter @GqspVietnam; LinkedIn, Youtube: GQSP Vietnam Project
- 7 articles, 47 media posts, 11 newsletters, 2 videos about the project activities published on GQSP Vietnam website; UN in Vietnam website, UNIDO Website, SECO's Facebook, counterparts' websites and local media.
- Project factsheet, newsletter on global fruit production and exports.
- Video clips on project activities

Twitter

Website



Youtube



LinkedIn

Project's communication channels

10. Deliveries

(Enclosed detail documents)

Outcome/Name of deliveries	Remarks
Outcome 1	
1. CRM assessment report	
2. Farmdairy - packinghouse platform	
Outcome 2	
1. Standard Operating Procedures for Pomelo field practices	
2. Standard Operating Procedures for Durian field practices	
3. Standard Operating Procedures for Passion Fruit field practices	
4. Standard Operating Procedures for pomelo packing house	
5. Standard Operating Procedures for durian packing house	
6. Standard Operating Procedures for passion fruit packing house	
7. Standard Operating Procedures for cool chain management of pomelo	
8. Standard Operating Procedures for cool chain management of passion fruit	
9. Standard Operating Procedures for cool chain management of durian	
10. Standard Operating Procedures for transportation of pomelo	
11. Standard Operating Procedures for transportation of passion fruit	
12. Standard Operating Procedures for transportation of durian	
13. SOP training documents	
14. V-Fruit coat for passion fruit	
15. V-Goldcoat for durian (Ri6)	
16. Pest control products: SOFRI-METARHIZIUM	
17. Disease control products: SOFRI-NA1	
18. Disease control products: SOFRI-VK1	
19. Quality Assurance training documents	
Outcome 3	
1. TCVN 14579:2025 Frozen Durian – Technical Requirements	
2. TCVN 14580:2025 Code of Practice for the Processing of Frozen Durian	

11. Financial Implementation (EUR)

Budget and Project Disbursement Overview of GQSP Vietnam ID 230131						
Sponsored Program	Sponsored Class / BL	Description	Grant 2000005056 budget plan as per prodoc (excl. support costs)	Grant 2000005056 budget plan approved in April 2024 at Inception workshop	Total expenditures - 31 December 2025	Funds implemented *(Latest budget plan vs. total expenditures)*
230131-1-01-01 Strengthening Quality Infrastructure	1100	Staff & Intern Consultants	44,000	44,000	10,375	
	1500	Local travel	7,000	7,000	17,412	
	1700	Nat.Consult./Staff	48,000	48,000	48,196	
	2100	Contractual Services	45,000	45,000	13,465	
	3000	Train/Fellowship/Study	60,000	60,000	0	
	5100	Other Direct Costs	4,000	4,000	3,910	
	Total 230131-1-01-01		208,000	208,000	93,358	
230131-1-02-01 Enhancing SME compliance	1100	Staff & Intern Consultants	85,000	85,000	98,069	
	1500	Local travel	16,000	16,000	24,724	
	1700	Nat.Consult./Staff	170,000	170,000	101,998	
	2100	Contractual Services	120,000	120,000	109,121	
	3000	Train/Fellowship/Study	140,000	140,000	9,050	
	4500	Equipment	30,000	30,000	788	
	5100	Other Direct Costs	4,000	4,000	8,970	
	Total 230131-1-02-01		565,000	565,000	352,722	
230131-1-03-01 Creating a culture for quality	1100	Staff & Intern Consultants	45,000	45,000	20,098	
	1500	Local travel	13,000	13,000	8,334	
	1700	Nat.Consult./Staff	33,000	33,000	28,561	
	2100	Contractual Services	45,000	45,000	25,197	
	3000	Train/Fellowship/Study	63,000	63,000	8,623	
	5100	Other Direct Costs	4,000	4,000	4,132	
	Total 230131-1-03-01		203,000	203,000	94,944	
230131-1-51-01 Programme Management (Coordination and Monitoring)	1100	Staff & Intern Consultants	97,500	97,500	9,533	
	1500	Local travel	7,000	7,000	5,961	
	1600	Staff Travel	16,000	16,000	0	
	1700	Nat.Consult./Staff	170,000	170,000	128,535	
	3000	Train/Fellowship/Study	20,000	10,000	2,718	
	4500	Equipment	6,000	6,000	0	
	5100	Other Direct Costs	7,500	17,500	14,381	
	Total 230131-1-51-01		324,000	324,000	161,128	
Total (excl. support costs)			1,300,000	1,300,000	702,152	

12. Activities in the next reporting period

Outcome	Activity		Key Partners
Outcome 1	Activity 1.2.3	Support the development of analytical capacity/mechanism to provide analytical outputs on tropical fruits (policy brief, industry briefs, etc.) as evidence in support of policy decisions and private sector investment in collaboration with MARD and research institutions	ISPAE
	Activity 1.2.4	Workshop demonstrations of case study capacity and potential to end users in areas such as predictive modelling, policy support tool and/or certificate management	ISPAE
Outcome 2	Activity 2.1.2	Facilitate the development of communication, awareness and promotional plan on SOPs with key institutions and industry representatives.	VIEAP, SOFRI, PPPD Extension services centre, VC actors
	Activity 2.1.3	Institutionalization of SOPs through extension services and learning institutions (i.e. University) and adoption into their curriculum.	
	Activity 2.1.4	Address some key impediments to adoption via targeted training courses amongst some of the value chain actors.	
	Activity 2.2.3	Support local institutions to develop/modify and apply cold chain parameters for selected Vietnamese's tropical fruits (e.g. mango cultivars and pomelo. Development of accessible (digital, publication) quality reference material for value chain maturity standards, quality/grading, cool chain etc.	VIAEP, VC actors
	Activity 2.2.4	Development and implementation of a Quality Assurance (QA) system into the demonstration chains that provides practical tools for the management of quality from the diverse sources.	VIAEP, VC actors
	Activity 2.2.5	Work with chains to ascertain what level of certifications are required for their expansion into new market segments and provide support for higher levels of certification needed to meet market requirements.	VC actors
	Activity 2.2.6	Develop and conduct a series of training modules that are targeted at producers, service providers and policy makers on sustainability in export systems.	MAE, VC actors, associations
	Activity 2.3.4	Facilitate a roundtable dialogue on national strategies and necessary investments for adaptation of tropical fruits to climate change impacts	MAE, VC actors, associations
	Activity 2.4.3	Provide Technical assistance for implementation, evaluation and improvement of new and existing value additional practices.	VIAEP, SOFRI, VC actors

	Activity 2.4.4	Organize a series of workshops targeting the processing value/ addition sector on (innovation, business management, value addition options, food safety and compliance.)	MAE, VC actors, associations
Outcome 3	Activity 3.1.1	Support establishment and capacity building of representative organizations at farmer, processing/exporter levels.	Vinafruit,
	Activity 3.1.2	Facilitate and ensure representation of key stakeholder groups and representative bodies on national and local public-private dialogue platforms, to contribute to the analysis of current policy roles, constraints, benefits that impact on export development.	Vinafruit, VC actors, MARD
	Activity 3.1.4	Support MAE to implement action plan on food system.	MAE
	Activity 3.1.5	Organize workshop for key stakeholders involved packaging industry to review and develop standards for export packaging.	NAFIQPM
	Activity 3.2.1	Support formulation of a tropical fruit sector promotional/awareness strategy, domestic, tourist and internationally.	MAE, Vinafruit, provinces
	Activity 3.2.2	Technical assistance for development of sector strategy and action plan for export development	
	Activity 3.3.1	Support implementation of the National Quality Policy	STAMEQ
	Activity 3.3.3	Support development of standards for frozen durian, maturity standards for fresh mango, durian, pomelo and passionfruit.	VSQI

Annex 1: List of partners

Table 1. Institutional partners

I. MAE

1	National Agro-Forestry-Fishery Quality, Processing and Market Development Authority (NAFIQPM)
2	Plant Production and Protection Department (PPPD)
3	National Agricultural Extension Centre (NAEC)
4	Department of Digital Transformation and Environmental Resources Data Information (DINRE)
5	Viet Nam SPS Office

II. Provinces

1	Vinh Long Department of Agriculture and Environment
2	Dong Thap Department of Agriculture and Environment
3	Dak Lak Department of Agriculture and Environment
4	Lam Dong Department of Agriculture and Environment

III. Institutes & Centers

1	Vietnam Institute of Agriculture Engineering and Post Harvest Technology (VIAEP)
2	Sub-Institute of Agriculture Engineering and Post Harvest Technology (SIAEP)
3	Southern Horticulture Research Institute (SOFRI)
4	Western Highlands Agriculture and Forestry Science Institute (WASI)
6	Institute of Metrology (STAMEQ)
7	Viet Nam Standards and Quality Institute (VSQI)
8	Institute of Strategy and Policy on Agricultural and Environment (ISPAE)
9	Dong Thap Center for Applied Research and Scientific Technology Services (TIGITECH)
10	Southern Pesticide Control and Testing Centre (SPCC)

IV. University & college

1	Ho Chi Minh City University of Agriculture and Forestry (NLU)
2	Dong Thap Community Colleague

V. Associations

1	Dak Lak Durian Association
2	Viet Nam Mango Association
3	Tien Giang Mango Sub-Association

4	Dong Thap Mango Sub- Association
5	Vietnam Fruit & Vegetable Association (VINAFRUIT)
6	Ben Tre Green Pomelo Association
7	General Association of Agriculture and Rural Development
8	Viet Nam Pesticide Association
9	Viet Nam Logistic Association
10	Vietnam Packaging Association (VINPAS)
11	Digital Agriculture Alliance (DAA)

Table 2. List of business partners

Name of company	Value chain	Province
Ben Tre green pomelo cooperative	Pomelo	Vinh Long
VINA T&T group	Mango, passion fruit, pomelo, mango	Vinh Long
Quới Sơn Company	Pomelo	Vinh Long
Hương Miền Tây Company	Pomelo	Vinh Long
Green Power Company	Pomelo, mango, passion fruit	Vinh Long
Ban Mê Green Farm (Buôn Ma Thuột)	Passion fruit, Durian, Durian Husk	Dak Lak
Thien Tam Ltd. Company	Durian	Dak Lak
Pico company	Passion fruit, durian	HCM city
Chánh Thu Company	Mango, passion fruit, pomelo, mango	Dak Lak, Vinh Long
Vạn Xuân Company	Durian, Passion fruit	Dak Nong
Long Hue Company	Passion fruit	Dak Nong
Thien Phu Durian Club	Durian	Dak Nong
Tia Sang Company	Passion fruit, Durian	Dak Nong
Ha Do Green Company	Durian	Dak Nong
Nghiep Xuan Company	Durian, Passion fruit, mango	Dak Nong
Thanh Bình (Hùng Lộc Branch) Company	Mango, Pomelo, Mango Puree	Dong Thap
DT-PRO Company	Mango	Dong Thap
Blue Ocean Company	Mango, Passion fruit	Dong Thap
Phú Hụ Durian Cooperative	Durain	Dong Thap
Hùng Hậu Company	Frozen mango, mango puree, frozen passion fruit	Dong Thap
Trangroup Company	Processed mango	Dong Thap
Việt Phúc Company	Mango, passion fruit	Ha Noi, Gia Lai
HSC Company	Fresh and processed mango	HCM city
Hảo Hành Company	Fresh and processed mango	HCM city
CMU Logistic Company	Fresh mango, pomelo, passion fruit, durian	HCM city
Hoàng Phát Fruit Company	Mango, Pomelo, Mango Puree	Tay Ninh

Hòa Lộc RR Company	Passion fruit, Durian, Mango	Dong Thap
Hoà Loc Cooperative	Mango	Dong Thap
Fosacha Company	Fresh mango and other fruits	HCM, Ha Noi
Dinh Tran Japan Company	Mango	Dong Thap, An Giang
GAP Cu lao Gieng Cooperative	Mango	An Giang
My Lan Group	Fruit MAP Packaging	Soc Trang

Annex 2: Work Plan

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Inception Phase																
OUTCOME 1: Technical competence and sustainability of the Quality Infrastructure System and conformity assessment services related to tropical fruit export industry enhanced.																
Output 1.1: Laboratory support system strengthened																
Activity 1.1.1	Identification of pesticide residue requirements for the selected products in different markets and recommend updates for PPD's Trade Market Access (TMA) dossiers	**Sub Activities**													# of factsheets produced, # of VC actors raised awareness	4 factsheets
		Update the report		x												
		Develop the factsheet		x												
		Promote the materials for awareness raising			x	x										
Activity 1.1.2	Identify and plan cross-cutting training topics (e.g. good laboratory practices, lab management, etc.) to improve the analysist/testing skills, business management, and to increase the accuracy of the testing results; plan for training program	**Sub Activities**													# of training activities # of participants trained reduced turning around time	5 training activities 30 analist trained
		Conduct laboratory needs analysis	x													
		Develop and implement training programs based on identified needs (improve capacity in pesticide, heavy metals, aflatoxin analysis in agricultural products)			X											
		Training in laboratory business management and planning			x	x										
		Continues consulting and training ISO/IEC 17025:2017			x	x										
Activity 1.1.3	Improving efficiency of laboratory documentation systems.	**Sub Activities**													# of labs adopting new systems # electronic tools introduced	2 labs
		Identify opportunities for digitalization in the lab's activities		x												
		Introduce the electric documents to improve the effectiveness of the			x											

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
		lab's performance and reduce the turnaround time.														
		Evaluate the feasibility of introducing of LIMS systems			*x*											
Activity 1.1.4	Feasibility study on national/regional PT schemes and production of CRM	**Sub Activities**													Report and recommendations	2 reports
		Engage experts for assessment of the food industry needs for CRMs		x	x											
		Identify priority CRMs and identify potential producers for upgrading, technical advice and accreditation support.			x		x									
		Cost benefit analysis of developing local capacity to produce CRMs (*)			x											
Output 1.2: Analytical capacities for planning and management of compliance improved through developing a tropical fruit model within the national database																
Activity 1.2.1	Support conceptualization and development of an integrated database on national agriculture sector, integrating various information and data from existing but separate databases	**Sub Activities**													Technical framework of the data platform architecture	1 framework
		Build the basic foundations, basic concepts Regulations on data sources, Regulations on data coordination	*x*	*x*												
		Data mechanisms and processes, regulations on data structure, regulations and processes on data processing, assessment, measurement, analysis and reporting frameworks.		*x*	*x*	*x*										
		Standards and guidelines, data-driven decision-making mechanisms, data standard conditions, regulations on data contribution, use, and sharing		*x*	*x*	*x*										
Activity 1.2.2	Advice on technical data harmonization and data input	**Sub Activities**													Data Technical Manual	1 manual
		Technical training on data harmonization		*x*			*x*									

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	requirements (e.g. on GIS mapping data, certificate management (VietGAP, GlobalGAP), fertilizer and pesticide management, seasonality and production data, market information, etc.)	Technical support for testing and modifications		*x*	*x*	*x*										
		Support the evaluation phase of pilot including feasibility and corrective solutions			*x*											
Activity 1.2.3	Support the development of analytical capacity/mechanism to provide analytical outputs on tropical fruits (policy brief, industry briefs, etc.) as evidence in support of policy decisions and private sector investment in collaboration with MARD and research institutions	**Sub Activities**													SCA country report	1 report
		Collaborate with ISPAE to develop the country SCA report				*x*			*x*							
		Support to build ISPAE's analytical capacity				*x*										
		Presentations on the SCA and develop policy recommendations factsheets					*x*		*x*							
Activity 1.2.4	Workshop demonstrations of case study capacity and potential to end users in areas such as predictive modelling, policy	**Sub Activities**													# of workshops	3 workshops
		Model demonstration					*x*									
		Implement and apply models and tools within the framework					*x*									
		Analyze problems that arise in practice														

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	support tool and/or certificate management	Propose solutions for management and certification				x										
Output 1.3 Traceability tool implemented into commercial value chains																
Activity 1.3.1	Modification of farm diary so it is applicable for vertical integration through the tropical fruits value chain	**Sub Activities**													integrated system and number of register accounts, number of actors trained	1 system 7000 accounts 500 actors
		Develop improvements in current farm diary software to allow expansion for other tropical fruit crops		x	x		x		x							
		Develop integration model for inclusion of Packhouses and issuance of PHC			x	x		x								
		Develop plan with relevant organization for the institutionalization of system.		x		x		x								
		Training of relevant stakeholders with new integrated systems.				x		x		x						
Activity 1.3.2	Integration and field applications of internal traceability system with farm diary	**Sub Activities**													# of apps and models produced. # of institutions and inspectors trained	1 app 15 DARDs 75 inspectors trained and
		Develop model for the integration of internal traceability system meeting PPD requirements linked to Farm diary including ability to generate QR code assessable for external use.			x											
		Develop apps for infield use by PPD BIPs and Provincial DARD inspectors				x										
		Pilot testing of integrated system				x										
		Training of relevant institutions and operators on application				x		x		x						
OUTCOME 2: Enhanced ability of the tropical fruit export value chain to meet the markets requirement and compete in target markets (national and export) through compliance with technical regulations and other quality requirements, adaptation to change, innovation and new technology.																

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Output 2.1. SOP for selected tropical fruits VCs developed and promoted for adoption by the industry																
Activity 2.1.1	Modification of existing mango and development of new tropical fruit SOPs and modules incorporate learnings from GQSP 1 demonstration trials and additional practice for management changing conditions	**Sub Activities**													# of SOP documents and training packages produced, # of VC actors raised awareness	8 SOPs for passion, durian, 2 SOPs for pomelo 10 training packages 1200 VC actors raised awareness
		Review Phase I outcomes and SOP practices implemented/not implanted and chain practices material on pomelo, passionfruit and durian.	*x*													
		Recommend and apply changes to Mango SOP develop new SOP for other tropical fruits incorporating practices necessary for mitigating climate change influences where appropriate.		*x*	*x*											
		Develop SOP practice documents where identified needs are using the Mango SOP model as a working base.			*x*	*x*										
		Develop training packages associated with SOPs				*x*										
Activity 2.1.2	Facilitate the development of communication, awareness and promotional plan on SOPs with key institutions and industry representatives.	**Sub Activities**													# of promotion plans developed	2 plans
		Identification of key institutions and industry representatives			*x*	*x*										
		Develop and support communications interface between key stakeholders,					*x*			*x*			*x*			
Activity 2.1.3	Institutionalization of SOPs through extension services and learning institutions (i.e. University) and	**Sub Activities**													# of institutions access to SOPs	5 DARDs, 10 institutions and 5 universities
		Identification of relevant institutions, facilitate meetings for developing formal arrangements.				*x*										
		Develop process with collaborators for institutionalization					*x*									

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	adoption into their curriculum.	Implement process with SOPs						*x*		*x*		*x*				
Activity 2.1.4	Address some key impediments to adoption via targeted training courses amongst some of the value chain actors.	**Sub Activities**													# of training workshops conducted	12 focused trainings
		Identify through value chain assessment process, deficiencies, opportunities and required areas where structured training programs will be helpful				*x*										
		Develop training programs that target the identified needs for example limited business management and economic evaluation Cost/benefits, investment for expansion, access to finance etc.					*x*									
		Deliver programs through train the trainer model for upscaling						*x*	*x*	*x*						
Output 2.2. Competitive and compliant export value chains established																
Activity 2.2.1	Address identified issues by modifying chains	**Sub Activities**													# of demonstration chains implementing modifications	12 modified chains
		Review existing chain and demonstration chains current operations identifying key issues and impediments				x										
		Develop solutions and strategies for interventions targeted at identified issues.				x	*x*									
		Implement changes in demonstration models.					*x*	*x*	*x*	*x*						
		Review effectiveness of changes and potential for adoption.						*x*	*x*	*x*						
Activity 2.2.2	Introduction of new technology in storage and transportation (e.g.	**Sub Activities**													# of new technologies introduced; # of chains adopting	1 new technology 2 chains adopting
		Evaluation of current export system to see where it would benefit from new technological intervention				x										

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	controlled atmosphere)	Development of system within demonstration chain that can be commercially evaluated					*x*	*x*	*x*						improved technology	new technology
		Trial in demonstration chains					*x*	*x*	*x*	*x*	*x*	*x*				
		Review and extend results to wider industry,							*x*		*x*		*x*			
Activity 2.2.3	Support local institutions to develop/modify and apply cold chain parameters for selected Vietnamese's tropical fruits (e.g. mango cultivars and pomelo. Development of accessible (digital, publication) quality reference material for value chain maturity standards, quality/grading, cool chain etc.	**Sub Activities**													# of guide charts produced	4 guide charts
		Review current literature available on Vietnamese tropical fruit varieties temperature parameters. Identify gaps in knowledge			x											
		Undertake post-harvest trial to determine temperature parameters where there is no information				x										
		Analyze results and make recommendations for varieties				x		*x*		*x*						
		Develop guidelines and suitable information charts for use in the cool chains.						*x*	*x*	*x*						
Activity 2.2.4	Development and implementation of a Quality Assurance (QA) system into the demonstration chains that provides practical tools for the management of quality from the diverse sources.	**Sub Activities**													# of chains adopting a QA systems; # of training conducted, number of participants trained	12 chains 12 training courses 100 participants trained
		Form a working group, Identify and review practically applied QA systems.														
		Modify system to meet the needs of the various packhouses and commodities. Develop training material														
		In partnership industry pilot test in a demonstration export packhouse.														

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
		Review and disseminate results to industry, Train additional export packhouses for implementation.														
Activity 2.2.5	Work with chains to ascertain what level of certifications are required for their expansion into new market segments and provide support for higher levels of certification needed to meet market requirements.	**Sub Activities**													# of chain partners attaining high certification.	4 enterprises
		Identify in the chains what their current customers are requiring as certifications.					x									
		Provide assistance in planning certification requirements for industry partners who are seeking to expand into the modern retail segments.						x	x	x	x	x				
		Provide technical support for business that are implementing higher levels of certification							x	x	x	X				
Activity 2.2.6	Develop and conduct a series of training modules that are targeted at producers, service providers and policy makers on sustainability in export systems.	**Sub Activities**													# of training events organized, # of participants trained.	25 training courses 40 trainers trained
		Identify areas in the chains where training opportunities exist and evaluate importance and impact.							x	x						
		Development of training modules							x	x						
		Testing and evaluation							x	x						
		Train the trainer								x	x	x				
Output 2.3. Investment for climate change adaptation facilitated																
Activity 2.3.1	Support businesses in identifying and analysing investment opportunities, investment planning	**Sub Activities**													# of businesses received advice, # of investment plans	30 businesses 12 investment plans
		Facilitate workshop with key stakeholders on future VC opportunities and investment to meet changing conditions				x										

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	and facilitating investment into value chain technical expertise.	Provide advice on business skills to make better decisions on adaptive change				x		x								
		Support the development of investment plans for scaling-up existing structural climate-resilient measures					x	x								
Activity 2.3.2	Advocate and support to access to financial products for VC actors to facilitate investments in adoption of SOPs and technologies, as well as to create financial cushion during farm maintenance periods	**Sub Activities**													# of financial products introduced	2 financial products introduced
		Training in SOP adaptive practices (changes, investment requirements and evaluation)					x		x							
		Facilitate the identification and linking of financial products currently accessible that are able to meet investment needs.						x		x						
		Support the development of an awareness campaign for industry stakeholders (*inc extension officers*)						x		x						
Activity 2.3.3	Conduct a climate change impact assessment on selected tropical fruit industries	**Sub Activities**													Assessment report	1 report
		Undertake assessment	x													
		Develop and report recommendations.	x	x												
Activity 2.3.4	Facilitate a roundtable dialogue on national strategies and necessary investments for adaptation of tropical fruits to climate change impacts	**Sub Activities**													# of events	3 dialogues
		Establish core working group				x	x									
		Facilitate a series of roundtable dialogue					x		x		x					
Output 2.4. Value addition and adaptation through innovation and technology facilitated																
		Sub Activities														1 report

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Activity 2.4.1	Analysis current losses and potential for value adding in areas such as (improvement in quality, presentation, reduced losses, efficiency gains, marketing and processing, waste-to-product)	Identify value chains and conduct data collection.	x	x											Report and recommendations (# of new innovations/technologies introduced)	
		Conduct analysis	x													
		Report findings and recommendations		x												
Activity 2.4.2	Develop a business model for value addition within tropical fruit sector.	**Sub Activities**													# of businesses adopting new model	2 businesses
		Identify practices for value addition and incorporation into SOP.			x											
		Develop business model				x										
		Evaluate model thru the establishment of value addition demonstration sites introducing new innovations and/or technology.				x	x									
		Facilitate dissemination of information for upscaling of models.					x		x		x		x			
Activity 2.4.3	Provide Technical assistance for implementation, evaluation and improvement of new and existing value additional practices.	**Sub Activities**													# of businesses implementing value added activities.	19 businesses
		Develop an improvement plan with collaborating businesses						x								
		Provide technical support for new and existing developments							x	x		x				
		Provide support for upscaling and technical market access.								x	x	x	x			
Activity 2.4.4	Organize a series of workshops targeting the processing value/ addition sector on	**Sub Activities**													# of workshops conducted.	4 workshops
		Form a working group, to coordinate with industry, develop topics and source expertise						x								

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	(innovation, business management, value addition options, food safety and compliance.)	Conduct workshop series covering essential topics						x	x		x		x			
		Evaluate workshop process and recommend improvements.								x		x	x			
OUTCOME 3: Improved culture of quality through conducive policy, market innovation and organizational structure enabling effective export development																
Output 3.1 Collective capacity of tropical fruit sector, especially women and youth strengthened																
Activity 3.1.1	Support establishment and capacity building of representative organizations at farmer, processing/exporter levels.	**Sub Activities**													# of new organisations established; # of organisations strengthened	5 new organizations; 5 associations strengthened
		Consultation with existing industry representative organisations on roles, needs and future strategic directions		x	x											
		Facilitate the development of capacity building exercises with representative organisations.		x		x		x		x		x				
		Support establish new industry representative organizations where wide spread industry support exists.				x			x			x				
Activity 3.1.2	Facilitate and ensure representation of key stakeholder groups and representative bodies on national and local public-private dialogue platforms, to contribute to the analysis of current policy roles, constraints, benefits that impact on export development.	**Sub Activities**													# of P-PD dialogues organized	5 dialogues
		Consolidate key issues facing tropical fruit export industries. Formulate into program suitable for PPD platform				x	x									
		Recommend action plan				x										
		Facilitate PPD process with key stakeholder groups.					x	x	x	x	x	x	x			
		Sub Activities													Report produced.	1 report

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Activity 3.1.3	Conduct feasibility study on the impact and sustainability of PPD E-training platform for market access, in view of further investment and technical assistance	Undertake feasibility study			x	x										
		Develop report and recommendations					x	x								
Activity 3.1.4	Support MARD to implement action plan on food system.	**Sub Activities**													# of inputs provided; # of working group meetings.	input provided, 3 working groups participated
		Provide inputs into MARD national action plans initiative for establishment of working groups Food loss/Food Waste and Policy/Institution		x		x		x		x						
		Provide a particularity role in the newly formed working group, including PSAV's working group on fruit and vegetable		x	x	x	x	x	x	x						
Activity 3.1.5	Organize workshop for key stakeholders involved packaging industry to review and develop standards for export packaging.	**Sub Activities**													Report and recommendations,	1 report
		Review current export packaging standards Consult with key industry stakeholders					x	x								
		Facilitate workshop to review findings, issues and solutions						x		x		x				
		Develop recommendations for export packaging standards						x		x		x				
Output 3.2. Innovative market development and promotional plan of the Tropical Fruit sector developed																
Activity 3.2.1	Support formulation of a tropical fruit sector promotional/awarene ss strategy,	**Sub Activities**													Report	1 report
		Review and evaluate existing effective tropical fruit promotional/awareness strategy, develop recommendations for				x										

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
	domestic, tourist and internationally.	Vietnamese tropical fruit sector based on effectiveness and impact.														
		Support MARD and Industry on developing a promotional/awareness strategy					x		x							
		Support to organize regional, international promotion events (fruit festival, trade fairs, etc.)		x		x		x			x					
Activity 3.2.2	Technical assistance for development of sector strategy and action plan for export development	**Sub Activities**													# of export development strategies and action plans	2 strategies/plans
		Consultation and analysis with existing industry representative organisations on roles, needs and future strategic directions including constraints on export development, infrastructure, logistics technology, and post-harvest														
		Technical assistance for the development of sector strategy and action plan for export development					x	x	x	x						
		Review plan with key industry, government, service providers and customer stakeholders. Provide functional support for implementation.							x	x	x	x				
Output 3.3 National Quality/Laboratory Policy developed																
Activity 3.3.1	Support implementation of National quality Policy	**Sub Activities**													# of workshops organized	1 workshop
		Provide technical support for STAMEQ in implementing the national quality policy				x		x		x						
		Conduct workshops/forum for raising awareness on Quality policy and its implications for the tropical fruit industries.						x								
		Sub Activities														1 report

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Activity 3.3.2	Review national fruit standards in line with international practice	Review current national fruit standards analyzing their compatibility and alignment with international standards.			x	x									# of report conducted	
		Report and develop recommendations for development/improvement of national standards.				x										
Activity 3.3.3	Support development of standards frozen durian, maturity standards for fresh mango, durian, pomelo and passionfruit.	**Sub Activities**													# of standards/ guidelines/ Reference material developed, number of technical meeting organized, number of participants trained	4 standards 20 technical meetings 160 participants trained
		Review existing fruit maturity standards national and international			x	x										
		Develop measurable maturity standards for Vietnamese varieties of mango, durian, pomelo and passionfruit.				x	x		x	x	x					
		Produce guidelines and reference material that is useable withing the chain				x		x								
		Develop and implement training programs on applying maturity standards							x	x	x	x				
OUTCOME 4 : Project Management																
Activity 4.1	Organize regular coordination meeting	Prepare TOR for Steering Committee	*x*													
		Organize Steering Committee Meetings				x				*x*				x		
		Organize regular coordination meetings (expert group meetings, provincial meetings, stakeholders meetings, …)	*x*	*x*	*x*	x	*x*	*x*	*x*	*x*	*x*	*x*	x	x		
Activity 4.2	Monitoring and evaluation	Set up the M&E system	*x*	*x*												
		Implement M&E				x			*x*			*x*		x		
	Visibility	Develop website, templates	*x*													

Outcomes, Outputs and Activities		Sub Activities	2024				2025				2026				KPIs*	
			I	II	III	IV	I	II	III	IV	I	II	III	IV		
Activity 4.3		Prepare newsletters, twitter	*x*	*x*	*x*	x	*x*	*x*	*x*	*x*	*x*	*x*	x	x		
		Prepare promotion materials				x		*x*		*x*		*x*				
Activity 4.4	Knowledge Management	Disseminate tools of Knowledge Hub				x		*x*		*x*		*x*				
Activity 4.5	Recruitment	Prepare TORs	*x*	*x*	*x*	x										
		Recruit National experts and international experts	*x*	*x*				*x*	*x*							
		Process subcontracts														
Activity 4.6.	Office operational	Set-up and maintain the project office	*x*	*x*	*x*	x	*x*	*x*	*x*	x	*x*	*x*	*x*	x		

Annex 3: Logical Framework

RESULTS	PROJECT SPECIFIC INDICATORS	GQSP GLOBAL INDICATORS	UNIDO IRPFIRPF INDICATORS	MEANS OF VERIFICATION	EXTERNAL FACTORS (ASSUMPTIONS / RISKS)
IMPACT: Enhanced competitiveness and sustainability of Vietnamese tropical fruit exports through innovation, diversification, quality improvement, and standards compliance that meet modern market requirements	- Number of modern retail markets importing Vietnamese tropical fruit products - Greater diversification of Vietnamese tropical fruit products - Improved margins for producers - Improvement cost competitiveness - Improvement in product quality - Improvements in	- Increase in export volumes (as a % and in million USD) of goods and services in the supported value chains/sectors - % reduction of rejections from the external markets	- ECO.1: Number of firms with economic gains (additional sales, savings) - ECO.2: Number of firms with improved labour productivity - ECO.3: Number of firms with an increase in exports - SOC.2: Number of SMEs with increased inclusion in value chains - ENV.2: Cumulative tons of pollutants reduced or phased out	- Access to new market segments - Project reports - Evaluation reports	- Global economic conditions favourable for expansions of exports - Global logistic conditions do not deteriorate

	environmental sustainability. - More efficient use of resources. - Reduced wastage		- ENV.3: Cumulative improved energy efficiency - ENV.4: Cumulative improved material efficiency		
Outcome 1: Technical competence and sustainability of the Quality Infrastructure System and conformity assessment services related to tropical fruit export industry enhanced.	- Lab testing services able to accurately identify and quantify pesticides within acceptable quality parameters traceability systems in place, operating and fit for purpose. - Extension of traceability system beyond the pilot phase, application to tropical fruit sectors	- # of type of measures for improving institutional & professional capacity/skills (# of implementation plans, new curricula or new systems) - # of actors gaining skills (# of certificates issued = trained persons), sex-disaggregated	- POL.2: Cumulative number of new standards adopted or implemented - POL.3: Number of guidelines adopted by relevant actors - GOV.1: Number of institutions established or strengthened - INV.1: Number of investment-ready proposals elaborated - INV.3: Value ($) of new investments leveraged	- Accreditation certificates - Meeting of international testing standards. - Implementation into commercial demonstration chains.	- Government budget for necessary investments (equipment, buildings) available. - Beneficiary laboratories benefit from financial and administrative autonomy to provide services to private sector. - Private sector makes necessary investments in traceability.

Output 1.1 Laboratory support system strengthened	- #Reports - #Number of new systems implemented, - Accreditations - Training workshops - business support	- # of standard-setting processes supported (national/international) - # Number of Number of new systems implemented - Number of actors gaining skills - # accreditations	- TCO.1: Number of capacity building activities provided - TCO.3: Number of toolkits and guidelines produced - TCO.4: Number of business plans developed	- Number of participants undertaking and completing training, workshops. - Accreditations awarded. - Publications produced - Project reports.	- Necessary support from government intuitions. - Commitment to upgrading testing capacity, with revised recommendations adopted.
Output 1.2 Analytical capacities for planning and management of compliance improved.	- Formation of expert groups - Harmonization of data - Technical guides developed - Training workshops	- # Functioning framework for mango sector data, - # guide lines and procedures developed. - # harmonisation of data	- TCO.1: Number of capacity building activities provided - TCO.3: Number of toolkits and guidelines produced	- Reports on results and recommendations - Number of participants undertaking and completing training, workshops	- Access to regional data - Sustain resourcing available after the project
Output 1.3 Traceability tool implemented into	- Adaption of farm diary system to greater number	- # of actors gaining skills (# of certificates issued) sex-disaggregated	- TCO.1: Number of capacity building activities provided	- Number of Demonstration chains testing	- System meets international export market

commercial value chains	of tropical fruit industries - Number of apps and models produced - Training of key inspection staff and other stakeholders on traceability system.	and # of type of measures (# of implementation plans, new curricula or new systems) - # of accreditation schemes with international recognition, or prepared (ready) to receive the international recognition - # of capacity building activities provided	- TCO.3: Number of toolkits and guidelines produced	traceability system - Number of participants undertaking and completing training, workshops.	standards - Demonstration chain operators' willingness to commercially test system.
Outcome 2: Enhanced ability of the tropical fruit export value chain to meet the markets requirement and compete in target markets (national and export)	- # of tropical fruit export business that have adopted SOP practice in their export chains. - # of tropical fruit businesses that have invested in upgrading infrastructure.	- # of producers gaining access to new markets, sex-disaggregated - # of new standards adopted or implemented by relevant actors	- BUS.1: Cumulative/Annual number of firms with improved management practices - TEC.1: Number of new technologies developed or adapted	- Repeat orders from demonstration chains - Project quality outturn reports. - List of project beneficiaries - Number of percipients undertaking	- Tropical fruit product is able to meet market entry, quality and compliance requirements - External logistical conditions do not degrade.

- # Of SME that have applied adaptive change practices
- # SME that have invested in and operating value addition technology/practices.
- TEC.3: Number of new technologies adopted
- POL.3: Number of guidelines adopted by relevant actors
- INV.2: Number of projects or businesses financed
- INV.3: Value ($) of new investments leveraged
- GOV.1: Number of institutions established or strengthened
- GOV.2: Number of actors participating in enhanced collaboration settings (clusters, networks)
- SCA.1: Percentage of UNIDO interventions with demonstrated results at scale and completing certified training courses.
- List of SME infrastructure investments'
- Documentation and production of value-added activities.
- Value chain actors have the financial capacity and wiliness to invest
- Training institute undertake accreditation process for SOP training courses.
- Extension (and other agents of change) have incentives to further disseminate SOPs
- Willingness and active participation of Government agencies in the promotion of SOPs

			- KASA.1: Number of actors gaining awareness/knowledge on UNIDO knowledge areas - REA.2: Number of actors engaged (by kind of actor)		- Adaptive change practice is commercially practical and fit for purpose in order to be viably adopted.
Output 2.1 SOP for selected tropical fruits VCs developed and promoted for adoption by the industry	- #of SOPs for meeting market requirements adapted for tropical fruit industries - # of trainings delivered in implementation of SOPs - # of training of trainers on dissemination of SOPs - Institutional incorporation of SOPs	- # of tools and guidelines produced (and made available online) - # of capacity building activities provided (online and offline) - # of firms with improved management practices, disaggregated by men and women-owned/-run businesses	- TCO.1: Number of capacity building activities provided - TCO.3: Number of toolkits and guidelines produced - CPO.4: Number of interventions or Joint Programmes with UN System entities - CPO.5: Number of interventions (projects/programmes) in partnership with	- SOP manuals, mobile apps - Project monitoring reports - Evaluation of trainings by participants. - Acceptance by training institution	- SOPs Support by Govt institutions. - Training institute undertake accreditation process for SOP training courses

			non-UN institutions		
Output 2.2 Competitive and compliant export value chains established	- Demonstration chains incorporating identified improvements including traceability. - # Demonstration chains use of new technology - Greater number of businesses/ regions up taking SOP - New demonstration chains with other tropical fruit industries. - Development of cold storage guidelines for Vietnamese tropical fruits.	- # of capacity building activities provided - # of firms with improved management practices, disaggregated by men and women-owned/-run businesses - # actors participating in enhanced collaboration settings (clusters, networks), sex-disaggregated	- TEC.1: Number of new technologies developed or adapted - TEC.3: Number of new technologies adopted - TCO.1: Number of capacity building activities provided - TCO.3: Number of toolkits and guidelines produced - PAO.2: Number of analytical and statistical publications produced - CPO.4: Number of interventions or Joint Programmes with UN System entities - CPO.5: Number of interventions (projects/programmes) in partnership with non-UN	- Quality outturn reports - Repeat orders from customers in demonstration chains. - Project surveys and evaluation report	- Logistic chains either improve or do not degrade from current status. - Adoption of post-harvest technology.

Output 2.3 Investment for competitiveness and climate change adaptation facilitated	- # of fruit suitable tropical fruit business identified. - # of workshops with key industry stakeholders - Development of infrastructure investment guidelines. - # of businesses receiving technical support. - # Assessment reports	- # of expert groups formally established - # of action plans developed per value chain/sector - # of type of measures for improving institutional & professional capacity/skills (# of implementation plans, new curricula or new systems) - #of demonstration activities implemented	- BUS.1: Cumulative/Annual number of firms with improved management practices - GOV.2: Number of actors participating in enhanced collaboration settings (clusters, networks) - SCA.1: Percentage of UNIDO interventions with demonstrated results at scale - KASA.1: Number of actors gaining awareness/knowledge on UNIDO knowledge areas - REA.2: Number of actors engaged (by kind of actor)	- Project documentation and reports. - Number of percipients undertaking and completing workshops. - Infrastructure and capital purchase by businesses.	- Value chain actors have the financial capacity and willingness to invest
Output 2.4 Value addition and adaptation through innovation and	- Business model for value addition within tropical fruit sector - Economic	- # of type of measures for improving institutional & professional capacity/skills (#	- TEC.1: Number of new technologies developed or adapted - TEC.3: Number of new technologies	- Demonstration sites established - Project documentation and reports.	- Value chain actors have the financial capacity and willingness to invest

technology facilitated	models for value addition. - Development of value addition demonstration sites. - Number of business implementing value added activities. - Technical assistance for implementation, evaluation and improvement of new and existing value additional operations. - Workshops on innovation, value addition options, food safety and compliance.	of implementation plans, new curricula or new systems) - # of action plans developed per value chain/sector - # of capacity building activities provided - # of tools and guidelines produced	adopted - BUS.1: Cumulative/Annual number of firms with improved management practices - SCA.1: Percentage of UNIDO interventions with demonstrated results at scale - KASA.1: Number of actors gaining awareness/knowledge on UNIDO knowledge areas - REA.2: Number of actors engaged (by kind of actor)	- Business models developed. - Number of percipients undertaking and completing workshops. - Infrastructure and capital purchase by businesses.	
Outcome 3: Improved culture of quality through conducive policy, market innovation and organizational	- Functional industry groups formed as an interface between industry and government.	- # of expert groups formally established - # of firms with improved management practices,	- POL.1: Cumulative number of new or revised policies adopted by policymakers - INV.1: Number of	- Project reports - Recommendation implemented - Industry group meetings, strategic,	- Proactive support from Industry and government with industry groups.

structure enabling effective export development	- Uptake of innovative marketing concepts - A platform developed for discussion, exchange, policy and standard recommendations	disaggregated by men and women-owned/-run businesses	investment-ready proposals elaborated - GOV.2: Number of actors participating in enhanced collaboration settings (clusters, networks) - KASA.1: Number of actors gaining awareness/knowledge on UNIDO knowledge areas - REA.1: Number of actors reached (by kind of actor)	marketing plans - National meetings - Workshops held - Market visits by key industry actors.	- Policy environment is amenable to industry input
Output 3.1 Collective capacity of tropical fruit sector, especially women and youth strengthened	- Development of Sector representative industry groups. - Formulation of industry development plans - Feasibility studies. - Working group	- # actors participating in enhanced collaboration settings (clusters, networks), sex-disaggregated - # of public fora, workshops/EGM/ side events organized -	- TCO.1: Number of capacity building activities provided - PAO.1: Number of industrial strategies and industrial policy documents drafted / prepared - PAO.2: Number of analytical and statistical	- #Industry groups formed - # of meetings held at industry group level. - # of additional - # of #technical training workshops - Project reports	- Industry groups private sector active involvement

	participation - Technical training workshops		publications produced		
Output 3.2 Innovative market development and promotional plan of the Tropical Fruit sector developed	- Industry export market development plans Study tour to expose Key business fresh and processed to global markets - Strategic marketing workshops, identifying opportunity, innovative strategies, case studies. - Facilitation of International market linkages.	- # actors participating in enhanced collaboration settings (clusters, networks), sex-disaggregated - # of public fora, workshops/EGM/ side events organized	- TCO.1: Number of capacity building activities provided - PAO.1: Number of industrial strategies and industrial policy documents drafted / prepared - PAO.2: Number of analytical and statistical publications produced	- Guideline document - Number of meetings held at industry group level. - National industry forum held - Project reports	- Industry groups private sector active involvement
Output 3.3 National Quality / Laboratory Policy developed	- Formation of working group, - Review documents - Standards	- # of capacity building activities provided (online and offline)	- PAO.1: Number of industrial strategies and industrial policy documents drafted / prepared	- Working group formed and functional. - Draft document	- Govt support - Industry groups private sector active involvement

developed; Reference material published - Public consultations conducted	- # of global fora, workshops - # of public fora, workshops/EGM/ side events organized - # of actors gaining awareness of sex-disaggregated	- PAO.2: Number of analytical and statistical publications produced - TCO.1: Number of capacity building activities provided - TCO.3: Number of toolkits and guidelines produced	released consultation meetings held. - Project reports