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SOIL&MORE
Ethiopia

GREEN PRACTICE ASSESSMENT

for MESMER Program

Key Findings and Path Forward



The will exists. The way is blocked.

Validation Workshop | June 2026 | Addis Ababa, Ethiopia



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Presentation Outline



A

CONTEXT & APPROACH

Background
KAP Framework
Sampling
Data Collection

B

WHO WE SURVEYED

Enterprise profile
Owner demographics

C

KEY FINDINGS

KAP indices
SEM
Barriers
Regional disparities

D

POLICY CONTEXT

Ethiopia's environmental framework
Implementation gap

E

OPPORTUNITIES

Optimism gap
What works
Early adopters

F

RECOMMENDATIONS

Finance
Practice
MESMER actions
Future research

SECTION A

Context & Approach

Background · KAP Framework · Sampling · Data Collection



Background & Objectives

370

MSMEs Surveyed

7

Regions

13

Cities

4

Methods Used

Objective	Description
Assess	MSME knowledge, attitudes, and practices (KAP) on green practices
Evaluate	Readiness and willingness to adopt green technologies
Identify	Key barriers and motivating factors influencing adoption
Determine	Determinants of green practice adoption using Structural Equation Modeling (SEM)
Provide	Evidence-based recommendations for program design & policy alignment



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Assessment Methodology — KAP Framework



Knowledge

Awareness of green concepts, policies, and institutions



Attitude

Perceptions, beliefs, and behavioral intent



Practice

Actual implementation of green actions



Readiness

Internal organizational preparedness



Expectation

Future outlook and current momentum



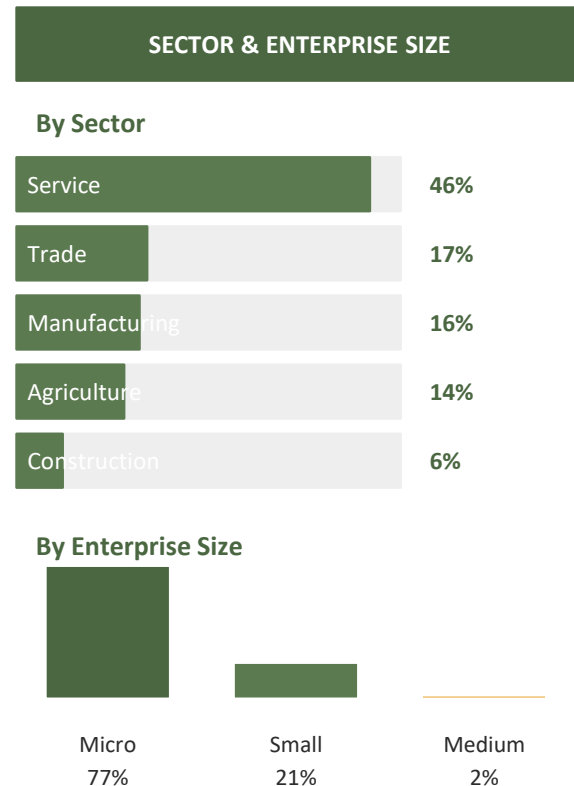
Barrier

Structural and financial obstacles

Sampling Strategy & Sample Distribution

SAMPLE SIZE DETERMINATION	
Target population	~10,000 MESMER-supported MSMEs
Sample size	370 (statistically representative)
Confidence level	95% Margin of error: 5%
Selection method	Proportional stratified sampling
Gender	50% women-led enterprises (by design)

GEOGRAPHIC DISTRIBUTION		
Region	n	%
Oromia	100	27%
Amhara	90	24%
Tigray	60	16%
Sidama	40	11%
Dire Dawa	30	8%
South Ethiopia	25	7%
South West Ethiopia	25	7%



50% women-led enterprises across all 7 regions — by design · 13 cities covered · 5 sectors represented

Data Collection & Analysis Method

HOW WE COLLECTED THE DATA

Quantitative Survey

370 MSMEs · 7 regions · 13 cities

Core instrument for KAP index construction

Checklist and Observation

Validated self-reported practices

Cross-checks to reduce social desirability bias

Focus Group Discussions

4 FGDs — Sidama · Bahir Dar · Dire
Dawa · Mekelle

Exploratory insight into barriers

Key Informant Interviews

12 KIIs — Government, Banks, MFIs,
BDS, CSOs, PS

Supply-side perspective on green finance

Document Review

National policies, strategies, program
documents

Policy alignment & contextual baseline

Tool: Kobo Toolbox (digital) · Real-time monitoring · Built-in validation checks

HOW WE ANALYZED THE DATA



Descriptive Statistics

Means, medians, frequencies, cross-tabulations



Comparative Analysis

One-way ANOVA · Independent samples t-tests



Correlation Analysis

Pearson's r — relationship between all 6 indices



Advanced Modeling

OLS regression · Mediation · Moderation · SEM



Index Calculation

Weighted composite scores (0–100) for all 6 indices



QA: Enumerator training · Random verification ·
Systematic data cleaning

SECTION B

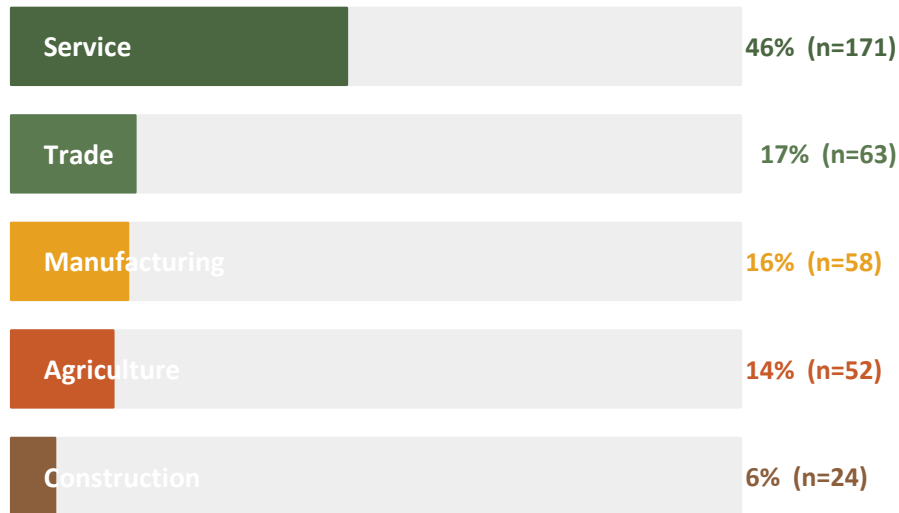
Who We Surveyed

Enterprise profile · Owner demographics · Support ecosystem

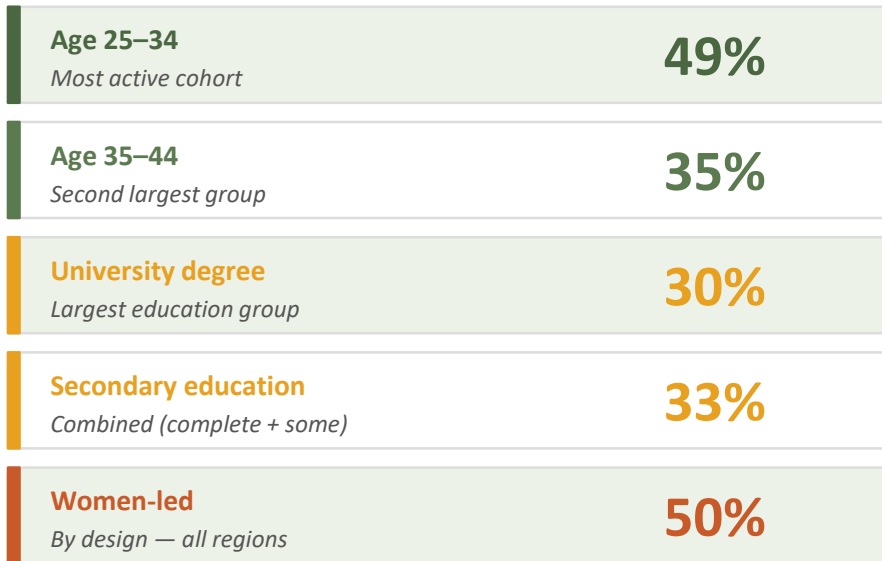


Enterprise & Owner Profile

SECTOR DISTRIBUTION



OWNER DEMOGRAPHICS



SUPPORT ECOSYSTEM

95% received training · 93% received financial support · Only 3% received technical/on-site coaching

Maturity insight: Businesses operating 11–20 years score highest on green knowledge (40.7%) vs new startups at only 27.8%

SECTION C

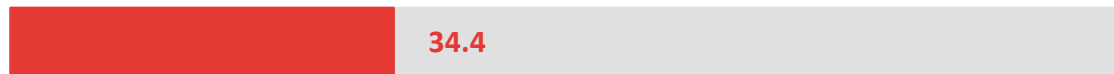
Key Findings

KAP Indices · Behavioral Pathway · Barriers · Regional Disparities



Key Findings at a Glance

Knowledge



Low – room for improvement

Attitude



Moderate – willing but cautious

Practice



Low – the way is blocked

Readiness



Moderate – confident but unsupported

Barrier



Inclined to High – dominated by finance (88.9)

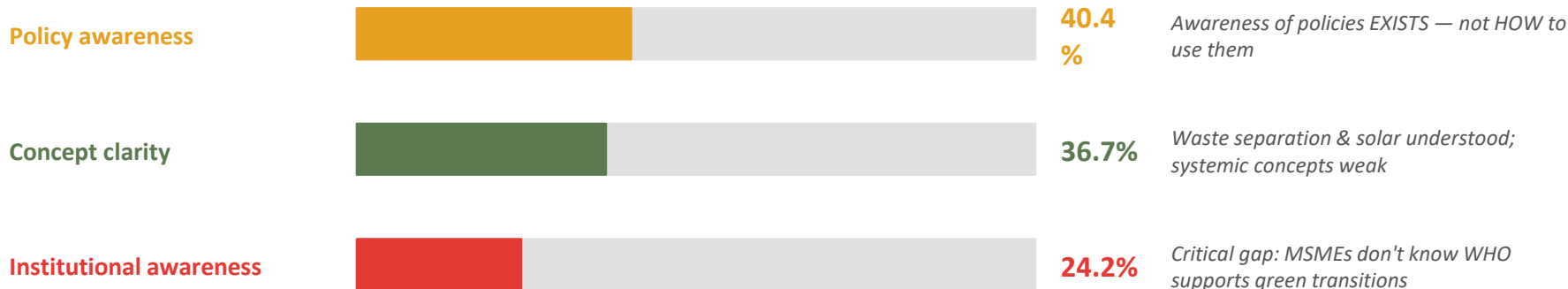
Expectation



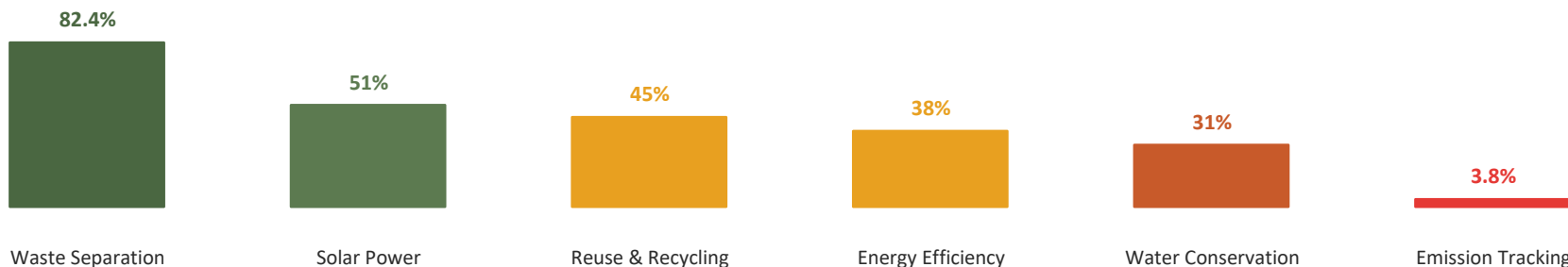
Future outlook high (73.6), momentum 0

The will exists. The way is blocked.

Knowledge Deep Dive — Score: 34.4 / 100



CONCEPT AWARENESS HIERARCHY — What MSMEs Actually Know



⚠ 'Carbon literacy' is almost non-existent — only 3.8% understand emission tracking. Even among post-graduates, awareness reaches only 12.5%.

Attitude Deep Dive — Score: 47.3 / 100

WHAT MSMES BELIEVE (Scale out of 100)

Green loans would increase green tech investment **88.2 / 100**

Green practices = long-term business viability **87 / 100**

Customers prefer green products **83.4 / 100**

Customers would pay a premium price **68 / 100**

THE ATTITUDE PARADOX

MSMEs strongly believe green is good for their business (87) and that customers prefer it (83.4) — but they are much less confident customers will actually pay more for it (68). High belief, low premium confidence.

ATTITUDE BY DEMOGRAPHICS

✓ Region

YES ($p < 0.0001$) — Amhara & Tigray lead; Sidama & SW Ethiopia lowest — need buy-in campaigns

✓ Education

YES ($p < 0.0001$) — Higher education → more positive attitude toward complexity

✓ Sector

YES ($p = 0.015$) — Construction & Manufacturing higher; Trade most skeptical

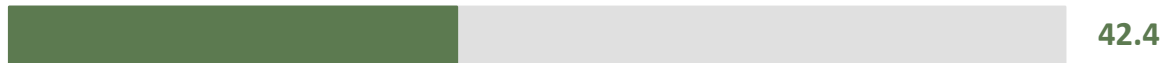
✓ Gender

NO ($p = 0.91$) — Men and women share almost identical attitudes — equity achieved

Practice Deep Dive — Score: 32.7 / 100

IMPLEMENTATION HIERARCHY — What MSMEs Actually Do

Waste Management



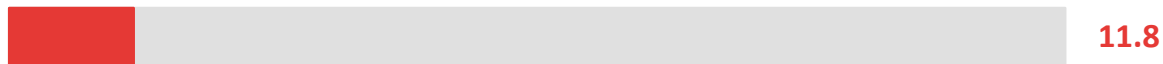
Waste separation is the entry point — "easy and costs nothing"

Energy & Water Conservation



Basic saving (lights off, water reuse) but no technical upgrades

Green Procurement / Supply Chain



Almost no MSMEs vet suppliers for green credentials

SECTOR PERFORMANCE

▲ Agriculture / Agro-processing:
43.2

▲ Manufacturing: 38.5

→ Construction: 35.2

▼ Service: 31.0

▼ Trade: 29.0

I separate my waste because it is easy and costs nothing. But to buy a solar panel or a water recycling system? That requires money I do not have.

— FGD participant, Bale Robe

Readiness & Expectation

READINESS — Score: 59.9 / 100

MSMEs feel internally PREPARED — but readiness does not reliably translate into practice ($p = 0.168$, not significant).

✓ Motivation Strength

Market/efficiency-driven motivation scores highest

✓ Investment Intent

High likelihood of investing in green tech within 12 months

✓ Investment Breadth

Wide range of technologies being considered

⚡ The 'Broken Bridge'

Readiness → Practice relationship is NOT statistically significant ($\beta = 0.129$, $p = 0.168$). Being prepared alone is not enough — external support (finance, skills, equipment) is required to convert readiness into action.

EXPECTATION — Score: 31.5 / 100

73.6

Future Outlook Score
Green is inevitable

0.0

Current Momentum Score
Waiting for help to start

KEY FINDING: Expectation is the foundational DRIVER of Knowledge ($\beta = 0.670$, $p < 0.001$) — the starting point for the entire behavioral chain.

*In five years, everyone will be using solar. The government will force it.
But right now? I am still using the same diesel generator for ten years."*
— FGD Participant, Bahir Dar

Regional & Demographic Disparities

Regional disparities are extreme — statistically significant ($p < 0.0001$)

Region	Knowledge	Practice	Barrier
Amhara	44.5% ↑ Highest	Highest	Lower
Tigray	39.4%	High	Lower
Oromia	32–38% (moderate)	Moderate	Moderate
Sidama	Moderate	Moderate	Moderate
South Ethiopia	Moderate	Lower	High (70.5)
South West Ethiopia	14.6% ↓ Lowest	Lowest	Very High (70.0)
Dire Dawa	22.1%	Low	High

** Oromia: exact scores within moderate range based on sample distribution (n=100, 27% of total sample)*

KEY DEMOGRAPHIC INSIGHTS



Education

Strongest predictor of knowledge ($p < 0.001$)
Post-grads: 49.1% vs Primary-educated: 23.8%



Gender

NO significant gap — information equity achieved between men and women



Enterprise Size

NO significant difference — knowledge is personal, not structural



Years in Operation

Mature firms (11–20 yrs) score higher than new businesses (40.7% vs 27.8%)

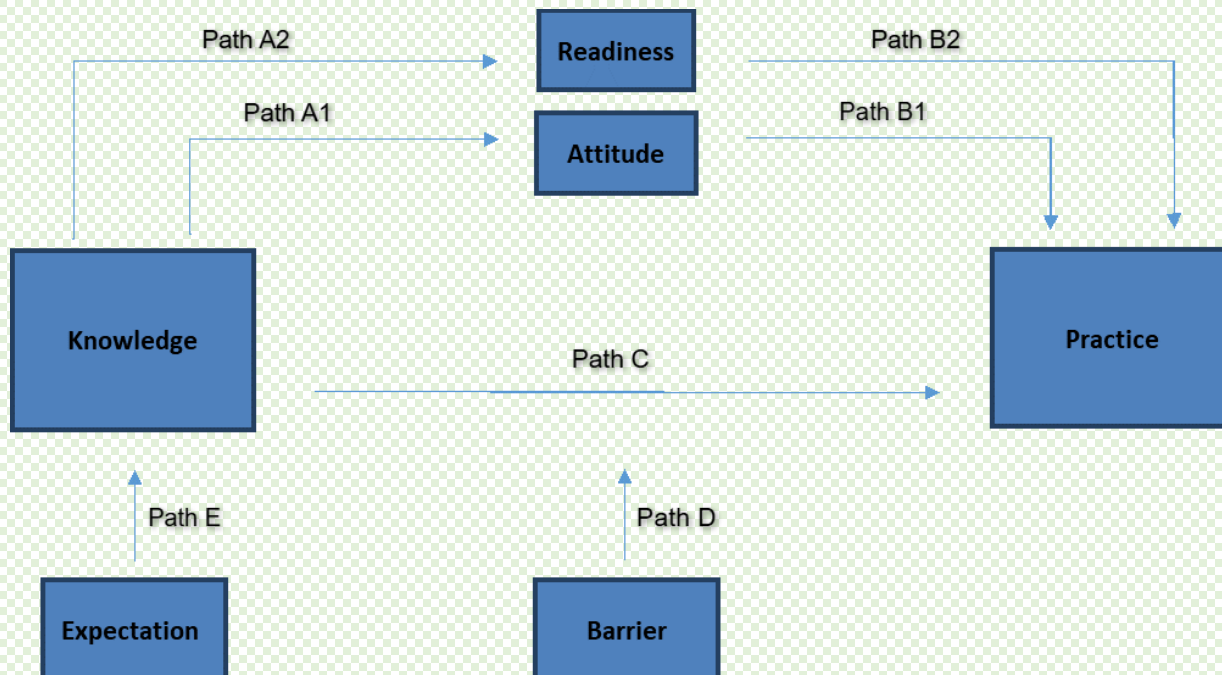
$p < 0.0001$ — regional disparity is extreme

The Behavioral Pathway - Structural Equation Modeling (SEM)

The Core Question

What actually drives MSMEs to adopt green PRACTICES?

We built a model to answer this question. Here is how it works.



The Variables - Definitions

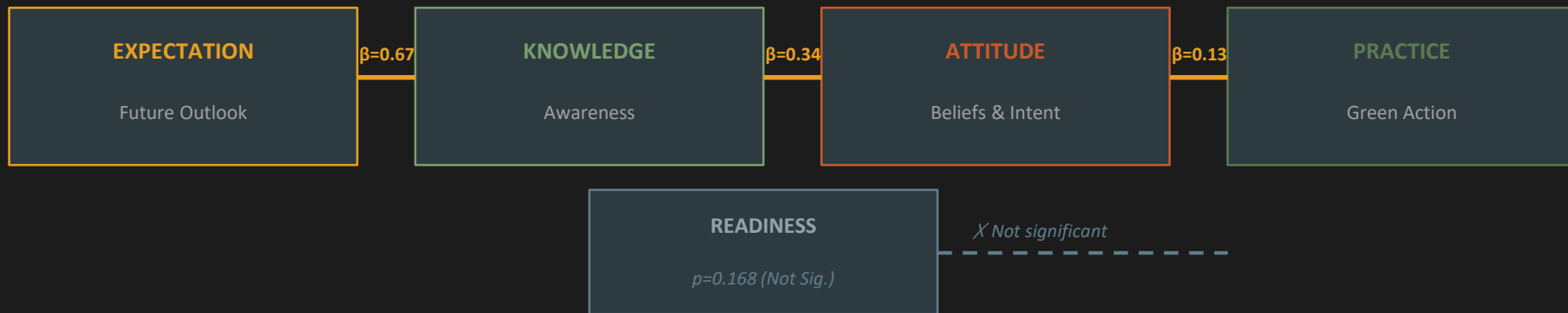
Variable	What It Means	Role in the Model
Expectation	Does the MSME believe green practices will bring benefits (cost savings, market access)?	Driving Variable – the starting point
Knowledge	Does the MSME know what green practices are and how to do them?	Independent Variable – the primary predictor
Attitude	Does the MSME think green is good for business?	Mediating Variable – the bridge
Readiness	Does the MSME feel prepared to change?	Mediating Variable – the bridge that did NOT work
Practice	Does the MSME actually implement green actions?	Dependent Variable – the outcome we want
Barrier	What obstacles (finance, skills, infrastructure) block action?	Moderating Variable – the context

KNOWLEDGE

The Variables – Relationship Test

Relationship	What It Means	β (Beta)	p-value	Finding
Expectation → Knowledge	If MSMEs see clear benefits, they are motivated to learn	0.670	<0.001	Strong and significant
Knowledge → Attitude	When MSMEs learn, their mindset becomes more positive	0.339	<0.001	Strong and significant
Knowledge → Readiness	When MSMEs learn, they feel more prepared	0.086	<0.001	Significant but weaker
Attitude → Practice	Positive mindset leads to action	0.133	<0.001	Significant (the essential bridge)
Readiness → Practice	Feeling prepared leads to action	0.129	0.168	NOT significant (the broken bridge)
Knowledge → Practice Practice (direct)	Learning directly leads to action (even without attitude)	0.329	<0.001	Strong direct effect
Barrier → Practice (direct)	Obstacles directly reduce action	-0.020	0.744	No direct effect
Barrier as moderator	Do barriers change how knowledge works?	-0.004	0.259	No (barriers affect everyone equally)

The Behavioral Pathway — Structural Equation Modeling (SEM)



IN SIMPLE TERMS



Step 1 — EXPECTATION

If MSMEs see clear benefits — cost savings, market access — they are motivated to learn.

$\beta=0.67$ (strongest link)



Step 2 — ATTITUDE

If they believe green is good for business, they are willing to act.

$\beta=0.34$



Step 3 — PRACTICE

Willingness alone is not enough — they need financing and technical support to actually do it.

$\beta=0.13$

⚡ SURPRISING FINDING

Being 'ready' does NOT predict action. Without finance, skills & equipment — readiness goes nowhere. (p=0.168)

What This Means:

Show the business case → provide loans & tech support → bridge the readiness-action gap.

Barriers — Why Practice is Blocked

Barrier Score (0–100)

Financial



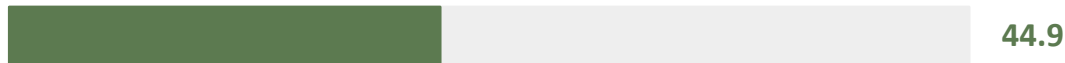
High upfront costs, no collateral, no green loan products

Technical / Knowledge



Don't know how to install or maintain green technologies

Operational / Market



Limited infrastructure, low customer premium willingness

Voices from the Field

The bank asked for collateral three times the loan amount. I have a small shop. What can I give?

— FGD Participant, Bale Robe

I tried solar but the bank had no loan product. They offered 16% interest, payable in one year. Solar pays back in three.

— FGD Participant, Hawassa

We want to finance green, but our lending policies tie our hands.

— KII, Microfinance Institution



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Deep Dive — Finance as the #1 Barrier (88.9 / 100)



MSMEs wanted to go green. The financial system was not ready.

DEMAND SIDE — What MSMEs Wanted But Couldn't Do

Green Activity	Why They Couldn't
Install solar panels to reduce electricity costs	Upfront cost too high; no loan product for solar
Buy energy-efficient machinery	Banks require collateral 3x the loan amount
Switch to clean cookstoves (e.g. Mimi Moto)	Cannot pay one-time; need installment plans
Start composting or recycling	No working capital for equipment (fleece, crushers, shredders)

SUPPLY SIDE — What Banks & MFIs Are Not Doing

Challenge	What It Means
No tailored green loan products	Only standard business loans — no solar, cookstove, waste products
High collateral requirements	MSMEs cannot meet demands
No credit history for green borrowers	Green MSMEs seen as high risk
No technical appraisal capacity	Loan officers cannot assess green project feasibility
No guarantee mechanisms	No credit guarantee to de-risk green lending

NO SPECIAL CONSIDERATION FOR GREEN BUSINESSES:

No lower collateral · No grace periods during installation · No longer repayment terms (3–5 years for solar) · No bundled technical assistance — green MSMEs treated exactly like any other borrower.

SECTION D

Policy & Institutional Context

Ethiopia's environmental framework · The implementation gap





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Ethiopia's Environmental Policy Landscape



Document Review Findings — Assessment Report, Section 5.3

Year	Policy / Proclamation (Citation)	Relevance
1997	Environmental Policy of Ethiopia (EPA, 1997)	Foundational principles for sustainable resource management; promotes community participation, awareness creation & capacity building
2002	Environmental Pollution Control Proclamation No. 300/2002 (FDRE, 2002)	Legal basis for preventing & controlling pollution, incl. waste and emissions; obliges enterprises to minimize harm
2011	CRGE Strategy (FDRE, 2011)	Long-term vision for low-carbon, climate-resilient development; promotes resource-efficient tech & renewable energy
2015	Climate Resilience Strategy — Water & Energy Sector (MoWIE, 2015)	Sectoral strategy emphasizing efficient resource use and climate adaptation
2025	NDC 3.0 (updated climate action plan) (Sept 2025)	Targets 70.3% GHG reduction by 2035 (vs BAU); requires ~USD 98.35 billion to implement
2025	National Circular Economy Roadmap (EPA, 2025)	Linear-to-circular transition framework; identifies MSMEs as key actors in circular value chains
2025	Solid Waste Management & Disposal Proclamation No. 1383 (FDRE, 2025-1)	Requirements for waste handling, recycling & disposal — responsibilities for public institutions and enterprises
2025	ESIA Proclamation No. 1371 (FDRE, 2025-2)	Mandates environmental & social impact assessment prior to project implementation

Ethiopia has a comprehensive, evolving policy framework — but translating it into MSME-level practice depends on AWARENESS, TECHNICAL CAPACITY, FINANCE, AND ENFORCEMENT.

The Implementation Gap

40.4%

MSMEs aware that green policies EXIST

Weak enforcement

EPA confirmed: decentralized structure exists on paper, but technical staff and resources concentrated in Addis Ababa and major cities. Peripheral areas severely underserved.

No incentive system

"Businesses know they should manage waste, but there is no penalty for not doing it properly, and no incentive to do it better." — KI Informant

24.2%

MSMEs know WHICH organization to go to for green support

Poor coordination

KII respondents consistently noted weak inter-institutional coordination and absence of clear support pathways for green MSMEs.

Awareness → action gap

Awareness of policy existence (40.4%) is far higher than knowledge of how to access support (24.2%) — MSMEs are left without a clear pathway.

SECTION E

Opportunities & What Works

Optimism gap · Early adopters · Lessons from the field





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Opportunities & The Optimism Gap



The Paradox: High Hope, Zero Momentum — MSMEs believe in green, but are waiting for an external spark

73.6

Future Outlook Score

"Green is inevitable"

0.0

Current Momentum Score

"Waiting for someone to help us start"

In five years, everyone will be using solar. The government will force it. But right now? I am still using the same diesel generator for ten years."

— FGD Participant, Bahir Dar

MSMEs are waiting for an external 'spark' — green grants, technology transfer, or a regulatory signal. MESMER is well-positioned to provide it.

Innovative Solutions — Featured Technologies

Two practical, scalable technologies highlighted in the assessment report as ready-now opportunities



Mimi Moto Clean Cookstove

Energy-efficient cooking technology for small-scale food businesses — coffee vendors, restaurants, street food operators. Runs on pellets from agricultural waste & sawdust instead of charcoal or firewood.

ETB 60-70/day

Mimi Moto (~2kg pellets for 8 hours)

ETB 400/day

Traditional charcoal (4kg for 8 hours)

Up to 85% reduction in daily fuel costs (8-hour operation, same duration)

- ✓ Reduced deforestation & lower GHG emissions; no smoke — improved air quality
- ✓ Better health for women, who dominate food MSMEs; faster cooking boosts turnover



Black Soldier Fly (BSF) Technology

A circular economy solution for poultry MSMEs. BSF larvae feed on organic waste — food scraps and agricultural by-products — rapidly converting it into nutrient-rich, high-protein animal feed.



Organic
Waste

>



BSF
Larvae

>



Protein
Feed

+ Organic fertilizer by-product (frass)

Feed costs = largest share of poultry production expense — BSF cuts reliance on commercial feed

- ✓ Reduces organic waste volume & methane from decomposition
- ✓ New income streams: collection, larvae & fertilizer sales — relatively simple, scalable

Both technologies are low-cost, high-impact, and immediately actionable — strong candidates for MESMER's demonstration enterprises and green BDS modules.

SECTION F

Recommendations & Path Forward

Green finance · Green practice · MESMER actions · Future research





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Future Plans — Green Finance Integration



Recommendations across three dimensions and three timeframes

TIMEFRAME	DEMAND SIDE <i>Build MSME Capacity</i>	SUPPLY SIDE <i>Design Products</i>	ECOSYSTEM <i>Create the Conditions</i>
SHORT-TERM (0–12 months)	· Green & financial literacy training · Support simple business plans for green investment	· Pilot low-collateral green loans · Bundle loans with technical assistance · Use MESMER guarantee fund	· Simple guide to green finance · Facilitate MSME–bank matchmaking Subsidies, tax exemptions
MEDIUM-TERM (1–3 years)	· Build credit history through green loan repayment · Access larger loans for scaling	· Sector-specific green products (solar, cookstoves, waste) · Blended finance (grants + loans) · Train loan officers on green tech appraisal	· Dedicated green credit line with partner banks · Advocate for green procurement policies · Link MSMEs to carbon finance
LONG-TERM (3+ years)	· Graduate to commercial bank financing · Access carbon credit revenues	· Establish dedicated Green MSME Fund · Scale results-based financing · Partner with GCF, GEF	· Integrate into national financial sector strategy · Policy incentives for green lending banks

Future Plans — Green Practice Integration

Recommendations with practical elaboration



Embed Green Modules into BDS

Add 1–2 hour modules on waste separation, energy saving, and green procurement to existing training.

► Use simple, visual materials for lower-education owners.



Establish Demonstration Enterprises

Select 20–30 model MSMEs (2–3 per region) as learning hubs.

► Organize peer visits so MSMEs see green practices working in real businesses.



Develop Green Certification Scheme

Create Bronze–Silver–Gold certification levels.

► Link to tangible benefits: priority finance access, public recognition, buyer matchmaking events.



Build Peer Learning Network

Establish regional Green MSME Networks.

► Use Telegram / WhatsApp for sharing solutions. Organize quarterly learning events.



Policy Mainstreaming & Create Institutional Directory

Revise banks policy to mainstream green economy/carbon neutrality
One-page guide listing EPA, AACMA, Green Energy Office, MoWE, DBE, and relevant NGOs.

► Include contact details and services offered. Translate into Amharic.



Develop Sector-Specific Playbooks

One-page guides per sector: Agriculture, Manufacturing, Trade & Services.

► Focus: compost & water (Agri), energy efficiency (Manuf.), green procurement (Trade).

What MESMER Can Do — Short-Term

The assessment is fresh · MSMEs are motivated · The window is open — act now



Priority 1

Green BDS Integration

Add green modules to existing BDS training
— waste, energy, procurement

Expected: MSMEs gain basic green literacy
without a new budget line



Priority 2

Green Loan Pilot

Partner with 1–2 banks/MFIs to pilot low-
collateral green loans for solar and
cookstoves

Expected: 100–200 MSMEs access green
finance; proof of concept for scaling



Priority 3

Demonstration Enterprises

Identify 20–30 early adopters as model
MSMEs; organize peer learning visits

Expected: Visible success stories; reduces
peer norm barrier across the programme

NO-COST / LOW-COST ACTIONS — Start Immediately



Include green questions in existing MSME assessments
(baseline/endline)



Use existing communication channels (newsletters, WhatsApp) to
share green success stories



Add green criteria to existing selection/graduation criteria



Connect MSMEs to government green initiatives (EPA grants, MoWE
clean energy programs)

Suggested Areas for Future Research

The assessment has generated foundational evidence. These areas remain underexplored and warrant follow-up.



Longitudinal Tracking

Track the same MSMEs over time to measure causal links between specific MESMER interventions (green loans, training) and changes in practice scores. Measure persistence of behavior change.



Cost-Benefit Analysis of Green Tech

Quantify actual financial returns — payback periods, operational savings, productivity gains — for solar, cookstoves, composting equipment. Strengthen the business case for green investment.



Deep Dive into Finance Mechanisms

Understand which specific factors — interest rate sensitivity, collateral design, loan product structure — most effectively enable green MSME investment. Inform product design.



Gender & Green Adoption

Gender shows no significant gap in knowledge — but women face time pressures and household burdens. Explore how intra-household dynamics influence green adoption among women-led MSMEs.



Market Demand for Green Products

Examine actual consumer willingness to pay across sectors and income segments. Provide market intelligence to address the 'premium pricing confidence gap' (3.40/5).

Call to Action

01



De-risk Green Finance

Credit guarantees · Interest rate subsidies · Tailored green loan products that match MSME realities

02



Convert Attitude into Practice

Address specific barriers — finance, skills, equipment — that prevent willing enterprises from acting

03



Build Institutional Awareness

MSMEs need to know WHO can help them, not just WHAT the policies are. Create the directory.

MSMEs are willing, ready, and optimistic. They just need the spark — MESMER is positioned to provide it.



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Thank You

Questions & Discussion



SOIL&MORE
Ethiopia

Messay Sintayehu | Program Manager, Soil and More Ethiopia
messay.sintayehu@soilandmoreethiopia.com | +251 929 914 888

Assessment prepared by: Soil & More Ethiopia (S&M) | For: First Consult Africa (FCA) - MESMER Program

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