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► Development of the Timor-Leste vanilla value chain roadmap including associated skills needs and stocktaking of working conditions



- ▶ **Development of the Timor-Leste vanilla value chain roadmap including associated skills needs and stocktaking of working conditions**

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► Executive summary

This report presents a roadmap for the development of the vanilla industry in Timor-Leste, with the objective of positioning vanilla as a strategic commodity that supports agroforestry, contributes to economic diversification, creates employment opportunities, particularly for young people, and strengthens the livelihoods of rural communities. The report begins by examining the global vanilla market and the current state of the vanilla industry in Timor-Leste. It provides a comprehensive value chain analysis covering farm-level production, downstream processing activities, and domestic and export markets.

The report also reviews best practices in vanilla cultivation, which have formed a key component of the Agroforestry Skills for Employment and Resilience Project, funded by the European Union and implemented by the ILO, implemented over the past two years (Chapter 1). Building upon these findings, a comprehensive SWOT analysis is conducted to assess the strengths, weaknesses, opportunities, and threats across the vanilla value chain. The SWOT analysis serves as the foundation for developing the proposed business development roadmap for Timor-Leste's vanilla industry (Chapter 2). Beyond value chain analysis, the report also examines the skills required to support industry development, the occupational profile of value chain actors, and the working conditions faced by stakeholders throughout the sector (Chapter 3).

Global demand for natural vanilla remains strong despite being heavily influenced by production fluctuations in Madagascar, the world's largest producer, where Timor-Leste offers a unique competitive advantage. Vanilla cultivation in Timor-Leste is fully integrated into agroforestry systems and managed using organic production practices without synthetic fertilizers or chemical pesticides. These characteristics align with growing international consumer demand for products that are sustainably produced, minimally processed, and naturally cultivated, particularly in major import markets such as France, the United States, and Germany.

Despite these opportunities, Timor-Leste must overcome several structural challenges before it can fully realize the potential of its vanilla industry. At the production level, consistent implementation of best cultivation practices—including vine management, manual pollination, pest and disease control, and proper harvesting techniques—is essential to improving productivity and product quality. Currently, vanilla remains a secondary crop for most farmers, resulting in relatively low production volumes that are almost entirely exported in the dried and cured form. In 2025, Timor-Leste exported only 6.3 metric tons of dried, cured vanilla to Indonesia, reflecting the industry's limited scale. The small number of processors and buyers further hinders market development by reducing competition, weakening farmers' bargaining power, and limiting incentives to improve product quality. Additionally, inadequate infrastructure remains a disincentive to the development of this commodity.

Based on the findings from fieldwork and both primary and secondary data, the report proposes a three-phase business development roadmap that progressively strengthens the upstream, downstream, and commercial segments of the vanilla industry. Phase I focuses on strengthening the industry's foundational capacity by improving production infrastructure and key inputs required for vanilla cultivation and processing. Priority interventions include expanding farmer training on Good Agricultural Practices (GAP), establishing nurseries, improving supporting infrastructure, and strengthening the national data collection system to generate reliable information on production, cultivated area, productivity, and exports.

Phase II emphasizes strengthening collaboration among stakeholders throughout the vanilla value chain. Key interventions include establishing and strengthening farmer cooperatives to improve coordination, facilitate knowledge sharing, increase access to certification financing, and enhance farmers' bargaining power in negotiations with processors and buyers. Furthermore, it seeks to position Timor-Leste as a supplier of sustainably produced vanilla by capitalizing on the country's widespread adoption of organic farming practices.

Phase III focuses on upgrading the industry through value addition and market expansion. Interventions include increasing domestic processing capacity, promoting the production of higher-value products such as vanilla extract and other processed vanilla products, improving compliance with international quality standards, and strengthening access to export markets through strategic trade promotion, diplomatic engagement, and international partnerships. Together, these interventions aim to increase the competitiveness and long-term resilience of Timor-Leste's vanilla industry.

The final chapter examines the occupational structure and skill requirements of actors participating throughout the vanilla value chain and identifies priority areas for workforce development that are aligned with the proposed business development roadmap. The report also recognizes the importance of gender dynamics in shaping employment patterns, division of labour, and participation across the sector. Particular attention is given to

improving opportunities for women and young people through targeted skills development and inclusive value chain participation.

In addition, the report provides an overview of occupational safety and health (OSH) conditions across the vanilla value chain in Timor-Leste. Workplace hazards are categorized into seven groups: biological, physical, chemical, psychosocial, biomechanical (ergonomic), safety-related, and natural hazards. Recognizing and mitigating these risks is essential not only for improving productivity and product quality but also for enhancing the health, safety, and overall well-being of farmers, workers, and other value chain actors and ensuring the sustainable and inclusive development of Timor-Leste's emerging vanilla industry.

Vanilla farming and training in Timor-Leste



Photo credit: @Nuncio da Costa Cruz/ILO.

► 1. Introduction: Overview of the global and Timor-Leste's vanilla markets

1.1 Current vanilla market overview

Vanilla is one of the most well-known and popular flavors and aroma in the world. It is widely used in many industries such as food and beverages, cosmetics, and perfumes. *Vanilla planifolia* as the main variety cultivated around the world belongs to the orchid family and needs tutor tree or other structures to support their vine. This specific requirement makes vanilla an agroforestry-friendly crop. On average, it takes three years from planting the seedling to full production. Vanilla needs hand pollination, and the production is labour intensive practice. Before it can reach the market, fresh vanilla beans need to be processed into cured beans. The intensity of labour required from cultivation to post-harvest processing reflected the price of natural vanilla beans.

As a highly valuable spice, vanilla can only be cultivated in a limited part of the world. Vanilla cultivation requires temperature ranging from 21^o to 32°C with annual precipitation of 1500 mm or more. Vanilla optimally grows at an altitude of 0-600 meters above sea level (De La Cruz Medina *et al.*, 2009). Madagascar, Indonesia, Mexico, Papua New Guinea, and Uganda are top producers of vanilla bean. Almost 80% of world vanilla bean supply comes from Madagascar and contributed to 25% of its GDP (SVI, 2025). In 2024, Madagascar produced 3,089.54 tons of raw vanilla beans, while Indonesia comes second with 1,526 tons, followed by Mexico with 510.34 tons of raw vanilla (FAO STAT, 2026).

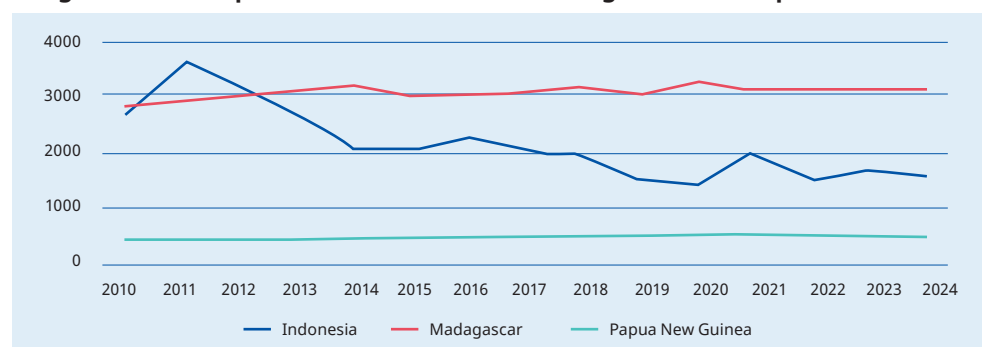
► Table 1. Top Vanilla producers in 2024

HS Code	Country	Production (tons)
090510	Madagascar	3,089.5
	Indonesia	1,526
	Mexico	510.3
	Papua New Guinea	494.9
	Uganda	183.1

Source: FAO STAT, 2026

The largest vanilla producers in the last 15 years are still dominated by the same countries with production levels tending to be stable. Not only the highest in 2024, but Madagascar's production is also the highest in the 15-year period compared to Indonesia and Papua New Guinea.

► Figure 1. Vanilla production in Indonesia, Madagascar, and Papua New Guinea (tons) 2010-2024



Source: FAO STAT, 2026

Although vanilla markets are dominated by synthetic alternatives and substitute from other derivatives, the demand for vanilla beans market is still worth around USD \$900 million (SVI, 2025). Consumer demand for all-natural food and growing interest in clean food labels drives this high demand for vanilla beans worldwide. In Europe, vanilla is mostly sold as whole, ground natural cured vanilla, and as vanilla extract, commonly in alcoholic or glycerol solution with a minimum of 35% alcohol. Vanilla extract is also the most common type of product available in the US market (CBI, 2023).

In the international market, cured vanilla beans are classified based on their origin, e.g., Bourbon beans, Mexican beans, Java Beans, Tahiti beans, and Ugandan beans. Bourbon beans come from *Vanilla planifolia*. This variety give the most complete profile of a vanilla is widely cultivated in Madagascar, the island of Reunion (Bourbon Islands), Mascarene, and Comoro. It is the most sought-after variety for all industries for its soft, creamy end notes, round and equilibrated aroma. Other strain with the highest demand especially from French and Italian market is *Vanilla tahinensis*, mainly used in ice cream manufacturing. This variety is cultivated on the islands of Tahiti and Moorea, but majority are coming from Indonesia and Papua New Guinea. *Vanilla tahinensis* is a hybrid species of *Vanilla planifolia* and *Vanilla odorata*. Another variety with main area of application in pharmaceuticals and perfumes is *Vanilla pompona*, and it is grown in Guadeloupe and Martinica (De La Cruz Medina *et al.*, 2009).

► **Tabel 2. Types of vanilla variety in global market**

Types of vanilla	Variety	Grown location	Characteristic
Bourbon Vanilla	<i>Vanilla planifolia A</i>	Madagascar, Mexico, The Comoros, Reunion	Rich, creamy, and sweet with a smooth finish.
Extract-Grade Vanilla	<i>Vanilla tahitensis</i>	French Polynesia, Papua New Guinea, Indonesia	Floral, fruity, and slightly spicy with a complex aroma.
	<i>Vanilla pompona</i>	Caribbean and Central America, Northern South America	Smoky and rich earthy profile as well as strong notes of vanillin flavour
Vanilla maya	<i>Vanilla cribrana</i>	French Polynesia, Papua New Guinea, Indonesia	Floral, fruity, and slightly spicy with a complex aroma.

Source: Adapted from UNCTAD, 2024; CBI, 2025

Since majority of vanilla bean supply comes from Madagascar, any disruption in the region can cause shock and volatility in the vanilla market. In 2023, vanilla prices dropped significantly after years of historically high levels. The imposing tariff from the US also contributed to the volatility of vanilla bean's price recently (SVI, 2025).

► **Table 3. Top vanilla importer in 2024**

Country	Imported value Unit: US Dollar Thousands
USA	131,669
France	110,586
Germany	32,959
Canada	22,613
The Netherlands	18,515

Source: ITC Trade Map, 2026

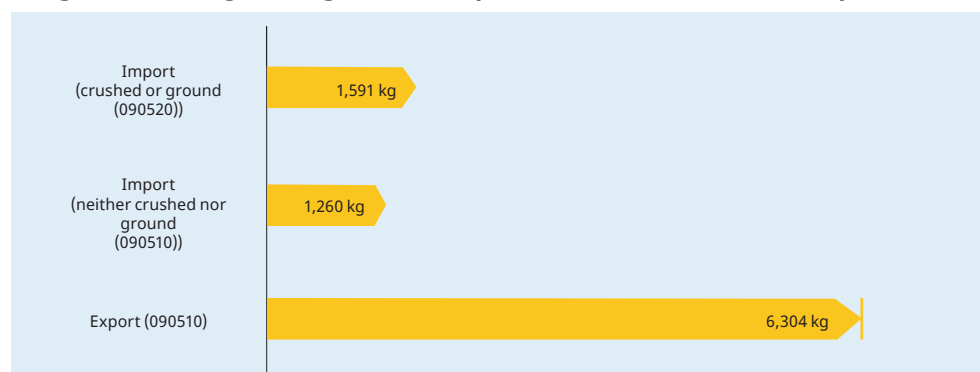
Vanilla's global market still has high untapped potential. In 2024, total dry, cured vanilla beans produced by the top five countries only counted for 1,235 tons using a 5:1 conversion ratio. Each year the average global demand of cured beans reaches 2,500-3,000 Metric Tons, while global natural vanilla bean market valued at approximately USD 900 million (SVI, 2025). Even though Madagascar is the top producer for vanilla beans, other countries can seize this opportunity and involved in vanilla cultivation and production to fulfil the demand. The value of vanilla products in global market is projected to grow steadily. The organic vanilla market is experiencing robust growth driven by sustainability and health trend, exhibiting a compound annual growth rate (CAGR) of 15.06% during the forecast period 2025-2035.¹

1.2 Current status of vanilla production in Timor Leste

1.2.1 Trade landscape of vanilla in Timor Leste

Vanilla trade in Timor-Leste has been recorded since 2020, though volumes remain limited. From 2020 to 2023, vanilla imports consisted of neither crushed nor ground (HS Code: 090510) and crushed or ground (HS Code: 090520) varieties, all of which were predominantly sourced from Indonesia, with smaller quantities from Portugal, Australia, Singapore, Malaysia, and the Netherlands.² According to TradeInvest Timor-Leste³, approximately 6.3 tons of dried vanilla were exported to Indonesia in 2025.

► **Figure 2. Trading: Average vanilla import (2020-2023) and vanilla export in 2025**



Source: UN Comtrade 2023 and TradeInvest.

Based on these findings, the available data indicates that Timor-Leste's vanilla has not yet established a strong market position. Consistent trading partners also tend to be confined to Indonesia. The figure shows that vanilla exported from Timor Leste accounts for only 0.3% of Madagascar's annual exports.

For the record, the vanilla trading database has not been properly documented on an annual basis.⁴ Exports from Timor-Leste consist solely of products that are neither crushed nor ground, which means there is no product diversification. The product: dried beans, has not yet provided significant added value. If such derivative products exist, their volume remains very small, with a very limited range of destination countries, and they are not reflected in official data.

1.2.2. Vanilla value chain in Timor Leste

This section discusses the vanilla value chain in Timor-Leste, covering all stages from pre-production and on-farm cultivation to post-harvest processing and final consumption. It also examines the key actors involved throughout the value chain, as well as the enabling environment that supports activities across different stages of the chain.

¹ <https://www.marketresearchfuture.com/reports/organic-vanilla-market-4428>.

² The Harmonized System (HS) at the six-digit level of UN Comtrade4, 2023.

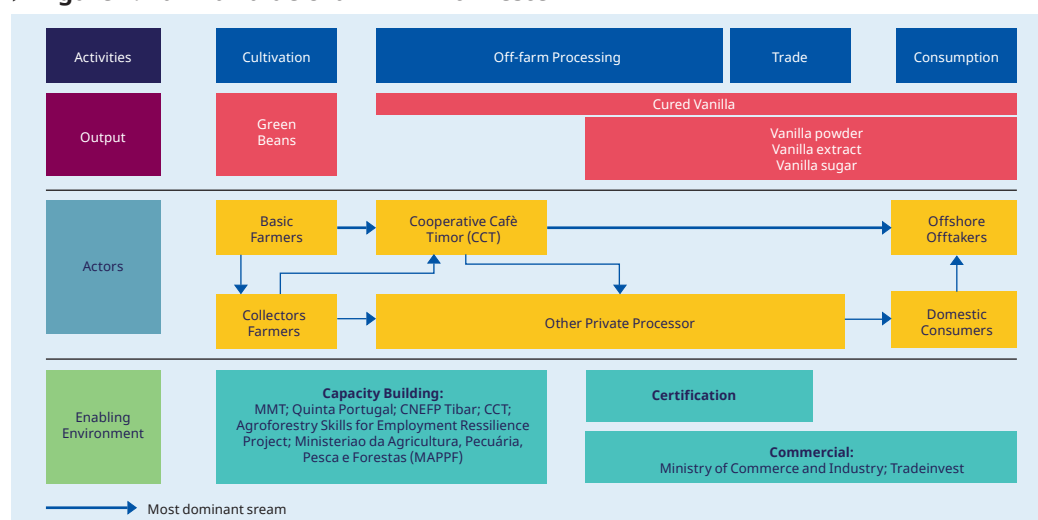
³ In interviews and data sharing with TradeInvest for this study.

⁴ The export data from UN Comtrade was also clarified by CCT—the most dominant vanilla exporter in Timor-Leste—as being inaccurate during the field study.

The value chain analysis (VCA) was developed based on findings from field investigations, in-depth interviews with vanilla farmers, government officials, processors and exporters, local experts, and training providers. Field activities also provided valuable insights into the current state of vanilla production in Timor-Leste, including existing farming practices, general production conditions, and the key challenges faced by stakeholders in the sector.

Vanilla cultivation in Timor Leste started around 1989. In 2018, Mary McKillop Today begins to revitalize the sector through the *Beans of Hope* program, resulting in a USD 1,04 Million worth of vanilla export and counted as the 4th most exported product from Timor Leste in 2020. Currently Mary McKillop Today is collaborating with the Agroforestry Skills Employment and Resilience project implemented by the ILO and funded by the European Union, providing skills training, producing cured beans and forming cooperatives. While there is lack of production record from other municipality, Manufahi, as one of the areas where vanilla cultivation has been initiated since Indonesian occupation era recorded two tonnes of production in 2022 (da Cruz Salu, 2022). Under the 9th Constitutional Government Programme, vanilla will become a priority commodity for economic diversification.

▶ **Figure 1. Vanilla value chain in Timor Leste⁵**



Cultivation and harvesting

Majority of vanilla cultivation in Timor Leste takes place at the upland area of Aileu and other municipalities such as Ermera, Ainaro, Manufahi, Liquica, and Manatuto (da Cruz Salu, 2022). Vanilla cultivation in Timor Leste started as an alternative crop by the coffee farmers, with *Vanilla planifolia* as the main variety cultivated in Timor Leste. The vanilla seedlings were planted amongst other existing crop to provide shading and support, thus further establish vanilla as an agroforestry-friendly crop. Coffee is the main intercropping for vanilla in the area such as Ermera and Aileu.

Based on data from Ministério da Agricultura, Pecuária, Pesca e Florestas (MAPPF) in 2026, total vanilla cultivation area in Timor Leste is 595 hectares, with 290 hectares or 49% located in Ermera. Out of this total, 542 hectares are cultivated independently by farmers while the rest or 53 hectares are part of the government's expansion programme for 2017-2025. Most vanilla farmers can be categorized as smallholder farmers with vanilla cultivation area less than 0.5 Ha. According to Timor Leste Agricultural Census in 2019, there are 1200 vanilla farmers in Timor Leste. Most of them plant vanilla as a secondary crop to supplement their main income from coffee or clove cultivation. Ermera and Liquiçá are the top vanilla producing areas. Ermera is the principal vanilla-producing region in Timor-Leste. This is largely due to its more favourable conditions for vanilla cultivation. The region is situated at an elevation of over 500 meters above sea level and has a climate classified as Type C (de Paulo Correia *et al.*, 2009), providing an environment that is well suited to the growth and development of vanilla.

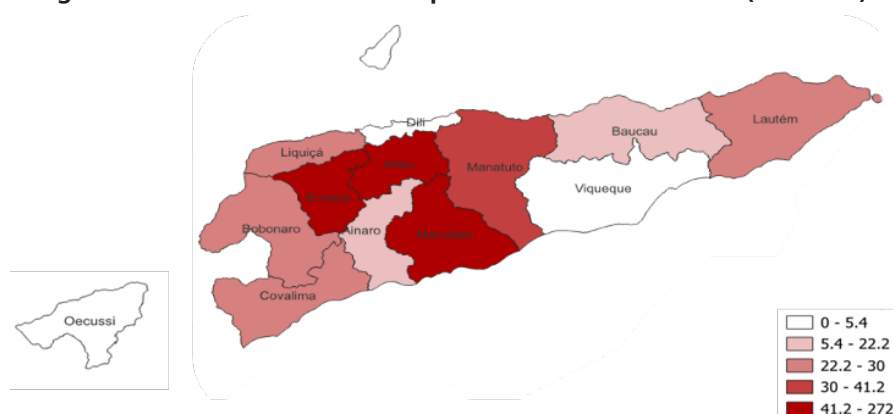
Some farmers get their seedling from Mary Mackillop Today (MMT) programme, while the other get their seedling from Quinta Portugal and Cooperativa Café Timor (CCT). Some seedlings from MMT are *Vanilla tahitensis*, while the other organisation is giving out *Vanilla planifolia*. In 1998, CCT distributed vanilla seed that had been imported directly from India. The absence of breeding and hybridization programs in Timor-Leste has resulted in the majority

5 Canva link for the figure: <https://canva.link/vlsvctnicq4w0qp>

of vanilla plants cultivated in CCT members' farms originating from the same genetic stock introduced in 1998. Consequently, the genetic diversity of vanilla cultivated within the CCT network remains relatively limited.⁶

Data from CCT in 2025 show total vanilla production from their farmers reached 34 tons. There are several factors that affect this low yield. Other than small cultivation area, farmer also lack access to essential agricultural input, such as fertilizer, pesticide, and high-quality seedling. Farmers are only using self-made organic fertilizer and manure. There is no certified nursery to provide high quality, genetically proven seedlings. Farmer mostly self-propagated if they need to do rejuvenation. This limited agricultural input consequently affecting the quality and quantity of the vanilla produced.

► **Figure 2. Vanilla cultivation area per district in Timor Leste (hectares)**



Source: MMAPPF, 2026

There are several capacity building partners and international organisation that has been giving Good Agricultural Practice (GAP) training for vanilla farmer in Timor Leste. Since 2024, ILO through Agroforestry Skills for Employment and Resilience Project together with Mary MacKillop Today (MMT), and other TVET Centres have been spearheading training programme tailored specifically for vanilla cultivation to improve farmer's skills and knowledge in several villages in Ermera district as main location, but also in Aileu, Liquica, Viqueque, Manufahi, and Manatuto. Other such as Quinta Portugal in Aileu, CNEFP in Tibar also provided different training approach for farmer. Based on farming manual created by ILO through Agroforestry Skills for Employment and Resilience programme and TVET Centres, best practices on vanilla cultivation and post-harvesting can be compared with the current farmer's practice as seen in **Table 4**.⁷

► **Table 4. Comparative overview of best practice and current practice by vanilla farmers in Timor-Leste**

Activities	Sub-activities	Best practices	Existing practice
Pre-production	Land preparation	► In gentle sloped: need large tree to provide shading and prevent water erosion ► In flat land: water trench should be built between rows and small soil mound to prevent water clogging. ► In slope land: individual terrace should be built to retain mulch.	► Some of the vanilla cultivating area are located at gentle-sloped area. ► No specific anti-erosion line technique is used. ► Tend to plant the vanilla following the shaded-tree pattern.

⁶ Based on interview with MMT and CCT during field investigation

⁷ Based on field investigation on several vanilla farmer in Ermera and Aileu

Activities	Sub-activities	Best practices	Existing practice
Pre-production	Shade requirement	► Aim for 30-50% shade to prevent fungal disease and trigger flowering. ► Plant banana tree every 5 meter to provide temporary shade and should be cut before fruiting.	► Farmer are not precisely maintaining their shade area at 30%-50%. ► Some grow banana tree sporadically in their cultivation area, but there is no mention if it is specifically planted to provide temporary shading.
	Tutor tree	► Tutor tree should be planted 3-6 months up to chest height before vanilla vines is transplanted. ► Distance between one tutor to another is 2 M, and 2,5 M between rows. ► Need to be shaping after 3-4 months, and again at 6 months for the second shaping. ► Prune regularly to keep the shade at 30-50% in wet season and 50-70% during dry season.	► Farmer who had training plant gamal tree as shade and tutor tree. ► The others tend to use existing crop as tutor tree mostly coffee and in some cases clove trees, ► Shaping and pruning of tutor tree are not widely implemented,
	Soil management	► Mulching should be prepared and put around the tutor tree to provide nutrients and maintain soil moisture ► Mulch should contain 1/3 fertile soil, 1/3 chopped banana trunk, and 1/3 organic matter such as decaying woods, coffee husk, decaying cacao pods, coconut husks. ► If the soil is dry, chopped banana trunk can be applied on the mound around the plant. Removed the mulch first, then put the chopped banana trunk around the mound and cover it back with some mulch.	► Decayed wood and dry leaves are typically used as primary material for mulch and to cover the area around vanilla plant. ► Mulch are added regularly every 2-3 months by simply spreading it over the soil to increase soil fertility. ► Chopped banana stem and trunk also added to help maintain soil moisture during the dry season. ► Farmers under MMT training developed under EU Agroforestry Skills Project have the proper knowledge on composting techniques and not doing it sporadically.

Activities	Sub-activities	Best practices	Existing practice
Pre-production	Seed propagation	► New vines from healthy tree with more than 8 nodes that haven't flowered is needed to create new seedling. ► Remove the bottom four leaves and hang the new cut under the shade for 1-2 weeks to heal the cut.	► Some farmers have training on how to propagate and applied the 8 and more nodes methods. ► Field visits confirm the 8 nodes method is applied by the farmer. ► Others follow guidelines from social media platform or get the seedling from capacity building partner.
	Seedling transplant maintenance	► One week after planting the seedling, liquid organic fertilizer should be applied and continue every three months. ► Planting should be commenced at the start of rainy season. ► The bottom four should be cover with mulch, except the bottom tip, and the top tied to the tutor. Cover the seedling with coconut leaves to protect it from the sunlight.	► Farmers applied organic fertilizer every 2-3 months, but field observation cannot confirm if they use it in the form of organic liquid fertilizer.
Cultivation	Regular maintenance	► Regular weeding and grass cutting every three months ► Replenish mulch every three months to retain soil moisture ► Water 1-2 times per week, based on soil moisture under the mulch ► Prune tutors to maintain optimal shade levels: 30-50% during wet and 50-70% during dry seasons ► Use banana trunks to maintain soil moisture during dry periods, especially when flower buds emerge and after pollination.	► Grass and weeds are regularly trimmed ► Farmer reapply mulch around tutor tree every 2-3 months ► Pruning tutor tree are not widely implemented ► In dry season watering is done twice a week.

Activities	Sub-activities	Best practices	Existing practice
Cultivation	Looping	► After 6 months, first looping can be done through the mulch ► After 3 years the plant will have 7-10 looped vines and ready to bear fruits. ► The vines should be guide down to reduce the breakages of stem before it grows too high on tutor.	► Farmers are informed about looping from their training but are not fully implemented. ► Few farmers practice looping but inconsistently ► Farmers tend to not optimize new roots from the vines that have been looped. ► There is perception from local farming practice, which is bending vines would cause damage to the whole plant. The other local practice is arranging vanilla vines like grapevines with pergola-like structure, leaving only one main root to provide for nutrients.
	Hand pollination	► Vanilla is ready to flower if it has 7-10 looped vines by the third years. ► Flowering induction starts at the beginning of dry season. ► Pollinate maximum 100-120 flower per plant. Avoid over pollination. ► Pollinate flower that emerge to the side and below, and avoid flower that emerge from the top.	► Farmers including female farmers, claimed that they can perform hand pollination properly. ► Most farmers know the recommended rate of flower that can be hand-pollination per tree. However, they tend to keep pollinating as many as possible in one pendant out of fear to waste flowers.
	Pest and disease management	Disease management (treatment): ► Root and stem rot: use well-drained land ► Black rot: space plants properly, prune for sunlight Colletotrichum spp.: proper nutrition, maintain health roots	► Due to lack of proper information, farmer do not perform any special treatment to their infected plant. ► Farmer could not properly prevent, identified, and mitigate disease.

Activities	Sub-activities	Best practices	Existing practice
		► Yellowing, fusarium spp., and shedding of young fruit: provide over 50% shade, adequate irrigation ► Sunburn: avoid sudden change in shading, good ventilation, prune tutored during dry season.	► Farmer only removed the infected part, discharge it around the cultivation area, and do not burn the infected part.
Harvesting	Time	► Vanilla bean is mature in 8-9 months after pollination, or 36 weeks+ peak pollination time. ► If the peak pollination in October, the best harvesting time would be week 4 in June following year.	► Majority of farmers harvest their vanilla in accordance with schedule from CCT as their main collector. Even if it's less than 9 months, the farmer still harvests their vanilla to meet the collection window that has been set by CCT for each village.
	Picking method	► Should be done bean by bean twice a week. ► Immature bean: green no yellow tip. ► Mature bean: slight yellowing at the tip and visible line extended toward the end. ► Overripe beans: beginning to split at the tip.	► Farmers are informed about the stage of vanilla ripeness. ► In many cases, farmers had to harvest earlier, picking unripe green pod and selling it simply to meet sales deadlines.
	Grading	► Separate mature and immature beans. ► Grade mature beans into three groups: bean length more than 16 cm, bean length less than 16 cm, split beans. ► Grade immature beans into two groups: bean length more than 14 cm, bean length less than 14 cm. ► Do not mix mature and immature beans.	► Farmers claimed they know how to grade their harvest. ► Since exporter/buyer will grade the harvest all at once visually, farmer choose not to grade their product themselves.

Activities	Sub-activities	Best practices	Existing practice
Post-harvesting	Curing	► Hot Water Treatment: beans are immersed in hot water (63-650C) depending on their grade. The correct temperature is crucial, above 680C, enzymes are damaged, aroma declined, below 600C, curing will not happen properly. Surface should be dried completely, wrapped in plastic and then put in insulated box for 48 hours ► Sweating in insulated box (days 2-3): do not open the box during this period, the temperature should be maintained at 450C. ► Sun-Drying (days 3-18): every morning dried on the table for 1-2 hours, rewrap to allow sweating, keep it warm overnight, continue for 2-3 weeks until moisture level reach 50% ► Warehouse drying (days 18-90): beans should be unwrapped, arrange with adequate spacing, places it on the rack, monitor moisture daily and remove the beans once it reaches 25% of moisture. Avoid direct sunlight. ► Sorting and bundling (day 90): grade cured beans: grade A: bean length more than 16 cm, grade B: shorter than 16 cm. Tied into uniform bundle ► Controlled storage (1-2 months): line storage container with food safe papers. Arrange the beans evenly, cover with another layer of paper, store the container in a dry shelf, well-ventilated room, inspect regularly for spoilage or moisture accumulation.	► Most of the processor already following the same stages as common best practice for curing. However, the exact detail remains confidential as their business secret. Farmers do not perform curing yet.

It can be summarized from **Table 4** that farmers are not yet fully implementing all the best practice. Some of the practices that still lagging behind are the implementation of pruning, looping, hand-pollination, disease management, and harvesting. Farmer have information on the importance of pruning and looping from training material, but some still hesitate to implement it. There is local believe that bending the vines could result in damaged vines and whole plant. Vanilla is a high maintenance crop that requires proper hand-pollination technique to produce good quality bean. Some farmers still practice pollination on nearly all flowers produced in every vine, as they are reluctant to leave any flowers unpollinated. However, this practice often results in suboptimal yields and lower bean quality.

In addition, farmers generally lack the technical capacity to accurately identify vanilla diseases and implement appropriate control measures. One example of the consequences of this limited capacity occurred in Leimaia Soren Balu Village, where an outbreak of *Fusarium* spp., *Colletotrichum* spp., and black rot in 2021 spread extensively and destroyed virtually all vanilla plants in the area. The outbreak was exacerbated by the inability of farmers to recognize the disease at an early stage and apply effective management measures.⁸ As of the time of field visit, vanilla cultivation had not yet been re-established in the affected area.

► **Figure 3. Yellowing and dark spot on vanilla leaves in Leimaia Soren Balu's vanilla cultivation area**



Source: DMUI's Photograph, 2026

Harvesting time is another challenge. There is only a few vanilla off-takers in Timor Leste. The prominent one that can absorb most of farmers produce is Cooperativa Café Timor (CCT). Since CCT is the only major buyer, farmer do not have a strong bargaining position, especially for grading and pricing. CCT have a set schedule for each village to sell their harvest. In order to meet this collection window, farmers are sometimes compelled to harvest their vanilla beans before the recommended nine months maturity period. As a result, immature beans are often harvested alongside mature ones, which can affect bean quality and reduce the overall value of the final product. Correct harvesting time is essential to produce good quality vanilla, because its quality depend on maturity, length of green pod before processing, and the processing method applied (Wahyudi *et al.*, 2021).

Skills development

To address these issues and to further strengthening and developing vanilla industry in Timor Leste, over the past two years, the Agroforestry Skills for Employment and Resilience Project, funded by the European Union and implemented by the ILO, has trained more than 760 vanilla farmers across Timor-Leste (as of 30 May 2026) on Good Agricultural Practices (GAP) for vanilla cultivation, harvesting, and post-harvest processing. (Main location in Ermera, but also in Aileu, Liquica, Viqueque, Manufahi, and Manatuto). Follow-up training and mentoring in the field supports farmers to implement and maintain good practices.

⁸ Based on field investigation and interview with farmer in Leimaia Soren Balu village, infected plant only removed from tutor tree and discharge around the plot. Best practice indicated to burn the infected part to cut the spread of the diseases.

The project has begun addressing several of the key gaps and challenges identified in this research and assessments of the vanilla value chain. Training modules on vanilla cultivation and curing have been developed in Tetum to improve accessibility for local farmers. Complementary training videos are also available at: [ILO - Timor-Leste - Prátika Agríkola Di'ak iha Kultivasaun Baunila nian - YouTube](#) and [Prátika Agríkola Di'ak sira iha Kura Baunilha](#).

Trainings have been delivered in collaboration with TVET Centres and through a Mobile Training Unit in partnership with the Directorate of Coffee and Industrial Plantations of the Ministry of Agriculture, Livestock, Fisheries and Forestry. Extension workers from both the national and municipal levels have been trained to organize and deliver these courses, helping to strengthen local capacity and ensure the sustainability of the training programme. The project has also supported the formation of vanilla farmer cooperatives. Current efforts are focused on strengthening value addition through vanilla processing, improving market access, and enhancing the commercial viability of the sector.

Processing and trading

To enhance the aroma profile and overall quality of harvested vanilla beans, further processing is required. One of the most commonly used methods is curing. Curing is a post-harvest process that involves a series of carefully controlled steps, including killing, sweating, drying, and conditioning to develop the characteristic flavour, aroma, colour, and texture of vanilla beans. During this process, naturally occurring enzymatic reactions convert precursor compounds such as glycovanillin into vanillin and other aromatic compounds that give vanilla its distinctive quality (Fitriani *et al.*, 2024).

At present, vanilla farmers in Timor-Leste do not widely practice curing their own harvests, despite having received training on curing techniques. This situation is likely influenced by the considerable time and effort required to produce high-quality cured vanilla, as well as the strict quality control measures needed throughout the process to prevent contamination, particularly by mold and to keep the moisture content at desirable number. Furthermore, several processors and exporters operating in Timor-Leste prefer to purchase vanilla in the form of green beans. As a result, farmers often have limited incentives to invest additional time, labour, and resources in mastering and implementing curing practices, as they do not perceive a strong market demand for cured vanilla at the farm level.

All of the post-harvest treatment is done by the processors. Processors only buy fresh green pod from the farmer and doing the sortation or grading by themselves. They also handle the curing process to their own standard. There are a few vanilla processor and exporter in Timor Leste, with Cooperativa Café Timor (CCT) still dominated the market. CCT will buy **Grade A green vanilla for 7 USD, Grade B for 6 USD, and Grade C for 5 USD**. CCT will start the curing process if there is a minimum 600 kg of fresh green beans from farmer. If the volume is less than 600 kg, the processing cost become less efficient and the quality can be suboptimal. During the vanilla curing process, the recovery rate is approximately 19–20 percent, meaning 100 kilograms of green vanilla beans will yield only about 20 kilograms of dried-cured vanilla. It takes three months before dried-cured vanilla is ready to be exported with for 8–12% of moisture content. CCT only sell dried-cured vanilla for export market, specifically to United States of America (USA). The product export label contains information on organic certification, traceability, and food grade standard certification. Even though the product received organic certification, currently there is no premium price for it in the market. Almost half of CCT final product counted as grade 1, 40% as grade 2, and the rest are for grade 3 and split beans. In general, Timor Leste mostly produced dried-cured vanilla which is normally used for vanilla extract (Sendall & Gusmao, 2018).

The other private processors operating in Timor-Leste are Dili Vanilli and Cornerstone. Dili Vanilli began its operations in 2018. Compared with other processors, Dili Vanilli applies more stringent requirements when purchasing vanilla from farmers. The green vanilla beans must be cultivated organically, without the use of ripening agents or other chemical substances, ensuring that only naturally matured beans are accepted. This requirement is closely related to the conversion ratio achieved during the curing process, as immature beans generally result in lower recovery rates. For example, when using fully mature vanilla beans, Dili Vanilli can produce approximately one kilogram of dried cured vanilla from ten kilograms of green vanilla. However, this ratio declines significantly when immature beans are used, requiring up to fifteen kilograms of green vanilla to produce the same quantity of cured vanilla. Dilli Vanilli buy green beans from farmer at the same price for all grading. In 2025, the amount reached **20 USD per kilogram**.

¹⁵ Under Law No. 7 of 1981 on Mandatory Company Manpower Reporting, employers are required to submit workforce reports at least annually and whenever there are material changes in company data. The WLKP system functions as a general labour administration reporting tool rather than a quota-specific disability employment reporting mechanism.

Under normal conditions, Dili Vanilli is able to sell approximately 500 kilograms of vanilla annually in the form of dried beans, vanilla powder, and vanilla extract. However, in 2025, production declined significantly to only 100 kilograms. Dili Vanilli primarily focuses on the domestic market by developing a range of derivative vanilla products. In addition to local consumers, the company also targets tourists as a key market segment for its processed vanilla products. Beyond vanilla extract and powder, Dili Vanilli currently produces vanilla-flavoured coffee and tea. Small-scale exports of dried cured vanilla are conducted to Australia and Portugal through personal networks, while product samples are regularly distributed to prospective buyers to expand market opportunities.

Cornerstone, located in Metinaro, is another local vanilla processor operating in Timor-Leste. The company sources green vanilla from its network of farmers in Ermera (Hatolia) and Aileu. The volume purchased from farmers varies from year to year depending on market demand and the company's sales capacity. In 2025, Cornerstone procured approximately 500 kilograms of fresh vanilla from farmers. During the same year, the company produced 150 units of 100 gram vanilla powder, 75 units of 100 gram vanilla sugar, and 200 kilograms of dried cured vanilla for export to Australia.

Similar to CCT, Cornerstone purchases fresh vanilla from farmers based on a grading system. **Grade A vanilla is purchased at USD 20 per kilogram, Grade B at USD 16 per kilogram, and Grade C at approximately USD 5 per kilogram.** Marketing activities in Australia are supported through a small-scale social entrepreneurship scheme. In addition to leveraging existing business networks, the company pursues market expansion by sending product samples to potential customers.

One of the key challenges faced in international marketing is compliance with quality standards, particularly moisture content requirements. As a small-scale processor, Cornerstone currently lacks the equipment and technical capacity needed to accurately measure the moisture content of the dried cured vanilla it produces. This limitation can constrain its ability to consistently meet export market specifications and quality assurance requirements. Currently, there is no regulatory requirement for farmers or exporters in Timor-Leste to obtain sustainability certifications such as Rainforest Alliance, Fairtrade, ECOCERT Organic (Label AB/BIO), or the Union for Ethical Bio Trade (UEBT). The adoption of these certification schemes remains voluntary and is primarily driven by market demand and buyer requirements.

Vanilla farming and training in Timor-Leste



Photo credit: @Nuncio da Costa Cruz/ILO.

► 2. Timor-Leste's vanilla value chain business development

2.1 SWOT analysis

This report applies strength, weakness, opportunities, and threat (SWOT) framework to help identify key internal and external factors that influence the overall performance of a commodity. SWOT analysis have been applied across various sectors and regions due to its flexibility and ability to inform strategic decision-making (Helms & Nixon 2010). In this case, it can offer valuable insights into the comparative advantages and structural barriers that shape the development of vanilla sector in Timor Leste. SWOT analysis is also used to assess production challenges, economic potential, and market opportunities of vanilla sector in Timor Leste. Each analysis drawn from field observation and stakeholder inputs to current farming practices, resource access alongside external influences such as climate risk, policy, and vanilla global market.

► **Table 5. SWOT analysis of Timor-Leste's vanilla value chain**

Strengths	Weaknesses
► Proven adoption of organic farming (no fertilizer): Farmers do not use chemical fertilizer and pesticide; they rely on organic composting. ► Proven composting skills: Farmers have demonstrated strong and consistent composting skills, which are well-suited to vanilla cultivation ► Proven adoption of agroforestry culture: Farmers are accustomed to combining other cash crop with vanilla. It can become an opportunity to expand the production in another farmland ► Decent hand pollination skills: Farmers claimed to know proper hand-pollination techniques ► Openness to training: Farmers are very enthusiastic about participating in the training and some even took the initiative to engage in independent online learning. ► Adaptive processor: The processor understands grading and adjusts the quality of farmers' produce to match market demand. ► Positive willingness to establish rural institutions: Growing positive sentiment among farmers toward rural institutions as venues for discussion, marketing, or training that can improve the quantity and quality of their harvests. ► Farmers have access to price information: Farmers are typically informed of the purchase price before selling their harvest to processors or exporters. As a result, they are aware in advance of the economic return they can expect from their production, allowing them to make more informed decisions regarding harvest, sales, and farm management activities.	► Lack of well-organized and periodic farm record-keeping systems: Farmers tend to not keeping record on their sales volumes, cultivated area, production estimates, and farm productivity. ► Competition from alternative cash crops: Farmers tend to prioritize other cash crop, particularly coffee and cacao, which is often perceived as providing more stable or attractive economic returns. ► Limited farmer knowledge and capacity in pest and disease management: Farmers have low capacity to identifies pests and diseases, understanding of causal factors, preventive measures, and practicing curative treatments ► Poor adoption of Good Agricultural Practices (GAP): Some farmers still neglected several key cultivation practices such as: hand pollination rate per pendant, pruning, looping, canopy management, and harvesting method ► Lack of farmer regeneration: There is little participation from younger generation in day to day farm management and vanilla cultivation activities. ► Existing nurseries have not yet been developed as standardized planting material centres: Existing nursery can only provide small number of seedlings at a time. There is limited effort to keep track of the vanilla species that are propagated. It affects their ability to provide high quality seedlings and certified vanilla seedlings to farmers. ► Unstructured Alley Cropping: Farmers follow Agri silvicultural system such as alley cropping, but their practice remains largely unstructured and unmanaged, with planting arrangements

Strengths	Weaknesses
► Local processors have proper knowledge on post-harvest technology: Private processors already practicing curing and produce several derivatives vanilla products. ► Local processors have channels to marketing their product abroad: Private vanilla processors already have networking access abroad to sell their dried-cured beans ► Processors have established partnerships with farmers: These farmers will continuously supply vanilla in quantities that meet the processors' requirements and comply with mutually agreed quality standards.	often developing organically rather than following planned agroforestry designs that optimize productivity, biodiversity, and ecosystem services. ► Sensitivity to Price Fluctuation: Farmers tend to switch commodities when alternative crops offer higher market prices, reducing long-term commitment to vanilla production ► Inconsistent Purchasing Commitment from several private off-takers: Other than the main exporter, other processor and buyer demonstrate inconsistent in purchasing practice. They cannot routinely absorb all the harvest, creating uncertainty in market access for farmers and dependency to one exporter ► Farm-gate prices are largely disconnected from international vanilla market prices. Farmers generally accept the prices offered by the main aggregator as the benchmark for selling their vanilla, despite significant differences between local purchase prices and fluctuations in global vanilla prices. Vanilla farmers in Timor-Leste are highly sensitive to price changes; when farm-gate prices are perceived as too low, some farmers may reduce their investment in vanilla production or discontinue cultivation altogether. This poses a risk to the long-term expansion and sustainability of the vanilla. ► Private Processors Have Financial Constraint: At the moment they cannot yet upscale and expand their production.
Opportunities	Threats
► Growing interest by various private entities: A greater variety of processors will result in more competitive options for suppliers and buyers, leading to better prices and quality. ► Growing global demand in natural product: The organic vanilla market is experiencing robust growth driven by sustainability and health trend, exhibiting a compound annual growth rate (CAGR) of 15.06%. during the forecast period 2025-2035 as per Market Research Future Analysis. ► Low barriers to international trade: Favourable import tariffs on machinery and inputs facilitate access to technology and modernization tools, while low export tariffs tend to be favourable for commodity buyers and producers. Timor-Leste generally levies a 0% export tariff on most goods and import duty is calculated at a rate of 5%.	► Poor Road Infrastructure: Inadequate infrastructure will reduce the efficiency of moving products throughout the value chain, limiting access to production area, and increasing logistics costs. ► Strong market dominance by Madagascar: Madagascar and emerging producer such as Uganda could intensifies vanilla competition if the quality and scale of production in Timor Leste remain inconsistent ► Increasing climate change-related hazards: Prolonged droughts, irregular rainfall patterns, extreme weather events, and changing agroclimatic conditions that may affect vanilla productivity and quality.

Opportunities	Threats
► Many training institutions: Numerous training programs involving the government, donors, the private sector, and development partners will enhance farmers' capacity and willingness. ► Conducive geographical features: The altitude and temperature conditions in highland Timor-Leste provide an ideal environment for growing vanilla. ► Use of the dollar (USD) currency: Dollarization brings real benefits like keeping prices steady and making trade with other countries much easier, while it also removes the need for expensive hedging altogether. ► Having an exporting port: As a fundamental piece of infrastructure that greatly facilitates the direct trade of commodities for export and import. ► Receptive investment climate: Timor-Leste has the advantage of a relatively easier process for starting a business (ranked 68th globally) as one of the factors in the Ease of Doing Business index, a higher ranking than neighbouring countries such as Indonesia (ranked 140th) and Papua New Guinea (ranked 142nd). ► Farmer practicing agroforestry: Most farmer in Timor Leste cultivate several crops in the same cultivation area. Since vanilla is proven as agroforestry-friendly crop, practicing agroforestry with vanilla and other cash crop in the same field can be a strategy to expand production.	► Unreliable domestic demand: Demand from local market is low and uncertain, limiting opportunities for producers to diversify their products or increasing production capacity. Directly affecting the numbers of vanilla absorb from farmers ► Uneven and fragmented water supply systems: Some cultivation area is facing problem with continuity of water supply during dry season. It could constrain agricultural production and reduce the resilience of vanilla farming systems, ► Under develop national level data documentation and information system: There is a limited availability of integrated national data regarding vanilla cultivation activity in Timor Leste. Reliable documentation is important to support evidence-based decision-making and sector planning. ► Non-functioning quality assurance institution: Timor-Leste currently does not have food quality regulatory authority responsible for monitoring and ensuring the quality of food products entering the domestic market. This situation may pose risks to both consumers and producers, particularly in cases where production outputs are contaminated, potentially leading to adverse health, economic, and reputational consequences.

Timor-Leste has significant potential to develop its vanilla sector by capitalizing on the organic farming practices already adopted by many vanilla farmers, as well as their capacity to implement agroforestry systems that could support the expansion of vanilla production. Furthermore, existing processors have developed the technical capability to produce high-value cured vanilla and have established export networks, albeit on a relatively small scale.

However, several key challenges must be addressed before the sector can achieve sustainable growth. These include ensuring the consistent implementation of best practices in vanilla cultivation, particularly with respect to vine looping, hand pollination, pest and disease management, and more controlled harvesting practices. In addition, farmers and other value chain actors require access to information and guidance on mitigating climate-related hazards that may affect vanilla production in the future. Strengthening these areas will be essential for improving productivity, maintaining quality standards, and enhancing the long-term resilience and competitiveness of Timor-Leste's vanilla industry.

Building on these analysis and on-going effort in supporting vanilla industry in Timor Leste, several interventions, proposed roadmap, business and skills development will be elaborate in the next chapter. The roadmap and business development will be presented in three phases. Phase one will cover the upstream reinforcement. Phase two is focusing on downstream reinforcement, and phase three will focusing on the commercialization of the downstream products. Next section outlines the skill development component, which contain occupational roles and skill levels of current actors along the vanilla value chain.

2.2 Business development

The proposed business development strategy translates the findings of the SWOT analysis into a three-phase framework that outlines the approaches to be undertaken for the development of the vanilla sector in Timor-Leste. Each phase is designed to address the sector's key strengths, weaknesses, opportunities, and threats while providing a structured pathway for enhancing productivity, quality, market access, and long-term competitiveness across the vanilla value chain.

- **Phase 1 (Upstreaming Reinforcement):** This phase will focus on improving the quality of supporting infrastructure and production inputs required for vanilla cultivation and processing. It will also emphasize the strengthening of the national data collection system to facilitate more accurate mapping and easier access to information on vanilla production potential across the country. In addition, this phase includes the continuation and reinforcement of the Agroforestry Skills for Employment and Resilience Project, ensuring that its achievements contribute to the long-term development of the vanilla sector.
- **Phase 2 (Downstreaming Reinforcement):** The second phase will focus on strengthening collaboration among stakeholders within the vanilla production sector. A key priority will be the establishment and development of farmer cooperatives, which are expected to improve access to certification financing, enhance farmers' bargaining power, and facilitate more effective coordination among producers. Improved organization will also support better management of harvesting schedules and contribute to expanding market access through collective marketing and stronger value chain integration.
- **Phase 3 (Commercialisation of Downstream Products):** The final phase will focus on enhancing product quality and ensuring compliance with international standards and market requirements. Efforts will be directed toward strengthening quality assurance systems, improving product consistency, and meeting export certification requirements. At the same time, the phase will seek to maximize diplomatic and trade cooperation opportunities to broaden international market access and strengthen the global competitiveness of Timor-Leste's vanilla industry.

The interventions within each phase will be implemented through a clearly defined and measurable framework, ensuring systematic monitoring and evaluation of progress across the following areas:⁹

- **Require investment:** Resources needed to implement and sustain each intervention effectively.
- **Systemic condition:** The institutional, technical, regulatory, or structural constraints that hinder sector development and justify the need for the proposed intervention.
- **Outcome:** The anticipated changes or improvements within the system that are expected to arise from the successful implementation of each intervention.
- **Employment generation:** The categories and opportunities for employment that are likely to be created directly or indirectly through a specific intervention.
- **Timeline:** The estimated timeframe for implementation, which serves as a guide for planning, sequencing, and coordinating interventions across different phases.

Phase I: Upstreaming reinforcement

► **Table 6. Interventions in phase I**

(1) Develop a national vanilla information and monitoring system

- Standardize periodic vanilla data collection by establishing a national **monitoring framework and protocols**
- Institutionalize periodic **data collection and database** covering key production and trading indicators collaborating with local institutions and development partners to capture vanilla potential
- Utilize data to guide policy, investment, and sector planning.

⁹ Similar approach can be found on Roadmap to a green cocoa value chain in Timor Leste. Business and skills development along with environmental sustainability, amid workplace realities (ILO, 2025).

(2) Expand farmers' access to Good Agricultural Practices (GAP) and strengthen extension support

- Expand the coverage of GAP training by increasing the **number of participating and scale of areas**
- Strengthen **capacity-building approaches** through refresher training, practical field coaching, training modules, instructional videos, and other farmer-friendly learning materials.
- Establish **demonstration plots (demo plots)** to showcase recommended cultivation practices and facilitate hands-on learning and farmer-to-farmer knowledge exchange.
- Prioritize training on **critical GAP components**, such as hand pollination, pest and disease, and identification and management.

(3) Develop standardized and certified vanilla nurseries

- Produce genetically **superior and disease-free** planting materials
- Implement nursery certification and quality assurance systems to maintain genetic consistency, plant health, and traceability
- Strengthen nursery management capacity through technical guidelines and training for operators.

(4) Improve rural infrastructure and water distribution systems

- Upgrade rural **transport and logistics** infrastructure
- Strengthen **water distribution and on-farm water management** systems
- Prioritize infrastructure investments in major vanilla-producing areas.

► Table 7. Upstreaming reinforcement framework

Intervention	Required investment	Systemic condition	Outcome	Employment generation	Timeline
Develop a national vanilla information and monitoring system	Data collection tool IT Infrastructure	Lack of comprehensive database related with vanilla sector	Better data collection and management	Employment in data management and statistics	Year 1-5
Expand farmers' access to Good Agricultural Practices (GAP) and strengthen extension support	Module formulator Training material Internet network system	Training have been conducted in some district. Refresher module is needed as follow up	Complete implementation of good agricultural practice, better harvest quality	Agricultural trainer Videographer Agriculture field officer	Year 1-5
Develop standardized and certified vanilla nurseries	Green house Labouratory equipment Seedling equipment	There is no standardized and certified nursery	Better seed quality	Nursery officers Scientist in plant breeding	Year 1-10
Improve rural infra-structure and water distribution systems	Construction material, heavy machinery, Pipeline, reservoir	Fragmented water access in some cultivation area, suboptimal road access at some part of the district	Reduce logistic cost, better access for water	Temporary construction worker	Year 1-5

Phase I will focus on strengthening the core structures of Timor-Leste's existing vanilla industry. Efforts will be directed toward expanding the number of farmers receiving training in Good Agricultural Practices (GAP), with the objective of improving both the quantity and quality of vanilla production. Increased adoption of best cultivation practices is expected to enhance farm productivity and overall product quality across the sector.

These interventions will be complemented by the establishment of nurseries capable of supplying high-quality planting materials, thereby improving the genetic quality and availability of vanilla seedlings. Investments in supporting infrastructure, including transportation networks and water access systems, will further reduce logistical costs and improve production efficiency. Another critical objective of this phase is the development of a comprehensive national database on vanilla production in Timor-Leste. Improved data collection on productivity levels, cultivation areas, export volumes, and value chain activities will provide a stronger evidence base for future policy development, investment planning, and sectoral decision-making.

Phase II: Downstreaming reinforcement

► **Table 8. Interventions in phase II**

(1) Strengthen farmer-based rural institutions and value chain coordination

- Establish and strengthen vanilla farmer organizations to improve collective action, service delivery, and producers' representation
- Enhance the capacity of farmer organizations to perform key functions, including production aggregation, knowledge sharing, collective marketing, and quality management.

(2) Establish a National Accredited Phytosanitary Testing Laboratory and Export Quality Assurance

- Establish an accredited national phytosanitary laboratory to provide reliable testing services for vanilla exports.

(3) Expand international market access and commercial partnerships

- Strengthen partnerships with international buyers, exporters, and industry stakeholders to expand market opportunities
- Promote Timor-Leste vanilla in international trade fairs, business matching events, and industry forums to increase market visibility and attract new commercial partnerships.
- Leverage sustainability initiatives and product branding to position Timor-Leste vanilla in premium and specialty markets.

(4) Facilitate access to start-up financing and certification support

- Facilitate access to start-up financing and technical assistance for newly established farmer organizations and vanilla enterprises through government programs, development partners, and financial institutions.
- Support compliance with international certification and sustainability standards, including organic, fair trade, and other market-driven certification schemes.

(5) Strengthen harvest coordination and regulatory alignment

- Review and optimize harvest coordination mechanisms
- Advocate for a more flexible and quality-based harvest coordination mechanism, in collaboration with the Government and CCT.

► **Table 9. Downstreaming reinforcement framework**

Intervention	Required investment	Systemic condition	Outcome	Employment generation	Timeline
Strengthen farmer-based rural institutions and value chain coordination	Building, office equipment	No cooperative specifically for vanilla sector	Better coordination, better bargaining position	Cooperative worker	Cooperative worker
Establish a National Accredited Phytosanitary Testing Laboratory and Export Quality Assurance	Labouratory equipment Q&A officers	There is no phytosanitary testing laboratory or its equivalent	Easier to fulfil international export document requirement	Labouratory staff, Q&A scientist, office worker	Year 10
Expand international market access and commercial partnerships	Trade envoy, trade consultant Market intelligence	Limited international market and commercial partnership	Expanding vanilla market access	Temporary market research analyst	Year 10
Facilitate access to start-up financing and certification support	Record and documentation on vanilla cultivation area Training centre	Certification is supported by exporter; another commodity already has cooperative that coordinate certification effort	Easier to coordinate farmer activity and estate for certification effort	Accessor	Year 5-10
Strengthen harvest coordination and regulatory alignment	Cooperative	Farmer have little influence on determined harvesting window	Better harvest result	Mediator, cooperative worker	Year 5

Phase II will emphasize greater coordination and collaboration among stakeholders involved in the vanilla value chain. The establishment of farmer cooperatives will serve as a key mechanism for facilitating communication among producers, improving information dissemination, and providing a platform through which farmers can access financing opportunities and certification support. Currently, Timor-Leste does not have a dedicated financing mechanism to support vanilla farmers in obtaining voluntary sustainability certifications. As a result, the costs associated with certification remain a significant barrier to adoption, particularly for smallholder producers. Should certified vanilla products command a price premium in the future, vanilla farmers could adopt a financing model similar to that implemented by **Cooperativa Comercio Agricola de Timor**.¹⁰ Under this approach, cooperatives have partnered with organizations such as **Olam** and **Oxfam New Zealand** to secure financial and technical assistance for obtaining **Fair Trade** and **organic certifications**. Financial assistance was given by Olam in the form of a loan, while Oxfam New Zealand given them support to achieved Fair Trade certification. Replicating this collaborative financing mechanism with global off-taker in the vanilla sector and other donor institution could reduce certification

¹⁰ Based on interview with a representative from Cooperativa Comercio Agricola de Timor.

costs, improve farmers' access to premium markets, and enhance the international competitiveness of Timor-Leste's vanilla industry.

Farmer cooperatives are also expected to strengthen the bargaining power of producers, particularly in negotiations concerning harvesting schedules and sales agreements with processors and off-takers. Improved coordination among farmers can contribute to more consistent product quality and supply reliability.

In parallel, this phase aims to support the establishment of a national laboratory capable of issuing phytosanitary certificates for vanilla exports. Such a facility would significantly reduce administrative barriers for exporters and processors, facilitate compliance with international trade requirements, and enhance access to global markets. Furthermore, Phase II seeks to position Timor-Leste within the growing market for sustainably produced vanilla. Given the widespread adoption of organic farming practices throughout the country, sustainability and organic production can serve as key differentiating factors and niche market opportunities for Timorese products.

Phase III: Commercialization of downstream product

► **Table 10: Interventions in phase III**

(1) Upgrade and expand processing capacity and value addition

- Promote investment in vanilla processing facilities to expand domestic processing capacity.
- Support the development of higher value-added vanilla products, such as cured beans, vanilla extract, vanilla powder, and other specialty products to increase export value and market diversification.
- Strengthen quality management systems, including food safety, traceability, and compliance with international quality standards

(2) Strengthen trade promotion through diplomatic and commercial networks

- Leverage Timor-Leste's embassies, trade missions, and commercial networks to promote vanilla products, facilitate business matchmaking, and connect domestic exporters with international buyers and investors.
- Establish strategic trade partnerships with neighboring countries, particularly Australia and Indonesia
- Explore export gateway opportunities to larger international markets such as China where direct market access remains limited.

► **Table 11. Commercialisation of downstream framework**

Intervention	Required investment	Systemic condition	Outcome	Employment generation	Timeline
Upgrade and expand processing capacity and value addition	Curing chambers Chopper, distillation equipment Pulveriser, bottle filler, packaging machine.	Some processor has small batch machine to produce vanilla derivative products	Better quality final products, large scale production	Factory worker, Q&A analyst, food technologist	Year 15-20
Strengthen trade promotion through diplomatic and commercial networks	International trade exhibition Trade networking through embassy	Several trade agreements have been ratified between Timor Leste and other countries	Higher export volume	Trade facilitator	Year 15

Phase III will focus on upgrading the vanilla industry and expanding market opportunities. Following the successful implementation of interventions in Phases I and II, the sector is expected to achieve greater production capacity, improved quality consistency, and stronger institutional support. These advancements should enable Timor-Leste to meet growing market demand while pursuing product diversification strategies.

Particular attention will be given to the development of higher-value vanilla products, including vanilla extract, which represents one of the most widely used and commercially valuable derivatives in international markets. Expanding processing capabilities and encouraging value addition within the country will increase the economic returns generated by the vanilla sector.

In addition, market expansion initiatives established during Phase II are expected to be fully leveraged and further strengthened through continued diplomatic engagement and trade cooperation led by the Government of Timor-Leste. Strategic trade agreements, export promotion activities, and international partnerships will play an important role in enhancing market access, increasing export volumes, and positioning Timor-Leste as a competitive supplier of sustainably produced vanilla in global markets.

Vanilla farming and training in Timor-Leste



Photo credit: @Nancio da Costa Cruz/ILO.

► 3. Skill development analysis in Timor-Leste's vanilla value chain

This chapter presents existing occupation and skill levels of relevant actors within the vanilla value chain along with proposed skill development aligning with the business development component.¹¹ Critical occupations and skills of the critical different actors are identified while also acknowledging pre-established vanilla-related capacity-building initiatives from development agencies.¹²

A comprehensive understanding of skills development in the vanilla value chain in Timor-Leste must also acknowledge the broader gender dynamics that shape employment and participation across the sector. A previous study of the Timor-Leste gender analysis in vanilla value chain (ILO, 2026) provides important evidence that employment across the vanilla value chain remains fundamentally gendered, with women facing systematic discrimination in terms of access to technical training, market participation, and decision-making roles. Analysis conducted in the Manufahi and Liquica regions reveals that while women contribute substantially to vanilla production particularly in routine crop management, harvest support, and post-harvest handling, they tend to remain concentrated in low-value, unpaid, and informal activities such as vanilla pollination. Meanwhile, roles requiring technical skills and offering higher value such as marketing and sales are dominated by men, thereby reinforcing the structural inequalities embedded in the value chain.

This pattern of gender-based discrimination is not coincidental but reflects deep-rooted structural and institutional barriers. Training programs documented in the Agroforestry Skills project reveal a clear gender gap, where the number of men far exceeds that of women in upstream cultivation training such as Good Agricultural Practices (GAP) for vanilla, while women's participation is relatively stronger only in downstream processing activities. Furthermore, it is often men who attend the training, yet the actual fieldwork is left to women.

3.1 Existing occupation and skill levels

Vanilla cultivation in Timor-Leste is predominantly practiced under an agroforestry system, in which vanilla tends to be a secondary crop rather than a primary one. Vanilla is therefore rarely the sole source of livelihood. Instead, it functions as part of a broader, multi-crop farming system. This characteristic has important implications for the skills and work capacities of the actors involved, which are generally influenced by other, more primary cash crops.

Based on the Value Chain Analysis (VCA) in the previous chapter, there are three main actors in the country's vanilla sector: (i) farmers, (ii) processors, and (iii) traders, whose skills will be assessed. Farmers consist of two distinct sub-actors: basic farmers and collector farmers. Basic farmers cultivate vanilla, harvest green raw pods or beans, and sell them directly to collectors or processors. Collector farmers purchase the harvest from smallholder farmers and resell it to processors along with their own harvest. Processors in Timor-Leste—an industry that tends to be dominated by a single entity—process raw beans into cured and dried vanilla; some of these processors further process the product into derivatives such as vanilla extract, vanilla powder, and vanilla sugar in small quantities. Traders then sell these products from the processors, primarily for export and, to a lesser extent, to end consumers in the domestic market. To reiterate, the vanilla value chain in Timor-Leste is characterized by vertical integration, so processors generally also act as traders of their own products.

This skill assessment is based on the International Standard Classification of Occupations 2008 (ISCO-08), an international classification standard for grouping occupations based on the tasks involved and the skill levels required. This system was developed by the International Labour Organization (ILO) and is used by countries around the world to ensure consistent and comparable labour statistics across nations.

¹¹ The assessment for existing occupation and skill levels is largely based on information gathered during the field visits in May 2026.

¹² Over the past two years, the Agroforestry Skills for Employment and Resilience Project, funded by the European Union and implemented by the ILO, has trained more than 760 vanilla farmers across Timor-Leste (as of 30 May 2026) on Good Agricultural Practices (GAP) for vanilla cultivation, harvesting, and post-harvest processing. (Main location in Ermera, but also in Aileu, Liquica, Viqueque, Manufahi, and Manatuto). Several other training sessions are also reportedly being organized by development partners, private, and the government.

1. Basic farmers

Smallholder farmers play a crucial role because they are the primary producers of Timor-Leste's vanilla beans. They learn to grow vanilla through training or by learning on their own, while most of them have only very small plots of land (less than 0.5 hectares).¹³ Farmers are able to perform basic farming tasks such as planting, pollinating, organic fertilizing, and harvesting. They sell their entire harvest—that is, they do not store, process, or use the beans for subsistence purposes.

In terms of processing skills, most farmers had previously undergone such training but had not yet practiced on their own. They prefer to sell directly to large processors like CCT because of the cash payment. Farmers are aware that dried beans can fetch several times the raw price, but they lack the patience to process them and wait up to nine months for the processed product. They also typically receive seedlings for free from training partner organizations or the government, and the tools they use are very simple. Most of farmers can also identify vanilla grades visually based on shape, color, and length.

► **Table 12. Basic farmers' occupation and skill levels**

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
6112	Tree and shrub crop growers	1	Controlling weeds, pests and diseases by applying herbicides and pesticides
6114	Mixed crop growers	1	► Selecting and sowing seeds, and planting seedlings ► Maintaining crops by cultivating soil, by transplanting, pruning or thinning plants, and by setting up and operating irrigation equipment ► Promoting and marketing products, arranging the sale, purchase and transportation of produce and supplies, and maintaining and evaluating records of activities and transactions
8321	Motorcycle drivers	3	Driving and tending motorcycles or motorized tricycles to transport materials, goods, and passengers
9211	Crop farm labourers	2	► Selecting and sowing seeds, and planting seedlings ► Maintaining crops by cultivating soil, by transplanting, pruning or thinning plants, and by setting up and operating irrigation equipment ► Promoting and marketing products, arranging the sale, purchase and transportation of produce and supplies, and maintaining and evaluating records of activities and transactions

Note: *=See Annex 1 and ILO 2012.

¹³ According to the field interviews and observation with farmers, traders, training partners, and government during field visit.

2. Collector farmers

This type of farmer has characteristics that are nearly identical to those of basic farmers in vanilla cultivation, except that they play a larger role in aggregating the produce of several other farmers and distributing it to buyers. Collector farmers can be considered slightly more advanced in their locality because they have developed networks with both sellers and buyers. They also tend to have broader access to knowledge transfer, and other farmers often turn to them for advice. Naturally, they have more developed facilities for storing the harvest and for transportation and logistics to buyers.

► **Table 13. Collector farmers' occupation and skill levels**

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
6112	Tree and shrub crop growers	1	► Controlling weeds, pests and diseases by applying herbicides and pesticides ► Inspecting, cleaning, grading, packaging, storing and loading crops for sale or delivery to market
6114	Mixed crop growers	1	► Selecting and sowing seeds, and planting seedlings ► Maintaining crops by cultivating soil, by transplanting, pruning or thinning plants, and by setting up and operating irrigation equipment ► Promoting and marketing products, arranging the sale, purchase and transportation of produce and supplies, and maintaining and evaluating records of activities and transactions ► Harvesting crops and inspecting, cleaning, grading, packaging, storing, and loading products for sale or delivery to market
8321	Motorcycle drivers	3	► Driving and tending motorcycles or motorized tricycles to transport materials, goods, and passengers
8322	Car, taxi, and van drivers	3	► Driving and tending cars, vans, or small trucks to deliver mail or goods ► Determining most appropriate route
9211	Crop farm labourers	2	► Watering, thinning and weeding crops by hand or using hand tools ► Picking fruit, nuts, vegetables, and other crops ► Planting and harvesting crops ► (basic) grading, sorting, bunching and packing produce

Note: *See Annex 1 and ILO 2012.

3. Processors

Processors transform raw vanilla beans into intermediate products, most of which are cured and dried beans, with a small portion in the form of vanilla extract, powder, and sugar. Most of these products are exported to international buyers, and only a small amount is sold domestically. The role of these processors is significant, as they are the only ones who purchase farmers' harvests, with Cooperative Café Timor (CCT) being the dominant processor.

Vanilla processors in Timor-Leste possess well-developed technical and managerial skills and extensive experience. They have the skills and capacity to properly cure and dry vanilla according to the appropriate methods and timelines. CCT conducts regular training for their labour and obtains annual certification for its processing activities and products. CCT and several other processors also perform a tiered grading system, which is applied to both raw beans and the resulting dried beans. However, since CCT do not specialize in vanilla, they treat it merely as one of their seasonal commodities. Therefore, they hire full-time employees to work daily, including on the processing of other commodities.

From a managerial perspective, they certainly need to manage all business activities, such as operations, production, finance, legal affairs, human resources, and any compliance requirements that may arise. These processors market their products for export to neighboring countries such as Indonesia and Australia.

► **Table 14. Processors' occupation and skill levels**

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
1321	Manufacturing managers	3	► Planning details of production activities in terms of output quality and quantity, cost, time available and labour requirements ► Controlling the preparation of production records and reports ► Researching and implementing regulatory and statutory requirements affecting manufacturing operations and environment ► Overseeing the provision of quotations for the manufacture of specialized goods and establishing contracts with customers and suppliers ► Overseeing the selection, training and performance of agricultural and forestry workers and contractors.
1324	Supply, distribution, and related managers	3	► Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans ► Preparing and implementing plans to maintain required stock levels at minimum cost ► Negotiating contracts with suppliers to meet quality, cost and delivery requirements ► Monitoring and reviewing storage and inventory systems

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
			► Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources ► Establishing and directing operational and administrative procedures
1420	Retail and wholesale trade managers	3	► Determining product mix, stock levels and service standards ► Formulating and implementing purchasing and marketing policies and setting prices ► Promoting and advertising the establishment's goods and services ► Maintaining records of stock levels and financial transactions ► Undertaking budgeting for the establishment ► Controlling the selection, training and supervision of staff ► Ensuring compliance with occupational safety and health regulations
3122	Manufacturing supervisors	3	► Coordinating and supervising the activities of process control technicians, machine operators, assemblers and other manufacturing labourers ► Organizing and planning the daily work with regard to plans, economy, staff and the environment ► Preparing cost estimates, records and reports ► Identifying shortage of staff or components ► Ensuring safety of workers ► Instructing and training new staff
3323	Buyers	3	► Determining or negotiating contract terms and conditions ► Purchasing general and specialized equipment, materials and business services ► Establishing delivery schedules, monitoring progress and contacting clients and suppliers to resolve problems

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
43**	Numerical and material recording clerks	2	► Helping with accounting ► Bookkeeping records and computations ► Calculating unit production costs ► Checking production operation schedules
5153	Building caretakers	3	► Participating in cleaning, simple repairs and maintenance of building interiors ► Notifying management and owners of buildings of the need for major repairs ► Patrolling buildings to ensure security is maintained
8160	Food and related products machine operators	3	► Operating machinery for roasting, pressing, milling, winnowing, conching and moulding ► Cleaning and maintaining machines and equipment
8332	Heavy truck and lorry drivers	3	► Driving and tending cars, vans or small trucks to deliver mail or goods ► Navigating or determining the most appropriate route
9112	Cleaners and helpers in offices, hotels and other establishments	3	► Picking up rubbish, emptying garbage containers and taking the contents to waste areas for removal ► Sweeping or vacuum cleaning ► Washing and polishing floors, furniture and other fixtures in buildings
9321	Hand packers	3	► Weighing, wrapping, sealing and packing materials and various products by hand ► Labelling products, packages and various containers by hand ► Filling bottles, cans, boxes, bags and other containers with products by hand

Note: *=See Annex 1 and ILO 2012

4. Traders

In a vertically integrated value chain, vanilla processors in Timor-Leste also act as traders to some extent. CCT and some other small processors focuses on trading cured and dried beans. However, the small processors include products such as vanilla extract, powder, and sugar in their trading goods.

Although processors and traders may handle similar vanilla products, particularly cured vanilla, they perform distinct functions within the value chain and should therefore be analyzed separately. Processors primarily create value through physical transformation activities such as curing, grading, quality control, and product development, whereas traders add value through aggregation, market coordination, logistics, financing, export facilitation, and

buyer relationship management. Distinguishing these actors enables a more accurate assessment of value addition, market dynamics, constraints, and intervention priorities, as the challenges and support required by processors differ significantly from those faced by traders in accessing domestic and international markets.

► **Table 15. Traders' occupation and skill levels**

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
12**	Administrative and commercial managers	3	► Establishing and directing operational and administrative procedures ► Determining and directing sales activities ► Monitoring and evaluating strategies and policies ► Marketing, public relations and advertising campaigns ► Controlling expenditures and ensuring the efficient use of resources ► Preparing budgets and overseeing the financial operation
1324	Supply, distribution, and related managers	3	► Determining, implementing and monitoring purchasing, storage and distribution strategies, policies and plans ► Preparing and implementing plans to maintain required stock levels at minimum cost ► Monitoring and reviewing storage and inventory systems ► Establishing and managing budgets, controlling expenditure and ensuring the efficient use of resources
1420	Retail and wholesale trade managers	3	► Determining product mix, stock levels and service standards ► Formulating and implementing purchasing and marketing policies and setting prices ► Promoting and advertising the establishment's goods and services ► Maintaining records of stock levels and financial transactions ► Undertaking budgeting for the establishment ► Ensuring compliance with occupational safety and health regulations

ISCO-08 Code	Occupation	Skill level (1 minimum to 4 maximum)*	General tasks performed
3323	Buyers	3	► Determining or negotiating contract terms and conditions ► Purchasing general and specialized equipment, materials and business services ► Establishing delivery schedules, monitoring progress and contacting clients and suppliers to resolve problems
3331	Clearing and forwarding agents	3	► Carrying out customs-clearing procedures for exports or imports ► Ensuring that export and import licenses and other formalities are in order ► Signing and issuing bills of landing
43**	Numerical and material recording clerks	2	► Bookkeeping records and computations ► Checking production operation schedules
5211	Stall and market salespersons	3	► Obtaining permission to set up a stand at a particular place in streets, markets or other open spaces ► Determining product mix, stock and price levels for goods to be sold ► Buying or contracting a regular supply of goods to be sold from wholesale suppliers or directly from producers ► Dismantling stalls and stands and transporting, storing, loading and unloading goods for sale ► Demonstrating and selling goods and accepting payment
8322	Car, taxi and van drivers	3	► Driving and tending cars, vans or small trucks to deliver mail or goods ► Navigating or determining the most appropriate route
8332	Heavy truck and lorry drivers	3	► Driving and tending cars, vans or small trucks to deliver mail or goods ► Navigating or determining the most appropriate route

Note: *=See Annex 1 and ILO 2012.

3.2 Working conditions: occupational safety and health

This subchapter describes one aspect of working conditions, namely an overview of occupational safety and health (OSH) in the vanilla value chain in Timor-Leste. This aspect must be acknowledged as a means to improve farmers' living conditions by addressing OSH deficiencies in the value chains. The study classified hazards into seven categories: biological, physical, chemical, psychosocial, biomechanical, safety, and natural phenomena.¹⁴

Once the hazards associated with each activity have been identified, a risk assessment can be conducted based on the probability of these events (work-related accidents and diseases). In this study, for each identified hazard, a purely qualitative value is subjectively assigned to the likelihood of the hazard causing harm.¹⁵ This can be expressed on an rising scale as follows:

- 1) Rare: has rarely if ever happened
- 2) Unlikely: is possible, but is not expected to happen
- 3) Moderate: could be expected to happen once a year
- 4) Likely: will probably occur, but is not persistent
- 5) Almost certain: occurs regularly

The assessment did based on direct observation and the field interviews conducted in May 2026.

► **Table 16. Probability of hazard occurrence**

Hazard	Agent	Farmers	Processors	Traders
Biological	› Viruses, bacteria, mould and parasites	Moderate	Unlikely	Rare
	› Insect and other animal bites	Likely	Unlikely	Rare
	› Snake and other animal bites	Moderate	Unlikely	Rare
	› Fluids and excrement	Unlikely	Rare	Rare
Physical	› Noise	Unlikely	Unlikely	Unlikely
	› Vibration	Moderate	Moderate	Moderate
	› Underground work	Rare	Rare	Rare
	› Poor lighting	Moderate	Unlikely	Unlikely
Chemical	› Fertilizers, pesticides, fungicides, herbicides and other chemical products, such as disinfectants	Rare	Rare	Rare
Psycho-social	› Conflicts with co-workers or with the owner of the farm	Rare	Moderate	Unlikely
	› Long working hours	Moderate	Moderate	Moderate
	› Perceived physical assault or sexual and psychological harassment by co-workers or farm owners	Rare	Unlikely	Unlikely
	› Overwork	Moderate	Moderate	Moderate
	› Monotonous, repetitive work	Almost certain	Almost certain	Moderate
	› Low income	Likely	Unlikely	Unlikely

¹⁴ The hazard classification and category refers to Methodology for OSH Hazard Identification and Risk Assessment and Evaluation in the Coffee Sector (ILO 2020, 14–15) and Roadmap to a green cocoa value chain in Timor-Leste (ILO, 2025).

¹⁵ The scale refers to Safety and health in agriculture. ILO code of practice. (ILO 2011)

Hazard	Agent	Farmers	Processors	Traders
Biomechanical	› Standing, kneeling or squatting for more than two hours during the working day	Likely	Moderate	Moderate
	› Above-the-head arm movements	Moderate	Moderate	Moderate
	› Repetitive hand and arm movements	Likely	Moderate	Unlikely
	› Heavy lifting (bags or sacks of coffee), carrying loads, pushing or dragging heavy objects	Likely	Moderate	Moderate
Safety	› Use of machinery, vehicles, machetes, sickles, chain saws and other items that can wound, bruise or crush body parts	Moderate	Moderate	Moderate
	› Electrical contact or shock	Rare	Moderate	Unlikely
	› Inadequate order and cleanliness	Likely	Moderate	Moderate
	› Public order (theft, robbery, delinquency, fighting or illegal armed groups)	Moderate	Unlikely	Unlikely
	› Falls (on uneven ground)	Likely	Rare	Rare
	› Work at heights (over 1.5 metres)	Unlikely	Unlikely	Unlikely
Natural phenomena	› Landslides, floods, fires and other natural disasters or emergencies	Unlikely	Unlikely	Unlikely

Source: Direct observation and field interviews with six farmers, one aggregators, three processors and traders conducted in May 2026.

Biological hazards

Biological hazards refer to the risk of exposure to harmful biological agents, such as viruses, bacteria, fungi, parasites and animal bites, that may lead to infectious diseases or other health complications. In Timor-Leste's vanilla sector, farmers are particularly exposed to insect and snake bites due to their work location, as well as other types of biological hazards, such as viruses, bacteria, parasites and mould. Traders and processors are less likely to encounter these hazards.

Physical hazards

Physical hazards include risks associated with the environmental conditions in which work is performed. These include exposure to excessive noise, vibration, underground work, and poor lighting. Vanilla farmers, processors, and traders are likely to be exposed to vibration once a year due to prolonged vehicle use or the operation of machinery. The risks associated with working underground and noise exposure are relatively possible, while farmers are expected to work in the limited lighting (under cloudy skies and at dusk).

Chemical hazards

Chemical hazards are associated with the use of harmful chemical substances, such as fertilizers, pesticides, fungicides, herbicides and other chemical products. The use of synthetic fertilizers, pesticides and other chemical products are rare in vanilla farming in Timor-Leste. Thus, exposure to chemical hazards is rare for all actors.

Psycho-social hazards

Psycho-social hazards refer to the risks stemming from mental and social stressors, including conflicts with co-workers or employers, long working hours and physical or psychological harassment. These hazards are more prevalent among traders and processors, who may operate in a high-pressure environment or experience overwork, monotonous (repetitive) work, and interpersonal conflict in the workplace, particularly in harvest season. Farmers generally experience fewer psycho-social hazards, although their low income due to the vanilla sold can contribute to stress and mental health concerns. Processors and traders are unlikely to experience income-related stress because of their regular fixed income.

Safety hazards

Safety hazards are associated with the use of dangerous machinery, tools and equipment that can cause physical injuries, such as cuts, bruises or fractures. Farmers face great risk of injury due to falls on inadequate order or uneven ground. Traders and processors may be exposed to safety hazards due to use of machine and electrical contact, although their exposure is generally lower.

Natural phenomena hazards

Natural phenomena hazards include risks posed by natural disasters, such as landslides, floods, fires and other environmental events. These hazards affect all segments of the sector (farming, processing, and trading), but the exposure is unlikely for them.

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► Annex

Annex 1. Skill level description

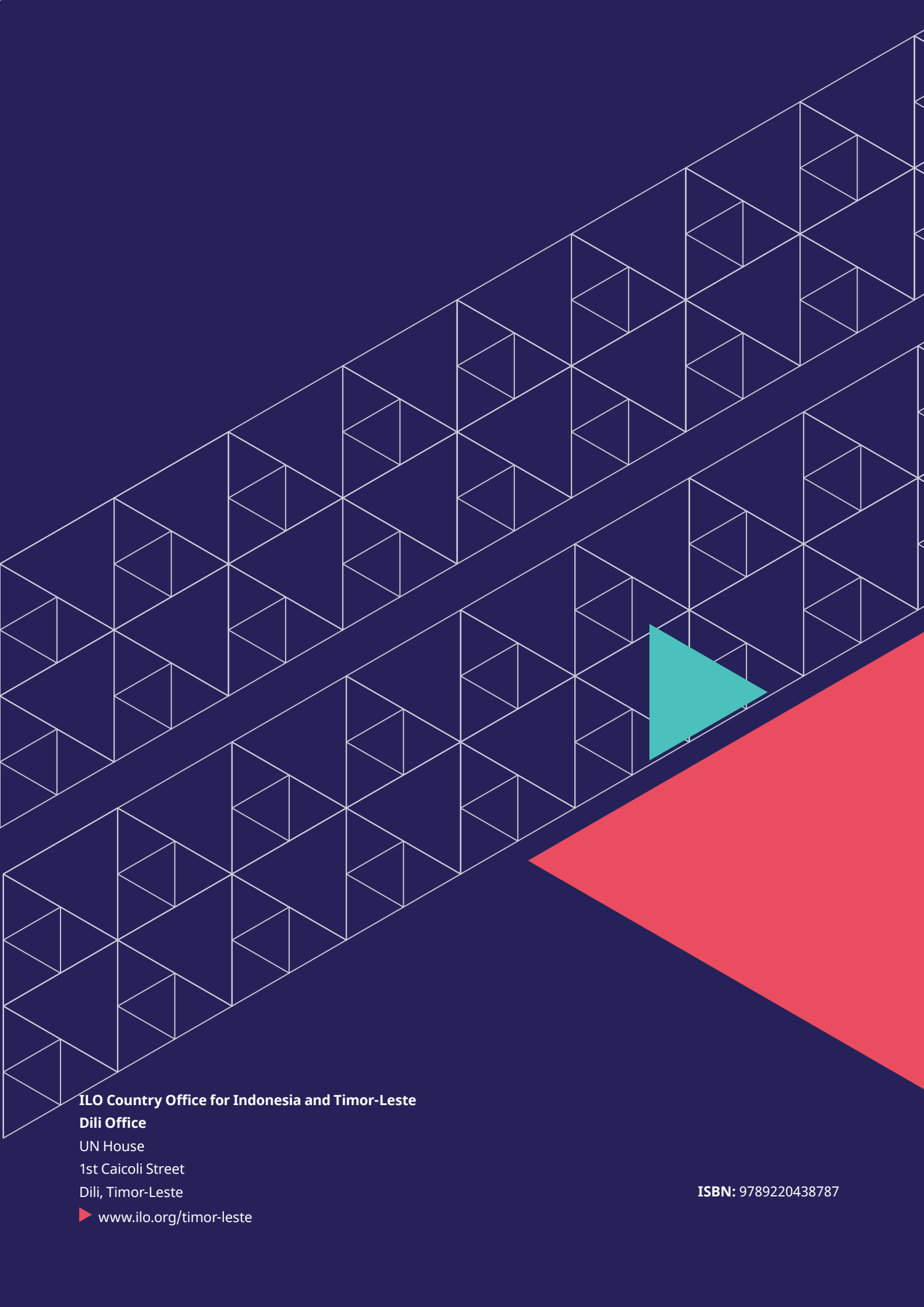
Broad skill level	ISCO-08	Description*
Skill level 3, 4 (highly skilled workers)	► Managers ► Professionals ► Technicians and associate professionals	Skills level 3: Typically involves the performance of complex technical and practical tasks that required an extensive body of factual, technical and procedural knowledge in a specialized field. Skills level 4: Typically involves the performance of tasks that require complex problem-solving, decision-making and creativity based upon an extensive body of theoretical and factual knowledge in a specialized field.
Skill level 2	► Managers ► Professionals ► Technicians and associate professionals	Typically involves operating machinery and electronic equipment; driving vehicles; maintenance and repair of electrical and mechanical equipment; and manipulation ordering and storage of information.
Skill level 1	► Elementary occupations	Typically involves the performance of simple and routine physical or manual tasks
Armed forces	► Armed forces occupations	
Not elsewhere classified	Not elsewhere classified	

Note: *= for descriptions, see www.ilo.org/resource/glossary skills and labour migration

Annex 2. Vanilla cultivation area and production in 2025

Area	Area Potensia (ha)	Area Kultivu (ha)	Area Expansaun (ha)	Total Area Kultivu (ha)	Area Kolleita ba Exportasaun (ha)	Produsaun (ton)
1 Aileu	222	45	28	73	0,11	0,5
2 Ainaro	94	19		19	0,05	0,21
3 Baucau	30	6		6	0,01	0,07
4 Bobonaro	148	30		30	0,07	0,33
5 Covalima	114	23		23	0,06	0,25
6 Dili	0	0		0	0	0
7 Ermera	1343	272	18	290	0,68	3,01
8 Lautem	148	30		30	0,07	0,33
9 Liquica	138	28		28	0,07	0,31
10 Manatuto	198	40		40	0,1	0,44
11 Manufahi	210	42	5	47	0,11	0,47
12 Oecusse	25	5		5	0,01	0,06
13 Viqueque	10	2	0,5	3	0	0,02
Subtotal	2680	542	51,5	594	1,34	6

Source: MMAPPF, 2026



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