

**Master in Innovation and Business**

**ROOTS2BEANS**

**In Partial Fulfillment  
of the Requirements for the Course  
Innovation Strategy and Journey 1: Insighting**

**Jennifer Joy C. Subang  
Joshua Arnel T. Sususco  
Joseph Raymond V. Marquez  
Ma Jennifer C. Driz  
Authors**

**Prof. Masaki Mitsuhashi  
Course Leader**

**April 22, 2026**



# Roots2Beans

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## EXECUTIVE SUMMARY

A dilemma facing the coffee industry in the Philippines is the country's inability to produce coffee in the quantity consumed despite being one of the biggest coffee consumers in Asia, and fifth in the world, consuming over 16.8 billion cups of coffee each year, penetrating 9/10 households in the Philippines, with a market size of 97.5 billion PHP annually (Nestlé, 2024). The annual consumption of coffee in the Philippines is 200,000 metric tons (MT) while the production capacity is only 30,000 MT, hence a need to import 81% of coffee needs, amounting to 330,000 MT of soluble coffee in the year 2023 alone (Nestlé, 2024).

The problem in the country's coffee sector is not based on agriculture, but rather an institutional issue. First of all, the crisis is caused by small-scale farming involving aged growers (aged 57 years) who are losing young farmers' interest to farm, farming on 1-2 hectares of land with senile plants, lack of quality seeds and fertilizers, technical assistance, poor post-harvest infrastructure, and risks from climate change where 47% of the world's coffee comes from countries that may have 60% reduction of viable land by 2050 (World Coffee Research as cited in (Nestlé, 2024).

With average yields ranging from 0.24-0.54 MT/ha, compared to the 2.0 MT/ha benchmark set by the Department of Agriculture (2022), farmers are locked within the poverty line of ₱129,072/year, while private investors shy away because of the massive capital needed, complicated process, and gestation period of 2-3 years.

This capstone project identifies and validates the problem space through comprehensive industry analysis, gap assessment, and customer segmentation. Drawing on data from the Philippine Coffee Industry Roadmap 2021-2025, the Nescafé Plan 2030 Progress Report, PhilCAFE project outcomes, Nestlé's Project Coffee+ impact metrics, Cooperative leaders of Tibolo Farm Workers Association (TIFWA), Bagobo Tagabawa Fair Trade Marketing Cooperative (BATAFAMA), Operations leaders and farmers of SunFood Marketing and the Department of Agriculture (DA). Roots2Beans will demonstrate that the barriers to Philippine coffee self-sufficiency are not agronomic related but systemic coordination failures. When provided with quality planting materials, agronomic supervision, in-kind financing, and guaranteed offtake, farmers in Project Coffee+ achieved a fourfold increase in yield—from 0.24 MT/ha to 1.0 MT/ha—and crossed the national poverty threshold (Nestlé Philippines, 2026). Roots2Beans seeks to replicate and scale this success through a replicable, investable, and market-driven platform that aligns farmer livelihoods, landowner returns, buyer requirements, and national development goals into a single, sustainable value chain.



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## OBJECTIVES OF THE CAPSTONE IDEA

### General Objective

The overarching objective of the Roots2Beans capstone project is to diagnose, understand, and address the behavioral and system design barriers that perpetuate low productivity, quality inconsistency, and market fragmentation among Philippine smallholder coffee farmers.

By investigating how risk aversion, traditional practice adherence, short-term cash pressures, and fragmented decision-making interact with weak value chain coordination, misaligned incentives, and absent feedback mechanisms, this project aims to articulate a growership platform model that realigns farmer behavior with productivity goals and redesigns industry systems to enable coordinated, quality-driven, market-oriented agribusiness.

The project seeks to validate that transforming behavioral patterns and system architecture, not just providing inputs or training, can unlock measurable improvements in farmer income, land productivity, supply reliability, and import substitution, thereby advancing Sustainable Development Goals 1, 2, 8, 10, 12, 13, 15 & 17.

### Specific Objectives

The following specific objectives will attain the General Objective by systematically addressing the behavioral and system design root causes:

- Diagnose behavioral drivers preventing adoption of productivity-enhancing practices among smallholders;
- Map system design failures perpetuating quality inconsistency and market fragmentation in the Philippine coffee value chain;
- Validate the growership platform hypothesis that realigning incentives and redesigning coordination mechanisms can shift behavior and overcome system barriers;
- Establish behavioral and system conditions required for scalable adoption among fragmented smallholders; and
- Articulate a replicable framework for transforming behavioral and system design problems into coordinated, quality-driven agribusiness ecosystems.



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## CURRENT BUSINESS AND TECHNICAL SITUATION

Environmental Analysis

### THE MARKET SEGMENT

#### TAM-SAM-SOM Framework

MARKET LEVEL	QUANTIFICATION	KEY ASSUMPTIONS
<b>TAM (Total Addressable Market)</b>	Farmers: ~100,000 smallholder coffee farmers	Smallholders represent ~80% of Philippine coffee industry
	Area: ~85,000 ha under smallholder management (1-2 ha average)	Average farm size 1-2 hectares
	Current Production: ~25,000 MT Green Coffee Bean (GCB) annually	Current yield 0.54 MT/ha; potential 2.0 MT/ha
	Potential Production: 170,000 MT GCB at 2.0 MT/ha target	Target selling price ₱200/kg GCB
	Value: ₱34 billion at ₱200/kg GCB	
<b>SAM (Serviceable Addressable Market)</b>	Farmers: ~70,000 smallholders in Mindanao	Mindanao accounts for 84% of national production (Nestlé Philippines, 2026)
	Area: ~60,000 ha	SOCCSKSARGEN (35.6%), Davao (17.85%), BARMM (17.42%) are priority regions
	Current Production: ~20,000 MT GCB	Government support strong
	Target Production: 72,000 MT GCB at 1.2 MT/ha	Existing Nestlé/Project Coffee+ infrastructure facilitates scale-up
	Value: ₱14.4 billion	



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<b>SOM (Serviceable Obtainable Market)</b>	Target Farmers: 500-1,000 smallholders by Year 3	Conservative yield assumption based on Project Coffee+ outcomes (0.24 → 1.0 MT/ha)
	Target Area: 100-500 hectares under integrated management	Buyer contracts securing ≥70% of produced volume
	Expected Yield: 1.0–1.2 MT/ha GCB	Quality premiums of 10–25% for standardized, traceable beans
	Production Volume: 100–600 MT GCB annually	Modular processing hubs breakeven at 500–1,000 productive trees
	Revenue Potential: ₱20M–₱120M from green bean sales	Existing MOAs with SF Group, Helpmate Services, DA-BPI de-risk initial scale-up
	Farmer Margin: ₱80K–₱200K/ha after costs	

## Segmenting

Roots2Beans segments smallholder farmers across three strategic dimensions:

### By Farm Size & Production Capacity

Segment	Farm Size	Current Yield	Annual Production	Income Level	Priority
<b>Micro Smallholders</b>	<1 ha	<0.3 MT/ha	<300 kg GCB	Below poverty	High (rehabilitation potential)
<b>Typical Smallholders</b>	1-2 ha	0.3-0.6 MT/ha	300-1,200 kg GCB	Near poverty	Core Target
<b>Progressive Smallholders</b>	2-3 ha	>0.6 MT/ha	>1,200 kg GCB	Above poverty	Peer Mentors

### By Coffee Type & Quality Potential

Coffee Type	Share of Smallholder Production	Current Price (₱/kg GCB)	Roots2Beans Focus
<b>Robusta</b>	76.5%	₱72.92	Core: mass-market instant coffee, import substitution
<b>Arabica</b>	16.7%	₱103.25, 2020	Secondary: specialty cafés, premium pricing



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<b>Excelsa/ Liberica</b>	6.8%	Variable	Niche: cultural branding, origin stories
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## By Geographic Priority

Tier	Region	Smallholder Population	Rationale
<b>Primary</b>	SOCCSKSARGEN (Region 12)	~30,000 farmers	35.6% of national production; ₱129M DA allocation; existing Project Coffee+ success
<b>Primary</b>	Davao Region (Region 11)	~20,000 farmers	17.85% of production; Nestlé buying stations; strong LGU support
<b>Secondary</b>	BARMM	~18,000 farmers	17.42% of production; peace dividend opportunity; DENR NGP areas
<b>Secondary</b>	Northern Mindanao (Region 10)	~8,000 farmers	9.23% of production; Bukidnon highlands suitable for Arabica

### Targeting

Roots2Beans employs a **phased targeting strategy** focused exclusively on smallholder coffee farmers:

**Primary Target Segment: Transitional Smallholders in Mindanao being the bulk producer of GCB.**

### Selection Criteria:

- Farm size: 1-2 hectares
- Current yield: 0.3-0.6 MT/ha
- Location: SOCCSKSARGEN or Davao Region
- Coffee type: Primarily Robusta
- Willingness to adopt GAP and commit in a clustered production planning
- Farmer Age: 40-65 years

### Why Target This Segment:

- **Highest Leverage:** Rehabilitating 100 ha of transitional smallholder farms can add 50-70 MT GCB annually
- **Proven Model:** Project Coffee+ demonstrated 4x yield increase and 4x income growth among similar farmers
- **Social Impact:** 100% of assisted Project Coffee+ farmers crossed PSA poverty threshold
- **Scalability:** Transitional smallholders represent the largest untapped production potential
- **Risk Profile:** More open to innovation than laggards; less risky than subsistence farmers with <1 ha



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## Secondary Target Segments (Phased Engagement):

### 1. Progressive Smallholders (Peer Mentors)

- **Profile:** 2+ ha, yield >0.6 MT/ha, GAP-trained, active in associations/cooperatives
- **Role:** Demonstration farm hosts; peer trainers; cluster leaders
- **Engagement:** Leadership development; advanced agronomy training; quality premium incentives

### 2. Subsistence Smallholders (Rehabilitation Focus)

- **Profile:** <1 ha, yield <0.3 MT/ha, no GAP adoption, sell to traders
- **Role:** Long-term transformation; poverty alleviation priority
- **Engagement:** Intensive technical support; input financing; social protection linkages

### Exclusion Criteria:

- Farmers with >5 ha (shift to institutional landowner segment—outside current scope)
- Farmers unwilling to commit to GAP standards or clustered production
- Farmers in conflict-affected areas without security guarantees

### Positioning

Roots2Beans is the integrated coffee production platform that empowers Philippine smallholder farmers to transform low-yield, subsistence farming into sustainable, quality-driven agribusiness enabling farmers to achieve 4x yield improvement, cross the poverty threshold, and secure guaranteed markets for their harvest.

### Positioning Pillars

Pillar	Message	Evidence
<b>Yield Improvement</b>	"From 0.54 to 1.2-1.8 MT/ha"	Project Coffee+ validated 0.24 → 1.0 MT/ha achievement
<b>Income Stability</b>	"From poverty to ₱533,542/year"	100% of Project Coffee+ participants crossed poverty threshold
<b>Risk Mitigation</b>	"Focus on growing; we handle the rest"	Guaranteed offtake, in-kind financing, agronomist supervision
<b>Quality Premiums</b>	"Earn 10-25% more for better beans"	Standardized processing, traceability, buyer-aligned specs

### Competitive Differentiation

Competitor Type	Typical Approach	Roots2Beans Differentiation
<b>Traders/Consolidators</b>	Buy low, sell high; minimal investment in farm productivity	Invests directly in yield improvement, quality standardization, farmer capability creating long-term value
<b>NGO/Government Programs</b>	Focus on training, infrastructure,	Integrates production, quality, finance, and market access under one accountable platform;



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	subsidies; often lack market linkage	designed for commercial scalability
<b>Individual Buyers (Cafés)</b>	Prioritize downstream branding; source inconsistently due to quality risk	Builds upstream reliability first ensuring consistent quality and volume before expanding downstream

## Serviceable Obtainable Market (SOM)

Year	Target Farmers	Target Area (ha)	Expected Yield (MT/ha GCB)	Production Volume (MT GCB)	Revenue Potential*	Key Milestones
<b>Year 1</b>	100-200	50-100	0.8-1.0	40-100	₱8M- ₱20M	Pilot launch in Sultan Kudarat/Bukidnon 500-1,000 productive trees under farm management First guaranteed offtake agreements signed Modular processing hub operational
<b>Year 2</b>	250-500	150-250	1.0-1.1	150-275	₱30M- ₱55M	Expansion to 2-3 additional municipalities Clustering of 200+ smallholder farms Quality certification (GAP, traceability) achieved Input financing portfolio scaled
<b>Year 3</b>	500-1,000	300-500	1.1-1.2	330-600	₱66M- ₱120M	Regional scale-up across SOCCSKSARGEN Arabica specialty line launched Export-ready documentation systems Breakeven at platform level

\*Revenue based on conservative ₱200/kg GCB average selling price; excludes ancillary streams (processing fees, nursery sales, financing interest)



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## SOM Validation Assumptions

- Yield Realism:** Based on Project Coffee+ results (0.24 → 1.0 MT/ha in 7 years); Roots2Beans targets 1.0–1.2 MT/ha by Year 3 through accelerated rehabilitation and GAP adoption.
- Market Absorption:** Corporate buyer MOUs secure ≥70% of produced volume; remaining 30% allocated to specialty/local markets at premium pricing.
- Quality Premiums:** Standardized, traceable beans command 10–25% price premiums over commodity farmgate prices.
- Risk Mitigation:** Default rates <5% due to in-kind input financing, clustered production planning, and agronomist-led supervision.
- Infrastructure Scalability:** Modular processing hubs designed for 500–1,000 tree breakeven; additional capacity added incrementally with production growth.

## SOM as % of Smallholder Market Opportunity

Metric	SOM (Year 3)	SAM (Mindanao Smallholders)	% Penetration
Volume	330–600 MT GCB	~20,000 MT current production	1.7–3.0%
Value	₱66M–₱120M	₱14.4 billion potential	0.46–0.83%
Farmer Impact	500–1,000 farmers directly served	~70,000 Mindanao smallholders	0.7–1.4%

## EXTERNAL ENVIRONMENT

### PESTEL Analysis

Factor	Roots2Beans Implications	Strategic Response
<b>POLITICAL</b>		
Republic Act 7900 (High-Value Crops Development Act) & creation of Coffee Industry Development Office (CIDO) via Department Order No. 6, Series of 2026	Strong government policy support creates enabling environment for coffee sector investments; CIDO provides centralized coordination for industry development programs	Position Roots2Beans as a strategic implementation partner for CIDO initiatives; align platform design with national roadmap targets to access technical assistance and policy support
DA budget increase to ₱449M in 2026 (nearly 3x 2025 allocation) with ₱129M earmarked for Sultan Kudarat production support	Increased public funding availability for production support, extension services, machinery, and irrigation in priority coffee regions	Pursue co-investment opportunities with DA-HVCDP for shared-service processing hubs; leverage public infrastructure (FMR, irrigation) to reduce platform capital requirements



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DENR National Greening Program (NGP) allotting 86,000 hectares for coffee (2016-2028)	Significant land availability for coffee expansion under government-supported reforestation framework	Develop partnership model with DENR to integrate Roots2Beans growership system into NGP areas; offer technical supervision and market linkage as value-add to government planting programs
Special Safety Safeguard Measures on imported coffee products	Trade protection mechanisms may reduce import competition and improve price stability for domestic producers	Advocate for continued safeguard measures while building domestic supply capacity; position Roots2Beans as import-substitution solution that meets buyer quality requirements
<b>ECONOMIC</b>		
81% import dependency (₱81.2M annual import expenditure); local production only 30,000 MT vs. 200,000 MT consumption	Massive supply gap represents commercial opportunity but also signals structural weakness in domestic value chain competitiveness	Target import substitution segment with guaranteed quality and volume; structure offtake agreements that offer buyers reliable domestic alternative to imports at competitive landed cost
Farm gate price volatility (Robusta: ₱72.92/kg; Arabica: ₱103.25/kg) dictated by world prices; production cost ₱45.50/kg GCB	Price uncertainty discourages farmer investment in rehabilitation; thin margins limit capacity to adopt improved practices	Implement quality-linked pricing with floor price guarantees; bundle in-kind input financing with agronomic support to improve cost efficiency and yield, expanding margin buffer
Projected 10-13% annual category growth; Philippines as 2nd largest coffee consumer in Asia, 5th globally	Strong and growing domestic demand provides stable market foundation for scaled production	Prioritize domestic buyer relationships for initial scale-up; design modular processing to flexibly serve both mass-market (Robusta) and specialty (Arabica) segments as demand evolves
PhilCAFE demonstrated \$7.6M leveraged investments from \$17M public funding; Project Coffee+ achieved 4x yield and income improvement	Proven models show that integrated support can unlock commercial viability and attract private capital	Use PhilCAFE/Project Coffee+ results as validation for investor pitch; structure Roots2Beans as blended finance vehicle that combines public support with



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		private equity for scalable impact
<b>SOCIAL</b>		
Aging farmer population (average age 57) with declining youth interest in agriculture	Risk of production decline as current farmers exit; knowledge transfer gap threatens continuity of coffee farming	Integrate youth engagement and agripreneurship training into platform; design growership model that reduces physical labor burden while offering attractive returns to next-generation operators
Smallholder dominance (1-2 ha average farm size); 9/10 Filipino households consume coffee; growing café culture and third/fourth-wave specialty demand	Fragmented production limits economies of scale; rising consumer expectations for quality, origin, and sustainability create premium opportunities	Cluster smallholders under unified production planning and quality standards; develop traceability and storytelling capabilities to capture specialty market premiums
Women's active participation in processing, marketing, harvesting, sorting, grading, packaging	Untapped potential for gender-inclusive value creation; women often manage post-harvest quality decisions	Design platform roles and training that intentionally engage women in quality control, nursery management, and enterprise leadership; track and report gender impact for ESG-aligned investors
<b>TECHNOLOGICAL</b>		
Low technology adoption; average yield 0.54 MT/ha vs. potential 2 MT/ha; limited access to quality seedlings, fertilizers, modern agronomy	Productivity gap represents both challenge and opportunity; farmers lack access to inputs and knowledge needed to close yield gap	Embed agronomist-led supervision, quality planting materials, and GAP-aligned SOPs as core platform services; use demo farms and peer-mentor networks to accelerate technology diffusion
PhilCAFE trained 17,800 farmers in GAP; 300+ coffee mentors; 66 Q professionals; DNA genotyping for traceability (282 samples tested)	Growing technical capacity in sector but still insufficient coverage; traceability infrastructure emerging but not yet standardized	Build on existing mentor/Q-grader networks for platform quality assurance; invest in digital traceability system that integrates DNA verification for premium market access
Nescafe Plan introduced regenerative agriculture to 13,000 farmers; 10 practices including	Regenerative agriculture gaining traction as climate adaptation and quality improvement	Make regenerative practices default standard for Roots2Beans farms; quantify and communicate



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agroforestry, soil conservation, integrated pest/nutrient management	strategy; buyers increasingly value sustainability credentials	environmental co-benefits (carbon sequestration, biodiversity) to attract ESG-focused buyers and investors
Mobile applications for pest detection and real-time monitoring under development	Digital tools can extend technical support reach and improve decision-making at farm level	Partner with agtech providers to integrate mobile monitoring into platform; use data analytics to optimize input recommendations and predict quality outcomes
<b>ENVIRONMENTAL</b>		
Climate change threat: 47% of global coffee production from countries that could lose over 60% of suitable land by 2050; Philippines vulnerable to drought, pests, extreme weather	Production risk increasing; need for climate-resilient varieties and adaptive farming practices to ensure long-term supply security	Prioritize climate-resilient coffee varieties in nursery operations; embed agroforestry and soil conservation as core practices; develop climate risk insurance products for platform participants
Regenerative agriculture adoption: 32% of Nescafe coffee from regenerative farms (2024), targeting 50% by 2030; 20-40% lower GHG emissions per kg green coffee	Market shift toward low-carbon, ecosystem-positive production; buyers seeking verifiable environmental impact	Certify Roots2Beans farms under recognized regenerative standards; measure and report GHG reductions, soil health improvements, and biodiversity outcomes as value differentiators
Soil degradation, low fertility, inadequate nutrient management; water scarcity and inefficient irrigation in key growing areas	Yield constraints and input inefficiencies linked to poor soil and water management; rehabilitation requires significant investment	Make soil testing and site-specific nutrient management standard platform service; promote water-efficient practices and rainwater harvesting; bundle organic input production (compost, vermicast) to improve soil health cost-effectively
<b>LEGAL</b>		
BPI Nursery Accreditation requirements; GAP certification approved March 2016; food safety and environmental compliance standards	Regulatory compliance essential for market access and buyer acceptance; certification processes can be costly and complex for smallholders	Centralize certification management under Roots2Beans platform; provide technical assistance and cost-sharing for GAP/BPI accreditation;



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		maintain digital compliance records for audit readiness
Traceability and labeling policies under development; intellectual property rights for coffee varieties; land access policies noted as inappropriate in roadmap	Emerging regulations on origin disclosure and variety protection create both compliance requirements and branding opportunities	Build traceability system that exceeds minimum regulatory requirements; secure IP rights for improved varieties developed through platform R&D; advocate for land policy reforms that facilitate long-term investment in coffee
Trade remedies and safeguard measures for imported coffee; PCIC crop insurance limited to tree mortality coverage	Import protections can support domestic pricing but may reduce competitive pressure for quality improvement; limited insurance options leave farmers exposed to production risks	Leverage safeguard measures strategically while building quality competitiveness; develop bundled insurance products (yield, price, climate) through partnerships with PCIC and private insurers to de-risk platform participation

## Key Strategic Themes Across PESTEL Factors:

1. **Policy Alignment:** Roots2Beans should position itself as an implementation vehicle for national coffee development priorities (CIDO, HVCDP, NGP) to access public support while advancing commercial scale.
2. **Import Substitution Opportunity:** The 81% import dependency gap represents a ₱81.2M annual commercial opportunity; Roots2Beans can capture value by delivering the volume, quality, and traceability that currently drive buyers to imports.
3. **Technology as Enabler, Not Optional:** Closing the yield gap (0.54 → 2.0 MT/ha) requires embedded agronomic support, quality inputs, and digital monitoring as core platform services—not add-ons.
4. **Climate Resilience as Competitive Advantage:** With 60% of suitable coffee land at risk by 2050, regenerative practices and climate-adaptive varieties are not just sustainability credentials but supply security imperatives.
5. **Regulatory Proactivity:** Emerging traceability, labeling, and certification requirements create compliance costs but also branding opportunities; Roots2Beans should build systems that exceed minimum standards to differentiate in premium markets.



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## Porter's Five Forces

Force	Level of Intensity	Key Drivers	Implications to Roots2Beans
Threat of New Entrants	Moderate to High	<ul style="list-style-type: none"> <li>• High capital requirements (nursery, modular processing hubs, working capital)</li> </ul>	<ul style="list-style-type: none"> <li>• Barriers are meaningful but lowering due to public funding and market pull</li> </ul>
		<ul style="list-style-type: none"> <li>• Technical complexity (GAP compliance, agronomic supervision, quality control)</li> </ul>	<ul style="list-style-type: none"> <li>• First-mover advantage critical to secure farmer clusters and buyer MOUs</li> </ul>
		<ul style="list-style-type: none"> <li>• Strong government support (₱449M DA budget, CIDO creation, ₱129M Sultan Kudarat allocation)</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure and relationship lock-in will deter late entrants</li> </ul>
		<ul style="list-style-type: none"> <li>• Growing market demand (10–13% CAGR, 16.8B cups annually)</li> </ul>	
Bargaining Power of Suppliers (Smallholder Farmers)	Low to Moderate	<ul style="list-style-type: none"> <li>• ~100,000 fragmented farmers (1–2 ha avg)</li> </ul>	<ul style="list-style-type: none"> <li>• Platform holds structural advantage in pricing and quality enforcement</li> </ul>
		<ul style="list-style-type: none"> <li>• Aging demographic (avg. 57 years) with declining youth interest</li> </ul>	<ul style="list-style-type: none"> <li>• Must build trust to prevent farmer churn or side-selling</li> </ul>
		<ul style="list-style-type: none"> <li>• Low organization; limited cooperative membership</li> </ul>	<ul style="list-style-type: none"> <li>• In-kind financing and guaranteed offtake are key retention mechanisms</li> </ul>
		<ul style="list-style-type: none"> <li>• Urgent cash needs; dependence on traders for immediate liquidity</li> </ul>	
		<ul style="list-style-type: none"> <li>• Limited market access and price transparency</li> </ul>	
Bargaining Power of Buyers (Corporate/ Institutional)	High	<ul style="list-style-type: none"> <li>• High concentration (Nestlé, URC, Commonwealth control ~80% instant market)</li> </ul>	<ul style="list-style-type: none"> <li>• Buyers dictate contract terms and quality thresholds</li> </ul>
		<ul style="list-style-type: none"> <li>• Import alternatives (330,000 MT soluble coffee imported in 2023)</li> </ul>	<ul style="list-style-type: none"> <li>• Margin pressure requires efficiency gains and quality premiums</li> </ul>



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		<ul style="list-style-type: none"> <li>• Strict volume, quality, and traceability requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Volume reliability (100–600 MT by Y3) is non-negotiable for offtake agreements</li> </ul>
		<ul style="list-style-type: none"> <li>• Low switching costs; price sensitivity tied to world markets</li> </ul>	
Threat of Substitute Products	Moderate	<ul style="list-style-type: none"> <li>• Imported coffee (Vietnam robusta, Indonesian/Arabica blends)</li> </ul>	<ul style="list-style-type: none"> <li>• Primary substitute is imports, not other beverage categories</li> </ul>
		<ul style="list-style-type: none"> <li>• Alternative beverages (tea, energy drinks), though coffee holds 9/10 household penetration</li> </ul>	<ul style="list-style-type: none"> <li>• Roots2Beans can capture the 81% import substitution gap by offering reliable local supply</li> </ul>
		<ul style="list-style-type: none"> <li>• Strong domestic coffee culture and "Buy Philippine" movement</li> </ul>	<ul style="list-style-type: none"> <li>• Cultural shift toward local origin storytelling supports premium positioning</li> </ul>
		<ul style="list-style-type: none"> <li>• Growing specialty/ESG-aligned sourcing demand</li> </ul>	
Industry Rivalry	High	<ul style="list-style-type: none"> <li>• Fragmented traditional traders (buy-low/sell-high, no productivity investment)</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid competing on transactional margins or isolated interventions</li> </ul>
		<ul style="list-style-type: none"> <li>• NGO/government programs (strong training, weak market linkage)</li> </ul>	<ul style="list-style-type: none"> <li>• Must compete on integrated value chain control and execution reliability</li> </ul>
		<ul style="list-style-type: none"> <li>• Specialty cafés/roasters (quality focus, inconsistent supply)</li> </ul>	<ul style="list-style-type: none"> <li>• Operational discipline across 100–1,000+ farms is the main battlefield</li> </ul>
		<ul style="list-style-type: none"> <li>• Price competition and low differentiation among local producers</li> </ul>	
		<ul style="list-style-type: none"> <li>• Climate vulnerability affecting supply stability</li> </ul>	



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## Competitor Strategy Deconstruction Matrix

Competitor	Segment	Problem	Value	Strength	Weakness	Gap
Traditional Traders/ Consolidators	Smallholder farmers	Immediate cash needs, lack of market access	Quick purchase, farm-gate buying, cash payment	Wide network, established relationships, flexible terms	Low prices, no quality premium, no technical support	Farmers remain in poverty trap; no productivity improvement
Government / NGO Programs	Organized farmer cooperatives, LGU partnerships	Lack of training & post-harvest facilities	Free/subsidized inputs, training, equipment	Public funding, technical expertise, policy support	Limited sustainability post-project, weak market linkage, fragmented coverage	Market access gap; farmers trained but lack buyers
Individual Smallholder Farmers (Status Quo)	Fragmented, independent producers	Low yields, inconsistent quality, no bargaining power	Autonomy, no contractual obligations	Low entry barriers, familiar practices	Poverty-level income, high risk, no scale, aging farmer population	Systemic failure; 81% import dependency persists
Large Corporate Buyers	Industrial processors, instant coffee manufacturers	Volume consistency for production	Competitive pricing, quality standards, guaranteed offtake	Market power, processing capacity, brand strength	Import reliance (81%), limited local sourcing, price pressure on farmers	Smallholders excluded from formal value chains; no long-term contracts



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## INTERNAL ENVIRONMENT

### BCG Growth-Share Matrix

		RELATIVE MARKET SHARE	
		HIGH	LOW
MARKET GROWTH RATE	HIGH	STARS	QUESTION MARKS
		Integrated Smallholder Growership (Robusta)	Digital Agri-Platform & Mobile Extension
		• 10–13% annual category growth; fastest in Asia	• High mobile penetration; low current digital share
		• Validated 4x yield improvement (0.24 → 1.0 MT/ha)	• High upside for remote agronomy, pricing alerts & order matching
	• Core scalable revenue driver; strong ESG/investor appeal	• Requires initial tech investment & farmer onboarding	
	LOW	CASH COWS	DOGS
		GCB Consolidation & Standard Trading	Traditional Fragmented Farming (Status Quo)
		• Mature commodity market; stable institutional demand	• Declining productivity (-3.5%/yr); aging farmer base
• Centralized post-harvest & logistics create cost efficiency		• Low share; highly fragmented; vulnerable to climate shocks	
• Generates steady cash flow to fund Stars & Question Marks	• Inefficient; high risk; divest or transform into integrated model		

### GAP Analysis

Dimension	Current State (Smallholders)	Gap	Desired State
Yield/ Productivity	0.54 MT/ha avg yield	73% below 2.0 MT/ha target	1.0–1.2 MT/ha GCB by Year 3
	693 trees/ha vs. 1,100 standard	Low tree density, poor agronomy	Optimal density, GAP-compliant practices
	Aging trees, limited GAP adoption		
Financing Access	₱75K–₱111K/ha Year 1 cost; 2–3 yr gestation	Capital gap deters rehabilitation	In-kind input financing + agronomic support



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	Stringent loans; PCIC covers only tree mortality	No income during gestation; thin risk coverage	Harvest-aligned repayment; <5% default target
			Bundled insurance (yield, price, climate)
Technical Support	<20% farmers trained in GAP	Knowledge/adoption gap persists	Agronomist-led supervision (1:50–100 ha)
	Limited extension (once/year); aging farmers (avg. 57)	No sustained supervision for implementation	100% GAP + regenerative practices training
			80%+ adoption via peer networks + digital tools
Market Access	Farmers sell to traders at farm gate	Fragmented production → no reliable volume	Multi-year offtake for ≥70% of production
	Price volatility (world-driven)	Inconsistent specs → no long-term contracts	Quality-linked pricing + floor guarantees + 10–25% premiums
	No quality premiums	No quality premium mechanism	Full traceability for buyer ESG reporting
Post-Harvest Infrastructure	Limited dehullers, dryers; sun-drying common	No standardized facilities → inconsistent quality	Modular hubs (500–1,000 trees breakeven)
	Fragmented smallholder processing	No economies of scale in processing	100% controlled, quality-assured processing
Planting Materials	Shortage of certified seedlings	Insufficient quality seedlings for expansion	100% certified seedlings for platform area
	40 BPI-accredited nurseries; limited varietal options	Lack of climate-resilient, high-yield varieties	Introduce improved varieties
			DNA fingerprinting for authentication
Climate Resilience	47% of global production at risk of >60% land loss by 2050	Most farms lack climate-adaptive practices	Regenerative practices as default standard



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	32% regenerative adoption (Nescafé); soil/water issues persist	Limited GHG/soil/biodiversity measurement	Quantify/report 20–40% lower GHG/kg, soil health gains
		ESG demand unmet by verified local supply	Certify under recognized sustainability standards for premium markets

## SWOT Analysis

### a. Industry/External Perspective

Strengths	Weaknesses	Opportunities	Threats
Favorable climate for coffee production	Fragmented smallholder system	Import substitution (large unmet demand)	Climate risks and crop variability
Strong domestic and institutional demand	Poor farmer discipline and financial behavior	Premium pricing for quality beans	Continued dependence on imports
Government support and policy attention	Lack of post-harvest infrastructure	Integration of technology and traceability	Farmer disengagement or crop switching
	Limited traceability and quality control	Corporate-led growership models	Misallocation of financing and subsidies

### b. Internal Perspective

Strengths	Weaknesses	Opportunities	Threats
Integrated model (financing + production + processing + market access)	High upfront capital requirements (tree investment, infrastructure)	Capture unmet demand through import substitution	Replication by competitors once model is proven
Clear differentiation through behavioral control system	Execution complexity across multiple value chain stages	Build long-term supply contracts with institutional buyers	Regulatory changes affecting agri-financing or land use
Strong alignment with institutional buyer requirements	Dependence on farmer compliance and onboarding success	Position as a platform/orchestrator in the coffee ecosystem	Farmer resistance to structured or controlled systems



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Potential to leverage technology (traceability, monitoring, analytics)	Early-stage model (limited proven scale track record)	Expand into value-added processing and branding	Climate and disease risks affecting yield projections
Ability to aggregate fragmented farmers into a structured system	Requires strong operational discipline and field management capability	Access impact investment and ESG-linked funding	Execution risk during early scaling phase

## TOWS Analysis

	<b>WEAKNESSES</b>	<b>STRENGTHS</b>
<b>THREATS</b>	<b>WT</b> MINI-MINI STRATEGIES <ul style="list-style-type: none"> <li>• Focused Geographic Strategy</li> <li>• Conservative Growth Trajectory</li> <li>• Risk-Sharing Contract Structures</li> <li>• Regulatory Compliance by Design</li> <li>• Contingency Planning for Climate Shocks</li> </ul>	<b>ST</b> MAXI-MINI STRATEGIES <ul style="list-style-type: none"> <li>• First-Mover Advantage Defense</li> <li>• Regulatory Risk Mitigation</li> <li>• Farmer Adoption Acceleration</li> <li>• Climate Resilience Integration</li> <li>• Operational Excellence During Scale</li> </ul>
<b>OPPORTUNITIES</b>	<b>WO</b> MINI-MAXI STRATEGIES <ul style="list-style-type: none"> <li>• Blended Finance to Reduce Capital Burden</li> <li>• Strategic Partnerships to Reduce Complexity</li> <li>• Phased Farmer Onboarding to Build Compliance</li> <li>• Pilot Validation to Build Track Record</li> <li>• Talent Development to Build Operational Capability</li> </ul>	<b>SO</b> MAXI-MAXI STRATEGIES <ul style="list-style-type: none"> <li>• Rapid Market Penetration Through Integrated Model</li> <li>• Platform Orchestration Through Technology</li> <li>• Long-Term Contract Lock-In</li> <li>• Value Chain Expansion</li> <li>• Impact Investment Mobilization</li> </ul>



# Roots2Beans

## Value Chain Analysis

Value Chain Stage	Current Condition (Philippine Coffee Industry)	Roots2Beans Intervention
<b>Input Provision</b> (seedlings, fertilizers, financing)	<ul style="list-style-type: none"> <li>Inconsistent utilization of inputs with limited monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Clonal garden and nursery operations for quality seedlings</li> </ul>
	<ul style="list-style-type: none"> <li>Government seedling subsidies often low quality</li> </ul>	<ul style="list-style-type: none"> <li>In-kind input financing bundled with agronomic support</li> </ul>
	<ul style="list-style-type: none"> <li>Fertilizers not appropriate for plant stage</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific nutrient management based on soil testing</li> </ul>
	<ul style="list-style-type: none"> <li>Only 40 BPI-accredited nurseries nationwide</li> </ul>	<ul style="list-style-type: none"> <li>BPI accreditation for quality assurance</li> </ul>
	<ul style="list-style-type: none"> <li>High upfront cost (₱75K-₱111K/ha) deters investment</li> </ul>	<ul style="list-style-type: none"> <li>Harvest-aligned repayment terms (&lt;5% default target)</li> </ul>
	<ul style="list-style-type: none"> <li>Stringent loan requirements; limited farmer-friendly products</li> </ul>	<ul style="list-style-type: none"> <li>Bundled insurance (yield, price, climate)</li> </ul>
<b>Farm Production</b> (cultivation and maintenance)	<ul style="list-style-type: none"> <li>Production fragmented across ~100,000 smallholders (1-2 ha average)</li> </ul>	<ul style="list-style-type: none"> <li>Agronomist-led supervision (1:50-100 ha ratio)</li> </ul>
	<ul style="list-style-type: none"> <li>Inconsistent practices; limited GAP adoption</li> </ul>	<ul style="list-style-type: none"> <li>Standardized SOPs aligned with GAP standards</li> </ul>
	<ul style="list-style-type: none"> <li>Generally low productivity (0.54 MT/ha vs. 2.0 MT/ha target)</li> </ul>	<ul style="list-style-type: none"> <li>100% GAP training + 10 regenerative agriculture practices</li> </ul>
	<ul style="list-style-type: none"> <li>Aging trees with limited rejuvenation</li> </ul>	<ul style="list-style-type: none"> <li>Peer-mentor networks for knowledge sharing</li> </ul>
	<ul style="list-style-type: none"> <li>Low planting density (693 vs. 1,100 trees/ha)</li> </ul>	<ul style="list-style-type: none"> <li>Digital monitoring tools for real-time guidance</li> </ul>
	<ul style="list-style-type: none"> <li>Extension services reach farmers only once/year</li> </ul>	<ul style="list-style-type: none"> <li>Farm rehabilitation programs (pruning, grafting, replanting)</li> </ul>
		<ul style="list-style-type: none"> <li>Target: 1.0-1.2 MT/ha by Year 3</li> </ul>



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<b>Harvesting</b>	<ul style="list-style-type: none"> <li>• Harvesting practices vary widely</li> </ul>	<ul style="list-style-type: none"> <li>• Harvest scheduling and planning across clustered farms</li> </ul>
	<ul style="list-style-type: none"> <li>• Stripping method common (all cherries regardless of ripeness)</li> </ul>	<ul style="list-style-type: none"> <li>• Quality-based pricing with 10-25% premiums</li> </ul>
	<ul style="list-style-type: none"> <li>• Results in inconsistent quality</li> </ul>	<ul style="list-style-type: none"> <li>• Training on selective picking (red cherries only)</li> </ul>
	<ul style="list-style-type: none"> <li>• Limited quality-based pricing incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Harvest quality checkpoints before acceptance</li> </ul>
	<ul style="list-style-type: none"> <li>• Labor shortages during peak harvest</li> </ul>	<ul style="list-style-type: none"> <li>• Labor coordination through farmer clusters</li> </ul>
		<ul style="list-style-type: none"> <li>• Incentive structures for quality compliance</li> </ul>
<b>Post-Harvest Processing</b> (drying, grading, milling)	<ul style="list-style-type: none"> <li>• Processing decentralized and inconsistent</li> </ul>	<ul style="list-style-type: none"> <li>• Modular processing hubs (breakeven at 500-1,000 trees)</li> </ul>
	<ul style="list-style-type: none"> <li>• Sun-drying common (affects quality)</li> </ul>	<ul style="list-style-type: none"> <li>• Centralized quality control with Q-grader validation</li> </ul>
	<ul style="list-style-type: none"> <li>• Limited dehullers, depulpers, dryers</li> </ul>	<ul style="list-style-type: none"> <li>• Standardized SOPs (dry, wet, or semi-washed)</li> </ul>
	<ul style="list-style-type: none"> <li>• 100+ SSF established but utilization varies</li> </ul>	<ul style="list-style-type: none"> <li>• Controlled drying systems (mechanical + solar)</li> </ul>
	<ul style="list-style-type: none"> <li>• Quality variability prevents premium pricing</li> </ul>	<ul style="list-style-type: none"> <li>• 100% of Roots2Beans output processed under controlled conditions</li> </ul>
	<ul style="list-style-type: none"> <li>• Limited wet/washed processing capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Quality grading and segregation by specifications</li> </ul>
		<ul style="list-style-type: none"> <li>• Traceability documentation at each stage</li> </ul>
<b>Aggregation &amp; Consolidation</b>	<ul style="list-style-type: none"> <li>• Supply remains fragmented with weak consolidation</li> </ul>	<ul style="list-style-type: none"> <li>• Clustered production planning across 100-1,000+ farms</li> </ul>
	<ul style="list-style-type: none"> <li>• Farmers sell individually to traders</li> </ul>	<ul style="list-style-type: none"> <li>• Centralized collection points with quality checkpoints</li> </ul>
	<ul style="list-style-type: none"> <li>• No economies of scale in logistics</li> </ul>	<ul style="list-style-type: none"> <li>• Consolidated volumes for buyer contracts (≥70% secured)</li> </ul>
	<ul style="list-style-type: none"> <li>• Inconsistent volumes discourage buyer contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Modular warehousing at processing hubs</li> </ul>



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	<ul style="list-style-type: none"> <li>Limited storage and warehousing capacity</li> </ul>	<ul style="list-style-type: none"> <li>Supply buffering to stabilize pricing</li> </ul>
		<ul style="list-style-type: none"> <li>Target: 100-600 MT GCB by Year 3</li> </ul>
<b>Market Access</b> (buyers, traders)	<ul style="list-style-type: none"> <li>Farmers rely on intermediaries (traders/consolidators)</li> </ul>	<ul style="list-style-type: none"> <li>Guaranteed offtake agreements with corporate buyers</li> </ul>
	<ul style="list-style-type: none"> <li>Limited visibility of market requirements</li> </ul>	<ul style="list-style-type: none"> <li>Multi-year contracts (Nestlé, URC, specialty roasters)</li> </ul>
	<ul style="list-style-type: none"> <li>Price volatility (world market-driven)</li> </ul>	<ul style="list-style-type: none"> <li>Quality-linked pricing with floor price guarantees</li> </ul>
	<ul style="list-style-type: none"> <li>No long-term contracts</li> </ul>	<ul style="list-style-type: none"> <li>Direct buyer relationships (no intermediaries)</li> </ul>
	<ul style="list-style-type: none"> <li>Buyers import 81% due to volume/quality concerns</li> </ul>	<ul style="list-style-type: none"> <li>Market intelligence (pricing, demand forecasts)</li> </ul>
	<ul style="list-style-type: none"> <li>No quality premium mechanism</li> </ul>	<ul style="list-style-type: none"> <li>Premium capture (10-25% for standardized beans)</li> </ul>
<b>Distribution &amp; Logistics</b>	<ul style="list-style-type: none"> <li>Inconsistent supply limits distribution efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Leverage public FMR investments (₱2B Sultan Kudarat allocation)</li> </ul>
	<ul style="list-style-type: none"> <li>Poor farm-to-market roads increase costs</li> </ul>	<ul style="list-style-type: none"> <li>Optimized harvest scheduling to match processing capacity</li> </ul>
	<ul style="list-style-type: none"> <li>Limited cold chain and storage</li> </ul>	<ul style="list-style-type: none"> <li>Digital logistics coordination platform</li> </ul>
	<ul style="list-style-type: none"> <li>High logistics costs reduce farmer margins</li> </ul>	<ul style="list-style-type: none"> <li>Consolidated shipments to reduce unit costs</li> </ul>
	<ul style="list-style-type: none"> <li>Inefficient transport scheduling</li> </ul>	<ul style="list-style-type: none"> <li>Strategic hub locations in priority regions</li> </ul>
<b>Traceability &amp; Data Systems</b>	<ul style="list-style-type: none"> <li>Limited use of data systems</li> </ul>	<ul style="list-style-type: none"> <li>Digital traceability system from farm to cup</li> </ul>
	<ul style="list-style-type: none"> <li>Minimal transparency across stages</li> </ul>	<ul style="list-style-type: none"> <li>DNA fingerprinting for variety authentication</li> </ul>
	<ul style="list-style-type: none"> <li>No unified traceability for domestic GCB</li> </ul>	<ul style="list-style-type: none"> <li>Mobile platform for real-time data capture</li> </ul>
	<ul style="list-style-type: none"> <li>PSA data differs from industry data</li> </ul>	<ul style="list-style-type: none"> <li>Blockchain or distributed ledger for immutability</li> </ul>



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	<ul style="list-style-type: none"> <li>• Adulteration risk (imported beans mixed with local)</li> </ul>	<ul style="list-style-type: none"> <li>• Full documentation for buyer ESG reporting</li> </ul>
		<ul style="list-style-type: none"> <li>• Integration with DA/DTI harmonized database</li> </ul>
<p style="text-align: center;"><b>Quality Assurance &amp; Certification</b></p>	<ul style="list-style-type: none"> <li>• Only 66 Q-professionals trained nationwide</li> </ul>	<ul style="list-style-type: none"> <li>• Q-grader validation for all Roots2Beans output</li> </ul>
	<ul style="list-style-type: none"> <li>• Limited GAP/BPI certification among smallholders</li> </ul>	<ul style="list-style-type: none"> <li>• 100% GAP compliance and BPI accreditation</li> </ul>
	<ul style="list-style-type: none"> <li>• Inconsistent grading standards</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainability certification (Rainforest Alliance, organic)</li> </ul>
	<ul style="list-style-type: none"> <li>• No recognized Philippine coffee identity</li> </ul>	<ul style="list-style-type: none"> <li>• Regenerative agriculture verification</li> </ul>
	<ul style="list-style-type: none"> <li>• Adulteration undermines trust</li> </ul>	<ul style="list-style-type: none"> <li>• Philippine Coffee identity development</li> </ul>
<p style="text-align: center;"><b>Farmer Support &amp; Capacity Building</b></p>	<ul style="list-style-type: none"> <li>• Limited extension services (once/year)</li> </ul>	<ul style="list-style-type: none"> <li>• Agronomist-led supervision (ongoing, not one-time)</li> </ul>
	<ul style="list-style-type: none"> <li>• Aging farmers (avg. 57 years) with limited exposure to modern agronomy</li> </ul>	<ul style="list-style-type: none"> <li>• Farmer Business School (FBS) for financial literacy</li> </ul>
	<ul style="list-style-type: none"> <li>• Declining youth interest</li> </ul>	<ul style="list-style-type: none"> <li>• Youth engagement programs for next generation</li> </ul>
	<ul style="list-style-type: none"> <li>• Limited business/financial literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Women's empowerment initiatives</li> </ul>
	<ul style="list-style-type: none"> <li>• Weak cooperative organization</li> </ul>	<ul style="list-style-type: none"> <li>• Cooperative strengthening for collective bargaining</li> </ul>

## *Behavioral Economics Analysis*

The underperformance of smallholder coffee farmers is often blamed on lack of discipline. In reality, their behavior is a rational response to a poorly designed system. Roots2Beans saw a behavioral pattern between members of the coffee associations/cooperatives and Nestlé's Project Coffee+.

## Key Behavioral Drivers



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1. Present Bias - Coffee requires 2–3 years to generate returns and harvests only once a year, while farmers face immediate financial needs therefore inputs and financing are diverted to short-term survival.
2. Moral Hazard - Financing is provided without strict monitoring or enforcement. Most often, funds are misused or redirected.
3. Weak Incentive Structure - Effort is not clearly linked to reward therefore they do minimal farm maintenance and poor adherence to standards.
4. Lack of Monitoring & Feedback - No real-time tracking of farm activity or performance therefore there are inconsistent practices. What is not measured is not managed.

## Problem Statement

*Philippine Smallholder coffee farmers struggle with achieving stable income and consistent production because the current system fails to align incentives, financing, technical support and reliable market access, resulting in low yields, underinvestment in coffee, persistent poverty, inefficient use of capital and a fragmented supply chain that cannot meet domestic demand, forcing buyers to rely heavily on imports.*

## Customer Segments

Roots2Beans targets only the smallholder coffee farmers as their prime market segment, with about 100,000 coffee farmers throughout the country owning on an average 1-2 hectares of land. The target farmers come largely from the region of Mindanao (comprising 84% of the country's total produce), particularly the regions of SOCCSKSARGEN, Davao, and BARMM, whose average age is 57 years with present yield between 0.24 to 0.54 MT/ha of green coffee beans. The target coffee farmers are earning below the poverty line of ₱129,072 per year.

## Population Size and Market Opportunity:

Total Addressable Market of 85,000 ha of smallholder farms capable of increasing GCB production capacity to 170,000MT per year based on a productivity of 2.0MT/ha as the target set in the roadmap, resulting in a valuation of ₱34 billion at ₱200 per kg of GCB. For the priority Mindanao regions, the market is estimated to be comprised of approximately 70,000 smallholders controlling 60,000 hectares, translating to the production of 72,000MT GCB worth ₱14.4 billion.

## Potential Revenue Streams:

Sources of Revenue for Roots2Beans include: (1) Trading of GCB at ₱200 per kg with premiums of 10-25% for standardization and traceability purposes; (2) In-kind financing of farm inputs with repayment terms tied to harvesting season and less than 5% default rate; (3) Nursery operations and sales of high-grade seedlings sourced from BPI accredited clonal gardens; (4) Fees for processing and consolidation services at breakeven level requiring 500-1,000 productive trees; and (5) Pricing based on quality premiums, with a margin between ₱72.92-₱103.25 (per kg of commodity price) and premium buyer prices. For smallholder participants, the business model yields margins of ₱80,000-₱200,000 per hectare per annum, resulting in 3-5-year payback period.



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## Jobs-To-Be-Done:

Smallholder coffee farmers seek to accomplish several critical objectives through Roots2Beans: (1) Increase farm productivity from current levels of 0.54 MT/ha to 1.2-1.8 MT/ha through quality seedlings and improved agronomic practices; (2) Achieve stable, predictable income that consistently exceeds the poverty threshold and provides financial security for their families; (3) Access quality farm inputs including certified seedlings, appropriate fertilizers, and bio-control agents without requiring upfront capital that they cannot afford; (4) Receive sustained technical support through agronomist-led supervision, Good Agricultural Practices (GAP) training, and peer-mentor networks; (5) Secure guaranteed market access through multi-year offtake agreements with floor price; (6) Capture quality premiums of 10-25% by producing standardized beans that meet buyer specifications; (7) Mitigate production risks through bundled insurance covering yield, price, and climate-related shocks; and (8) Reduce post-harvest losses by accessing centralized processing.

Conclusion: Validating the Core Problem

The evidence across environmental scanning, competitive forces, and gap analysis converges on a single truth: The Philippine coffee problem is not a production problem—it is a **behavioral and system design problem**.

Farmers are not failing due to lack of support. They are failing because the system does not enforce alignment between **capital, action, and outcome**.

This validates the need for a platform like Roots2Beans—not merely as a growership program, but as an **integrated control system** that orchestrate behavior through:

- Structured financing
- Embedded monitoring
- Guaranteed offtake
- Centralized processing
- Incentive-driven participation

Only by addressing these root causes can the industry move from fragmented subsistence farming to a scalable, investable agricultural system.



# Roots2Beans

## Sustainable Development Goals Alignment



Roots2Beans is intentionally designed to advance eight United Nations Sustainable Development Goals (SDGs) through its integrated, smallholder-focused coffee growership platform. Below is an itemized mapping of how the platform's activities, outcomes, and systemic interventions directly contribute to each targeted SDG.

### SDG 1: NO POVERTY

End poverty in all its forms everywhere

- Income elevation: Lift smallholder farmers from below the poverty threshold (₱129,072/year) to ₱533,542/year through guaranteed offtake, quality premiums (10-25%), and yield improvement (0.54 → 1.0-1.2 MT/ha), validated by Project Coffee+ results.
- Risk mitigation: Provide in-kind input financing with harvest-aligned repayment and bundled insurance (yield, price, climate) to protect farmers from catastrophic income shocks.
- Asset building: Enable farmers to invest in farm rehabilitation (pruning, grafting, replanting) and productive assets (tools, equipment) through stable cash flow and access to credit.



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- Inclusive participation: Prioritize engagement of marginalized smallholders (1-2 ha farms, average age 57) who are most vulnerable to poverty traps.

## SDG 2: ZERO HUNGER

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

- Domestic supply enhancement: Contribute to national coffee self-sufficiency by increasing local production from 15% toward the roadmap target of 44.58% by 2025, reducing reliance on imports.
- Sustainable intensification: Promote Good Agricultural Practices (GAP) and regenerative agriculture to improve soil health, water efficiency, and long-term land productivity without expanding into forested areas.
- Nutrition-sensitive intercropping: Encourage diversified farming systems (coffee + fruit trees, vegetables, livestock) to improve household food security and dietary diversity.
- Post-harvest loss reduction: Minimize waste through centralized processing, controlled drying, and quality-assured storage, ensuring more harvested beans reach consumers.

## SDG 8: DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

- Fair labor practices: Ensure quality-linked pricing, transparent contracts, and timely payments that provide decent, predictable income for smallholder farmers.
- Rural job creation: Generate employment through modular processing hubs, nursery operations, logistics coordination, and agronomist-led extension services in coffee-producing regions.
- Youth agripreneurship: Reverse aging farmer demographics by engaging youth through digital tools, peer-mentor networks, and business skills training (Farmer Business School model).
- MSME development: Strengthen farmer cooperatives and associations to enable collective bargaining, shared infrastructure access, and enterprise growth.

## SDG 10: REDUCED INEQUALITIES

Reduce inequality within and among countries

- Empower marginalized producers: Provide smallholder farmers—often excluded from formal value chains—with access to quality inputs, technical support, financing, and guaranteed markets.
- Gender and Indigenous inclusion: Intentionally engage women and Indigenous communities in nursery management, quality control, and leadership roles within clustered production systems.
- Geographic equity: Focus deployment in underserved coffee-growing regions (SOCCSKSARGEN, Davao, BARMM) to reduce rural-urban development gaps.
- Equitable value distribution: Implement transparent pricing mechanisms and profit-sharing models that ensure farmers capture a fair share of downstream value.

## SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns



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- Sustainable production standards: Enforce GAP compliance and regenerative agriculture practices (10 practices: agroforestry, soil conservation, integrated pest/nutrient/weed management, efficient water use, intercropping, waste valorization, landscape action, rejuvenation) across all platform farms.
- Waste valorization: Convert coffee by-products (husks, pulp, wastewater) into organic fertilizers, bioenergy, or value-added products to minimize waste and create circular economy loops.
- Traceability and transparency: Deploy digital traceability systems with DNA authentication to ensure product authenticity, prevent adulteration, and enable informed consumer choice.
- Efficient resource use: Optimize input application (fertilizers, water, pesticides) through site-specific recommendations and digital monitoring to reduce environmental footprint.

## SDG 13: CLIMATE ACTION

Take urgent action to combat climate change and its impacts

- Climate-resilient varieties: Distribute drought-tolerant, disease-resistant coffee plantlets developed through breeding programs to enhance farm-level adaptation.
- Agroforestry and carbon sequestration: Integrate shade trees and border vegetation into coffee farms to improve microclimate regulation, soil moisture retention, and carbon storage.
- GHG emission reduction: Quantify and report 20-40% lower greenhouse gas emissions per kg of green coffee through regenerative practices, with potential access to carbon credit markets.
- Farmer resilience building: Bundle crop insurance, early warning systems, and adaptive agronomic practices to protect livelihoods against climate shocks.

## SDG 15: LIFE ON LAND

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- Sustainable land conversion: Transform idle or degraded agricultural land into productive, sustainably managed coffee farms—avoiding encroachment into primary forests.
- Biodiversity conservation: Promote shade-grown coffee systems and riparian buffers that support pollinators, birds, and native flora while maintaining coffee productivity.
- Soil health restoration: Implement cover cropping, organic fertilization, and reduced tillage to reverse soil degradation, improve fertility, and prevent erosion.
- Forest landscape integration: Align with DENR's National Greening Program (86,000 ha allotted for coffee) to ensure coffee expansion complements, rather than competes with, reforestation goals.

## SDG 17: PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development



# Roots2Beans

- *Multi-stakeholder collaboration:* Forge strategic partnerships with DA-HVCDP, DTI, LGUs, GIZ, Nestlé, farmer groups, and SUCs to align resources, expertise, and policy support.
- *Blended finance mobilization:* Leverage public funds (₱449M DA budget), private capital, and development grants to de-risk investment and accelerate scalable impact.
- *Knowledge sharing and capacity building:* Deploy peer-mentor networks, digital learning platforms (Agrinest), and Farmer Business School training to disseminate best practices across regions.
- *Policy alignment and advocacy:* Engage with the newly created Coffee Industry Development Office (CIDO) to ensure Roots2Beans' model informs national strategy, regulatory reform, and monitoring frameworks.

## INTEGRATED IMPACT FRAMEWORK

SDG	Primary Roots2Beans Lever	Measurable Indicator	Target (Year 3)
<b>1. No Poverty</b>	Income stability via guaranteed offtake	% farmers above poverty threshold	100%
<b>2. Zero Hunger</b>	Domestic supply enhancement	MT GCB contributed to national production	100-600 MT
<b>8. Decent Work</b>	Fair pricing & rural employment	Avg. farmer income (₱/year)	₱533,542
<b>10. Reduced Inequalities</b>	Inclusive smallholder engagement	% women/Indigenous participants	≥30%
<b>12. Responsible Production</b>	GAP & regenerative adoption	% farms certified sustainable	100%
<b>13. Climate Action</b>	Climate-resilient practices	GHG reduction (kg CO <sub>2</sub> e/kg GCB)	20-40%
<b>15. Life on Land</b>	Sustainable land conversion	ha of idle land converted to coffee	100-500 ha
<b>17. Partnerships</b>	Multi-stakeholder coordination	# active institutional partners	≥10



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ANNEXES  
IMMERSION TO MINDANAO COFFEE FARMS



# Roots2Beans

Tibolo Farm Workers Association (TIFWA)





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Bagobo Tagabawa Fair Trade Marketing Cooperative (BATAFAMA)



SunFood Marketing, Inc. Managed Farm (Part of SF Group)





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## INTERVIEW WITH NESTLE PHILIPPINES REPRESENTATIVE

Donnel Jun Tiedra – Public Affairs Executive at Nestle Philippines, Inc.



## NESTLÉ: A COMMITTED PARTNER OF FILIPINO COFFEE FARMERS

### Our Coffee Model: A Whole-of-Society Approach to Coffee Self-Sufficiency

