



## GREEN AND CIRCULAR ECONOMY BEST PRACTICES REPORT

A COMPREHENSIVE COLLECTION OF BEST PRACTICES IN THE GREEN AND CIRCULAR ECONOMY (GCE) DISCUSSED IN THE GREEN FORWARD PROGRAM – PALESTINE

*Developed under the Green Forward Programme, funded by the European Union and implemented by SPARK in partnership with Flow Accelerator.*



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### **About Green Forward Programme**

Green Forward is a regional programme funded by the European Union that supports the transition toward a greener and more inclusive economy across seven Southern Neighborhood countries: Egypt, Jordan, Lebanon, Libya, Morocco, Palestine, and Tunisia. The programme focuses on equipping Business Support Organizations (BSOs) to act as ecosystem enablers, bridging the gap between policy priorities and the day-to-day realities of SMEs and entrepreneurs. In practice, this means strengthening BSOs' ability to help businesses adopt greener models, access relevant finance, and engage with public and private stakeholders that shape enabling conditions.

The programme sits within a broader green economy package structured across three levels: macro (policy), meso (BSOs and the enabling ecosystem), and micro (SMEs). In this set-up, SPARK Ignite leads the meso-level component focused on BSOs, working within a wider consortium that includes Expertise France and UNIDO. This structure is meant to ensure that technical business practices, ecosystem partnerships, and policy dialogue move together, rather than in parallel tracks that do not meet in the middle.

Green Forward is built around two connected outcomes. Outcome 1 focuses on strengthening local and regional networks of actors promoting an inclusive green economy, so BSOs can learn from each other, build partnerships, and operate as part of a wider support ecosystem. Outcome 2 focuses on increasing awareness and strengthening the capacity of BSOs and stakeholders to promote green and circular economy practices at micro, meso, and macro levels, translating learning into tools, services, and concrete support to SMEs and entrepreneurs.

Operationally, Green Forward combines networking and peer learning with practical capacity building for BSOs. It brings stakeholders together through conferences, workshops, and structured peer exchange, and then follows up with tailored support that helps BSOs apply the learning in real services and programmes for SMEs. The aim is not only to share knowledge, but to convert knowledge into action:



stronger BSO service offers, better collaboration among ecosystem actors, and more practical pathways for SMEs to adopt green and circular business models in ways that make business sense.

In Palestine, Green Forward is implemented at the meso level through a partnership between SPARK and Flow Accelerator, combining SPARK's regional BSO strengthening approach with Flow's on-the-ground delivery and ecosystem convening. Flow leads local implementation in Palestine, working with technical partners to deliver practical, context grounded content and tools for BSOs and SMEs. This includes two connected delivery tracks: the Green Forward Launchpad, which sits under Outcome 1 and focuses on peer learning, networking, and partnership building through workshops, roundtables, and Peer Pods; and the Green Scale Lab, which sits under Outcome 2 and focuses on structured capacity building through a training academy and piloting a Green Business Toolkit and support that helps BSOs translate learning into services, tools, and actionable support to SMEs.

A key milestone in the Palestine track was the Green Forward Conference, held on 27 October 2025 at the Millennium Hotel in Ramallah, convening more than 150 stakeholders from the public and private sectors, civil society, academia, and the startup ecosystem. The conference was organized by Flow Accelerator in partnership with SPARK as a national platform to connect actors, highlight green businesses, and support joint thinking on a greener economy and enabling ecosystem in Palestine.

### Acronyms and Abbreviations

Acronym / Abbreviation	Full term
ACWA	ACWA Power
ADNOC	Abu Dhabi National Oil Company
AFD	Agence Française de Développement (French Development Agency)
AfDB	African Development Bank
BESS	Battery energy storage system
BOOT	Build-Own-Operate-Transfer
BSO	Business Support Organization
BSOs	Business Support Organizations
CAP	Common Agricultural Policy
CBAM	Carbon Border Adjustment Mechanism
CBK	Central Bank of Kenya
CDP	Carbon Disclosure Project (CDP)
CIRCOFARM	Circular Farming Coalition
CSP	Concentrated Solar Power
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
DFIs	Development Finance Institutions
DKK	Danish Krone

DONG	Danish Oil and Natural Gas (former name of Ørsted)
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health, and Safety
EHSGs	Environment, Health, and Safety Guidelines
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
EMPs	Environmental Management Plans
ENGIE	ENGIE (company name; not an acronym)
EPC	Engineering, Procurement, and Construction
EPD	Environmental Product Declaration
EPDs	Environmental Product Declarations
EPR	Extended Producer Responsibility
ESG	Environmental, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESIAs	Environmental and Social Impact Assessments
ESRS	European Sustainability Reporting Standards
ESSs	Environmental and Social Standards
ETS	Emissions Trading System
EU	European Union
EUR	Euro
EUREP	European Union Representative Office (Jerusalem)
EV	Electric Vehicle
EVs	Electric Vehicles
FPIC	Free, Prior and Informed Consent
GCE	Green and Circular Economy
GCIP	Global CleanTech Innovation Programme
GEFF	Green Economy Financing Facility
GGF	Green for Growth Fund
GHG	Greenhouse Gas
GHGs	Greenhouse Gases
GIIP	Good International Industry Practice
GRI	Global Reporting Initiative
GW	Gigawatt
GWh	Gigawatt-hour
H&S	Health and Safety
HSE	Health, Safety, and Environment

HVAC	Heating, Ventilation, and Air Conditioning
ID	Identification document
IFC	International Finance Corporation
IFIs	International Financial Institutions
IFRS	International Financial Reporting Standards
ILS	Israeli new shekel (currency code ILS)
ISO	International Organization for Standardization
ISO/TC 197	ISO Technical Committee 197 (Hydrogen technologies)
JOD	Jordanian Dinar
KPI	Key Performance Indicator
KPIs	Key Performance Indicators
KSA	Kingdom of Saudi Arabia
kWh	Kilowatt-hour
KYC	Know Your Customer
LCA	Life Cycle Assessment
LLC	Limited Liability Company
M&E	Monitoring and Evaluation
MAD	Moroccan Dirham
MASEN	Moroccan Agency for Sustainable Energy
MEDREG	Association of Mediterranean Energy Regulators
MENA	Middle East and North Africa
MFIs	Microfinance Institutions
MoE	Ministry of Education (Palestine)
MoNE	Ministry of National Economy (Palestine)
MSME	Micro, Small and Medium-sized Enterprise
MW	Megawatt
MWh	Megawatt-hour
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NIS	New Israeli shekel
NL	Netherlands
O&M	Operations and Maintenance
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OHS	Occupational Health and Safety
ONEE	Office National de l'Électricité et de l'Eau Potable
PEC	Palestinian Energy and Environment Research Centre
PENRA	Palestinian Energy and Natural Resources Authority
PERC	Palestinian Electricity Regulatory Council

PETL	Palestinian Electricity Transmission Company
PIF	Palestine Investment Fund
PLC	Public Limited Company
PPA	Power Purchase Agreement
PPAs	Power Purchase Agreements
PPP	Public-Private Partnership
PPPs	Public-Private Partnerships
PS	IFC Performance Standards
PV	Photovoltaic
RFNBO	Renewable Fuels of Non-Biological Origin
RSG	Red Sea Global
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SME	Small and Medium-sized Enterprise
SMS	Short Message Service
SPARK	SPARK (development organization; name is not an acronym)
SWRO	Seawater reverse osmosis
TAQA	Abu Dhabi National Energy Company (TAQA)
TCFD	Task Force on Climate-related Financial Disclosures
tCO <sub>2e</sub>	Metric tons of carbon dioxide equivalent
TNB	The National Bank (Palestine)
TRSDC	The Red Sea Development Company
TSK	TSK (company name; expansion not provided in report)
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNGC	United Nations Global Compact
UNIDO	United Nations Industrial Development Organization
US	United States
USD	United States Dollar
WBCSD/WRI	World Business Council for Sustainable Development / World Resources Institute
WBG	World Bank Group
WUR	Wageningen University & Research



ZSL

Zoological Society of London

## Glossary of Key Terms

- **Business Support Organizations (BSOs):** Organizations that provide business development services to enterprises, such as training, consultancy, and broader support that helps firms grow, comply, and compete. In Green Forward, BSOs are positioned as ecosystem enablers that can translate green economy priorities into practical support to SMEs
- **Carbon Border Adjustment Mechanism (CBAM):** An EU mechanism that puts a fair price on the carbon embedded in certain carbon intensive goods imported into the EU and incentivizes cleaner industrial production in non-EU countries<sup>1</sup>.
- **Circular Economy:** An economic system designed to keep products and materials in use, eliminate waste and pollution, and regenerate nature through strategies such as maintenance, reuse, refurbishment, remanufacturing, recycling, and composting<sup>2</sup>.
- **Corporate Sustainability Reporting Directive (CSRD):** EU rules that require companies in scope to report on sustainability matters, including the sustainability risks they face and how their activities impact people and the environment, using European Sustainability Reporting Standards (ESRS)<sup>3</sup>.
- **EU Emissions Trading System (EU ETS):** The EU's cap-and-trade carbon market, where a cap limits total emissions and allowances can be traded to drive cost-effective emissions reductions<sup>4</sup>.
- **EU Taxonomy:** A classification system within the EU sustainable finance framework that defines criteria for environmentally sustainable economic activities and supports transparency in directing investment toward the transition<sup>5</sup>.
- **Environmental, Social and Governance (ESG):** A set of factors used to assess how an organization manages sustainability-related risks and opportunities; in investment contexts, ESG investing integrates these factors into investment decisions<sup>6</sup>.
- **European Green Deal:** The EU's overarching blueprint for transforming the economy and making Europe climate neutral by 2050, with supporting policies and targets such as at least 55% emissions reduction by 2030 compared to 1990<sup>7</sup>.
- **European Sustainability Reporting Standards (ESRS):** The reporting standards companies use to comply with CSRD sustainability reporting requirements; drafts are developed by EFRAG as technical advice to the European Commission<sup>8</sup>.
- **Extended Producer Responsibility (EPR):** A policy approach that makes producers responsible for their products across the full lifecycle, including the post-consumer stage, commonly used to improve collection, recycling, and end-of-life management<sup>9</sup>.

<sup>1</sup> [https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism\\_en](https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en)

<sup>2</sup> <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview>

<sup>3</sup> [https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting\\_en](https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en)

<sup>4</sup> [https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets\\_en](https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets_en)

<sup>5</sup> [https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities\\_en](https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en)

<sup>6</sup> <https://www.cfainstitute.org/insights/articles/what-is-esg-investing>

<sup>7</sup> [https://commission.europa.eu/topics/climate-action/delivering-european-green-deal\\_en](https://commission.europa.eu/topics/climate-action/delivering-european-green-deal_en)

<sup>8</sup> [https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting\\_en](https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en)

<sup>9</sup> [https://www.oecd.org/en/publications/extended-producer-responsibility\\_67587b0b-en.html](https://www.oecd.org/en/publications/extended-producer-responsibility_67587b0b-en.html)

- **Green Economy:** An economy that improves human well-being and social equity while significantly reducing environmental risks and ecological scarcities; often framed as low-carbon, resource-efficient, and socially inclusive<sup>10</sup>.
- **Green Finance:** Financing that increases financial flows from public, private and not-for-profit sectors toward sustainable development priorities, including stronger management of environmental and social risks and opportunities<sup>11</sup>.
- **Green Forward Launchpad (Palestine, A1.2):** The programme track under Outcome 1 centered on structured peer learning workshops and thematic sessions designed to strengthen BSO networks, promote partnerships, and build practical know-how around green transition topics.
- **Green ScaleLab (Palestine, A2.1):** The programme track under Outcome 2 focused on structured capacity building and practical application, including needs assessment, targeted trainings, and follow-up support to help BSOs turn learning into services, tools, and SME-facing support.
- **Greenhouse Gas (GHG) Scopes 1, 2, 3:** A common classification for organizational emissions: Scope 1 covers direct emissions from owned or controlled sources; Scope 2 covers indirect emissions from purchased energy; Scope 3 covers other indirect emissions across the value chain<sup>12</sup>.
- **Impact Investing:** Investments made with the intention to generate positive, measurable social or environmental impact alongside a financial return<sup>13</sup>.
- **Life Cycle Assessment (LCA):** A method defined by ISO 14040 as compiling and evaluating inputs, outputs, and potential environmental impacts of a product system across its life cycle<sup>14</sup>.
- **Peer Pods:** A structured peer-learning format where BSOs are paired or grouped to support one another through periodic sessions, exchange practical experience, and identify opportunities for cooperation and joint initiatives.
- **Public-Private Partnership (PPP):** A long-term contract between a private party and a government entity to provide a public asset or service, where the private party carries significant risk and management responsibility and payment is linked to performance<sup>15</sup>.
- **Small and Medium-sized Enterprises (SMEs):** Enterprises defined in the EU framework by employee thresholds and financial ceilings (turnover and/or balance sheet total), used widely as a reference point in policy and support programmes<sup>16</sup>. These are also defined by the Palestinian legal framework and have specific thresholds that can be accessed through: <https://monshati.ps/ar/page/groups>
- **Sustainable Consumption and Production (SCP):** Doing more and better with less by decoupling economic growth from environmental degradation, increasing resource efficiency, and promoting sustainable lifestyles<sup>17</sup>.
- **Sustainable Finance:** The process of incorporating ESG considerations into investment decisions, supporting longer-term investments in sustainable economic activities and projects<sup>18</sup>.

<sup>10</sup> <https://www.unep.org/explore-topics/green-economy/why-does-green-economy-matter/what-inclusive-green-economy>

<sup>11</sup> <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-financing>

<sup>12</sup> <https://ghgprotocol.org/corporate-standard-frequently-asked-question>

<sup>13</sup> <https://thegiin.org/publication/post/about-impact-investing/>

<sup>14</sup> <https://eplca.jrc.ec.europa.eu/lifecycleassessment.html>

<sup>15</sup> [https://ppp.worldbank.org/PPP\\_Online\\_Reference\\_Guide/Introduction](https://ppp.worldbank.org/PPP_Online_Reference_Guide/Introduction)

<sup>16</sup> <https://eur-lex.europa.eu/eli/reco/2003/361/oj/eng>

<sup>17</sup> <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/sustainable-consumption-and-production-policies>

<sup>18</sup> [https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance\\_en](https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en)

- **Value Chain:** A way to map the strategically relevant activities through which a company creates value, helping identify where value is added and where improvements can be made<sup>19</sup>.
- **Waste Hierarchy:** A priority order for waste policy and management that favors prevention first, then reuse, recycling, recovery, and disposal as a last resort<sup>20</sup>.

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<sup>19</sup> <https://www.isc.hbs.edu/strategy/business-strategy/Pages/the-value-chain.aspx>

<sup>20</sup> [https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive\\_en](https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en)



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## EXECUTIVE SUMMARY

### Purpose of the Best Practices Guide

This Best Practices Guide was developed to support Palestinian Business Support Organizations (BSOs) and Micro, Small, and Medium Enterprises (MSMEs) in moving beyond high-level “green” and “ESG” concepts toward practical, implementable action. It is written for practitioners operating in a context shaped by high input costs, constrained supply chains, uncertainty, and limited time and resources.

The purpose of the guide is not to promote idealized or imported models. Rather, it focuses on what is workable in the Palestinian context: what implementation pathways look like in practice, what makes them bankable and deliverable, and what types of evidence are required to maintain credibility with partners, financiers, and regulators.

The guide is structured around case studies because success in the green and circular economy is rarely driven by technology alone. More often, it is a question of delivery design. The core implementation questions addressed throughout the guide include:

- What problem should be tackled first?
- What is the minimum viable intervention?
- What documentation is required to make an initiative financeable?
- Which partners must be involved, and at what stage?
- What approvals, standards, or operating procedures are necessary?
- How can monitoring be designed to be light, practical, and usable?

Part II of the guide presents 15 case studies, local, regional, and global, covering green economy and circular economy applications, ESG integration, innovation, green finance, and public–private delivery models. Each case follows a consistent structure and includes a dedicated How to Apply section for both MSMEs and BSOs. The intent is adaptation rather than replication. The cases are included to extract transferable mechanisms that can realistically be applied in Palestine, without overstating impact or assuming conditions that do not exist locally.

A further objective of the guide is to support service productization within BSOs. While many BSOs already provide training, advisory services, and facilitation, these are often delivered as one-off or ad-hoc activities. This guide is designed to help BSOs translate experience into repeatable service lines, supported by standard templates, stage gates, and clearly defined outputs that can be delivered consistently across multiple MSMEs.

### Who This Guide Is For

This guide is written first and foremost for Palestinian BSOs, which sit at the intersection of MSMEs’ operational realities and the broader ecosystem of policy, finance, and infrastructure. The case studies are designed to help BSOs develop service offerings that are sufficiently standardized to scale, while remaining flexible enough to accommodate different sectors, firm sizes, and maturity levels.

The guide is also intended for MSMEs, and entrepreneurs seeking to reduce costs, manage risk, or respond to buyer, investor, or regulatory requirements, but who need clear sequencing and realistic entry points. It assumes that most MSMEs will not begin with comprehensive ESG reporting systems or complex circular redesigns. Instead, it emphasizes financeable, measurable starting points that generate credible evidence and create a foundation for more advanced steps over time.

Finally, the guide is relevant for ecosystem actors who influence feasibility and scale, including financiers, policymakers, donors, and private-sector partners, by offering a grounded view of what implementation looks like on the ground, and what is required to support it effectively.

### Summary of Key Practice Themes and Headline Lessons for BSOs

Across the 15 case studies, a set of recurring practice themes emerges. These are not abstract principles or aspirational ideas. They are the concrete bottlenecks and enabling conditions that determine whether green, circular, or ESG practices move from intention to implementation in the Palestinian context.

The strongest cross-cutting lesson for BSOs is that green transition efforts become scalable only when they are treated as structured delivery pathways, not as awareness topics or one-off interventions. The headline lessons below distill what repeatedly worked across the cases and translate those insights into operational takeaways for how BSOs can more effectively support MSMEs.

#### 1. Treat “green” as a pathway with stage gates, not as a one-off intervention

Effective practices do not attempt to address everything at once. They define a clear track, establish minimum documentation requirements, and progress through deliberate stages: baseline, feasibility, supplier validation, finance packaging, implementation, and light monitoring. This pattern appears consistently across local green finance cases, large-scale public-private models, and corporate transformation efforts. For BSOs, the implication is to move from ad-hoc guidance toward repeatable service pathways, supported by simple and explicit stage gates (e.g., baseline completed, supplier quotes validated, permitting checked, monitoring plan in place).

#### 2. Baselines and evidence discipline are entry requirements, not optional add-ons

Across energy, water, waste, and ESG cases, the difference between a promising idea and an implementable project is often the presence of a basic but defensible baseline. MSMEs do not need complex models to begin, but they do need credible inputs: utility bills, operational assumptions, equipment specifications, and a simple mechanism to track change after implementation. BSOs can significantly reduce drop-off by offering a standardized “minimum viable baseline” as a mandatory first step, before any procurement or financing discussion takes place.

#### 3. Green finance unlocks when transaction friction is reduced and documentation is standardized

The green finance cases show that access to finance is constrained not only by interest rates, but by unclear submissions, weak technical validation, permitting uncertainty, and the absence of a clear payback logic. BSOs do not need to act as lenders or installers. Their highest value lies in building readiness

pipelines: helping MSMEs prepare concise, decision-ready investment packs and presenting lenders with consistent documentation across multiple applicants. Standardization shortens decision cycles, lowers rejection rates, and makes green finance deployable at scale.

#### **4. Circular economy models succeed when built around operating logic, not slogans**

The circular economy cases demonstrate that recycling alone is not the intervention. The intervention is the design of a functioning loop with defined roles, logistics, and economics. Whether in textiles, agri-food, or materials recovery, circularity requires stable collection systems, quality thresholds, offtake certainty, and a value proposition that remains viable under market volatility. For BSOs, this points to service offers centered on partner mapping, unit economics, and offtake pathways, rather than awareness-raising or generic circular narratives.

#### **5. ESG readiness for MSMEs is primarily about credible responsiveness**

ESG becomes operational for MSMEs when buyers, investors, or lenders begin asking questions and when reputational or compliance risks become tangible. The cases show that MSMEs should not be pushed to adopt full ESG frameworks prematurely. A practical ESG service for BSOs is to help MSMEs start with the essentials: basic policies, a limited set of relevant metrics, and an organized evidence folder. This enables credible responses to requests, reduces reputational risk, and avoids greenwashing by grounding claims in verifiable information.

#### **6. Partnerships and PPP-style collaboration are part of delivery, not an add-on**

Large-scale projects and ecosystem interventions consistently rely on coordination across multiple actors. In Palestine, most green solutions intersect with approvals, standards, municipal roles, finance providers, and private suppliers. BSOs can play a critical role as partnership brokers and quality filters by maintaining credible rosters, structuring referral pathways, and translating aggregated MSME bottlenecks into short, evidence-based policy or coordination asks.

#### **7. Monitoring must be light, but it must exist from the start**

Across the cases, organizations that scale rely on evidence rather than narrative alone. Monitoring does not need to be complex. A consistent practice of tracking a small number of indicators, such as utility bills, consumption levels, output, downtime, waste diversion, or incidents, protects credibility and lowers the barrier for subsequent investment or reporting. For BSOs, offering “monitoring and proof-as-a-service” is a practical way to help MSMEs build reusable evidence for financiers, buyers, and future ESG requirements.

#### **8. Palestine’s operating context requires conservative sequencing and explicit risk awareness**

The most important implicit lesson of the guide is that Palestine’s operating environment penalizes complexity and rewards disciplined sequencing. Uncertain supply chains, approvals, and financing conditions make it safer to start with a single, well-defined intervention, pilot it carefully, document results

conservatively, and then scale. The role of BSOs is to make this sequencing clearer, safer, and more repeatable, allowing MSMEs to move forward without losing time, credibility, or optionality.



## PART 1. INTRODUCTION AND METHODOLOGY

### 1.1. WHY A BEST PRACTICES AND CASE STUDIES GUIDE

The green and circular economy transition is no longer a niche topic. It is quickly becoming part of how markets work, how finance is allocated, and how suppliers are selected. For Palestinian SMEs and the organizations that support them, this creates both pressure and opportunity. Pressure, because expectations around resource efficiency, emissions, responsible labor practices, and traceability are increasingly embedded in supply chains. Opportunity, because the same shift opens doors for new products, services, partnerships, and investment models that reward innovation and efficiency.

This is where Business Support Organizations matter. BSOs sit close enough to SMEs to understand day to day barriers, but also interact with policymakers, financiers, and larger private sector actors. When BSOs are equipped with practical methods, tools, and credible examples, they can translate broad sustainability concepts into services that businesses can use, such as readiness diagnostics, ESG support, circular business model coaching, green finance facilitation, and partnership brokering.

This guide was developed because Green Forward is designed to turn peer learning into implementation. Under the programme's Launchpad activities, workshops and roundtables generate learning, Peer Pods help convert that learning into practical action, and the programme explicitly commits to consolidating insights and compiling them into a best practices document for BSOs and stakeholders. Additionally, Green Forward frames the expected outcome clearly: a best practices' guide that supports knowledge sharing, strengthens BSO capacity, and helps drive partnerships and collaborations that enable green business development in Palestine.

A best practices and case studies format is the right approach for three reasons. First, it keeps the content grounded. It shows what was applied, what worked, what did not, and what enabling conditions were needed. Second, it supports replication. Each case can be broken down into practical steps and tools that BSOs can integrate into their own service offers. Third, it supports partnership building. Many green solutions are not delivered by one actor alone, and the cases make the partnership mechanics visible, including where the private sector, public sector, finance providers, and BSOs each add value.



To make the guide usable, not theoretical, all cases follow a consistent template and include a clear "How to Apply This" section. Where relevant, each practice is also tagged by its primary target audience, whether SMEs, BSOs, or policymakers, and it references the supporting tools and templates that can be

adapted, such as ESG checklists and readiness assessments that have been developed under the Green Businesses Toolkit for BSOs and SMEs. Finally, the guide includes short cross-cutting reflections that connect themes rather than treating them as silos, for example how ESG readiness affects access to finance, how policy barriers shape innovation pathways, and how partnerships can unlock circular solutions.

While the backbone of this guide comes from the Launchpad learning cycle, it also draws selectively on Scale Lab content where it strengthens implementation. This reflects the programme logic that peer learning and network building should be reinforced by structured capacity building, tools, and advocacy support, so that the “what” of the green transition is matched by the “how” of delivery in the Palestinian context.

## 1.2. METHODOLOGY AND SCOPE

### 1.2.1 SCOPE OF THIS GUIDE

This guide is anchored in Palestine. It is written primarily for Business Support Organizations (BSOs) and their partners working to support SMEs, entrepreneurs, and ecosystem actors to adopt greener, more competitive business practices. At the same time, it includes selected regional and global cases where they offer clear lessons that can be adapted to Palestine's reality, especially when local examples are limited or when international experience shows proven delivery models.

### 1.2.2 HOW PRACTICES AND CASES WERE DEVELOPED

A structured approach to make the guide consistent and usable was implemented:

#### 1. Practice identification and selection

Practices were prioritized where they offer clear value for BSOs and SMEs in Palestine, and where they can be applied in real service delivery. In practice, this means the guide focuses on approaches that are:

- implementable by BSOs with realistic resources,
- replicable or adaptable in Palestine,
- useful for partnership building across the ecosystem,
- linked to real tools and templates rather than general concepts.

#### 2. Standardized case study format

All cases and practices are documented using a consistent template. Each includes:

- SECTION 1: BASIC INFORMATION
- SECTION 2: SUMMARY
- SECTION 3: HOW TO APPLY
- SECTION 4: PRIMARY TARGET AUDIENCE
- SECTION 5: BACKGROUND AND CONTEXT
- SECTION 6: DESCRIPTION OF THE PRACTICE



- SECTION 7: OUTCOMES AND IMPACTS
- SECTION 8: LESSONS LEARNT AND RECOMMENDATIONS
- SECTION 9: LINKAGE TO THE GREEN FORWARD TOOLBOX
- SECTION 10: SUPPORTING MATERIAL
- SECTION 11: CROSS-CUTTING THEMES

### 3. Cross-cutting analysis

Where relevant, the guide highlights connections and overlaps between themes. This matters because green transition support rarely fits in one box. Examples include:

- how ESG readiness influences access to finance and investor interest,
- how circular models depend on enabling regulation and waste infrastructure,
- how innovation needs both finance instruments and an active ecosystem,
- how partnerships and PPP structures depend on legal clarity and bankability.

#### 1.2.3 WHAT THIS GUIDE DOES AND DOES NOT CLAIM

This guide is a practical compilation of best practices drawn from programme delivery and credible external experience. It is not an exhaustive review of all green economy approaches. Where evidence is strong, we present practices as proven. Where practices are emerging or context dependent, we state the limits clearly and focus on what can realistically be adapted in Palestine.

#### 1.2.4 HOW TO USE THIS GUIDE AND WHO IS IT FOR?

- **BSOs:** Use the “How to Apply This” sections to build or strengthen service offers. Treat the tools as ready starting points for SME support, internal BSO training, and advisory work. If you are designing a new service, start with the best practice steps, then use the tools to structure delivery.
- **SMEs and entrepreneurs:** Use the cases to understand what adoption looks like in practice, what investment or operational changes may be needed, and what quick wins are realistic. Use the tools as self-assessments and planning aids before engaging a BSO or financier.
- **Policymakers and public institutions:** Use the cases to see what enabling conditions helped practices succeed, what barriers repeatedly block SMEs and BSOs, and what policy actions or coordination mechanisms would unlock investment and adoption.

Each case unit clearly flags its primary target audience:

- SME focused practices
- BSO focused practices
- Policy focused practices

Some cases speak to more than one audience, but we always indicate who should act first.



**PART 2. THEMATIC BEST PRACTICES**

**1. Economy Best Practices – Palestinian Example**

**Section 1: Basic Information**

Title of Case Study	<b>Massader Solar Schools Project: Distributed Solar Power Generation on Public School Rooftops in the West Bank</b>
Country / Region	Palestine - West Bank  (Multiple governorates including Ramallah, Jenin, Hebron, and Nablus)
Organization / Entity Name	Massader for Natural Resources and Investment Company
Type of Institution	Private sector company (subsidiary of the Palestine Investment Fund - PIF)
Date of Case Study	February 2020 - Present

**Section 2: Summary**

The Massader Solar Schools Project represents a pioneering distributed renewable energy project that transforms public school rooftops across the West Bank into solar power generation sites. This innovative project addresses multiple challenges simultaneously: chronic electricity shortages, high energy costs, limited local generation capacity, and the need for sustainable development in Palestinian communities. The project aligns with renewable energy and circular economy themes by creating a sustainable energy ecosystem where schools become energy producers rather than just consumers. The project involves installing 35 MW of distributed solar systems across approximately 500 public schools, powering over 16,000 households while providing free electricity to host schools and generating revenue streams that benefit the education sector. The project resulted in savings of 29.2 million ILS in annual electricity bills<sup>21</sup>.



Key stakeholders include Massader (implementation), IFC and international development partners (financing), the Palestinian Ministry of Education (school partnerships), and local communities

<sup>21</sup> PIF: <https://www.pif.ps/content/21>

(beneficiaries). The project's highlighted success lies in its multi-stakeholder approach that creates win-win scenarios for all parties while contributing to Palestine's energy independence and economic growth.

### Section 3: How to Apply?

This case is useful because it shows how solar can move from a “nice idea” into a structured, financeable, and measurable intervention. For MSMEs, the practical takeaway is not “build solar for schools”, it is how to reduce energy costs and improve resilience through a packaged approach that combines energy efficiency first, then right-sized solar, backed by basic monitoring and credible documentation.

#### FOR MSMEs (What to do):

##### 1. Start with energy efficiency, not panels.

Do a quick energy walk-through and identify 3 to 5 quick wins that reduce consumption immediately (lighting upgrades, motor and compressor maintenance, fixing leaks, scheduling, insulation where relevant). This lowers the system size you need later and improves payback.

##### 2. Build a simple energy baseline.

Collect 12 months of electricity bills (or as much as you have), note peak months, and identify the largest loads. This is enough to estimate savings, size the intervention, and speak credibly to a financier.

##### 3. Choose the right solution mix.

Decide what is realistic for your site: efficiency upgrades only, solar only, or a combined package. The best result is often a combination: reduce consumption first, then size solar to cover the stable daytime load.

##### 4. Treat maintenance and monitoring as part of the investment.

Solar and efficiency savings fail when systems are not maintained and performance is not tracked. Agree on who will maintain the system, how often, and what basic indicators will be checked (monthly production, downtime, basic bill comparison).

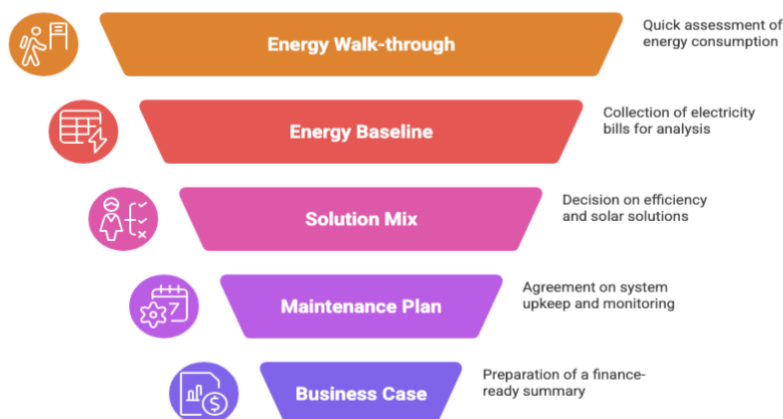
##### 5. Prepare a finance-ready mini business case.

Keep it simple: total cost, expected monthly savings, payback period range, and key risks. Even a one-page summary can unlock financing discussions if it is clear and realistic. Refer to the Green Toolkit for Guidance.

##### 6. Use the project to strengthen your market position.

Document the energy savings and emissions reductions in a simple internal note. This becomes useful for customers, supply chain requirements, and ESG questionnaires, even if you are not formally reporting.





### FOR BSOs: How to Support MSMEs through services:

#### 1. Offer an “Energy Cost Reduction Clinic” as a service.

Run short clinics that help MSMEs build their baseline, identify efficiency quick wins, and decide whether solar is viable. This can be delivered in cohorts or one-on-one.

#### 2. Standardize a simple screening and readiness pathway.

Use one checklist and one short survey so MSMEs can be triaged into: efficiency only, solar viable, or needs more information. Standardization saves time and builds a repeatable service. Sample forms and guide is available in the Green Toolkit.

#### 3. Broker the ecosystem, do not try to be the installer.

Build a roster of credible energy auditors, solar EPCs, and finance providers, and create a structured referral pathway. The BSO’s role is to reduce transaction cost and help MSMEs become bankable, not to deliver technical works directly.

#### 4. Package projects for finance.

Many MSME solar and efficiency projects fail because they are too small and messy for lenders. BSOs can bundle demand across multiple MSMEs and help present it as a pipeline with standard documentation.

#### 5. Build a simple monitoring habit.

Encourage MSMEs to track 3 indicators monthly: electricity bill, solar generation (if applicable), and downtime or major faults. This keeps the project credible and supports replication.

### Section 4: Primary Target Audience

- **Primary:** MSMEs seeking energy cost reduction and resilience through efficiency and solar adoption.
- **Secondary:** BSOs designing practical advisory services (energy clinics, readiness screening, referral pathways, finance packaging).
- **Also relevant for:** Finance providers and policymakers when considering standardized procedures, incentives, or de-risking instruments for MSME solar and efficiency.

## Section 5: Background and Context<sup>22</sup>

The project addressed critical interconnected challenges facing Palestinian communities:

- Chronic power shortages and blackouts affecting daily life and economic activities
- Over 90% dependency on expensive imported electricity, primarily from Israel
- Limited local electricity generation capacity in the West Bank
- High energy costs burdening both public institutions and households
- Need for sustainable revenue sources for the education sector
- Lack of energy security and economic independence

### Local Context

Palestine is heavily dependent on Israel for meeting its energy requirements, with 88% of power imported from Israel and minimal supplies from Jordan (3%) and Egypt. The Palestinian power sector faces unique constraints due to limited natural resources, financial challenges, and restricted access to international energy markets. Energy costs for Palestinians are among the highest in the region despite widespread poverty and unemployment.

However, Palestine possesses exceptional solar energy potential with approximately 3,000 hours of sunshine per year and average solar radiation of 5.4 kWh/m<sup>2</sup>, making distributed solar solutions technically and economically viable.

### Policy and Strategic Framework

This project aligns with Palestinian national energy strategies aimed at achieving energy security and reducing import dependency. It supports the Palestinian Authority's renewable energy targets and contributes to broader sustainable development goals. The project operates within the framework of public-private partnerships encouraged by Palestinian economic development policies.

### Target Groups:

- **Public education system:** 500 schools and their communities
- **Rural and urban households:** Over 16,000 households receiving clean electricity
- **Students and educators:** Direct beneficiaries of improved school infrastructure
- **Local communities:** Benefiting from reduced electricity costs and improved grid stability
- **Women and youth:** Through improved educational facilities and potential employment opportunities in renewable energy sector

## Section 6: Description of the Practice

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<sup>22</sup> <https://www.ecomena.org/renewables-palestine/>  
<https://www.ifc.org/en/pressroom/2020/ifc-invests-in-pioneering-solar-power-project-in-the-west-bank>

## Core Activities

The Massader Solar Schools Project implements a distributed generation model where public school rooftops become solar power production sites. The financing package includes an \$8.1 million loan from IFC and \$8.1 million in co-financing from the Finland-IFC Blended Finance for Climate Program and the Dutch MENA Private Sector Development Program, plus a \$2 million grant from the World Bank Investment Co-Financing Facility.

The project's innovative approach creates multiple value streams:

1. Schools receive free electricity and in some cases cash payments for hosting installations
2. Majority of generated electricity is fed into local distribution systems at competitive tariffs
3. Communities benefit from clean, reliable power at reduced costs
4. Education sector gains financial resources that can be redirected to school improvements

## Partners Involved

Primary Implementing Partner:

- Massader for Natural Resources and Investment Company (project developer and operator)

Financial Partners:

- IFC (World Bank Group) - primary lender
- Finland-IFC Blended Finance for Climate Program
- Dutch MENA Private Sector Development Program
- World Bank Investment Co-Financing Facility

Institutional Partners:

- Palestinian Ministry of Education (school partnerships)
- Local electricity distribution companies
- Palestine Investment Fund (parent organization)
- Palestinian Energy and Natural Resources Authority (PENRA)

## Funding Resources and Structure

Total project financing: **\$18.2 million**

- IFC loan: \$8.1 million
- Blended finance mechanisms: \$8.1 million
- World Bank grant: \$2 million (up to)

The funding structure demonstrates innovative blended finance approaches combining commercial lending with concessional finance to make renewable energy projects commercially viable in challenging investment environments.

## Technologies and Innovations

- Distributed solar photovoltaic systems: 35 MW total capacity across 500 installations
- Grid-tied solar installations: Integration with existing electricity distribution infrastructure
- Smart metering and monitoring systems: For performance tracking and revenue calculation
- Innovative financial structuring: Power purchase agreements and revenue-sharing models

## Legal and Policy Framework

The project operates under Palestinian renewable energy regulations and power purchase agreement frameworks. IFC's role included building local capacity by developing key project documents such as power purchase agreements and construction and operating contracts, establishing precedents for future distributed energy projects. In addition to building environmental and social management capacities through the application of the World Bank's Environmental and Social Standards and the IFC's Performance Standards and the Environment, Health, and Safety Guidelines (EHSGs).

## Section 7: Outcomes and Impact

### Key Quantitative Results

- 35+ MW of renewable energy capacity installed across the West Bank
- 500 public schools equipped with rooftop solar systems
- 16,000+ households receiving clean electricity from the distributed network
- 30,000 tonnes of greenhouse gas emissions prevented annually through clean energy generation
- \$18.2 million in green finance mobilized for renewable energy infrastructure
- Over 90% reduction in imported electricity dependency for participating communities

### Sustainability Improvements

Environmental Impact:

- Significant reduction in carbon footprint through displacement of fossil fuel-based electricity
- Prevention of 30,000 tonnes of greenhouse gas emissions per year
- Contribution to Palestine's renewable energy targets and climate commitments

Economic Impact:

- Electricity provided at lower cost than imported electricity
- Revenue generation for the education sector through hosting fees and electricity sales
- Job creation in renewable energy installation, maintenance, and operations
- Economic and job growth through reduced overall electricity costs

Social Impact:

- Enhanced energy security for Palestinian communities
- Improved educational infrastructure through free electricity for schools
- Energy savings for the education system, freeing budget for schools' improvement

### Impact on Local Communities and Beneficiaries

The project creates cascading positive impacts across multiple stakeholder groups:

- Schools and Students: Free electricity reduces operational costs and improves learning environments with reliable power for lighting, computers, and climate control.
- Households: Access to clean, affordable electricity improves quality of life and reduces energy poverty.
- Local Economy: Lower electricity costs enhance business competitiveness and attract investment.

### **Inclusion and Gender Impact**

#### Women's Empowerment:

- Improved school infrastructure benefits female students and teachers
- Reliable electricity supports women's participation in educational and economic activities
- Potential employment opportunities in renewable energy sector operations and maintenance

#### Youth Development:

- Enhanced educational facilities with reliable power support youth learning and development
- Demonstration of clean energy technologies inspires interest in renewable energy careers
- Technical training opportunities in solar system maintenance and operations

### **Results Verification and Measurement**

The project employs comprehensive monitoring systems including:

- Smart metering for electricity generation and consumption tracking
- Financial performance monitoring through power purchase agreements
- Environmental impact measurement through emissions calculations
- Social impact assessment through beneficiary surveys and school performance indicators
- Third-party verification through IFC and World Bank reporting requirements

## **Section 8: Lessons Learnt and Recommendations**

### **Main Success Factors**

1. Innovative Financial Structuring: Blended finance mechanisms made the project commercially viable while serving development objectives
2. Multi-stakeholder Approach: Clear value propositions for all parties (schools, communities, investors) ensured broad support
3. Technical Feasibility: Leveraging Palestine's excellent solar resource potential with proven photovoltaic technology
4. Institutional Capacity: Strong project development capabilities through Massader and international partner support
5. Policy Alignment: Project design aligned with Palestinian national energy strategies and development priorities

### **Main Challenges and Mitigation Strategies**

- **Challenge 1: Complex Regulatory Environment**

Mitigation: IFC's capacity building support in developing power purchase agreements and legal frameworks

- **Challenge 2: Limited Local Technical Capacity**

Mitigation: International technology transfer and local training programs for installation and maintenance

- **Challenge 3: Political and Economic Uncertainty**

Mitigation: Risk mitigation through international development finance and diversified revenue streams

- **Challenge 4: Grid Integration Complexity**

Mitigation: Phased implementation approach allowing for system optimization and learning

### **Improvements and Replication Potential**

What Could Be Improved:

- Faster permitting processes for distributed energy systems
- Enhanced local content requirements to build Palestinian renewable energy industry
- Expanded community ownership models to increase local economic benefits
- Integration with energy storage systems for enhanced grid stability

Replication Opportunities, Within Palestine:

- Extension to additional schools and public buildings (hospitals, municipal buildings)
- Replication in Gaza Strip with appropriate modifications for local conditions
- Scaling to commercial and industrial rooftops

Regional Replication:

- Similar distributed solar models in Jordan, Lebanon, and other MENA countries
- Adaptation for other post-conflict or developing country contexts
- Integration with other infrastructure development programs

### **Policy, Operational, and Funding Recommendations**

Policy Level:

- Streamline permitting processes for distributed renewable energy systems
- Develop comprehensive feed-in tariff frameworks for small-scale solar installations
- Create renewable energy certificates and carbon credit mechanisms

Operational Level:

- Establish Palestinian renewable energy training and certification programs
- Develop local supply chains for solar system components and services
- Create performance-based maintenance contracts for long-term sustainability

Funding Level:

- Expand blended finance mechanisms for renewable energy projects
- Develop green bonds and Islamic finance instruments for clean energy
- Create revolving funds for community-owned renewable energy systems

### Section 9: Linkage to the Green Forward Toolbox

This practice can be directly supported through the following toolkit modules and tools:

- **Green Finance & Investment Readiness:** use Tool No.1: Common Green Finance Screening Requirements to check basic eligibility, documentation, and lender expectations before approaching finance providers. Use the Diagnostic Tool No.1 SAVINGS & SIZING SHEET – ROOFTOP PV (grid-tied) to estimate expected electricity savings, right-size the system relative to the MSME's consumption profile, and translate technical options into a simple, finance-ready business case.
- **Green Monitoring and Evaluation Frameworks:** use to set a light monitoring approach that tracks baseline energy use, monthly savings, and system performance, so the MSME can maintain evidence of results over time and demonstrate credible impact to partners, lenders, and buyers.
- **Green Marketing Tools:** where relevant, use Tool No.1: Green Marketing Builder (BSO to MSME) to communicate energy savings and renewable energy adoption responsibly, using clear claims and evidence to avoid greenwashing and to strengthen market positioning.

### Section 10: Supporting Materials

- IFC Press Release (February 11, 2020): "IFC Invests in Pioneering Solar Power Project in the West Bank"
- World Bank Group Documentation: Project appraisal and implementation reports
- EcoMENA Analysis (February 2023): "Renewable Energy in Palestine" - contextual analysis
- Industry Reports: Palestinian renewable energy sector assessments

### Section 11: Cross-Cutting Themes

This case connects strongly to several cross-cutting themes that come up across Green Forward sessions. It is not only an "energy project", but also a practical entry point into broader green transition readiness for SMEs and BSOs.

1. **Green finance readiness and bankability:** Energy efficiency and rooftop solar are often the first green investments an SME considers, but many projects fail to reach financing because the business case is not packaged in a way lenders can assess. The core cross-cutting lesson is that technical feasibility is not enough. SMEs and BSOs need basic documentation, clear savings logic, and a simple risk picture. When this is done well, the intervention becomes a finance-ready pathway that can unlock green loan products and blended support.
2. **ESG and buyer requirements:** Even when an SME is not formally reporting under ESG standards, energy savings and renewable energy adoption can become useful evidence in supply chain questionnaires and customer due diligence. The cross-cutting point is that energy projects should be documented from day one with simple proof, so SMEs can later respond to ESG related requests without scrambling for data.

3. **Monitoring, evidence, and credibility:** Energy savings are often claimed but rarely measured in a consistent way. This creates credibility risk and weakens the ability to scale or attract partners. A light monitoring habit, baseline plus monthly tracking, turns the intervention into an evidence-backed practice that BSOs can replicate across many SMEs and sectors.
4. **Policy and enabling environment:** While this case is presented here as an SME application pathway, the broader lesson is that access to clean energy is shaped by permitting steps, metering, technical standards, and grid connection processes. Where these are unclear or slow, adoption costs rise and SMEs lose momentum. BSOs can use aggregated SME experience to identify bottlenecks and feed practical recommendations into policy dialogue.
5. **Partnerships and service ecosystems:** SMEs rarely deliver energy interventions alone. They need auditors, installers, equipment suppliers, and sometimes financiers. The cross-cutting practice is for BSOs to function as matchmakers and quality filters, building a trusted roster and referral pathway rather than leaving SMEs to navigate the market alone.
6. **Resilience and business continuity:** In Palestine, energy cost and reliability directly affect competitiveness. Efficiency and solar can strengthen business continuity, reduce exposure to price volatility, and improve operational resilience. This connects the green transition to a clear business priority, which is essential for adoption and scaling.

## 2. Green & Circular Economy Best Practices – Regional Example

### Section 1: Basic Information

Title of Case Study	<b>Morocco's Circular Textile Innovation for Inclusive Green Growth</b>
Country / Region	Morocco – Casablanca, Rabat, Tangier
Organization / Entity Name	AMITH (Moroccan Association of Textile and Apparel Industries) with EnR (Energies Renouvelables) and Circular Economy Coalition – Morocco
Type of Institution	Private Sector Association, SME Network, NGO Coalition
Date of Case Study	2021 - Present

### Section 2: Summary

This case study explores Morocco's circular textile ecosystem built around recycling pre-consumer textile waste into new yarns and fabrics. Spearheaded by AMITH, this initiative created a green supply chain linking design houses, SMEs, and recyclers. It addresses multiple green economy themes: circular

economy, sustainable industrial processes, social inclusion (especially women), and green entrepreneurship.

The initiative has improved material efficiency, reduced CO2 emissions, and supported women-owned micro-enterprises working in waste collection and sorting.

### Section 3: How to Apply?

This case is useful because it shows how circularity becomes real when three things are connected: (1) a clear waste stream with value, (2) a practical operating model for collection and sorting, and (3) market incentives that reward recycled content and traceability. For Palestine, the takeaway is not to replicate Morocco's exact textile infrastructure, but to apply the same logic to build a simple, financeable circular value chain that SMEs and BSOs can run and scale over time.

#### FOR MSMEs (What to do):

##### 1. Start by choosing one circular product line, not “everything circular”.

Focus on one material stream and one opportunity, for example: cutting waste and offcuts, unsold stock, used garments, uniforms, or fabric scraps. Define the product early (recycled yarn input, upcycled products, remanufactured garments, insulation, cleaning cloths).

##### 2. Quantify your waste and costs in a simple waste audit.

Track volumes (weekly or monthly), current disposal cost, and the quality of waste (clean, mixed, contaminated). This is what turns a circular idea into a business case.

##### 3. Define quality and sorting rules.

Most circular efforts fail because inputs are inconsistent. Agree internally and with partners on sorting categories (e.g., cotton, polyester blends, mixed fabrics), contamination rules, and storage practices.

##### 4. Pilot a small collection and sorting model.

Start with one cluster, one city, or one group of SMEs. Use a simple arrangement with a cooperative, women-led group, or a local partner to handle sorting and preparation of feedstock.

##### 5. Connect to market pull and compliance early.

Identify which buyers value recycled content, traceability, and eco-labels, and what proof they require. Even if you are not ready for certification, start building basic documentation (inputs, outputs, process steps).

##### 6. Build a finance-ready mini business case.

Package: baseline waste volumes, expected revenue or savings, basic capex for sorting and processing, and payback expectations. Even a short, well-structured summary improves your chance of accessing green finance or grants.



## FOR BSOs: How to Support MSMEs through services:

### 1. Treat circular economy as a service line, not a one-off project.

Offer a structured “Circular Economy Clinic” that helps MSMEs identify priority resource losses (materials, water, energy, packaging, by-products), select realistic circular options, and convert them into simple action plans and investment cases.

### 2. Use a standard resource and waste audit across MSMEs.

Apply one shared audit tool so data is comparable. This allows BSOs to aggregate demand and quantify the opportunity, which is often what attracts processors, recyclers, investors, and public partners. Refer to the Green Toolkit for Guidance.

### 3. Build the circular ecosystem model across the value chain.

Support MSMEs to connect the pieces: collection or recovery, sorting and quality control, processing or treatment, and market outlets. The BSO role is coordination and quality assurance, including building a roster of trusted service providers and defining a referral pathway that reduces risk for MSMEs.

### 4. Make inclusion an operational component.

Where relevant, structure parts of the circular value chain (collection, sorting, repair, refurbishment, pre-processing) as income generating opportunities for cooperatives, women-led groups, and youth enterprises, with clear quality standards, decent work expectations, and predictable demand.

### 5. Translate barriers into focused, evidence-based advocacy.

Identify the top 3 blockers affecting MSMEs (standards and quality requirements, licensing and permitting, procurement rules, customs constraints, missing incentives, weak enforcement). Convert these into a short, actionable policy ask supported by data from MSME audits and pilot results.

### 6. Pilot, measure, then scale.

Start with a small pilot cohort, track basic indicators (volumes recovered, costs reduced, revenues generated, jobs created), and expand only once the operating model is stable and the market pathway is clear.

#### Section 4: Primary Target Audience

- **Primary:** MSMEs across priority sectors (manufacturing, agri-food, construction, services) that want to cut costs, reduce material losses, improve resource efficiency, and develop circular products or services that meet market and buyer expectations.
- **Secondary:** BSOs and sector bodies (chambers, associations, clusters, incubators) that can convene MSMEs, deliver circular economy advisory services, and broker partnerships across the value chain (collection, processing, reuse, recycling, and end markets).
- **Also relevant for:** Policymakers and municipalities responsible for standards, licensing, waste and resource management, incentives, and public procurement; and finance providers and donors supporting circular investments through green loans, blended finance, and de-risking instruments

#### Section 5: Background and Context<sup>23</sup>

##### Challenge Addressed:

Morocco's textile industry generates over 150,000 tons of pre-consumer waste annually. Most of it ends up in landfills due to lack of sorting and recycling infrastructure. Meanwhile, unemployment and informal labor are persistent among women and youth.

##### Local Context

Morocco is one of MENA's largest textile exporters. The demand for greener products from EU markets (under the Green Deal) creates both pressure and opportunity for sustainability in the textile sector.

##### Policy Linkage:

- Aligned with Morocco's National Sustainable Development Strategy (NSDS 2030)
- Supports the EU-Morocco Green Partnership launched in 2022

##### Target Groups:

- Women in informal labor
- Textile SMEs
- Recycling start-ups
- Exporters to EU and Africa

#### Section 6: Description of the Practice

##### Core Activities

1. Waste audit of textile SMEs and factories
2. Creation of a digital textile waste marketplace app (pilot: Casablanca)

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<sup>23</sup> AMITH Circular Economy Report (2023)  
EnR Policy Brief on Green Industries (2022)

3. Establishment of decentralized micro-sorting units led by women's cooperatives
4. Production of recycled yarn and remanufactured clothing lines
5. Eco-labelling and export facilitation support for participating companies

### Partners Involved

- Primary Implementing Partner:
- AMITH (coordinator)
- EnR (policy and funding support)
- Ministry of Industry and Trade
- EU-funded SwitchMed Programme

### Funding Resources

Public-private mix: EU SwitchMed, local bank green loans, AMITH CSR fund

### Technologies and Innovations

- Fabric shredding and re-yarning machines
- AI-enabled waste tracking platform
- Eco-label traceability tools

### Policy Framework

- Circular Economy Law (under review in 2024)
- Trade facilitation measures for certified green exports

## Section 7: Outcomes and Impact

### Key Results

- 900+ tons of textile waste recycled in 2 years
- 65% of participating SMEs adopted eco-labelling and circular production
- 150 women employed through sorting cooperatives

### Sustainability Improvements

- Reduced carbon footprint of exported textile goods by 28%
- Improved competitiveness of Moroccan brands in EU green markets
- Shift from informal to formal employment for low-income women

### Community Impact:

- Improved earnings for cooperative members
- Demonstrated proof-of-concept for textile circularity in MENA context

### Measurement:

- Verified through LCA assessments, ISO-based carbon accounting tools
- Monitored via mobile waste marketplace metrics



## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

1. Linking circularity to export market incentives increased SME participation
2. Using existing women's cooperatives fast-tracked operationalization
3. Digital tools made waste flows transparent and investable

### Main Challenges

- Scaling shredding capacity beyond pilot cities
- Difficulty in aligning with pending regulatory standards

### Recommendations:

- Invest in regional hubs with shared textile recycling infrastructure
- Finalize and enforce circular textile regulations
- Replicate model in Tunisia, Egypt, Jordan textile clusters

## Section 9: Linkage to the Green Forward Toolbox

This case is best applied when circular opportunities are treated as a structured pipeline: readiness screening, resource flow diagnosis, business model design, finance packaging, and then monitoring and credible market communication. The following modules and tools in the Green Forward Toolbox support that pathway:

- **Green Readiness and Strategy:** use Diagnostic Tools: MSMEs Sustainability Simple Self-Assessment, MSME Green Economy Readiness Assessment, and MSME Green Economy Readiness – Survey to quickly screen MSMEs, prioritize the most feasible circular opportunities, and define a realistic starting point for action.
- **Circular Economy & Resource Flow Assessment:** use Tools: Circular Economy Implementation Roadmap to build a phased action plan; TEST Tool – Life Cycle Perspective Checklist to stress-test ideas for feasibility and impacts; Then Circular Business Model Canvas to design the operating model; Identifying Sources of Waste With the Big Five Structural Wastes Tool to pinpoint material losses and inefficiencies; and Cost benefit Analysis Tool to quantify the business case and compare options.
- **Green and Circular Innovation & Business Modelling:** where the circular opportunity requires product or service redesign, use Tool No.1: Values and Vision Tool and Diagnostic Tool No.1: Value Proposition to clarify the market logic, then use Tool No.2: Circular Business Model Roadmap to sequence implementation. BSOs can apply Tool No.3: MSMEs Assessment Criteria – for BSOs to select pilot ready MSMEs and use Tool No.6: Investment Pitch Deck and Presentation Guide to help MSMEs communicate the opportunity to partners and financiers.
- **Green Finance & Investment Readiness:** use Tool No.1: Common Green Finance Screening Requirements to check eligibility and documentation before approaching funders, then use Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet and Tool No.2: Investment Case Template to convert circular solutions into lender-ready and investor-ready packages, including baseline, assumptions, savings or revenue, risks, and payback logic.
- **Certification and Green Labelling Tools:** where a circular product needs certification or a credible label, use Tool No.1: Green Certification Pathway Map, Tool No.2: Green Labeling Development

Kit, and Tool No.3: Certification Implementation Strategy to choose the right pathway and plan implementation without over-claiming.

- **Green Marketing Tools:** use Tool No.1: Green Marketing Builder (BSO to MSME) to translate circular performance into evidence-based claims and buyer-ready messaging, and to reduce greenwashing risk.
- **Green Monitoring and Evaluation Frameworks:** use Tool No.1: Monthly Environmental Dashboard, Tool No.2: Quarterly Business Impact Report, and Tool No.3: Evaluation Framework to track volumes diverted, resource savings, cost impacts, jobs, and inclusion outcomes, and to build a credible proof base for scaling and advocacy.

## Section 10: Supporting Materials

- AMITH pilot project brochure and textile waste audit (2022)
- Interviews with cooperative leaders (available via SwitchMed site)
- Infographic: Circular textile value chain (SwitchMed, 2023)

## Section 11: Cross-Cutting Themes

This case is a useful anchor because it shows that circular economy is not a single “recycling activity”. It is an ecosystem shift that links business models, standards, finance, inclusion, and market incentives. The cross-cutting themes below are the ones that translate directly to Palestine and to other sectors beyond textiles.

1. **Market pull and compliance are what make circularity scale:** Circular pilots grow when there is a clear market reason to participate: buyer demand, export requirements, traceability expectations, or procurement rules. The deeper lesson is that circularity needs a customer and a price signal, not only environmental motivation. For Palestine, this connects directly to evolving buyer requirements and the need to prepare MSMEs for ESG and sustainability due diligence.
2. **Circular economy needs “infrastructure” even when it is small:** Most circular opportunities fail at the operational middle: collection, sorting, storage, quality control, and predictable offtake. This case highlights that these steps are the real bottleneck, not the idea. The cross-cutting lesson is to design the physical and organizational pathway first, even at micro scale, before investing in bigger processing capacity.
3. **Quality standards and traceability are a competitive advantage:** Once materials move from waste to input, quality and traceability become essential. This is cross-cutting across sectors: food by-products, construction waste, plastics, packaging, and textiles. Without minimum standards and basic documentation, circular inputs are treated as high risk and buyers stay away. This also links directly to green labelling and credible claims.
4. **Inclusion works best when it is built into the operating model:** A key transferable element is that inclusion is not a side benefit. It becomes real when the circular value chain is designed to create decent income opportunities for women, youth, and cooperatives through formalized roles, predictable demand, and quality standards. This same logic can apply in Palestine to collection,



sorting, repair, refurbishment, and other labour-intensive circular activities, if decent work conditions are protected.

5. **Finance follows structure, not enthusiasm:** Circular economy is often seen as “too risky” because cashflows are unclear and supply chains are fragmented. The cross-cutting lesson is that once the operating model is structured, volumes are measured, and buyers are identified, circular investments become financeable. BSOs play a major role by standardizing documentation, aggregating pipelines, and helping MSMEs present credible numbers.
6. **Policy and municipal systems shape feasibility more than technology does:** Permitting, licensing, waste movement rules, local enforcement, and procurement incentives can determine whether circular solutions can operate legally and at scale. This case reinforces that circular economy is not only a private sector issue. It needs enabling conditions, and it benefits from BSOs translating operational pain points into practical policy asks.
7. **Digital tools help, but only when the basics are in place:** Platforms and tracking tools can improve transparency and coordination, but they only add value when the core system is functioning clear sorting rules, reliable collection, quality control, and committed offtakes. The cross-cutting lesson is to avoid “digital first” approaches unless the physical and organizational pathway is already credible.

### 3. Circular Economy Best Practices – [International Example](#)

#### Section 1: Basic Information

Title of Case Study	<b>Circular Food Valley: The Netherlands' Flagship for Agri-Food Circular Economy</b>
Country / Region	The Netherlands – Gelderland Province (Wageningen, Ede, Barneveld)
Organization / Entity Name	Foodvalley NL, Wageningen University & Research (WUR), and Circular Farming Coalition (CIRCOFARM)
Type of Institution	Innovation Hub, Academic Institution, Industry Network
Date of Case Study	2019 - Present

#### Section 2: Summary

This case study showcases the Netherlands' “Circular Food Valley” as a model for implementing large-scale circular economy practices in the agri-food sector. Located in the Gelderland region, it integrates

nutrient cycling, zero-waste food processing, regenerative farming, and valorization of food waste into feed, fertilizer, and bio-packaging. Led by Foodvalley NL, it brings together farmers, researchers, start-ups, and multinationals.

It embodies green economy themes such as circularity, sustainable agriculture, innovation, and economic competitiveness. Its success lies in systemic collaboration, policy alignment, and scalable business models.

### Section 3: How to Apply?

This case is useful because it shows how circular economy becomes real in agri-food when actors stop working in isolation and start treating waste, by-products, and resource losses as inputs into new value chains. For Palestine, the takeaway is not to copy a Dutch scale model. It is to apply the same logic at a practical level: start with one circular loop, build a small coalition, pilot it, measure it, then scale what works.

#### FOR MSMEs, Farmers, and Producer Groups (What to do):

##### 1. Choose one circular loop with clear business value.

Start with a single resource problem you can control, such as food waste, processing by-products, packaging, water use, or nutrient losses. Define the output early (compost, animal feed, bio-based packaging, upcycled ingredients, wastewater reuse where allowed and safe).

##### 2. Build a simple baseline.

Quantify what you currently lose: volumes, disposal costs, transport costs, and seasonality. You do not need perfection, but you do need a credible baseline to plan and finance the change.

##### 3. Secure the operating pathway: collection, quality, and offtake.

Most circular pilots fail because inputs are inconsistent or there is no stable buyer. Agree on basic quality and handling rules and confirm who will take the output (even if it is a small offtake agreement or a committed buyer relationship).

##### 4. Pilot in small batches and keep the design simple.

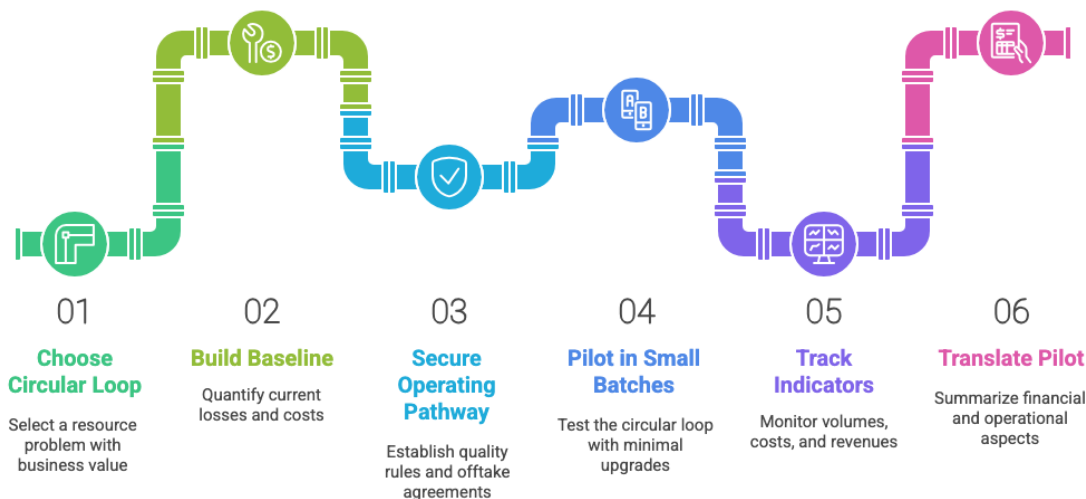
Start with a 2-3-month pilot rather than a full rollout. Focus on what can be implemented with your current equipment or with minimal upgrades, then refine.

##### 5. Track a few indicators and document results.

Keep it light: volumes recovered, costs reduced, revenues generated, and any quality improvements. This is what turns a pilot into a decision to scale and supports access to finance.

##### 6. Translate the pilot into a finance-ready mini case.

Summarize capex, opex, savings or revenues, payback expectations, and operational risks. This is often enough to start discussions with financiers or donors.



### FOR MSMEs (how to support MSMEs through Services):

#### 1. Offer a “Circular Agri-food Clinic” as a structured service.

Provide a practical package: baseline and diagnosis, circular option shortlist, partner matchmaking, and a simple action plan with costs and timelines. Sample forms and guide is available in the Green Toolkit.

#### 2. Use aggregation to make the opportunity investable.

One MSME's waste stream may be too small to attract processors or financiers. BSOs can bundle several MSMEs or producer groups into one pipeline with standard documentation.

#### 3. Create a trusted ecosystem roster and referral pathway.

Build a roster of processors, labs, packaging providers, technology suppliers, and buyers. The BSO role is coordination and quality filtering, not delivering the technical works.

#### 4. Support compliance and risk management early.

Help MSMEs anticipate what standards, food safety, licensing, or environmental approvals may apply, especially where by-products are used as inputs.

#### 5. Turn common bottlenecks into evidence-based advocacy.

If multiple MSMEs face the same constraint (permitting, standards, lack of incentives, procurement rules), BSOs can consolidate lessons from pilots into targeted policy asks.

### Section 4: Primary Target Audience

- **Primary:** Agri-food MSMEs, farmers, and producer groups (including processors and cooperatives) that want to reduce losses, valorise by-products, improve resource efficiency, and create new revenue streams through circular practices.
- **Secondary:** BSOs and ecosystem actors (chambers, associations, incubators, accelerators, extension and advisory providers) that can convene stakeholders, package circular services, aggregate MSME pipelines, and broker partnerships from inputs to end markets.
- **Also relevant for:** Policymakers and public institutions (agriculture, environment, local government, standards and food safety bodies) and finance providers and donors supporting circular investments through grants, blended finance, green loans, and de-risking instruments.

## Section 5: Background and Context<sup>24</sup>

### Challenge Addressed:

European food systems generate massive waste, with over 30% of food lost or wasted. Intensive agriculture contributes to GHGs, soil depletion, and nitrate pollution. Dutch farms face growing environmental regulations and pressure to decouple food production from ecological harm.

### Local Context

The Netherlands is a global leader in agri-tech and food exports, but densely populated and environmentally sensitive. The Food Valley region was chosen to pilot circular transitions due to its proximity to Wageningen UR and active agri-business cluster.

### Policy Linkage:

- Dutch Circular Economy 2050 Strategy
- CAP Eco-Schemes (EU Common Agricultural Policy)
- Sustainable Development Goals (SDG 2, 12, 13)

### Target Groups:

- Farmers and agri-cooperatives
- Food processing industries
- Universities and applied research centers
- Bio-based packaging innovators

## Section 6: Description of the Practice

### Core Activities

1. Development of closed-loop farm models (manure to fertilizer, crop residues to feed)
2. Bio-based packaging prototypes from food byproducts
3. Reprocessing of supermarket waste into animal feed
4. Carbon accounting and circular design training for SMEs

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<sup>24</sup> Wageningen UR Circularity Reports (2022–2024)  
Foodvalley Circular Ecosystem Brief (2023)

### Partners Involved

- Foodvalley NL (coordinator)
- Wageningen University (research)
- CIRCOFARM (farmer innovation network)
- Multinational firms (DSM, FrieslandCampina, Unilever)

### Funding Resources

Dutch Ministry of Agriculture, EU Horizon 2020, PPP co-financing

### Technologies and Innovations

- Bio-refinery units for food and feed
- Digital nutrient tracking systems
- Mycelium-based packaging development

### Policy Framework

- EU Farm to Fork Strategy
- National Climate Agreement
- Agro-Circularity Roadmap 2030

## Section 7: Outcomes and Impact

### Key Results

- Over 100 farms piloting circular models with 20–40% reduction in emissions
- 50+ SMEs adopted bio-based packaging or upcycled food practices
- 15,000 tons of food waste diverted annually from landfills or incineration

### Sustainability Improvements

- Closed nutrient loops reduced synthetic fertilizer use by 35%
- Food processors achieved cradle-to-cradle certification
- Region gained international recognition as circular innovation hub

### Community Impact:

- Increased farmer income resilience via value-added waste streams
- Youth-led agri-tech startups emerged from university collaborations

### Measurement:

- Tracked via WUR's circularity metrics dashboard and Life Cycle Assessment (LCA) tools

## Section 8: Lessons Learnt and Recommendations



## Main Success Factors

1. Strong alignment between research, policy, and market actors
2. Public-private finance accelerated scaling
3. Circular transition embedded in regional branding and education

## Main Challenges

- Administrative burden of measuring circular KPIs
- Limited farmer familiarity with circular metrics and accounting

## Recommendations:

- Expand knowledge hubs to southern Europe and Global South
- Simplify circularity compliance tools for SMEs and farmers
- Link financial incentives (e.g., carbon credits) to circular performance

## Section 9: Linkage to the Green Forward Toolbox

This case is best applied through a “cluster to pilot to scale” pathway: diagnose resource losses, design one circular loop, pilot it with a small group of MSMEs, package the results into a bankable case, then scale through partnerships and evidence. The following Green Forward Toolbox modules and tools support that pathway:

- **Green Readiness and Strategy:** use Diagnostic Tools: MSMEs Sustainability Simple Self-Assessment, MSME Green Economy Readiness Assessment, and MSME Green Economy Readiness – Survey to screen MSMEs and producer groups, prioritize the most feasible circular opportunities, and identify the right entry point for piloting.
- **Circular Economy & Resource Flow Assessment:** use Tools: Circular Economy Implementation Roadmap to structure pilot planning and scale-up phases; Diagnostic Tool No.1: TEST Tool – Life Cycle Perspective Checklist to stress-test options and avoid shifting impacts from one area to another; then Circular Business Model Canvas to define the operating model and partner roles; Advanced Tool No.1: Identifying Sources of Waste With the Big Five Structural Wastes Tool to diagnose where losses happen in processing and logistics; and Tool No.2: Cost benefit Analysis Tool to quantify savings, revenue, and payback across the pilot and scale phases.
- **Green and Circular Innovation & Business Modelling:** use Tool No.1: Values and Vision Tool and Diagnostic Tool No.1: Value Proposition to sharpen the market logic for circular products or services (for example compost, bio-inputs, upcycled food products, or circular packaging). Use Tool No.2: Circular Business Model Roadmap to sequence implementation and partnership steps. BSOs can use Tool No.3: MSMEs Assessment Criteria – for BSOs to select pilot-ready MSMEs and use Tool No.6: Investment Pitch Deck and Presentation Guide to support market and partner engagement.
- **Green Finance & Investment Readiness:** use Tool No.1: Common Green Finance Screening Requirements to confirm what evidence financiers need; then use Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet and Tool No.2: Investment Case Template to convert pilot results into a finance-ready package (baseline, assumptions, cash flow logic, risks, and mitigation).

- **Certification and Green Labelling Tools:** where circular agri-food products require certification, use Tool No.1: Green Certification Pathway Map, Tool No.2: Green Labeling Development Kit, and Tool No.2: Certification Implementation Strategy to choose the right pathway and plan compliance (especially relevant for food safety, packaging claims, and export requirements).
- **Green Marketing Tools:** use Tool No.1: Green Marketing Builder (BSO to MSME) to communicate circular performance and resource savings using evidence-based claims, strengthening market access while reducing greenwashing risk.
- **Green Monitoring and Evaluation Frameworks:** use Tool No.1: Monthly Environmental Dashboard, Tool No.2: Quarterly Business Impact Report, and Tool No.3: Evaluation Framework to track volumes recovered, resource savings (water, inputs, packaging), cost impacts, jobs, and inclusion outcomes, and to build a credible evidence base for scaling and policy dialogue.

## Section 10: Supporting Materials

- WUR Circular Farming Guidebook (2023)
- Media coverage in The Guardian and Euractiv (2023)
- Infographic: Nutrient Flows in Circular Farms (WUR, 2022)
- <https://foodvalley.nl/en/innovation-field/circular-agrifood>

## Section 11: Cross-Cutting Themes

This case is valuable because it illustrates that circular economy in agri-food is not a technology story. It is a system story, where research, market incentives, standards, finance, and collaboration are aligned. The cross-cutting themes below are the ones that are most transferable to Palestine, even if the scale and infrastructure are very different.

### 1. Collaboration is the real infrastructure

Circular agri-food systems scale when actors coordinate as a value chain, not as isolated projects. The transferable lesson for Palestine is that BSOs can act as conveners and matchmakers, building small coalitions around one loop (by-products, packaging, water reuse, composting) and reducing transaction costs between suppliers, processors, and buyers.

### 2. Evidence and measurement make circularity investable

Circularity becomes bankable and scalable when it is measurable. A light baseline plus a few indicators (volumes recovered, costs avoided, revenues generated, quality outcomes) turns pilots into credible investment cases and reduces greenwashing risk. This directly connects to the toolbox monitoring tools and reporting templates.

### 3. Compliance and standards shape what is feasible

In agri-food, circular loops must be designed with food safety, quality, and environmental compliance in mind. The cross-cutting lesson is to anticipate licensing, standards, and risk controls early so pilots do not fail later due to regulatory barriers or safety concerns.

### 4. Market pull matters more than good intentions



Circular solutions scale when they improve competitiveness: cost reductions, traceability, buyer requirements, export readiness, or procurement advantage. For Palestine, the lesson is to start with loops that have a clear buyer or offtake pathway, then expand once demand is proven.

### 5. Finance follows structured pipelines, not one-off projects

Most circular opportunities are too fragmented to attract finance individually. They become financeable when BSOs bundle MSMEs or producer groups into a pipeline with standard documentation, comparable baselines, and repeatable project types. This is where readiness screening and investment case packaging tools become essential.

## 4. Green Finance and ESG – Palestinian Example

### Section 1: Basic Information

Title of Case Study	<b>Green Financing for a Sustainable Future: Bank of Palestine's Solar Energy Loan Program</b>
Country / Region	Palestine
Organization / Entity Name	Bank of Palestine (BoP)
Type of Institution	Private sector (Banking)
Date of Case Study	July 2025

### Section 2: Summary

Bank of Palestine's Green Loans programme positions green finance as a practical entry point for households and MSMEs to reduce energy costs, improve resilience, and invest in renewable energy and energy efficiency upgrades. The programme supports financing for eligible green investments and is linked to the SUNREF mechanism, which combines lending with technical support and an investment incentive in the form of a grant. On its Green Loans page, BoP explains that the SUNREF grant is delivered through its agreement with the French Development Agency, and that beneficiaries may receive loans, technical consultations, and grants calculated as a percentage of the loan value.

The programme is anchored in Palestine's market reality where electricity costs are high, and supply constraints create operational risk for businesses and households. SUNREF Palestine, as described by AFD, is designed specifically to help economic actors seize opportunities from the energy and environmental transition, and it has operated in the Palestinian territories since 2018. After SUNREF I, a second phase was launched in 2022 with Bank of Palestine and Cairo Amman Bank, supported by Proparco and the

European Union, to expand green finance and support implementation of energy efficiency and renewable energy projects through a combination of loans, EU grants, and technical assistance<sup>25</sup>.

From an implementation perspective, BoP frames the product as a bankable, performance-based investment, not a vague sustainability concept. The bank sets clear credit and documentation expectations, including that the customer is creditworthy, the project is income-generating and able to repay, and that applicants provide basic documentation such as a technical study, price quotations, and recent electricity bills. BoP also notes that installing a solar energy system requires approval from the relevant electricity distribution company and that the installation should be technically certified, which reduces technical and compliance risks for both clients and the bank<sup>26</sup>.

Strategically, this case illustrates how a local financial institution can shift ESG from theory into market practice by creating a dedicated green product that lowers transaction barriers, improves investment confidence, and accelerates renewable energy uptake. It also links to BoP's broader positioning on sustainability and disclosure, reflected in its sustainability reporting efforts aligned with international reporting standards, reinforcing the idea that green lending is part of a wider ESG approach rather than a standalone loan product.



### Section 3: How to Apply?

This case is useful because it shows how ESG becomes practical when it is built into a real service offer that SMEs can access. The core lesson is not “take a green loan”, it is how to package an energy investment, so it is financeable, implemented with quality, and then documented as measurable improvement in costs, resilience, and environmental performance.

#### FOR MSMEs (What to do):

<sup>25</sup> <https://www.afd.fr/en/sunref-palestine-afd-group-green-finance-label>

<sup>26</sup> <https://bankofpalestine.com/en/business/loans/green-loans>

### **1. Start with a simple energy baseline.**

Collect recent electricity bills and estimate your average monthly cost and consumption. Identify the biggest drivers (production equipment, refrigeration, HVAC, lighting). This baseline is what makes savings and payback credible.

### **2. Decide what you want to achieve first.**

Choose one clear objective: reduce electricity cost, reduce outages risk, improve business continuity, or meet buyer expectations on sustainability. This helps you choose the right system size and avoids overspending.

### **3. Get two or three quotes from certified suppliers and compare like for like.**

Ensure quotes include system size, expected production, warranty, installation timeline, O&M commitments, and monitoring options. Do not compare only on price; compare on performance and service.

### **4. Prepare a finance-ready mini package.**

Keep it simple: baseline bills, supplier quote, expected savings range, and basic repayment capacity. A clean 1-2 pages summary helps the bank assess the loan quickly. Refer to the Green Toolkit for Guidance.

### **5. Treat monitoring as part of the investment.**

Track monthly electricity bills and system performance (generation, downtime). This protects you from underperformance and gives you evidence for future financing and ESG requests.

### **6. Document results and turn them into a business advantage.**

Record savings and any emissions reduction estimate (even rough, using standard factors if available). This becomes useful for customer questionnaires, procurement bids, and simple ESG reporting.



### FOR BSOs (How to Support MSMEs through services):

#### 1. Offer an “Energy and Green Finance Readiness Clinic”.

Help MSMEs build their baseline, choose feasible interventions, and prepare a simple finance pack that banks can process.

#### 2. Build a trusted referral pathway.

Maintain a roster of credible solar suppliers and auditors, and a clear referral process that protects MSMEs from low-quality providers and reduces transaction cost.

#### 3. Partner with banks to reduce friction.

Co-design simple checklists, standard documentation, and awareness sessions so MSMEs understand eligibility, timelines, and how to avoid common mistakes. Sample forms and guide is available in the Green Toolkit.

#### 4. Aggregate demand where possible.

Bundle multiple MSMEs into a pipeline so the bank and suppliers can serve them more efficiently, and so MSMEs can benefit from better terms and faster processing.

#### 5. Use results as evidence for advocacy.

When MSMEs hit common barriers (grid connection delays, permitting issues, unclear standards), consolidate evidence and convert it into focused recommendations for regulators and utilities.

## Section 4: Primary Target Audience

- **Primary:** Palestinian MSMEs seeking lower energy costs and higher resilience through renewable energy investments, and that need accessible, practical financing to do so.
- **Secondary:** BSOs and business networks that can provide readiness support, standardize documentation, broker trusted suppliers, and help MSMEs access green finance efficiently.
- **Also relevant for:** Finance providers and policymakers who want to expand green lending, reduce market friction, and strengthen enabling conditions for safe, bankable renewable energy adoption.

## Section 5: Background and Context

### Challenge Addressed:

This programme responds to a set of interlinked challenges that shape energy and competitiveness in Palestine:

- **High cost of energy and limited reliability:** Palestine faces high energy service costs, constrained supply, and increasing demand, which collectively affect household welfare and business competitiveness.
- **Structural dependence on imported electricity:** A large share of electricity is imported, creating exposure to external price and supply conditions and reinforcing economic vulnerability. A recent MAS analysis highlights that Palestine relies heavily on imports from the Israeli Electricity Company, creating dependency and burdens on public finances.
- **Upfront investment barrier:** Even when solar or energy efficiency measures make financial sense, many households and MSMEs cannot afford the upfront capital cost, and often lack the documentation needed to access finance.
- **Technical and compliance barriers in implementation:** Solar projects require coordination with distribution companies, technical design, and certification. BoP explicitly notes the need for approval by the designated electricity distribution company and that installation should be technically certified, reflecting the practical steps that can slow or derail adoption if not managed well.

### Local Context

In the Palestinian context, energy is not only a utility issue, but also a cost structure issue for MSMEs and a resilience issue for households. When electricity costs are high and supply is constrained, businesses face higher operating costs and higher risk of disruptions. For many MSMEs, energy efficiency and distributed solar become one of the few available levers to reduce recurring expenses, strengthen business continuity, and improve medium-term competitiveness.

At the same time, Palestine has a strong technical rationale for solar solutions. The issue is not only technical potential, but also execution and affordability. This is where green lending becomes a practical enabler, helping households and MSMEs move from intention to implementation.

### Programme context and why SUNREF matters

BoP's green lending is connected to SUNREF, AFD Group's green finance label. SUNREF combines credit lines, European Union grants, and technical assistance to incentivize and de-risk green investments, making projects more affordable and implementation more structured.

The second phase, SUNREF II, was launched with Bank of Palestine and Cairo Amman Bank, supported by Proparco and the European Union, explicitly to help local banks scale lending to renewable energy and energy efficiency projects. Proparco notes the programme's relevance in Palestine due to high energy cost, limited electricity supply, and rising demand, and highlights that SUNREF is aligned with Palestinian priorities to encourage investment in renewable energy and energy saving investments in the private sector.

### Broader Policy Links:

The programme is consistent with national direction toward renewable energy and energy efficiency. Palestine's climate and energy policy framework includes instruments such as the Decree Law on Renewable Energy and Energy Efficiency (2015) and national planning that supports renewable energy deployment and energy efficiency actions.

In practical terms, the BoP green lending approach supports policy goals by enabling households and MSMEs to adopt renewable energy and efficiency measures through a market-based mechanism rather than relying only on public investment.

### Target Groups:

- **Households and homeowners** seeking to reduce electricity bills and improve energy reliability through rooftop solar and related measures.
- **MSMEs across sectors** (industry, services, agriculture, commercial) looking to reduce operational costs, protect margins, and strengthen resilience through energy investments.
- **Women and youth led businesses**, especially where energy cost is a major share of operating expenses (food processing, manufacturing, services), and where savings can unlock reinvestment and job stability.
- **Rural and peri-urban communities and enterprises** that face higher vulnerability to energy constraints and where distributed solutions can offer practical relief.

## Section 6: Description of the Practice

### Core Activities

Bank of Palestine structured its Green Loans as a dedicated product line to finance renewable energy, energy efficiency, and other eligible environmental projects, with a repayment period that can extend up to ten years and with access to technical, non-financial consultations under the SUNREF mechanism. The product is positioned to help households and private sector clients convert high energy costs into a bankable investment case, rather than treating solar as a standalone purchase.

Operationally, the practice is built around a clear pipeline that reduces both credit and technical risk:



- **Eligibility and bankability screening:** clients must be creditworthy and the project must be income-generating and able to repay instalments, which frames the loan as a performance-based investment.
- **Standard documentation requirements:** BoP requires a technical study, price quotations, and an electricity bill history (six months stated on the BoP page), which helps quantify baseline consumption and expected savings.
- **Technical compliance and permitting pathway:** BoP explicitly notes that solar installation requires approval from the designated electricity distribution company and that the installation should be technically certified, which strengthens implementation quality and reduces underperformance risk.
- **Incentives and technical assistance through SUNREF:** SUNREF combines lending with technical assistance and an investment incentive. For SUNREF Palestine, investment premiums are designed as grants that vary as a percentage of the total loan, and technical assistance is provided to help projects move from application through assessment and implementation.
- **Expanded focus under SUNREF II:** SUNREF II was launched with a stronger emphasis on energy efficiency, and it also included an Islamic lending offer through the inclusion of Arab Islamic Bank (part of BoP Group), widening access for different client segments.

### Partners Involved

- **Bank of Palestine (BoP):** product owner, lender, and client-facing delivery channel.
- **Proparco (AFD Group)** and the European Union: core programme partners in SUNREF II, providing credit lines, investment incentives, and technical assistance support to scale green lending and reduce market friction.
- **AFD Group, SUNREF platform:** SUNREF is the AFD Group green finance label supporting renewable energy and environmental transition through local financial institutions.
- **PENRA and the SUNREF implementation support ecosystem:** SUNREF Palestine's technical assistance architecture includes coordination through the Palestinian energy and environment institutional ecosystem. Econoler notes that a SUNREF implementation unit was established at the Palestinian Energy and Environment Research Centre (PEC), under PENRA, with a TA provider supporting programme supervision and capacity building.
- **Local suppliers, installers, and distribution companies:** the operational model relies on certified technical delivery and distribution company approvals to ensure safe grid connection and quality installation.

### Funding Resources

Funding is blended and designed to scale the green loan portfolio while lowering risk for end beneficiaries:

- **SUNREF II package:** Proparco and the EU launched SUNREF II with credit facilities to partner banks including a USD 30 million credit line for Bank of Palestine, alongside EU grant support financing investment incentives and technical assistance.
- **Investment incentives and technical assistance:** Proparco confirms that EU grants under SUNREF II are used to finance both investment incentives and technical assistance, aimed at unlocking demand, especially for energy efficiency projects.



- **SUNREF design logic for incentives:** under SUNREF Palestine's model, investment premiums are structured as grants that vary by project type and can range from 15 percent to 30 percent of the loan amount upon completion of the project, supported by the EU<sup>27</sup>.

### Technologies and Innovations

- **Primary technology:** grid-tied solar PV systems for households and businesses, implemented with required distribution company approvals and technical certification.
- **Eligible broader green investments:** BoP's Green Loans also finance other energy and environmentally friendly projects, including recycling projects (cardboard, glass, plastic), showing that the product is designed as a green finance platform rather than a single-technology loan.
- **Financial innovation:** a dedicated green product line linked to SUNREF that blends credit, free technical assistance, and investment incentives, and uses structured documentation requirements to reduce risk and accelerate adoption.

### Section 7: Outcomes and Impact

#### Key Results

- **Financial:** Financed thousands of individual solar projects, leading to a multi-million-dollar green loan portfolio. For customers, electricity bills were reduced resulting in significant long-term savings and faster loan payback.
- **Environmental:** Facilitated the installation of several megawatts (MW) of solar capacity, contributing to a measurable reduction in CO2 emissions annually.
- **Social:** Increased energy security and autonomy for families and businesses. SMEs that adopted solar power enhanced their operational stability and competitiveness.

#### Sustainability Improvement:

The initiative directly improves environmental sustainability by promoting clean energy, economic sustainability by reducing costs for citizens and businesses, and social sustainability by enhancing energy security.

#### Impact on Beneficiaries:

Beneficiaries report improved quality of life due to uninterrupted power and significant financial relief from lower utility bills. Businesses cite the ability to re-invest savings into growth.

#### Inclusion:

The program is accessible to a wide range of clients, including those in rural and marginalized communities, promoting equitable access to sustainable technology.

### Section 8: Lessons Learnt and Recommendations

#### Main Success Factors

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<sup>27</sup> <https://www.afd.fr/en/carte-des-projets/sunref-palestine-developing-market-green-investments>



A simplified application process, strong partnerships with reputable technology suppliers, and concessional funding from IFIs were key success factors. Marketing that focused on "saving money" was more effective than focusing only on "being green."

### Main Challenges

- High upfront costs of solar systems
- Limited initial client awareness of long-term return on investment
- Regulatory requirements for grid connection

### Replication and Scaling

- High potential for replication across the MENA region
- Opportunity to finance larger commercial solar projects
- Introduction of new green products for energy efficiency
- Expansion into water management solutions

Not only BoP has taken clear and defined steps to integrate ESG into its own structure as a corporation, but it also reflected ESG in the services it provided to make them more green, socially impactful and aligned with national goals and SDGs.

### Section 9: Linkage to the Green Forward Toolbox

This practice links directly to the Green Forward Toolbox because it is, in essence, a "finance-ready pathway" for MSMEs:

- 1. define the green measure clearly (solar PV),**
- 2. package it in a way lenders can assess,**
- 3. track results so the loan delivers measurable savings and credible impact over time.**

The following toolbox modules and tools support that full pathway for both MSMEs and BSOs.

- **Green Finance & Investment Readiness:** Use these tools to turn a solar investment idea into a lender-ready request and to help MSMEs compare options and prepare the right documentation.
  1. Green Finance Options in Palestine – Quick Map (As of Q4 2025): helps MSMEs and BSOs quickly understand available green finance windows and position BoP's green loan offer within the wider market.
  2. Tool No.1: Common Green Finance Screening Requirements: use as a pre-check to confirm basic eligibility, required documents, and typical underwriting expectations before submitting a loan request.
  3. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet: use the SAVINGS & SIZING SHEET – ROOFTOP PV (grid-tied) to translate bills, tariffs, system size, yield assumptions, capex, and O&M into a simple savings and payback picture that a lender can review.
  4. Tool No.2: Investment Case Template: use to package the PV investment into a short, structured mini business case (cost, savings logic, risks, mitigation, and repayment comfort).

- **ESG and impact management Tools:** Use these tools to strengthen credibility and show the business has basic ESG discipline, which helps with lender confidence, partner trust, and buyer requirements (even if the MSME is not “formally reporting”).
  1. Diagnostic Tool No.1: ESG Self-Assessment Tool: quick baseline of ESG gaps relevant to finance readiness and risk management.
  2. Diagnostic Tool No.2: Logbook Sections: keep a light record of actions, evidence, and results (useful for internal management and future due diligence).
  3. Tool No.1: Stakeholder Mapping Template and Tool No.2: Engagement Action Plan Template: useful where the project involves installers, communities, landlords, or local authorities, or where the MSME wants to show clearer governance and responsibility.
- **Green Monitoring and Evaluation Frameworks:** Use these tools to track performance after loan approval and avoid the common failure point: “savings claimed but not proven.” This also supports future scale-up loans.
  1. Tool No.1: Monthly Environmental Dashboard: track basic energy indicators consistently (baseline vs. actual).
  2. Tool No.2: Quarterly Business Impact Report: convert technical performance into management language: cost savings, operational resilience, and business benefits.
  3. Tool No.3.: Evaluation Framework: use for periodic review and learning, especially if BSOs are supporting multiple MSMEs through the same finance pathway.
- **Green Marketing Tools:** Use tool No.1: Green Marketing Builder (BSO to MSME): helps BSOs coach MSMEs to translate “solar financed through a green loan” into accurate, market-ready messaging supported by proof.

## Section 10: Supporting Materials

- **Primary Sources:** Bank of Palestine's official Annual Reports and Sustainability Reports.
- **Supporting Sources:** Press releases and publications from their international partners, such as the International Finance Corporation (IFC) and the French Development Agency (AFD), detailing their credit lines and support for the green loan program.
- **Where to look:** The "Investor Relations" or "About Us" sections of the Bank of Palestine website.

## Section 11: Cross-Cutting Themes

This case is not only about a bank loan product. It sits at the intersection of green finance, enabling conditions, SME readiness, ESG credibility, and ecosystem coordination. The cross-cutting themes below are the ones that matter for replication in Palestine.

### 1. Green finance readiness as an ecosystem service, not only a bank product

The strongest lesson is that uptake depends on whether MSMEs can submit a clean, bankable file. This is where BSOs add real value: standardized readiness support, documentation, and supplier referrals. Without this ecosystem layer, even good green finance products stay underutilized or serve only “easy” clients.



**2. De-risking and incentives shape adoption more than awareness does**

SUNREF’s structure shows that incentives and technical assistance change the economics and reduce perceived risk. In Palestine, awareness is not the main gap. The bigger gap is affordability, uncertainty, and fear of making a costly wrong decision. Any similar model needs a clear, simple client pathway and a mechanism that reduces risk at the point of decision.

**3. ESG becomes practical when it is tied to measurable outcomes**

This case connects ESG to real operational performance: reduced bills, improved resilience, documented savings, and basic governance around supplier selection and maintenance. That is the most useful “local ESG” message for MSMEs. ESG does not need to start as reporting. It starts as disciplined management, measurement, and credible claims.

**4. Quality assurance and supplier governance are as important as credit terms**

A green loan can fail if the technical delivery fails. Underperformance, weak warranties, and poor installation practices create financial and reputational risk for both the borrower and the bank. This is a cross-cutting issue across solar, energy efficiency, water efficiency, and circular solutions. It reinforces the need for supplier rosters, basic technical screening, and clear accountability for O&M.

**5. Enabling environment and approval processes can make or break scale**

Grid-connection approvals, distribution company requirements, and technical certification processes directly affect uptake timelines and client confidence. These barriers are not “policy theory”, they are the practical friction points that slow adoption. BSOs can play a role by capturing recurring bottlenecks and converting them into focused recommendations for regulators and utilities.

**6. Inclusion and equitable access require deliberate design**

Green lending can easily concentrate in urban, higher-income segments unless the programme and its partners actively lower barriers for smaller MSMEs and vulnerable communities. Inclusion here is not only about eligibility. It is about simplified processes, clear guidance, outreach through BSOs, and aggregation models that allow smaller clients to be served efficiently.

**5. Local ESG Example – Banking Sector**

**Section 1: Basic Information**

Title of Case Study	<b>Green Lending with Incentives and ESG Integration: The National Bank’s EBRD Green Economy Financing Facility (GEFF) Programme and Sustainability Reporting</b>
Country / Region	Palestine
Organization / Entity Name	The National Bank (TNB)

Type of Institution	Private sector (Banking)
Date of Case Study	2024–2025 (Sustainability Report covering 2024 performance; GEFF programme operationalized/announced in 2025)

## Section 2: Summary

This case study presents how The National Bank (TNB) translates ESG from internal reporting into an external market offer through a structured green lending programme. TNB has positioned itself as a regional leader in ESG disclosure within Palestine’s financial sector through its third Sustainability/ESG report (2024), aligned with internationally recognized frameworks such as GRI and the UN Sustainable Development Goals (SDGs).

On the green finance delivery side, TNB’s green lending offer is implemented through its collaboration with the European Bank for Reconstruction and Development (EBRD) under the Green Economy Financing Facility (GEFF). On its official GEFF page, TNB describes the programme as supporting the transition to a sustainable economy by financing projects that reduce emissions and improve efficiency in the use of energy, water, and natural resources, with concessional terms, technical services, and incentives. The programme is designed to be practical and bankable: it offers multi-currency financing, a per-project limit, and a clear incentive range.

EBRD confirms that this partnership includes an EBRD financing facility to be on-lent to Palestinian sub-borrowers (including MSMEs and residential clients) for renewable energy, energy efficiency, water/resource efficiency and circular economy projects, with EU-funded technical assistance and investment grants of up to 25% of eligible sub-project costs.

A strong value of this case is that it shows how a bank can build a credible pipeline by combining:

- Clear eligibility and project categories,
- Incentives that reduce upfront cost, and
- ESG integration and disclosure that builds market confidence and reduces reputational risk.

## Section 3: How to Apply?

This case is useful because it shows that green finance works best when it is treated as a structured pathway, not a one-off loan. The practical lesson for MSMEs is package your green investment so it is financeable, implementable, and measurable. For BSOs, the lesson is: build the readiness pipeline and reduce friction between MSMEs, suppliers, and banks.

### FOR MSMEs and households (What to do):

#### 1. Start with a simple baseline (energy/water/waste)

Collect what you already have: electricity/water bills, operational hours, main equipment list, and any waste hauling invoices or estimates. A basic baseline is enough to size the investment and explain savings credibly.

## 2. Pick one investment “track” and keep it focused.

Do not combine five upgrades into one messy request. Choose one priority:

- Energy efficiency (e.g., motors, HVAC, insulation, lighting)
- Renewable energy (e.g., rooftop solar PV where feasible)
- Water efficiency (e.g., pumps, reuse systems, process optimization)
- Waste reduction or circular upgrades (e.g., segregation, reuse loops, recycling processing where relevant)

This aligns with the GEF categories described by TNB and EBRD.

## 3. Check incentives early and plan around them.

Under the GEF programme, incentives can range between 10% and 25% (as described by TNB), and EBRD confirms EU-backed investment grants up to 25% of eligible costs. Treat the incentive as “earned” through compliance and completion, not guaranteed cash at the start.

## 4. Use qualified suppliers and insist on performance details.

Request 2–3 quotations that include: expected savings/production, warranties, installation timeline, O&M responsibilities, and monitoring arrangements. Most green investments fail due to poor specification and weak after-sales support.

## 5. Prepare a clean, finance-ready package.

Keep it short and decision-friendly:

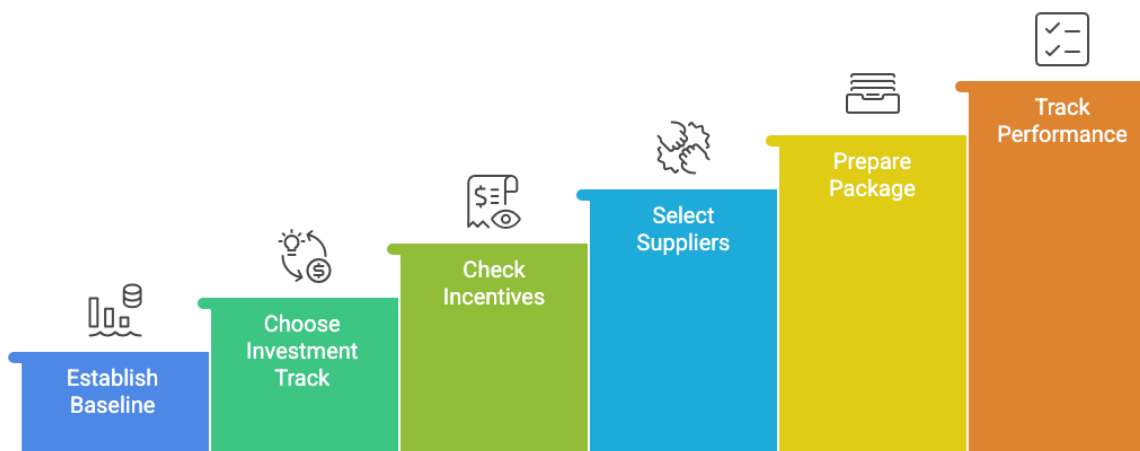
- Baseline bills and operating profile
- Supplier quotation(s)
- Simple savings logic and payback range
- Basic risks and mitigation (maintenance plan, permitting, operational disruption)

This is what makes your request processable.

## 6. Track performance monthly once implemented.

Track 3–5 indicators consistently (bill, consumption, output, downtime, basic savings). This protects you and builds evidence for future financing, buyers, and ESG requests.





### FOR BSOs (How to Support MSMEs through Services):

#### 1. Create a “Green Finance Readiness Clinic” as a standard service.

Offer a short clinic that helps MSMEs: build a baseline, choose a feasible measure, compare quotations, and prepare a mini-investment case.

#### 2. Standardize screening and documentation.

Use one checklist and one short template so MSMEs arrive at the bank with similar-quality submissions. Standardization reduces drop-off and rejection. Sample forms and guide is available in the Green Toolkit.

#### 3. Build a trusted ecosystem roster.

BSOs should not be installers. Instead, keep a roster of credible auditors, suppliers, EPCs, and service providers and manage a referral pathway.

#### 4. Bundle demand into pipelines.

Banks and suppliers move faster when there is volume. BSOs can group multiple MSMEs into a pipeline (e.g., 10–20 rooftop PV candidates; 10 energy-efficiency upgrades) with standard documentation.

#### 5. Use aggregated MSME experience for policy feedback.

Track recurring blockers (approvals, standards, grid procedures, lack of incentives, low awareness) and convert them into short, evidence-based advocacy asks.

### Section 4: Primary Target Audience

- **Primary:** MSMEs and residential clients / housing associations seeking financing for eligible green investments (renewable energy, energy efficiency, water management, waste reduction, green buildings, circular economy, etc.)
- **Secondary:** BSOs and sector associations supporting MSMEs with readiness, documentation, and access to suppliers/finance.

- **Also relevant for:** Policymakers and regulators (because scaling green lending depends on enabling standards, approvals, and market rules), and Donors/IFIs interested in de-risking and scaling MSME green investment.

## Section 5: Background and Context

### Local Context

In Palestine, green investment is often a competitiveness issue, not a luxury. MSMEs face recurring operating cost pressures (energy and water), uncertainty, and limited room for capital expenditure. Even where solar, efficiency, or water upgrades are economically justified, the upfront investment barrier and weak access to tailored finance can prevent adoption.

### Programme context: ESG and sustainable finance as one system

TNB's Sustainability Report highlights a strategic direction that goes beyond CSR: integrating ESG into banking operations and finance decisions. TNB reports that it continued developing its environmental performance through clean energy investment and operational efficiency, including renewable energy generation linked to Noor Jericho Solar Plant, and it describes integrating ESG considerations into its lending and investment practices<sup>28</sup>.

### Why GEF is important

TNB's GEF programme is designed to reduce friction in green investment by combining:

- Concessional financing and multi-currency options,
- Technical services, and
- Financial incentives,

to accelerate adoption of resource-efficient and low-carbon investments.

## Section 6: Description of the Practice

### Core Activities

TNB designed a green lending offer under its collaboration with EBRD GEF to finance projects that contribute to environmental protection and improved resource and energy efficiency. TNB specifies that the programme supports green investments through concessional financing, technical services, and financial incentives for projects that reduce emissions and improve efficiency of energy, water, and natural resource consumption.

Programme features (as stated by TNB):

- Financing in multiple currencies (USD, ILS, EUR, JOD)
- Financing limit up to EUR 2,000,000 per project
- Financial incentives ranging between 10% and 25%

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<sup>28</sup> <https://www.tnb.ps/uploads/files/RSGAR2024.pdf>

Eligible project types (as stated by TNB): Energy efficiency, renewable energy, water management, waste reduction, green buildings, soil protection, circular economy, and environmentally friendly electric/hybrid vehicles<sup>29</sup>.

### Partners Involved

- The National Bank (TNB): programme delivery channel and lender.
- EBRD: financing facility provider and programme partner under GEF.
- European Union: supports with technical assistance and investment grants (as described by EBRD).
- Technical assistance providers and verification ecosystem: to support eligibility, implementation quality, and incentive/grant processes (as per GEF model described by EBRD).

### Funding Resources

EBRD reports providing US\$ 5 million to TNB under the GEF framework to be on-lent to Palestinian sub-borrowers for eligible green investments, combined with EU-funded technical assistance and investment grants of up to 25% of eligible sub-project costs.

### Technologies and Innovations

- **Green investment areas financed:** renewable energy, efficiency, water/resource efficiency, circular economy projects, and green technology/services supporting supply chains.
- **Financial innovation:** green lending with incentives and technical support to reduce upfront barriers and make investments bankable.
- **Internal ESG integration:** TNB's sustainability reporting and strategy explicitly reference ESG integration in finance and operations (important for credibility and governance).

## Section 7: Outcomes and Impact

Because GEF is a facility approach, one key "output" is the mobilization of resources and the creation of a structured financing channel.

### Programme-level outputs

- US\$ 5 million EBRD facility under GEF to be on-lent to MSMEs and residential clients for eligible green investments.
- Investment grants up to 25% (EU-funded) + technical assistance supporting implementation quality and project verification.
- Clear project categories and incentive ranges (10%–25%), plus multi-currency access and project size ceilings (as per TNB's programme description).

### Internal sustainability and credibility outcomes- from TNB reporting:

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<sup>29</sup> <https://www.tnb.ps/en/page/GEF>

- Renewable energy generation via its share in Noor Jericho Solar Plant, reporting 1,807,509 kWh generated in 2024 and quantified avoided emissions.
- Continued emphasis on integrating ESG into lending and investment practices and building sustainable finance as a strategic pillar.
- Positioning itself as an early mover in solar investment among Palestinian banks, including reference to its investment share in Noor Jericho (1.17 MW mentioned in the report).

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- Blending finance with incentives and technical assistance reduces the biggest barrier (upfront cost and uncertainty) and improves implementation quality.
- Clarity on what is eligible (categories like energy efficiency, renewable energy, circular economy) makes green lending easier for MSMEs to understand and for BSOs to package into pipelines.
- ESG integration and disclosure strengthen credibility and reduce reputational risk for banks, which matters in fragile contexts.

### Main Challenges

- **Low-quality suppliers and underperformance risk.**
- **Documentation gaps:** MSMEs often lack basic baselines, feasibility notes, and coherent payback narratives.
- **Verification and monitoring burden:** incentives/grants require compliance evidence; without a simple tracking approach, uptake slows.

### Recommendation for Replication and Scaling

- **For BSOs:** make “green finance readiness” a repeatable service line with standard tools, rather than ad-hoc support.
- **For banks:** publish a simple applicant pathway and minimum documentation checklist (what to submit, how long it takes, common errors).
- **For policymakers/donors:** remove friction points (standards, approvals, procurement rules) and support supplier quality assurance systems.

## Section 9: Linkage to the Green Forward Toolbox

This practice links directly to the Green Forward Toolbox because it is, in essence, a “finance-ready pathway” for MSMEs:

- **Green Finance & Investment Readiness:**
  1. Green Finance Options in Palestine – Quick Map (As of Q4 2025)
  2. Tool No.1: Common Green Finance Screening Requirements
  3. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet
  4. Tool No.2: Investment Case Template

These tools help MSMEs and BSOs structure a finance-ready request and reduce bank processing friction.

- **ESG and impact management Tools:**
  1. Diagnostic Tool No.1: ESG Self-Assessment Tool
  2. Diagnostic Tool No.2: Logbook Sections
  3. Tool No.1: Stakeholder Mapping Template
  4. Tool No.2: Engagement Action Plan Template

These tools support ESG credibility and due diligence readiness, which is especially relevant when finance includes incentives and verification.

- **Green Monitoring and Evaluation Frameworks:**
  1. Tool No.1: Monthly Environmental Dashboard
  2. Tool No.2: Quarterly Business Impact Report
  3. Tool No3.: Evaluation Framework
- **Green Marketing Tools:** Use tool No.1: Green Marketing Builder (BSO to MSME): useful for communicating green finance and green upgrades responsibly (avoiding overclaims and greenwashing).

## Section 10: Supporting Materials

- The National Bank (TNB) – EBRD Green Financing Program (GEFF) page (programme purpose, features, incentives, eligible projects): <https://www.tnb.ps/en/page/GEFF>
- EBRD press release (2025) on financing to TNB under GEFF (facility size, eligible subprojects, EU grants/TA, trade finance): <https://www.ebrd.com/home/news-and-events/news/2025/ebrd-and-the-national-bank-promote-green-and-trade-financing-in.html>
- TNB Sustainability Report 2024 (ESG reporting alignment with GRI/SDGs; sustainable finance direction; Noor Jericho renewable energy generation and emissions avoidance): <https://www.tnb.ps/uploads/files/RSGAR2024.pdf>

## Section 11: Cross-Cutting Themes

This case shows how ESG becomes real when embedded into lending decisions and product design, rather than remaining a reporting exercise.

### 1. Green finance and ESG integration (not separate tracks)

This case shows how ESG becomes real when embedded into lending decisions and product design, rather than remaining a reporting exercise.

### 2. Circular economy mainstreaming through finance eligibility

By explicitly including circular economy projects among eligible categories, the programme gives circular investments a financing channel rather than leaving them dependent on grants only.

### 3. Partnership ecosystems

Successful uptake requires coordination between banks, BSOs, suppliers, and (where relevant) municipalities/regulators for approvals and standards.



#### 4. Measurement and credibility

The ability to show measurable outcomes (baseline vs. actual) is a repeated bottleneck across all thematic areas. This is where the toolbox M&E and ESG logbook tools become critical.

#### 6. Global ESG Best Practices

##### Section 1: Basic Information

Title of Case Study	<b>From Carbon Footprint to Competitive Edge: Aramex's Sustainable Logistics</b>
Country / Region	UAE / Jordan (MENA Region)
Organization / Entity Name	Aramex
Type of Institution	Private sector (Logistics & Transportation)
Date of Case Study	July 2025

##### Section 2: Summary

This case study focuses on Aramex, a global logistics provider founded in the MENA region, and its comprehensive approach to integrating sustainability into its core business model. Their efforts are centred on a dual strategy: reducing the company's environmental footprint through efficiency and renewable energy and creating social value through community empowerment. It addresses the green economy themes of waste reduction, renewable energy, and circular economy.

By transparently reporting on its ESG progress and investing in green tech, Aramex has not only cut operational costs but has also strengthened its brand reputation and client loyalty in a competitive market.

Aramex is a useful ESG best practice because it shows what "ESG integration" looks like in a high impact sector like logistics, where operational decisions directly shape emissions, cost, and service reliability. Aramex positions it as part of value creation and resilience, linking climate action, people, and governance into its core business model and reporting. Its integrated reporting approach is guided by internationally recognized frameworks, including the Global Reporting Initiative (GRI), the International Integrated Reporting Framework, UN Global Compact (UNGC), and CDP, and it aspires to align with SASB and IFRS, which reinforces credibility and comparability for stakeholders.

On the environment side, Aramex's approach is anchored in measurement discipline and operational action. It calculates its carbon footprint following the GHG Protocol (WBCSD/WRI) using an operational

control approach, and it notes that external audits validate data and methods, which is an important practice in a sector where emissions claims are often questioned. The company also highlights a history of emissions reduction and clean energy steps, including emissions reductions against baseline years and electricity production through solar farms in Amman and Dubai, signalling a shift from “commitment statements” toward implemented measures. It has also operationalized clean mobility, including early EV deployment in Amman (2017) and expansion of EVs in the UAE as part of a fleet electrification pathway.

Aramex’s social performance is framed through its “Delivering Good” corporate citizenship platform, built around three pillars: **community engagement**, youth **education and empowerment**, and **entrepreneurship**, with an added operational role in humanitarian and emergency relief. On responsible business conduct, it points to due diligence type practices such as externally validated human rights auditing across operations and suppliers, which is directly relevant to ESG risk management in logistics and delivery supply chains.

Finally, Aramex’s did structured reporting aligned to recognized frameworks, verified emissions accounting, and operational pilots (solar, EVs) linked to a longer-term transition plan. One important note for accuracy in our report: Aramex communications reference different net-zero timelines across sources (its sustainability overview mentions net zero by 2040, while a later corporate news item references net zero by 2050). We should treat the target year as something to be confirmed against the latest official integrated report before finalizing the narrative.

### Section 3: How to Apply?

This case is useful because it shows how ESG becomes operational when it is treated as a management system, not a report. The transferable lesson is not to copy Aramex’s scale or its global footprint.

#### FOR MSMEs (What to do):

##### 1. Start with a materiality shortlist, not a long ESG wish list.

Pick 5 to 8 issues that truly affect your business and your stakeholders. For most MSMEs this includes energy and fuel use, waste, worker health and safety, basic labor conditions, customer privacy, and supplier conduct. Make the shortlist based on where your costs, risks, and stakeholder pressure sit. Refer to the Green Toolkit for Guidance.

##### 2. Build a simple baseline and evidence file.

Collect what you already have: bills, fuel receipts, HR records, incidents, training logs, supplier lists. You do not need perfect data. You need consistency. One spreadsheet and a shared folder is enough to start.

##### 3. Choose one operational “climate lever” and one “people lever”.

- Climate lever examples: route optimization, maintenance to reduce fuel use, switching to efficient equipment, installing solar where possible, shifting to EVs or hybrid where feasible.
- People lever examples: basic OHS risk assessment, incident reporting, training, fair working hours, grievance channel.

#### 4. Make suppliers part of your ESG boundary.

Create a basic supplier code of conduct and integrate it into onboarding and contracts. Start with simple requirements: no child labor, safe working conditions, legal compliance, and a commitment to address complaints. For high-risk suppliers, do a light check once per year.

#### 5. Use verification lightly but credibly.

You do not need an external audit immediately, but you do need credibility. Do internal checks, keep documentation, and if possible, use a third-party for one key piece (for example a solar installer certificate, an energy audit, or a safety inspection). Do not make claims you cannot prove.

#### 6. Translate results into short, honest communication

Communicate what you did, what changed, and what you still struggle with. Avoid marketing language. Buyers and partners trust clear numbers and evidence more than slogans.



### FOR BSOs (How to Support MSMEs through Services):

#### 1. Offer an “ESG Starter Pack” service in a simple pathway.

A practical pathway can be: baseline and materiality shortlist, action plan (90 days), light monitoring template, and a short reporting note. Keep it standardized so MSMEs can complete it without heavy consultancy.

#### 2. Create templates and tools that reduce friction.

Provide ready-to-use: materiality matrix, ESG policy templates, supplier code of conduct, incident log, training log, simple dashboard, and short reporting format. This mirrors the discipline of the Aramex approach but at MSME scale.

### 3. Build an ESG peer learning model.

Run peer pods where MSMEs share what worked and what failed. ESG adoption accelerates when businesses learn from each other's operational realities, not from generic guidance.

### 4. Link ESG to market access and finance, not only awareness.

Help MSMEs understand how ESG evidence supports: access to buyers, supply chain compliance questionnaires, and green finance readiness. Position ESG as a competitiveness tool.

### 5. Promote credible reporting and greenwashing prevention.

Train MSMEs on how to make claims responsibly and how to reference evidence. Encourage them to state boundaries, assumptions, and limitations instead of overstating impact.

## Section 4: Primary Target Audience

- **Primary:** Logistics, transport, delivery, and supply-chain MSMEs (including courier services, distributors, cold chain operators, freight forwarders, and warehouse operators) that want to reduce fuel and energy costs, improve operational efficiency, meet buyer requirements, and strengthen safety and labor practices through a practical ESG system.
- **Secondary:** MSMEs in other sectors with high operational footprint (manufacturing, agri-food processing, construction services) that face similar ESG pressures: energy and emissions management, worker health and safety, supplier conduct, and basic governance and reporting discipline.
- **Also relevant for:**
  1. BSOs and SME support providers building ESG advisory services and tools (templates, dashboards, supplier codes, reporting formats) and running peer learning models.
  2. Policymakers and regulators interested in how ESG can be operationalized through standards, reporting expectations, and incentives, especially in transport and industrial sectors.
  3. Finance providers and large buyers that require ESG evidence from suppliers and MSME clients as part of due diligence and risk management.

## Section 5: Background and Context<sup>30</sup>

### Main Challenges

The logistics and delivery sector sits at the center of two accelerating pressures. First, it is operationally emissions intensive, driven by fuel use in transport, energy use in facilities, and the rapid growth of last mile delivery. Second, logistics is increasingly a core contributor to companies' Scope 3 emissions, which means large buyers are pushing ESG requirements down their supply chains and expecting logistics providers to provide credible emissions data and reduction pathways.

At the same time, sustainability risks in logistics are not only environmental. The sector is exposed to real social and operational risks such as worker health and safety, subcontracting and supplier standards, and service reliability under disruption. This is why Aramex frames ESG as a risk and resilience agenda, not only

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<sup>30</sup> <https://www.aramex.com/us/en/investor-relations-details/aramex-annual-integrated-report/aramex-2024-sustainability-report>

a reputation agenda, and why its approach emphasizes measurement, verification, and operational changes, not only commitments.

### Operating context and why these matters

Aramex operates across multiple markets and regulatory environments, including many emerging markets where infrastructure constraints, inconsistent regulation, and varying enforcement are common. In practice, this creates a challenge for any company trying to run one sustainability standard across very different operating realities. Aramex addresses this by building a unified ESG management and reporting approach that is designed to be comparable and credible across regions, while still reflecting local context.

A critical nuance for logistics is organizational structure. Aramex highlights that its GHG accounting follows the GHG Protocol and uses an “operational control” approach, covering controlled locations while excluding franchisees and agents, and it notes the use of external audits to validate data and methods. This matters because logistics networks often include partners and subcontractors, and ESG claims become weak quickly when boundaries and data quality are unclear.

### Local context for the ESG “why” in logistics

From a market perspective, logistics providers are increasingly expected to demonstrate:

1. emissions measurement and reduction progress,
2. responsible labor and safety practices, and
3. credible governance and reporting.

Many clients, especially multinationals, have their own sustainability targets and supplier due diligence requirements, so a logistics provider’s ESG capability becomes a market access issue, not a “nice to have”.

Operationally, the decarbonization of last mile delivery is also not a simple switch. Research highlights that decarbonization practices can shift burdens across the supply chain and can raise “just transition” concerns, which reinforces the need to manage both environmental and social dimensions in parallel.

### Target groups and Stakeholders

**This case is relevant because Aramex’s ESG approach is designed around a wide stakeholder set that reflects the realities of logistics operations:**

- **Employees and operational workforce**, including safety, working conditions, training, and performance culture.
- **Customers**, especially corporate clients seeking sustainable supply chains and credible emissions data and reporting.
- **Suppliers, contractors, and service partners**, where ESG risk often sits in practice, not in headquarters policies.

- **Communities and youth**, through Aramex's "Delivering Good" platform, which focuses on community engagement, youth education and empowerment, and entrepreneurship, alongside humanitarian and emergency relief support.
- **Investors and regulators**, who increasingly expect consistent ESG disclosure aligned with recognized reporting approaches and credible data governance.

## Section 6: Description of the Practice

### Core Activities

Aramex's ESG approach is anchored in its corporate citizenship and sustainability platform, "Delivering Good", which is designed as a group-wide framework rather than isolated CSR projects. The platform combines three practical pillars: youth education and empowerment, entrepreneurship support, and environmental protection, with Aramex indicating that a large share of the communities within its footprint have active programmes under this umbrella.

On the environment and operations side, the "Delivering Good" approach is implemented through a mix of decarbonization and resource-efficiency actions that directly target logistics-related impacts. This includes:

- Renewable energy and solar installations, where Aramex reports investments across several countries to reduce reliance on fossil fuels and progress toward its decarbonization goals.
- Sustainable fleet transition, including shifting vehicles toward lower-emission models and electrification where feasible, supported by operational measures that reduce fuel use and improve efficiency.
- Operational efficiency and route optimization, using technology to streamline deliveries, reduce fuel consumption and idle time, and cut emissions while improving service reliability.
- Resource efficiency and circular practices, including water efficiency actions (Aramex cites grey and black water recycling in Dubai as an example), plus waste and packaging actions such as packaging optimization, degradable pouches, reducing paper use, and expanding recycling programmes.

Aramex also frames ESG as part of its risk management and resilience, not only "good practice". It describes a climate risk framework aligned with widely used disclosure and governance expectations, including TCFD-style principles and IFRS S1/S2 climate-related disclosure logic, and notes the use of an independent third-party consultant to conduct climate risk assessment and benchmarking.

### Partners Involved

- Independent third-party technical support for climate risk assessment and benchmarking.
- Cross-sector partnerships (private, public, civil society), including collaboration with startups/entrepreneurs and universities, to pilot solutions and build skills relevant to sustainability and ESG.

- For ESG credibility and disclosure alignment, Aramex also anchors reporting to recognized international frameworks (which typically implies ongoing engagement with external assurance, auditors, and reporting advisors depending on the year and scope)<sup>31</sup>.

## Funding Resources

Aramex presents these initiatives as embedded in business delivery rather than add-on activities, with sustainability actions treated as part of operations and investment decisions (for example, renewable energy investments and fleet transition are positioned as decarbonization measures tied to performance and resilience). Where “Delivering Good” is implemented through community programming, Aramex frames it as part of corporate citizenship delivered through local presence and partnerships across operating markets.

## Technologies and Innovations

- Solar PV and renewable energy adoption across operations.
- Fleet transition tools, including electrification and other lower-emission options where feasible.
- Route optimization and operational efficiency technologies to reduce fuel use, idle time, and emissions.
- Water efficiency technologies, including grey and black water recycling (example cited in Dubai).
- Packaging and waste interventions (degradable pouches, paperless approaches, expanded recycling).
- ESG governance and reporting discipline, with reporting aligned to frameworks such as GRI, SASB, CDP requirements, UN Global Compact guidance, IFRS, and integrated reporting principles.

## Section 7: Outcomes and Impact

### Key Results:

- **Financial:** Route optimization and fuel efficiency measures have led to millions of dollars in annual cost savings. Winning and retaining clients with stringent sustainability requirements has secured significant revenue streams.
- **Environmental:** Achieved a significant reduction in CO2 emissions per shipment, a goal they track and report on annually. Successfully introduced EVs into their fleet in Jordan, UAE, and KSA.
- **Governance:** Published one of the first GRI-standard sustainability reports in the region, setting a benchmark for corporate transparency.

### Sustainability Improvement:

This integrated approach improves environmental sustainability by cutting emissions and waste, and social sustainability by investing in community development, which in turn builds a loyal workforce and strong brand reputation.

### Impact on Beneficiaries:

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<sup>31</sup> [https://dotcomaramexprod.blob.core.windows.net/default/docs/default-source/annual-reports/2023/aramex-sustainability-annual-report-20234f4ab288b3f2659d9310ff0100e7fe0c.pdf?sfvrsn=3b8d719\\_2](https://dotcomaramexprod.blob.core.windows.net/default/docs/default-source/annual-reports/2023/aramex-sustainability-annual-report-20234f4ab288b3f2659d9310ff0100e7fe0c.pdf?sfvrsn=3b8d719_2)



Communities benefit from education and relief programs. Employees report higher satisfaction and pride in the company. Customers gain a reliable partner that helps them meet their own supply chain sustainability goals.

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

Setting ambitious, science-based public targets created accountability and drove innovation. The strong link between efficiency (good for the environment) and cost savings (good for business) created internal buy-in.

### Main Challenges

The primary challenge in a diverse operational footprint is the inconsistent availability of green infrastructure (like EV charging stations) and renewable energy options in different countries.

### Replication and Scaling

The model of integrating sustainability into operations for efficiency gains is universally applicable in the logistics sector. The key is to start with data, identify the biggest impact areas (e.g., fuel), and invest in proven technologies.

## Section 9: Linkage to the Green Forward Toolbox

This case links strongly to the toolbox because Aramex is essentially doing three things that MSMEs and BSOs can replicate at smaller scale: priorities what matters, measure and manage performance through simple routines, and communicate credibly using evidence. The toolbox supports that full pathway as follows.

- **Green Readiness and Strategy**

Use these diagnostic tools to define ESG priorities that match the business model (fuel, energy, safety, packaging, supplier conduct), and to avoid turning ESG into a long, unrealistic wish list.

1. Sustainability Maturity - BSO to MSME Assessment (for BSOs to segment MSMEs and tailor support intensity).
2. MSMEs Sustainability Simple Self-Assessment (for quick baseline across E, S, and G).
3. MSME Green Economy Readiness Assessment and
4. MSME Green Economy Readiness - Survey (to confirm readiness, constraints, and a realistic entry point for action).

- **ESG and impact management Tools**

Use these tools to turn “ESG” into a light management system: basic policies, evidence, accountability, and stakeholder handling.

1. Diagnostic Tool No.1: ESG Self-Assessment Tool (identify the highest risk gaps such as OHS, labor practices, data privacy, supplier issues).
2. Diagnostic Tool No.2: Logbook Sections (create a simple evidence file: bills, fuel data, incidents, training, supplier checks, actions taken).

3. Tool No.1: Stakeholder Mapping Template and Tool No.2: Engagement Action Plan Template (useful for workforce, subcontractors, key customers, municipalities, and communities).

- **Circular Economy and Resource Flow Assessment**

Use these tools to tackle packaging and operational waste, and to explore reverse logistics and recovery as practical circular economy entry points.

1. Advanced Tool No.1: Identifying Sources of Waste with the Big Five Structural Wastes Tool (pinpoint where losses happen: packaging, rework, damaged goods, idle time, excess trips).
2. Tool No.2: Cost benefit Analysis Tool (compare options such as reusable packaging, packaging reduction, recycling contracts, route optimization, and returns consolidation).
3. Tool: Circular Business Model Canvas (where you are designing a new circular service line, for example take-back logistics, repair and refurbishment logistics, or packaging recovery).

- **Green Finance and investment readiness Tools**

Use these tools when the ESG plan requires capex (solar, efficiency upgrades, EVs, refrigeration upgrades, warehouse retrofit), and you want the investment to be financeable.

1. Green Finance Options in Palestine - Quick Map (As of Q4 2025) (to position MSMEs toward the right window).
2. Tool No.1: Common Green Finance Screening Requirements (pre-check documents and lender expectations).
3. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet (translate fuel and electricity bills into savings logic).
4. Tool No.2: Investment Case Template (package capex, savings, payback, and risks into a lender-friendly mini case).

- **Green Monitoring and Evaluation Frameworks**

Use these tools to avoid the most common failure point: "actions were taken but results are not proven."

1. Tool No.1: Monthly Environmental Dashboard (track a small set of indicators like fuel, electricity, incidents, waste volumes).
2. Tool No.2: Quarterly Business Impact Report (convert results into management language: cost savings, resilience, customer value).
3. Tool No.3: Evaluation Framework (learning, correction, and replication across cohorts).

## Section 10: Supporting Materials

**Primary sources (Aramex, official)**- Aramex Corporate Sustainability pages:

- Environment & Climate Change (includes their emissions accounting approach, use of the GHG Protocol with an operational control approach, and external audit validation, plus climate risk and decarbonization focus)<sup>32</sup>.
- Performance & Reporting (covers reporting approach and alignment with recognized disclosure frameworks)<sup>33</sup>.

<sup>32</sup> <https://www.aramex.com/us/en/corporate/sustainability/environment-and-climate-change>

<sup>33</sup> <https://www.aramex.com/us/en/delivering-good/performance-reporting>

- Aramex Sustainability Report 2021 (PDF) (useful for deeper programme descriptions, KPIs, and disclosure boundaries).

### Reference frameworks and standards explicitly relevant to this case

- GHG Protocol (as referenced by Aramex for emissions accounting approach)<sup>34</sup>.
- Science Based Targets initiative (SBTi) framing (as referenced by Aramex in relation to targets and alignment).
- IFRS S1 and IFRS S2 and TCFD principles (as referenced by Aramex in its climate risk framing).

## Section 11: Cross-Cutting Themes

This case shows how ESG becomes real when embedded into lending decisions and product design, rather than remaining a reporting exercise.

### 1. Data discipline before storytelling

Aramex's approach reinforces a core lesson for MSMEs: ESG credibility starts with clear boundaries, consistent data, and basic verification. Without that, even good actions become hard to defend with buyers, financiers, or regulators.

### 2. Scope 3 and supplier boundaries are where logistics ESG becomes real

Logistics often sits inside other companies' Scope 3 emissions. That creates pressure for emissions measurement, customer-specific reporting, and supplier controls. The transferable theme is to expand ESG beyond "our office" to include subcontractors, transport partners, and key suppliers.

### 3. Decarbonization is a package of operational levers, not one big move

Fleet transition matters, but so do operational efficiency and route optimization, energy efficiency, and renewables at facilities. The cross-cutting theme is to combine quick wins (efficiency) with longer-term transition (fleet, renewable energy).

### 4. Climate risk is governance and resilience, not only emissions

Aramex frames climate risk assessment and integration into enterprise risk management as part of the ESG system. For Palestine-context MSMEs, the parallel is practical: disruption risk, fuel price volatility, and service continuity are ESG issues because they affect resilience and competitiveness.

### 5. People and decent work are inseparable from operational ESG

In logistics, safety, working conditions, subcontracting practices, and grievance channels are often the most material risks. A strong ESG approach treats workforce protection and supplier labor standards as operational controls, not CSR activities.

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<sup>34</sup> <https://www.aramex.com/us/en/corporate/sustainability/environment-and-climate-change>



## 7. Social Impact Best Practices- Global Example

### Section 1: Basic Information

Title of Case Study	<b>Connecting a Nation, Powering an Economy: Safaricom's M-PESA</b>
Country / Region	Kenya (Africa)
Organization / Entity Name	Safaricom PLC
Type of Institution	Private sector (Telecommunications)
Date of Case Study	July 2025

### Section 2: Summary<sup>35</sup>

This case study explores Safaricom's M-PESA mobile money service, a transformative innovation with profound social and economic impacts. While not initially designed as an "ESG project," it represents one of the world's most powerful examples of a core business service generating massive, positive social outcomes.

M-PESA provides millions of unbanked citizens with access to financial services, aligning with themes of green finance (in its expanded sense of financial inclusion) and sustainable livelihoods. The platform's success has been a primary driver of Safaricom's financial performance, proving that social purpose and profitability can be intrinsically linked.

In early 2007, Safaricom, the leading mobile operator in Kenya and part of the Vodafone Group, launched M-PESA, one of the most successful mobile money transfer services in the world. The product is named M-PESA, as "Pesa" means money in Swahili and "M" refers to mobile. Since its launch, the service has grown rapidly and is now used by more than 8 million subscribers.

M-PESA is an SMS-based system that allows users to deposit, send, and withdraw funds using their mobile phones. Customers are not required to have a bank account and can carry out transactions at more than 11,000 agent outlets across the country. Registration and deposits are free, while most other transactions are charged through a tiered pricing structure, ensuring that even low-income users can access the service at a reasonable cost. Transaction amounts are usually small, typically ranging from USD 5 to USD 30.

<sup>35</sup> <https://documents1.worldbank.org/curated/en/832831500443778267/pdf/117403-WP-KE-Tool-6-7-Case-Study-M-PESA-Kenya-Series-IFC-mobile-money-toolkit-PUBLIC.pdf>



The service was initially developed by the Vodafone Group, which holds a 40% stake in Safaricom, and its six-month pilot phase was partly funded by the UK Department for International Development. The current partnership between Safaricom and Vodafone operates under a revenue-sharing model, where Safaricom manages on-the-ground operations while Vodafone oversees the development and delivery of the technical system.

To support the launch, M-PESA Holding Company Limited was established and is governed by directors independent of Safaricom. This company acts as a trustee for M-PESA customers and holds all funds in trust, ensuring that customer money is always safeguarded.

As the first service of its kind in Kenya, M-PESA is widely regarded as a successful model that can be replicated in other developing countries. This paper examines the methodology used by Safaricom and the Vodafone Group in implementing M-PESA.

### Section 3: How to Apply?

This case is useful because it shows how a “core service” can unlock massive inclusion and productivity when three elements come together:

1. A real pain point (sending and receiving money safely and cheaply),
2. Simple user experience that works for everyone, and
3. A trusted distribution model that reaches people where they already live and work.

For Palestine, the takeaway is not to build an M-PESA scale platform. It is to apply the same logic to expand practical, safe digital payments and basic financial services that MSMEs and households can use, and that BSOs can promote through market-facing services.

#### FOR MSMEs (What to do):

##### 1. Start with one use case that saves time and cash leakage.

Pick the biggest friction point in your cash cycle: receiving customer payments, paying suppliers, paying salaries, collecting instalments, or handling deliveries. Start with the one that creates the clearest benefit.

##### 2. Adopt digital payments as a cash-flow tool, not a branding tool.

Use mobile wallet or digital payment options to reduce cash handling, speed up collections, and improve day-to-day liquidity. The immediate value is operational: fewer delays, fewer errors, and better tracking.

##### 3. Create a simple “payment discipline” inside the business.

Keep a basic log of digital transactions (date, amount, purpose, counterparty). Even a simple spreadsheet improves bookkeeping and makes it easier to access finance later because you can show turnover patterns.

##### 4. Build customer trust with clarity and convenience.

Make fees and steps transparent. Offer receipts (even if SMS-based). If you deliver products, link payment to delivery confirmation to reduce disputes.

##### 5. Use digital records to strengthen your access to finance.

Consistent digital transactions can help you demonstrate revenue stability. That matters when you approach banks, MFIs, or fintech lenders, even if you are a small business with limited formal documentation.

## 6. Translate results into short, honest communication

Set internal rules: who can approve transfers, daily limits, two-person approval for larger payments, and secure handling of PINs and devices. Most losses happen because controls are missing, not because the technology “failed”.



### FOR BSOs (How to Support MSMEs through Services):

#### 1. Treat digital finance as a service line, not a one-off awareness session.

Offer a practical “Financial Inclusion Clinic” that helps MSMEs choose the right use case, set up accounts, define internal controls, and integrate digital payments into basic bookkeeping.

#### 2. Build partnerships with providers and simplify onboarding

Work with banks, mobile wallet providers, MFIs, and fintech to create clear MSME onboarding steps, fee transparency, and simple merchant guidance. Your role is to reduce confusion and transaction cost for MSMEs.

#### 3. Support merchant adoption and acceptance networks.

Help MSMEs become “acceptance-ready” (signage, QR code setup if used, staff training, customer scripts, dispute handling). Digital finance scales when customers can pay in many places without friction.

#### 4. Promote responsible finance and consumer protection.

Include basics that prevent harm: fee transparency, complaint pathways, data privacy awareness, and safe use practices. Trust is the real infrastructure behind digital money.

#### **5. Use MSME feedback to shape the enabling environment.**

Collect recurring barriers (KYC bottlenecks, interoperability issues, agent availability, dispute resolution delays) and convert them into short, evidence-based recommendations for regulators and service providers.

#### **6. Link inclusion to green transition support where relevant.**

Digital payments can enable pay-as-you-go models, micro-instalments, and easier access to finance for energy or resource-efficiency upgrades. BSOs can connect MSMEs to these pathways, without overstating environmental impact.

### **Section 4: Primary Target Audience**

#### **Primary:**

1. MSMEs and micro-enterprises (retail, services, transport, agri-trade, home-based businesses) that rely heavily on cash and want a safer, faster way to receive payments, pay suppliers and workers, and manage day-to-day liquidity.
2. Low-income and unbanked households that need affordable, accessible financial services for remittances, bill payments, and basic savings without requiring a formal bank account.

#### **Secondary:**

1. BSOs and SME support providers (chambers, associations, incubators, business centers) that can integrate digital finance into their service offers, including MSME onboarding support, financial literacy, and “digital payments readiness” clinics.
2. Financial service providers and payment ecosystem actors (banks, MFIs, fintech, mobile wallet providers, agent networks) seeking proven models to expand outreach, trust, and adoption among underserved segments.

#### **Also relevant for:**

1. Policymakers and regulators working on financial inclusion, consumer protection, digital ID and KYC frameworks, interoperability, and agent banking regulation.
2. Donors and development partners supporting inclusive private sector development, digital transformation, and resilient livelihoods through scalable, market-based models.

### **Section 5: Background and Context**

#### **Main Challenges**

M-PESA responded to a structural development constraint in Kenya in the mid-2000s: most people and micro businesses operated in cash, with limited access to formal financial services and weak payment infrastructure outside major cities. This created day-to-day risks and inefficiencies, including unsafe storage of cash, high costs and delays for domestic remittances, limited ability to save securely, and

limited pathways to build a transaction history that could support credit. The result was not only a household welfare issue, but also a productivity constraint for micro-enterprises and informal businesses that needed safe, fast, low-cost ways to receive payments, pay suppliers, and move money across distance.

### Local context and why Kenya was “ready” for mobile money

Two conditions came together at the right time. First, financial access was widely recognized as limited for lower-income and rural households, and the gap was measurable through national financial access surveys. Second, mobile access expanded rapidly, creating a mass platform that could reach people where banking infrastructure was thin.

FinAccess 2009 reported that 47.5% of Kenyan adults owned a mobile phone, up from 26.9% in 2006, and other sector research noted a sharp rise in mobile subscribers by the end of the decade. This combination meant Kenya had a large population with a practical transaction device in hand, but without comparable reach of bank branches and low-cost formal payment rails, especially in rural areas.

### International and regulatory factors that enabled scale

M-PESA's scale was not only a technology story. It was also a governance and market-design story. The early model relied on a wide agent network to handle cash-in and cash-out, which allowed the service to function even where banks were not present. It also relied on customer fund safeguarding arrangements and a regulatory approach that allowed innovation while managing core risks (consumer protection, liquidity management, and basic integrity controls). These features are consistently flagged in global mobile money guidance and regulatory case studies as key design choices that supported trust and rapid uptake.

### Target groups and Stakeholders

The primary beneficiaries were the **unbanked and underbanked**, including **rural households, women, youth, and micro-enterprises** that needed simple, low-value transactions (sending and receiving money, storing value safely, paying for goods and services). Over time, evidence suggests that mobile money access also translated into broader welfare and inclusion outcomes, including poverty reduction effects and stronger economic participation for women.

## Section 6: Description of the Practice

### Core Activities

Safaricom's M-PESA is built as a nationwide, low-friction payments utility delivered through mobile phones and a distributed agent network. At its core, the service enables users to convert cash into electronic value (e-money), store it on their phone-linked account, transfer it to other users, and cash out when needed. The design choice that made it scalable was not only the technology, but the operating model: everyday retail outlets and local agents function as the “last-mile infrastructure” for deposits and withdrawals, which allowed M-PESA to reach communities far beyond the footprint of bank branches.

From an implementation perspective, the practice works because it packages trust, convenience, and affordability into one system: deposits are typically easy to make, transactions are priced in tiers to remain accessible for small values, and the platform is usable on basic phones through SMS or USSD-type interfaces, not only smartphones. Over time, the ecosystem expanded beyond person-to-person transfers into merchant payments, bill payments, and broader financial services rails, but the core principle stayed the same: build a reliable, mass-market transaction backbone that lowers the cost and risk of moving money.

A defining safeguard in the model is the separation of customer funds from the operator's own funds, using a trust structure. Customer balances are backed by equivalent funds held in designated trust accounts, with governance arrangements intended to protect users if the operator faces financial distress. This "safeguarding" logic later became a core expectation in Kenya's e-money regulatory approach<sup>36</sup>.

### Partners Involved

- **Primary Implementer and Operator** (Safaricom PLC): product rollout, agent network management, customer acquisition, service delivery, and ongoing commercial scaling.
- **Technical and Strategic Partner** (Vodafone Group): early technical development support and group-level learning that helped shape the initial service design and implementation approach.
- **Early-Stage Development Support** -UK Department for International Development (DFID): early catalytic support through challenge-fund style financing that helped de-risk piloting and learning before full commercial scaling.
- **Regulatory and Enabling Institutions**- Central Bank of Kenya (CBK) and relevant public authorities: oversight of payment services and the evolution of the enabling regulatory framework, including safeguarding expectations and e-money governance requirements as the market matured.
- **Delivery Ecosystem- Agent network (retailers, kiosks, shops, service points)** that enables cash-in and cash-out at scale, plus commercial banking partners providing the underlying trust account arrangements for safeguarding customer funds.

### Funding Resources

M-PESA's early development illustrates a practical blended logic: seed support to pilot and learn, followed by commercial scaling once adoption proved strong. Public catalytic funding is widely cited as part of the early risk-sharing that helped move the concept from prototype to launch, alongside private sector investment and operational scaling by the operator and its partners.

Once scaled, the model's sustainability comes from transaction-based revenue (fees that are commonly tiered by transaction type and value), paired with a cost structure that leverages agents as distribution rather than relying on brick-and-mortar branches. This is one reason the model became replicable: it is commercially viable while delivering major inclusion outcomes, provided governance and safeguarding are credible<sup>37</sup>.

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<sup>36</sup> <https://aercafrica.org/old-website/wp-content/uploads/2021/03/AERC-MPesa-Case-Study.pdf>

<sup>37</sup> [https://www.afi-global.org/wp-content/uploads/2024/10/afi\\_casestudy\\_mpesa\\_en.pdf](https://www.afi-global.org/wp-content/uploads/2024/10/afi_casestudy_mpesa_en.pdf)

## Technologies and Innovations

- Mobile channel technology (SMS / USSD / SIM Toolkit-type access) that works on basic phones and low-bandwidth conditions.
- Agent management systems to handle registration, liquidity (float), cash reconciliation, and service quality across a large, distributed network.
- E-money safeguarding structure using trust accounts to back customer balances, strengthening confidence and stability.
- Tiered pricing and transaction design that makes low-value transfers feasible for low-income and rural users, which is critical for inclusion at national scale.

## Legal and Policy Framework

Kenya's approach is often cited as a "learning-by-doing" pathway: allowing controlled rollout and iteration, then strengthening formal regulation as market adoption and systemic importance grew. Over time, the country developed clearer requirements around e-money issuance, safeguarding of customer funds, governance, and risk controls that are now considered core building blocks for responsible mobile money systems.

A key policy lesson embedded in the M-PESA practice is that innovation at scale needs rules that protect users without killing the model's low-cost convenience. The balance is achieved through clear safeguarding, fit-for-purpose oversight, and practical operational controls for agent networks, customer onboarding, and system integrity<sup>38</sup>.

## Section 7: Outcomes and Impact

### Key Results:

- **Financial:** M-PESA has become Safaricom's biggest growth engine, contributing nearly 40% of the company's total service revenue. It has generated billions of dollars in revenue since its inception.
- **Social:** M-PESA is used by over 30 million active customers in Kenya. Studies have shown it has lifted 2% of Kenyan households out of poverty. It has particularly empowered women, allowing them to move from agriculture to business occupations.
- **Economic:** The platform has become the backbone of Kenya's digital economy, enabling the growth of countless small businesses and fintech startups. An estimated 96% of households in Kenya use the service.

### Sustainability Improvement:

Dramatically improves social sustainability by creating financial inclusion and reducing inequality. It boosts economic sustainability by enabling commerce and building resilience among low-income populations.

### Impact on Beneficiaries:

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<sup>38</sup> <https://www.fdic.gov/about/advisory-committees/economic-inclusion/2011/june11one.pdf>

Provided millions with their first-ever access to formal financial services, enhancing their safety, resilience, and ability to participate in the economy.

### **Inclusion:**

The service is a paradigm of financial inclusion, specifically designed for marginalized communities, with a demonstrable positive impact on women's economic empowerment.

## **Section 8: Lessons Learnt and Recommendations**

### **Main Success Factors**

- **A real problem, solved simply**

M-PESA succeeded because it addressed a daily pain point: sending and receiving money safely, quickly, and cheaply for people who did not have easy access to banks. The product design stayed focused on usability and reliability, not on complex features.

- **Agent network as national infrastructure**

The agent model was the scale engine. By using local outlets as cash-in and cash-out points, M-PESA created "nearby access" across rural and urban areas without building bank branches. This is a core lesson for any replication: distribution matters as much as technology.

- **Trust and safeguarding**

User trust was reinforced by fund safeguarding arrangements and the separation of customer funds, which reduced perceived risk and supported adoption. In mobile money, trust is the infrastructure.

- **Commercial viability with inclusive pricing**

A tiered fee structure and low barriers to entry made the service economically viable while staying accessible for low-value transactions, which are critical for inclusion.

- **Regulatory space that enabled learning and scaling**

M-PESA benefited from a pragmatic regulatory pathway that allowed innovation to scale while progressively strengthening rules for safeguarding and risk management.

### **Main Challenges**

- **Agent liquidity and service reliability**

A common risk in agent-based systems is "no float", where agents cannot handle cash-in or cash-out due to liquidity constraints. Mitigation requires strong agent management: liquidity monitoring, clear rebalancing mechanisms, and service standards.

- **Consumer protection and fraud**

As systems scale, fraud attempts and customer disputes increase. Mitigation includes clear dispute resolution channels, customer education, transaction confirmations, and tighter controls on agent practices and onboarding.

- **KYC barriers vs inclusion**

Stronger identity checks reduce risk but can exclude the very groups mobile money aims to reach. A practical mitigation is tiered KYC and proportional requirements that match transaction risk, paired with wider ID access where possible.

- **System integrity and governance**

A mobile money system becomes critical national infrastructure quickly. Mitigation includes governance clarity, fund safeguarding requirements, operational resilience planning, and tighter oversight as volumes grow.

## Improvement and Replication Potential

What could be improved?

- **Stronger and simpler consumer protection at scale:** clear fee transparency, stronger dispute handling, and consistent agent conduct enforcement to reduce trust erosion as volumes grow.
- **Interoperability and competition design:** replication contexts often benefit when payment ecosystems do not become fragmented across providers, and when interoperability is planned early (where feasible within local market structure and regulation).

Replication Potential

This model is widely replicable, but only when the “full stack” is in place: trusted agents, safeguarding, operational controls, and a regulator that can supervise e-money proportionately. It is not primarily a software replication challenge; it is an ecosystem replication challenge.

For Palestine, the most relevant replication pathways are usually:

- digital payments for MSME collections and supplier payments,
- merchant acceptance networks,
- bill payment rails,
- and digital transaction records that help improve finance readiness, even if formal credit access remains constrained.

## Policy, Operational, and Funding Recommendations

Policy level (regulators and public sector)

- **Adopt proportional e-money and consumer protection rules:** ensure safeguarding of customer funds, clear governance requirements, and risk-based KYC that protects integrity without excluding low-income users.
- **Strengthen dispute resolution and transparency expectations:** require clear fee disclosure, accessible complaints mechanisms, and enforceable standards for agent conduct.

- **Support interoperability where it improves inclusion:** where market conditions allow, enable interoperability to reduce fragmentation and increase merchant acceptance and user convenience, especially for MSMEs.

Operational level (providers, BSOs, ecosystem actors)

- **Build and manage agent networks like a service quality system:** priorities liquidity management, agent training, monitoring, and clear service standards. The agent experience is the customer experience.
- **Design MSME onboarding and merchant acceptance as a practical package:** make adoption easy: clear steps, simple materials, fast troubleshooting, and support for linking transactions to basic bookkeeping.
- **Treat trust as an operational KPI:** invest in fraud prevention, customer education, and strong customer support. A few negative incidents can damage adoption in fragile trust environments.

Funding level (donors, DFIs, financial partners)

- **Use catalytic funding for pilots and ecosystem build-out:** early-stage funding is most useful when it supports the non-software foundations: agent network rollout, consumer education, security, and monitoring systems, plus evidence generation on inclusion outcomes.
- **De-Risk Merchant acceptance and MSME digitations:** support packages that reduce cost for MSMEs to adopt digital payments and basic digital bookkeeping, because that is where productivity and finance-readiness benefits accelerate.
- **Fund inclusion with safeguards:** tie support to clear consumer protection, data governance, and responsible finance practices, so scaling does not create harm while solving inclusion.

### Section 9: Linkage to the Green Forward Toolbox

This case links to the Green Forward Toolbox by showing how a core business service can deliver measurable social outcomes at scale when designed as a system: clear user value, trusted partners, strong governance, and simple, actionable monitoring. While M-PESA is not a “green tech” intervention, it is relevant to BSOs and MSMEs because digital payments and transaction records reduce friction, support business continuity, and strengthen finance readiness for green investments.

- **Digital Green Economy Tools**

Use this chapter to frame digital payments and e-services as an enabler for MSME resilience and inclusion, especially for businesses operating in cash constrained or high-friction contexts. The chapter is useful for BSOs designing practical support on adopting e-payments, improving digital readiness, and using digital records to strengthen business management and finance access.

- **Green Readiness and Strategy Tools**

1. Diagnostic Tool: Sustainability Maturity - BSO to MSME Assessment (use as a quick diagnostic to understand whether the MSME has basic governance, record-keeping, and process discipline in place).
2. Diagnostic: MSMEs Sustainability Simple Self-Assessment.
3. Diagnostic: MSME Green Economy Readiness Assessment and Diagnostic Tool No.4: MSME Green Economy Readiness - Survey (to identify “quick wins” where digital payments, documentation, and basic governance improvements).

- **ESG and impact management Tools**

1. Diagnostic Tool No.1: ESG Self-Assessment Tool (use to identify ESG gaps that typically sit around digital services and inclusion, such as consumer protection, grievance handling, data privacy, and supplier conduct.).
2. Tool No.1: Stakeholder Mapping Template, and
3. Tool No.2: Engagement Action Plan Template (use to map high-trust stakeholders (users, agents, regulators, community actors) and to define how the organization will listen, respond, and improve. This is directly aligned with the “trust infrastructure” logic that made M-PESA scalable).

- **Green Finance and Investment Readiness Tools**

1. Green Finance Options in Palestine – Quick Map (As of Q4 2025): use to position digital finance as a practical pathway that helps MSMEs become more finance-ready for renewable energy, efficiency, and other eligible green investments.
2. Tool No.1: Common Green Finance Screening Requirements: use as a pre-check with MSMEs to confirm basic eligibility and documentation expectations. M-PESA’s core lesson here is that consistent transaction records and simple documentation reduce lender uncertainty.
3. Tool No.3: Investment Case Template, and
4. Move to Green and Circular & Innovation Business Modelling Tool: Investment Pitch Deck Template: use to convert a green investment idea into a short, lender friendly package, supported by real cash-flow evidence (sales, expenses, seasonality) captured through digital payments.

- **Green Monitoring and Evaluation Frameworks**

1. Use 3.1 KPI Framework, 3.2 Data Collection Templates, and 3.3 Digital Monitoring Tools to track inclusion and service performance in a way that is useful for management, partners, and funders (for example: uptake, active usage, user satisfaction, complaint resolution time, MSME cash-flow stability indicators).
2. Use 3.4 Verification and Quality Assurance and 3.5 Reporting Tools and Templates to strengthen credibility and avoid “impact claims without evidence”, especially when reporting on inclusion or livelihood outcomes.

## Section 10: Supporting Materials

- Financial Sector Deepening (FSD) Kenya summary of Suri and Jack (2016), “The long-run poverty and gender impacts of mobile money” (useful for impact framing, especially poverty and gender pathways)<sup>39</sup>.
- EconPapers entry for the NBER Working Paper “Mobile Money: The Economics of M-PESA” (Jack and Suri) (useful for early system design, adoption drivers, and market structure logic)<sup>40</sup>.
- Central Bank of Kenya payment system and regulatory resources (useful for governance and consumer protection framing, and for how regulatory arrangements underpin trust in e-money systems).

<sup>39</sup> <https://www.fsdkenya.org/blogs-publications/publications/the-long-run-poverty-and-gender-impacts-of-mobile-money>

<sup>40</sup> <https://econpapers.repec.org/paper/nbrnberwo/16721.htm>

- Safaricom annual / integrated reporting and governance disclosures (useful for the latest official positioning, performance metrics, and governance approach)<sup>41</sup>.
- Peer-reviewed and policy literature on mobile money and financial inclusion (use for triangulation and to avoid overclaiming, especially on causality and distributional effects)<sup>42</sup>.

## Section 11: Cross-Cutting Themes

### 1. Financial inclusion as a core ESG pathway

M-PESA is a strong reminder that ESG impact does not always come from a standalone “CSR project”. It can come from the core product, if the service solves a real constraint at scale, especially for excluded groups (rural communities, women, micro-enterprises).

### 2. Trust infrastructure is the real innovation

The replicable lesson is not the technology itself. It is the trust system around it: clear rules, credible governance, and user confidence that funds and transactions are safe. This is why regulation, consumer protection, and transparent operating arrangements are not “extras”, they are part of the product.

### 3. Ecosystem delivery model and last-mile reach

A scalable inclusion service is built through an ecosystem: agents or distribution partners, network operators, regulators, and local actors who reduce friction for users. For BSOs, the parallel is clear: MSMEs adopt faster when support services are delivered through trusted local networks, not through one-off trainings.

### 4. Data as an asset, but also a risk

Digital finance creates a new advantage: transaction records that can support budgeting, business planning, and later finance access. But it also creates new risk: privacy, cybersecurity, and misuse of data. This is where ESG and governance become practical: clear data rules, complaint channels, and accountable decision making.

### 5. Women's economic empowerment through reduced friction

The evidence base around M-PESA is often cited because it highlights how reducing transaction cost and improving access can shift household coping strategies and women's economic options over time. For replication, the key is to design for inclusion intentionally, not to assume inclusion happens automatically.

### 6. From inclusion outcomes to green transition readiness

In Green Forward terms, digital payments are an enabling layer. They help MSMEs formalize records, demonstrate cash flow, and reduce friction with finance providers, which can increase readiness to access green loans and invest in energy, efficiency, and circular upgrades. The cross-cutting lesson is

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<sup>41</sup>

[https://docs.publicnow.com/viewDoc?filename=33864%5CEXT%5C406C77436FF8181545AA57D45948E48A68061471\\_ADBC336C5B038EC2DE8609285B65EB651967C21B.PDF](https://docs.publicnow.com/viewDoc?filename=33864%5CEXT%5C406C77436FF8181545AA57D45948E48A68061471_ADBC336C5B038EC2DE8609285B65EB651967C21B.PDF)

<sup>42</sup> <https://link.springer.com/article/10.1007/s40847-022-00194-0>

practical: inclusion tools can also be competitiveness tools when they strengthen bankability and resilience.

## 8. Circular Economy and ESG Best Practices- Global Example

### Section 1: Basic Information

Title of Case Study	<b>Mission Zero: How Interface Turned Waste into a Valuable Asset</b>
Country / Region	USA (Global Operations)
Organization / Entity Name	Interface, Inc.
Type of Institution	Private sector (Manufacturing)
Date of Case Study	July 2025

### Section 2: Summary

This case study details the journey of Interface, a global modular carpet tile manufacturer, and its pioneering "Mission Zero" pledge, initiated in 1994, to eliminate any negative impact it has on the environment by 2020. This ambitious goal forced the company to completely rethink its business, leading to groundbreaking innovations in the circular economy, such as recycling used carpets and developing bio-based materials.

This deep commitment to sustainability did not harm profitability; instead, it became Interface's primary source of innovation, cost savings, and brand differentiation, proving that a restorative enterprise is a better business.

### Section 3: How to Apply?

This case is useful because it shows how circular economy becomes real when it is treated as a business redesign, not a recycling activity. Interface did not start by "being greener". It started by asking a hard operational question: what would it take to run a manufacturing business while systematically removing waste, virgin materials dependency, and landfill end of life? For MSMEs and BSOs, the takeaway is the method: set a clear direction, identify the biggest material and cost leaks, redesign the product and processes around circularity, then build partnerships so materials can come back into the system.

#### FOR MSMEs (What to do):

1. **Start with a clear circular target you can defend.**

Pick one measurable outcome for the next 12 months, for example: reduce production waste by 20%, replace one virgin input with recycled input, or pilot a take-back option for one product line. Avoid broad statements that you cannot measure.

## **2. Map your materials and waste in one simple baseline.**

List your top 10 inputs by cost and volume, then list your top 5 waste streams (scrap, rejects, packaging, offcuts, damaged returns). Add what happens to each stream today (landfill, resale, recycling, storage). This is the foundation for a circular business case.

## **3. Choose one “waste to value” opportunity and pilot it.**

Pick the stream that is either (a) expensive to dispose of, (b) large in volume, or (c) linked to customer requirements. Start with one pilot, not the full factory. Your first success should be simple and repeatable.

## **4. Redesign the product, not just the waste handling.**

Ask: can we reduce material use, switch to recycled content, simplify components, or make the product easier to repair, reuse, or disassemble? Even small design changes can reduce scrap, extend product life, and lower material cost.

## **5. Create a return pathway that fits your scale.**

A full take-back system may be too heavy at first, but you can start with practical options: collection from key customers, partnering with a recycler, offering return incentives, or taking back offcuts and installation waste. The goal is to keep materials in circulation, not to own the whole system on day one.

## **6. Lock in quality and traceability early.**

Circular inputs and recycled materials are often rejected because quality is inconsistent. Define basic acceptance rules, storage rules, contamination rules, and minimum documentation (supplier declarations, batch notes, simple tests if relevant). This protects your product quality and your reputation.

## **7. Measure, then communicate carefully.**

Track 3 to 5 indicators only: waste diverted, recycled content used, cost saved, and one quality indicator (returns, defects, customer complaints). Communicate results in plain language with evidence. Avoid over-claiming.



### FOR BSOs (How to Support MSMEs through Services):

#### 1. Treat circular manufacturing as a service pathway, not a one-off training.

Offer a structured “Circular Manufacturing Clinic” that moves MSMEs from baseline to pilot to scale: material mapping, opportunity shortlist, partner matchmaking, and an implementation plan.

#### 2. Standardize a simple audit tool and use it across MSMEs.

When data is comparable, BSOs can aggregate demand and build a pipeline that attracts recyclers, buyers, and finance providers. Sample forms and guide is available in the Green Toolkit.

#### 3. Build the ecosystem roster and referral pathway.

MSMEs need trusted partners: recyclers, collectors, labs, material suppliers, designers, and sometimes logistics providers. The BSO role is coordination and quality filtering, not technical delivery.

#### 4. Help MSMEs design pilots that are small but bankable.

Support them to define scope, costs, expected savings or revenue, risks, and who does what. A good pilot is one that can be repeated across multiple MSMEs. Sample forms and guide is available in the Green Toolkit.

#### 5. Package circular projects for finance and procurement.

Many circular investments are “too small and too messy” for lenders. BSOs can bundle multiple MSMEs and standardize documentation to reduce transaction cost.

#### 6. Support compliance and market access.

Where recycled content, eco-labels, or buyer standards matter, BSOs can guide MSMEs on what proof is needed and what claims are acceptable. Sample forms and guide is available in the Green Toolkit.

#### 7. Convert recurring barriers into targeted advocacy.

If multiple MSMEs face the same blocker (standards, customs, licensing, lack of incentives, weak waste management enforcement), consolidate evidence and translate it into a short, practical policy ask.

#### Section 4: Primary Target Audience

- **Primary:** Manufacturing MSMEs, especially those with material intensive production and high waste costs (for example: furniture and wood products, textiles and apparel, plastics and packaging, construction materials, food processing, metal works) that want to reduce input costs, cut waste disposal costs, improve product quality, and respond to buyer expectations through practical circular economy measures.
- **Secondary:** BSOs and sector bodies (chambers, associations, clusters, incubators, accelerators, and technical support providers) that can help MSMEs move from awareness to implementation by delivering circular economy advisory services, standardizing diagnostics and templates, brokering partnerships with recyclers and suppliers, and packaging bankable circular pilots.
- **Also relevant for:**
  1. Policymakers and municipalities working on waste management, industrial policy, standards, extended producer responsibility, green public procurement, and incentives that enable circular manufacturing and reduce market friction.
  2. Finance providers and donors supporting circular investments (equipment upgrades, recycled input supply chains, take-back pilots, shared processing infrastructure) through green loans, blended finance, guarantees, and technical assistance.
  3. Large buyers and supply chain anchors seeking recycled content, traceability, and ESG evidence from suppliers, and that can create demand pull for circular products and services.

#### Section 5: Background and Context<sup>43,44</sup>

##### Main Challenges

The carpet sector has traditionally operated on a linear “take-make-dispose” model, with products that are material intensive, difficult to recover at end of life, and commonly disposed of as bulky waste. The scale of the challenge is significant. For example, under California’s Carpet Stewardship Program, total post-consumer carpet disposal was estimated at 217 million pounds in 2022, illustrating how quickly carpet accumulates in the waste stream when recovery systems are weak or fragmented.

For Interface, this translated into two linked problem areas:

1. end-of-life waste and landfill dependence, and
2. high reliance on virgin, fossil-based inputs for carpet materials, which exposes manufacturers to embodied carbon impacts and supply risk, and limits circularity options unless take-back, recycling, and material substitution are built into the business model.

##### Local and Market context

Interface’s shift was driven by a market reality relevant for replication: in construction and fit-out, sustainability is increasingly a procurement expectation. The company emphasizes transparency through

<sup>43</sup> [https://www.interface.com/content/dam/interfaceinc/interface/sustainability/emea/third-party-certifications/epds/EPD\\_Interface\\_CQUEST%20BioXpdf.pdf](https://www.interface.com/content/dam/interfaceinc/interface/sustainability/emea/third-party-certifications/epds/EPD_Interface_CQUEST%20BioXpdf.pdf)

<sup>44</sup> <https://www2.calrecycle.ca.gov/Docs/Web/125793>

tools like Environmental Product Declarations (EPDs), reflecting clients' demand for comparable data, lower-impact materials, and credible environmental claims. Internally, Interface treats sustainability as a value-chain challenge, noting that purchased goods and services make up the largest share of its carbon footprint, which makes scaling recycled and bio-based materials central to its strategy.

### **Strategic and leadership context: why “Mission Zero” happened**

The turning point was leadership driven. Interface's “Mission Zero” commitment, launched in 1994, set an ambitious goal to eliminate negative environmental impact by 2020, prompting redesigns in products, sourcing, and end-of-life pathways rather than relying on incremental efficiency. This shift is closely linked to founder Ray Anderson's well-documented sustainability “awakening,” a fundamental rethinking of industrial success. As Mission Zero matured, Interface moved beyond “less harm” toward climate-positive ambition through its “Climate Take Back” initiative, signaling a shift from footprint reduction to net-positive outcomes.

### **Target groups and Stakeholders**

This case matters because Interface's approach is built around the full ecosystem that shapes circularity in building materials:

- Architects, designers, and corporate clients who influence specifications, procurement criteria, and demand for transparent product data.
- Supply chain partners (material suppliers, recyclers, recovery partners) needed to make take-back and recycled content viable at scale.
- Employees and management teams who must integrate sustainability into innovation, operations, and performance routines over time.
- Communities and public systems affected by waste streams and landfill pressure when recovery is not built into product design and market infrastructure.

## **Section 6: Description of the Practice**

### **Core Activities**

Interface's “Mission Zero” was built as a company-wide transformation programme rather than a single project. It started with a clear end-goal (eliminate negative environmental impact by 2020) and then translated that ambition into a practical operating model across products, factories, and the supply chain<sup>45</sup>.

Key actions that define the practice include:

- **Redesigning materials and products for circularity:**
  1. Systematically reducing dependence on virgin, fossil-based inputs by increasing recycled content and shifting to alternative materials where feasible, while using life cycle thinking to guide product design and improvement.
  2. Developing product platforms that support circular loops, including recycled and bio-based backing innovations that aim to store carbon rather than only “reduce harm.”
- **Building take-back and recovery systems (closing the loop)**

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<sup>45</sup> <https://blog.interface.com/interface-works-alongside-partners-accelerate-climate-action>



Implementing ReEntry, a structured take-back, reclamation, and recycling pathway for used flooring, to keep materials in circulation rather than sending them to landfill. The ReEntry materials clearly frame it as a practical process with defined handling steps and recovery routes.

- **Turning sustainability into an innovation engine**

Shifting from “compliance sustainability” to continuous innovation, using the Mission Zero target as a forcing mechanism to drive R&D, supplier engagement, and operational decisions. Interface itself frames Mission Zero as a transformation that led directly into the next stage, “Climate Take Back.”

- **Moving from “less bad” to “net positive” product design**

Introducing carbon-focused product innovations under Climate Take Back, including backing systems positioned as carbon-storing and enabling carbon negative product outcomes for specific collections.

### Partners Involved

Interface's model relies on multi-actor partnerships where they make sense, especially for material recovery and recycled input supply chains:

- **Net-Works / recycled nylon collaboration (circular sourcing plus inclusion):** the programme model is consistently described as built through partnership between Interface, the Zoological Society of London (ZSL), and Aquafil (nylon regeneration), linking coastal collection systems to manufacturing supply chains.
- **Re-Entry take-back delivery partners:** Re-Entry is designed to work through defined handling and recovery arrangements (collection and processing routes), which in practice requires regional logistics and recycling partners even when not always named publicly.
- **Market-facing actors:** architects, designers, and corporate buyers are part of the model because product transparency and specification decisions are a major adoption lever in commercial interiors. (This is why Interface emphasizes structured sustainability positioning tied to product systems.)

### Technologies and Innovations

Interface's innovation is not one technology, it is a package that connects product design, materials, take-back systems, and credibility tools<sup>46</sup>:

- Circular take-back and recycling system (ReEntry): practical recovery pathway for used flooring to enable reuse, repurposing, and recycling.
- Recycled nylon and circular sourcing (including Net-Works supply streams): a model that connects recovered waste streams into manufacturing inputs through partnership-based supply chains.
- Low-carbon and carbon-focused backing innovation (CQuest BioX and carbon negative claims for specific product lines): described in Interface product documentation as part of the move toward climate-positive materials.
- Modular flooring design and installation approach: carpet tiles designed for replacement and maintenance at tile level (supporting longevity and take-back), supported by installation systems such as TacTiles (documented as an Interface installation approach).

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<sup>46</sup> <https://www.interface.com/US/en-US/sustainability/sustainability-overview.html>

- Measurement and transparency tools: Interface links its journey to credible disclosure and measurement disciplines as part of how it made the transformation defensible and scalable.

## Section 7: Outcomes and Impact

### Key Results:

- **Financial:** Over the course of Mission Zero, Interface estimated it avoided over \$430 million in costs due to waste elimination and efficiency. Its powerful story became its greatest marketing asset, driving sales.
- **Social:** The Net-Works program has provided income to thousands of people in impoverished coastal communities and cleaned up tons of marine plastic.
- **Environmental:** From 1996 to 2018, Interface achieved a 96% reduction in GHG emissions, a 92% reduction in waste to landfill, and an 89% reduction in water use intensity. Over half of their materials are now from recycled or bio-based sources.

### Sustainability Improvement:

The initiative fundamentally redefined sustainability in manufacturing, proving a closed-loop, circular model is not only possible but also highly profitable.

### Impact on Beneficiaries:

Coastal communities gained a new source of income and a cleaner environment. Customers received higher performing, more sustainable products. Employees were galvanized by a powerful sense of purpose.

### Inclusion:

The Net-Works program is a prime example of an inclusive business model that directly benefits marginalized communities as part of the core supply chain

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **A “north star” target that forced innovation**

Mission Zero (1994 to 2020) gave Interface a clear end point that made incrementalism impossible. The value of the target was not only the target itself, but that it compelled changes across design, sourcing, operations, and leadership routines.

- **Embedding circularity into the business model, not CSR**

Interface treated waste and end-of-life as design and supply-chain issues, not as “offset” or “donation” issues. Programmes like ReEntry show how circularity is operationalized through take-back and recovery processes, not just messaging.

- **Partnership-based circular supply chains**

Net-Works is a good example of how circular supply is built through partnerships that link collection systems to manufacturing inputs. This makes circular sourcing more stable and scalable than ad hoc recycled inputs.

- **A progression from “less harm” to “net positive” thinking**

Interface did not stop at efficiency. It advanced toward “Climate Take Back” and carbon-focused product innovation (for example CQuest BioX messaging), which kept the sustainability agenda evolving rather than stagnating after early wins.

### **Main Challenges and Mitigation Strategies**

- **Creating viable end-of-life recovery at scale**

Challenge: take-back in flooring is logistically complex, bulky, and requires market infrastructure.

Mitigation: Interface created structured recovery pathways (ReEntry) to standardize collection, handling, and routing of materials toward reuse or recycling.

- **Dependence on upstream suppliers and material innovation cycles**

Challenge: manufacturers cannot “circularize” alone when core materials are petrochemical based and markets for recycled inputs fluctuate.

Mitigation: build long-term partnerships that stabilize supply and enable investment in regeneration (as shown in the Net-Works model, including the Aquafil regeneration pathway).

- **Credibility risk: claims outpacing proof**

Challenge: sustainability in construction products is a high-greenwashing-risk area because claims can be vague or hard to verify.

Mitigation: Interface positions transparency and product documentation (for example its Climate Take Back materials) as part of how the story stays defensible, and it has relied on structured approaches that are commonly used in the sector (EPDs, lifecycle framing).

### **Improvement and Replication Potential**

What could be improved?

- **Make recovery simpler for customers** through clearer logistics offers and lower transaction friction (pickup options, standard sorting guidance, clear routes). ReEntry provides a base model, but the friction point is usually customer participation and reverse logistics cost.
- **Strengthen “proof discipline” for advanced claims** (carbon negative, carbon storing) with clear boundaries, assumptions, and verification expectations to protect credibility as marketing pressure grows.

### **Replication Potential**

Highly replicable in any sector with:



- Bulky waste streams,
- Recurring replacement cycles, and
- Buyer influence through procurement (construction materials, packaging, furniture, textiles, appliances).

For Palestine, replication is most realistic through scaled-down versions: focus on one product line, one recoverable material stream, and one or two partnerships, then build a take-back and reuse loop around that. The key is to start with what can be controlled locally and avoid overdesigning the system early.

### Policy, Operational, and Funding Recommendations

Policy level (enabling environment)

- **Enable take-back and recovery markets:** clear standards for secondary materials and recycled content in products, plus procurement rules that reward durable and recoverable products. (This is what creates the demand pull that makes circular models investable.)
- **Support extended producer responsibility** approaches in sectors where bulky waste is a major landfill burden (construction materials, packaging, e-waste), to shift the economics toward recovery rather than disposal.

Operational level (for firms and BSOs)

- **Product-first approach:** redesign for durability, modular replacement, and recoverability before investing heavily in recycling infrastructure.
- **Build a simple reverse logistics pathway:** one clear process for collection, sorting, and routing, with defined roles and quality rules. ReEntry provides a useful reference model for structuring this.
- **Partnership discipline:** lock in at least one “of-take” or processing partner before scaling collection, so materials do not accumulate without value.

Funding recommendations

- **Use blended instruments where early-stage circular loops are not yet profitable:** pilot grants for proof-of-concept, then credit or leasing for equipment, then working capital once the loop has stable volumes and buyers.
- For MSMEs, **finance should follow a staged logic:** baseline and pilot, evidence of volumes and margins, then scale investment. The Interface lesson is that circularity becomes financeable when it is translated into repeatable routines and predictable material flows, not one-off projects.

### Section 9: Linkage to the Green Forward Toolbox

Interface is best applied as a structured pathway: define the waste and carbon problem clearly, redesign product and supply chain to close loops, and build credible evidence and market trust, then scale through partnerships and standards. The following Green Forward Toolbox modules and tools support that pathway:

- **Green Readiness Screening and Strategy Tools**

Use these to quickly determine diagnostic tools whether an MSME is ready to shift from “linear” to “circular” operations, and where to start.

1. MSMEs Sustainability Simple Self-Assessment
2. MSME Green Economy Readiness Assessment
3. MSME Green Economy Readiness – Survey

- **Circular Economy and Resources Flow Assessment Tools**

Use these to move from “we generate waste” to “we have a circular business case,” especially relevant for manufacturers, construction materials, plastics, textiles, furniture, and packaging.

1. Tool No.1: Circular Economy Implementation Roadmap
2. Diagnostic Tool: TEST Tool – Life Cycle Perspective Checklist
3. Advanced Tool No.1: Identifying Sources of Waste with the Big Five Structural Wastes Tool
4. Tool No.3: Cost benefit Analysis Tool

- **Green and Circular Innovation and Business Modelling Tools**

Use these to translate Mission Zero type ambition into an MSME-scale innovation plan and marketable offer, without overpromising.

1. Tool No.1: Values and Vision Tool
2. Tool No.2: Business Model Canvas
3. Diagnostic Tool No.1: Value Proposition
4. Tool No.2: Circular Business Model Roadmap
5. Tool No.3: MSMEs Assessment Criteria – for BSOs
6. Tool No.4: Investment Pitch Deck and Presentation Guide

- **Green Finance and investment readiness Tools**

Interface’s lesson is that circularity scales when it becomes financeable: clear baseline, clear savings or revenue logic, and credible risk controls (quality, traceability, supply).

1. Tool No.1: Common Green Finance Screening Requirements
2. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet
3. Tool No.2: Investment Case Template

- **Certification and Green Labelling Tools**

Interface’s approach depends heavily on credibility with buyers (especially specifiers and corporate clients). These tools help MSMEs plan claims and certification without greenwashing risk.

1. Tool No.1: Green Certification Pathway Map
2. Tool No.2: Green Labeling Development Kit
3. Tool No.3: Certification Implementation Strategy

- **Green Marketing Tools**

Use this to communicate circular products responsibly (what changed, what evidence exists, what boundaries apply): use tool No.1: Green Marketing Builder (BSO to MSME)

- **Green Monitoring and Evaluation Framework**

Mission Zero only works because performance is tracked and managed over time. These tools help MSMEs and BSOs keep it light but credible.

1. Tool No.1: Monthly Environmental Dashboard
2. Tool No.2: Quarterly Business Impact Report
3. Tool No.3.: Evaluation Framework

## Section 10: Supporting Materials

- Interface Investor Relations, ESG and sustainability overview (official): background on sustainability focus areas, initiatives, and reporting entry points<sup>47</sup>.
- UNFCCC case story on Interface (official): summary framing of Interface's sustainability journey and how the company positions "Climate Take Back" after "Mission Zero."<sup>48</sup>
- Oxford Saïd Business School case study (Mission Zero and Net-Works): practical documentation of the business logic and partnership model behind Net-Works and circular sourcing<sup>49</sup>.
- Zoological Society of London (ZSL), Net-Works (official partner perspective): programme description and development rationale from a key delivery partner<sup>50</sup>.
- Interface press materials on Net-Works (official): useful for confirming programme framing and partnership narrative in Interface's own words<sup>51</sup>.
- Interface Climate Take Back overview (official Interface page): the four-part structure (Live Zero, Love Carbon, Let Nature Cool, Lead the Industrial Re-Revolution) as presented by Interface<sup>52</sup>.

## Section 11: Cross-Cutting Themes

### 1. From pledge to operating system

Interface shows that sustainability becomes real when it moves from a pledge into routines: design standards, supplier expectations, product specs, and performance tracking. This is the main difference between "CSR projects" and ESG integration.

### 2. Circularity depends on supply chain design, not only internal recycling

Closing loops is rarely achievable by a single firm. Interface's experience (including Net-Works) reinforces that circularity is a partnership model: collection, sorting, quality control, processing, and buyer demand must all be aligned.

### 3. Credibility and buyer trust are as important as innovation

In manufacturing, especially where buyers are specifiers (architects, designers, corporate procurement), claims must be defensible. Interface's model highlights the value of structured frameworks and transparent disclosure, because they reduce greenwashing risk and support market access.

<sup>47</sup> [https://www.interface.com/content/dam/interfaceinc/interface/sustainability/emea/25th-anniversary-report/Interface\\_MissionZeroCel\\_Booklet\\_EN.pdf](https://www.interface.com/content/dam/interfaceinc/interface/sustainability/emea/25th-anniversary-report/Interface_MissionZeroCel_Booklet_EN.pdf)

<sup>48</sup> <https://www.insideflows.org/project/net-works-interface>

<sup>49</sup> [https://www.sbs.ox.ac.uk/sites/default/files/2018-06/interface\\_inc\\_-\\_mutuality\\_case\\_study\\_16.10.17.pdf?](https://www.sbs.ox.ac.uk/sites/default/files/2018-06/interface_inc_-_mutuality_case_study_16.10.17.pdf?)

<sup>50</sup> <https://www.insideflows.org/project/net-works-interface>

<sup>51</sup> <https://www.zsl.org/what-we-do/projects/empowering-communities-protect-coastal-wildlife>

<sup>52</sup> [https://www.interface.com.cn/climate-take-back/id/F-miwu9piu0\\_player\\_01](https://www.interface.com.cn/climate-take-back/id/F-miwu9piu0_player_01)

#### 4. Waste-to-value is a competitiveness strategy

A circular model is not only environmental. It can reduce exposure to raw material price volatility, reduce disposal costs, and protect margins. This connects circularity directly to MSME competitiveness, not just “doing good.”

#### 5. Innovation needs a pipeline, not ad hoc experiments

Interface's journey shows a practical pattern that BSOs can replicate with MSMEs: diagnose resource losses, design one circular product or process change, pilot, measure, and only then scale.

#### 6. Inclusion can be built into circular value chains

Net-Works is a reminder that circular models can generate social value when collection and pre-processing create decent income opportunities and more stable livelihoods, if standards and buyer commitments are real.

#### 7. Policy and market infrastructure shape what is scalable

Even strong circular designs will stall without enabling conditions: collection systems, standards, procurement rules, and predictable enforcement. This is where BSOs can translate multiple MSME experiences into focused policy asks.

#### 9. Renewable Energy and ESG - Global Example

### Section 1: Basic Information

Title of Case Study	<b>From Black to Green: Ørsted's Transformation into a Renewable Energy Supermajor</b>
Country / Region	Denmark (Global Operations)
Organization / Entity Name	Ørsted A/S.
Type of Institution	Public-Private Company (Energy)
Date of Case Study	July 2025

### Section 2: Summary

This case study presents Ørsted's transformation from a fossil fuel intensive utility into a renewable focused energy company, widely recognized for building and operating offshore wind at scale. The shift was not

framed as a CSR add-on. It was a fundamental change in strategy, portfolio, and capital allocation that redefined the company's identity and business model<sup>53</sup>.

A key feature of Ørsted's transformation is that it combined clear direction with measurable milestones. In its green finance documentation, Ørsted describes divesting its upstream oil and gas business and rebranding from DONG Energy to Ørsted, reflecting a strategic move away from fossil fuel exposure and toward renewables. The company also set concrete transition targets, including a complete phase-out of coal by 2023 and an ambition for carbon-neutral energy generation and operations by 2025.

The practice is especially relevant for this Best Practices Guide because it shows what "full ESG pivot" looks like when the business case is built around competitiveness and resilience. Ørsted tied the transition to core performance drivers: risk reduction (less exposure to fossil markets and policy tightening), growth (renewables demand), and investability (green finance credibility). In the same documentation, Ørsted reports major progress against its earlier baseline, citing large reductions in carbon emissions intensity and a steep overall GHG reduction trajectory, alongside a generation mix expected to be overwhelmingly green by the early 2020s.

A practical nuance that makes this case more credible for readers is that even market leaders face real execution risk. Offshore wind has recently faced cost and supply chain pressures, and Ørsted has paused or reassessed major projects when economics no longer worked under current conditions. This reinforces the lesson that transformation needs adaptive planning, not only long-term ambition statements<sup>54</sup>.

### Section 3: How to Apply?

This case is useful because it shows how a sustainability shift becomes real when it is treated as a portfolio and operating model decision, not only a reporting exercise. For most MSMEs and BSOs, the goal is not to "become Ørsted". The goal is to apply the same logic at the right scale: pick a clear direction, shift investments toward it, build capabilities, and track performance in a way that financiers and buyers' trust.

#### FOR MSMEs (What to do):

##### 1. Set one strategic transition goal that forces prioritization.

Choose a clear direction that affects decisions, not a long list of ESG intentions. Examples: cut energy cost exposure, replace a high-risk input with a circular alternative, or win and keep buyers that require ESG evidence.

##### 2. Reallocate spending toward that goal, even in small steps.

Ørsted's lesson is about capital allocation discipline. For MSMEs, that means shifting budgets toward what reduces long-term risk or improves competitiveness: energy efficiency upgrades, solar where feasible, waste reduction that cuts disposal costs, or cleaner production that reduces rejection and quality losses.

<sup>53</sup>[https://cdn.orsted.com/-/media/www/docs/corp/com/investor/financial-reporting/outstanding-bonds/orsted\\_green\\_bond\\_framework\\_october\\_2017\\_final.pdf?hash=EB31F69C4DEA540420D0B02F73FF9B6E71C21FC9&la=en&rev=d63339e64ad64eb8a911dbeffdb3ee6a](https://cdn.orsted.com/-/media/www/docs/corp/com/investor/financial-reporting/outstanding-bonds/orsted_green_bond_framework_october_2017_final.pdf?hash=EB31F69C4DEA540420D0B02F73FF9B6E71C21FC9&la=en&rev=d63339e64ad64eb8a911dbeffdb3ee6a)

<sup>54</sup> <https://www.ft.com/content/7015e906-6415-4c35-a992-88f5f3e60e07>

### 3. Treat transition as a business model improvement, not a compliance burden.

Frame actions in operational terms: cost savings, reliability, reduced downtime, improved margins, and stronger market access. This is what creates internal buy-in and keeps the shift alive when conditions get hard.

### 4. Build a simple evidence pack from day one.

Document baseline and results. Keep bills, fuel records, waste volumes, and supplier information in one place. The aim is to be able to answer what changed, by how much, and why it is credible. Refer to the Green Toolkit for Guidance.

### 5. Plan for uncertainty and avoid “single bet” projects.

Ørsted’s sector shows that market conditions change. Build flexibility into your plan: phased investments, pilot first, renegotiate supply terms, and avoid locking yourself into a solution that only works under one price scenario.



## FOR BSOs (How to Support MSMEs through Services):

### 1. Offer help as a service, not isolated trainings.

A practical service line could be readiness screening, opportunity shortlist, basic investment case, implementation referral, and light monitoring. Keep it standardized so it is repeatable.

### 2. Help MSMEs translate ambition into bankable projects.



Many MSMEs fail at the packaging step. Support them to turn ideas into a finance-ready mini case with baseline, capex, savings or revenue logic, risks, and mitigation.

### 3. Build a trusted ecosystem roster.

MSMEs need reliable auditors, installers, suppliers, and sometimes financiers. The BSO role is to reduce transaction risk by curating providers and creating a referral pathway.

### 4. Use aggregated evidence for advocacy.

When many MSMEs face the same barrier (grid approval delays, unclear standards, missing incentives, customs issues for green inputs), BSOs should consolidate evidence and turn it into a short, actionable policy ask.

### 5. Keep claims credible and prevent greenwashing.

Coach MSMEs to communicate what they did with proof, boundaries, and simple metrics. This protects reputation and supports buyer and lender confidence.

## Section 4: Primary Target Audience

- **Primary:** Energy and infrastructure players that need to make real portfolio shifts under climate and market pressure, including utilities, independent power producers, renewable developers, and large industrial energy users (or their subsidiaries) that are planning capital investments and want a proven pathway for transitioning from high-carbon assets to renewables at scale.
- **Secondary:** Finance facing institutions and corporate decision makers that need credible transition narratives and measurable targets, including banks, investors, and corporate finance teams assessing transition risk, green finance eligibility, and long-term resilience, as well as boards and executive teams responsible for strategy, risk, and capital allocation.
- **Also relevant for:** BSOs and policymakers working on the enabling environment for energy transition and green competitiveness. For BSOs, the relevance is in how to translate “transition” into practical service offers for member companies (readiness, investment case packaging, partner matchmaking). For policymakers and regulators, the relevance is in the mix of incentives, permitting clarity, and market design that makes large-scale renewables investable and deliverable.

## Section 5: Background and Context<sup>5556</sup>

### Main Challenges

Ørsted’s transformation began as a response to a hard business reality, not a branding exercise. In the late 2000s, DONG Energy’s portfolio was still dominated by fossil fuels, with around 85% of its electricity and heat generation coming from coal, oil, and natural gas, and only around 15% from renewables. This meant **high exposure to carbon, fuel price volatility, and tightening climate expectations in Europe.**

<sup>55</sup><https://cdn.orsted.com/-/media/www/docs/corp/com/about-us/whitepaper/our-green-business-transformation--what-we-did-and-lessons-learned.pdf?hash=61B99D400E0C72A1843B490028E2FDF3&rev=1dd45a2e280c4ca6af8f494566b105e6>

<sup>56</sup> <https://www.reuters.com/sustainability/climate-energy/denmark-launches-its-biggest-offshore-wind-tender-2024-04-22>

At the same time, the “**default**” **utility model in Europe was being disrupted**. Ørsted’s own transformation narrative points to the early 2010s context where European utilities faced recession-driven demand weakness, falling power prices, and renewables pushing prices down, while conventional generation faced higher operating costs including coal prices and rising CO<sub>2</sub>-related costs. Put simply, the legacy model was becoming less profitable and less defensible.

A second challenge was that **the alternative was not easy**. **Offshore wind**, which later became Ørsted’s core, **was still a high-cost, high-risk technology and depended on supportive policy regimes**. So, the challenge was not only “move away from fossil fuels”, but it was also “move into something bankable, scalable, and cost reducing over time”.

### Local and Market context

Denmark provided a uniquely enabling environment for a serious pivot. The country had long political and public support for wind and energy transition, strong institutional capability in energy planning, and a mature wind ecosystem relative to most markets. In parallel, Denmark’s broader national direction has remained strongly pro-transition, including a stated goal to reduce CO<sub>2</sub> emissions by 70 percent from 1990 levels by 2030, backed by major offshore wind expansion.

However, “enabling environment” did not remove the core execution problem: early offshore wind economics were challenging. Ørsted’s own transformation account is explicit that offshore wind needed long-term price support regimes (it references the UK, Denmark, and Germany) and that a major strategic focus became industrializing delivery and driving costs down, including explicit cost targets for offshore wind.

### Strategic and leadership context: why “Mission Zero” happened

Ørsted’s shift aligned with, and was accelerated by, European climate and renewable energy direction. A key early signal was the EU Renewable Energy Directive framework that set binding national targets to raise renewables, including the well-known 20 percent renewable’s goal at EU level for 2020. Ørsted’s internal narrative also references the EU’s 2020 renewables target as part of the wider context that changed investment logic for utilities.

The transformation also links to the broader decarbonization and “just transition” debate in Europe: replacing coal generation, building large-scale renewables, and managing the industrial, workforce, and supply-chain implications of that shift. Ørsted’s reorientation included major portfolio decisions such as exiting oil and gas, and a corporate identity change from DONG Energy to Ørsted after the divestment.

### Target groups and Stakeholders

This case matters because the stakeholder set is “whole system”, not only investors:

- **Energy consumers and societies:** reliability, affordability, and security of supply during transition.
- **Public authorities and regulators:** auction design, permitting, grid planning, and de-risking frameworks for offshore wind scale-up.
- **Investors and lenders:** credibility of the transition plan, cost reduction pathway, and capital discipline for large infrastructure delivery.

- **Workforce and supply chain:** reskilling, safety culture, contractor standards, and industrial capacity (ports, vessels, components).
- **Communities and coastal stakeholders:** local benefits, engagement, and managing impacts during large project development.

## Section 6: Description of the Practice

### Core Activities

Ørsted's "practice" is not a single project. It is a full corporate transformation built around three connected moves: exit fossil fuels, scale renewables, mainly offshore wind, and embed sustainability requirements into how projects are developed, built, and operated.

Key actions include:

- **Divestment and portfolio shift**

Ørsted (formerly DONG Energy) moved away from fossil fuels, including divesting its oil and gas business and accelerating the phase-out of coal, while scaling renewables as its core growth engine.

- **Industrial scale renewable build-out**

Ørsted's investor materials describe a "line of sight" on significant capacity expansion through projects under construction, reflecting a pipeline-driven growth model (build, commission, operate, and recycle capital through partnerships and divestments).

- **Decarbonization anchored in measurable targets**

Ørsted reports a science-based net-zero target by 2040 (scope 1-3) validated by SBTi, and links delivery to milestones such as shutting down its last coal-fired heat and power plant to meet emissions reduction targets.

- **Sustainability built into project delivery**

Ørsted frames implementation through three sustainability priorities: decarbonization, biodiversity, and community impact, with supporting internal systems such as community grievance methods and FPIC guidelines for Indigenous engagement.

- **Circularity and responsible sourcing in the value chain**

Examples include collaboration on recycled materials from decommissioned wind turbine blades and actions linked to responsible sourcing of materials (steel supply and circularity initiatives).

### Partners Involved

Ørsted's model relies on partnerships across technology, finance, and "license to operate" stakeholders, including:

- **Technology and manufacturing partners:** Collaboration with Siemens Gamesa on reuse of recycled glass fibres from decommissioned blades, and supply chain engagement such as

agreements linked to lower-emission industrial production routes (example: Dillinger supply agreement).

- **Industry and global platforms:** Partnership with the World Economic Forum to launch the Responsible Renewables Infrastructure initiative addressing biodiversity and community impacts.
- **Workforce and community partners:** Workforce programs (including union-linked certification initiatives in the US) and community benefit mechanisms tied to specific projects.
- **Capital partners and co-investors:** Ørsted regularly brings in external investors through “partnership” and sell-down structures at the asset level (a key part of how offshore wind is financed at scale).

## Funding Sources

Because this is a company-wide transition (not one investment), the funding structure is best described as long-cycle capital investment plus capital recycling:

- **Large multi-year investment program:** Ørsted discloses gross investments of DKK 210 to 230 billion for 2024–2030, indicating the scale of capital required for renewables build-out.
- **Capital recycling through divestments and partnerships:** Ørsted also discloses divestment proceeds of around DKK 70 to 80 billion for 2024–2026, showing that asset divestments and partnering are a deliberate funding lever (not a side activity).
- **Project-level partnering model:** Offshore wind often uses a “develop, build, operate, then sell a minority stake” approach to reduce balance sheet pressure and fund continued growth. Recent reporting on Ørsted’s asset stake sales reflects this model in practice.

## Technologies and Innovation

Ørsted’s transition is driven by a bundle of technologies and delivery innovations, including:

- **Core generation technologies:** offshore wind as the flagship, alongside onshore wind, solar PV, and sustainable biomass in parts of the portfolio.
- **Circularity innovation in renewables materials:** collaboration to reuse materials from decommissioned turbine blades, with Ørsted stating “no landfill” ambition for blades and solar PV waste.
- **Lower-impact construction methods:** development and testing of a lower-noise offshore wind foundation installation method (tested in Germany), with reported reductions in construction noise up to 99%, aimed at reducing harm to marine life.
- **Governance and delivery systems as “innovation”:** formalized approaches for community engagement, grievance handling, and FPIC guidelines, which are increasingly treated as essential project delivery infrastructure in large renewables.

## Section 7: Outcomes and Impact<sup>57</sup>

### Key Results:

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<sup>57</sup> <https://www.reuters.com/business/energy/energy-group-orsted-shuts-down-its-last-coal-fired-plant-2024-08-29>

- **Coal exit milestone (system-level shift):** Ørsted announced the shutdown of its last coal-fired units in Denmark (Esbjerg power plant and a coal unit at Studstrup), moving the company closer to its stated goal of generating 99% of its energy from green sources by 2025.
- **From fossil-heavy to renewables-led:** In 2008, 85% of Ørsted's energy was fossil-based, illustrating how deep the pivot had to be to reach today's renewables-led model.
- **Structural transformation choices:** Ørsted rebranded from DONG Energy after selling its oil and gas assets in 2017, consolidating the strategic move away from fossil exposure toward renewables as its core growth engine.
- **Scale of renewables delivery:** Ørsted is widely described as the world's largest offshore wind developer. In 2024 reporting referenced by the Financial Times, Ørsted indicated it had around 18 GW installed and targeted completing 8.4 GW of projects by 2027, implying a pathway to 27 GW+ if delivered<sup>58</sup>.

### Sustainability Improvement:

- **Environmental impact:** Shutting down coal-fired units directly reduces high-carbon generation and associated local air pollution and reinforces the credibility of a transition plan because it removes the hardest-to-abate legacy assets rather than only adding "new green" capacity.
- **Economic competitiveness:** The case demonstrates that sustainability can be a business survival and growth strategy, not a side programme. The renewables pivot created a new market position (offshore wind leadership) and a new investment narrative (renewables pipeline and delivery discipline).
- **Energy security and resilience:** The coal exit timeline was temporarily affected by Europe's energy crisis, showing how transition pathways can be pressured by security-of-supply decisions and how governance needs to handle trade-offs without losing the end direction.

### Results verification and credibility signals:

- **Clear milestones and public accountability:** "Last coal unit shutdown" and "99% green by 2025" are concrete transition markers that stakeholders can verify and track over time, which is stronger than broad sustainability claims.
- **Delivery and portfolio realism in a tougher market:** Recent investment and target revisions reflect a key credibility point: a transition strategy must survive real-world conditions (cost inflation, financing environment, supply chain constraints), and governance has to reset plans without abandoning the direction of travel.

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Strategy first, ESG second:** Ørsted's transition worked because it was framed as a new growth and survival model, not a "CSR upgrade."
- **Hard decisions and capital reallocation:** Exiting coal and selling oil and gas assets are irreversible choices that reduce strategic ambiguity and force execution discipline.

<sup>58</sup> <https://www.ft.com/content/d5a56e8d-e64b-4190-8a85-ba980ae16ed7>

- **Scale and capability building:** Offshore wind leadership is not just “building wind farms,” it is building a repeatable delivery machine: project development, permitting, contracting, construction management, and operations at scale.
- **Policy alignment and market design:** The model benefited from operating in a context where public policy and market mechanisms broadly supported renewables investment, even if costs were initially high and technology was still maturing.

### Main Challenges and Mitigation Strategies

- **Cost inflation, interest rates, and supply chain stress**

Challenge: Major projects can become unviable as costs rise, pushing cancellations or redesign.

Mitigation: Use staged investment gates, stronger contract strategies, portfolio diversification, and realistic contingency planning. Re-baseline targets early rather than carrying optimistic assumptions into delivery.

- **Transition trade-offs during energy security shocks**

Challenge: manufacturers cannot “circularize” alone when core materials are petrochemical based and markets for recycled inputs fluctuate.

Mitigation: build long-term partnerships that stabilize supply and enable investment in regeneration (as shown in the Net-Works model, including the Aquafil regeneration pathway).

- **Credibility risk: claims outpacing proof**

Challenge: Coal exit timelines can be delayed by emergency policy measures.

Mitigation: Keep the end-state non-negotiable but create “shock absorber” options (demand management, grid resilience, storage, diversified supply) so the transition is not forced to backslide under crisis.

- **Credibility risk when targets shift**

Challenge: Reducing planned investments and revising capacity targets can trigger stakeholder concerns.

Mitigation: Communicate changes transparently: what changed (assumptions), why it changed (market reality), and what remains unchanged (transition direction and minimum delivery commitments).

### Improvement and Replication Potential

What could be improved?

- Strengthen project economics under volatility through better risk sharing in auction design and contracting.
- Build deeper local supply chains and workforce pathways to reduce bottlenecks and execution risk.
- Improve community and nature-positive practice as projects scale.



## Replication Potential

- Replicable for utilities and heavy-industry incumbents that face declining legacy assets: pivot requires an explicit “exit plus build” plan, a capability roadmap, and governance that rewards delivery, not only ambition.
- For smaller firms and MSMEs, the transferable lesson is the sequencing: pick the core transition bet, remove distractions, build capabilities, and measure delivery with visible milestones.

## Policy, Operational, and Funding Recommendations

### Policy level

- **Create stable, investable renewable procurement frameworks** that reflect real costs (including inflation and financing conditions), and accelerate permitting and grid connection processes.
- **Avoid policy uncertainty** that increases risk premiums and delays investment decisions.

### Operational level (for firms and BSOs)

- **Build a transition “delivery system”**: portfolio governance, risk management, supplier strategy, and standardized execution tools (schedule control, quality assurance, HSE, lessons learned loops).
- **Treat reputational credibility as an operational outcome**: publish milestones, explain boundary conditions, and report progress consistently.

### Funding recommendations

- **Use diversified financing structures that protect investment-grade resilience** (mix of project finance, partnerships, asset recycling, and risk-sharing instruments where relevant).
- For emerging markets: **crowd in concessional and blended finance** for early-stage risk (permitting, grid readiness, feasibility), then **shift to commercial capital** once projects become bankable.

## Section 9: Linkage to the Green Forward Toolbox

This case is best applied through a “strategy pivot to implementation pipeline”: diagnose the business model risk (high-carbon exposure), decide the new direction (renewables and clean energy), and build an investment pipeline and partnerships to deliver it, and measure, report, and communicate progress credibly. The following Green Forward Toolbox modules and tools support that pathway for MSMEs, BSOs, and larger anchor firms:

- **Green Readiness and Strategy Tools**

Use these tools to translate “we want to go green” into a realistic transition starting point and a short priority list.

1. MSMEs Sustainability Simple Self-Assessment: quick baseline of ESG and operational gaps (governance, workforce, environmental footprint).
2. MSME Green Economy Readiness Assessment: deeper readiness checks to identify where a “transition pivot” is feasible.

3. MSME Green Economy Readiness Survey: useful for BSOs to screen cohorts and identify which businesses are ready for investment planning.

- **Circular Economy and Resources Flow Assessment Tools**

Ørsted's story is energy transition first, but the same discipline applies to circularity in materials and waste (supply chain, components, asset end-of-life).

1. Tool No.1: Circular Economy Implementation Roadmap: phased approach to reduce material losses and design circular practices.
2. TEST Tool – Life Cycle Perspective Checklist: avoid shifting impacts from one stage to another.
3. Circular Business Model Canvas: clarify roles and incentives across the value chain (recovery, reuse, recycling, take-back).
4. Tool No.3: Cost benefit Analysis Tool: quantify circular options in business terms.

- **Green Finance and investment readiness Tools**

Use these tools to package the “pivot” into a financeable set of projects (energy, efficiency, low-carbon operations).

1. Tool No.1: Common Green Finance Screening Requirements: pre-check eligibility, minimum documentation, and typical lender expectations.
2. Diagnostic No.1: MSME-Friendly Savings and Sizing Sheet: turn bills, fuel use, and equipment options into a simple savings/payback logic (especially relevant for efficiency and renewable energy measures).
3. Tool No.2: Investment Case Template: convert a transition idea into a short lender-ready case: baseline, assumptions, costs, risks, mitigation, and repayment comfort.

- **ESG and Impact Management Tools**

Use these tools to replicate what makes Ørsted credible: governance discipline, clear boundaries, and stakeholder confidence.  
but credible.

1. ESG Self-Assessment Tool: identify ESG risks that can undermine a transition plan if ignored.
2. Logbook Sections: keep light evidence of actions, approvals, training, monitoring, and outcomes.
3. Stakeholder Mapping Template and Engagement Action Plan Template: critical when change affects workers, suppliers, communities, or regulators.

## Section 10: Supporting Materials

### Primary Resources (most authoritative for the report narrative)

- Ørsted annual reporting and official disclosures (annual report and investor disclosures are the most reliable reference point for targets, governance, capex, and performance).
- Ørsted statements on strategy and transformation (where accessible through official publications and investor communications).

### Supporting sources (context, independent analysis, and verification)

- Independent analysis of Ørsted's transition and the strategic logic of its pivot to renewables (useful for explaining "why the pivot worked" beyond corporate messaging)<sup>59</sup>.
- Sector context on the energy transition and renewables competitiveness (helps explain why "all-in on renewables" became a credible business direction)<sup>60</sup>.
- Third-party sustainability and transition commentary on the DONG to Ørsted shift (good for concise narrative framing)<sup>61</sup>.
- Reporting on Ørsted's fossil fuel exit decisions (useful for illustrating the credibility signal of divestment, commitments)<sup>62</sup>.

## Section 11: Cross-Cutting Themes

### 1. Strategic transition and business model reinvention

Ørsted is a full pivot case: not "ESG as add-on," but strategy, portfolio, and capex redirected to a new core business.

### 2. Credibility through divestment, not only targets

Exiting fossil assets sends a stronger signal than sustainability pledges alone and reduces transition risk exposure.

### 3. Green finance and bankability discipline

Large-scale transition depends on investable project pipelines, stable revenue models, and credible disclosure to financiers.

### 4. Policy alignment and enabling conditions

Offshore wind scale-up depends on permitting, grid planning, auctions/contract design, and stable policy signals, which is directly relevant for replication thinking.

### 5. Risk management and resilience

The case also shows that green sectors carry material risks (interest rates, supply chain constraints, permitting delays), so transition plans must include risk buffers and adaptive planning.

### 6. Innovation and learning curves

Early investment and scaling can unlock cost reductions and capability advantages, but only when paired with execution discipline and partnerships.

### 7. Supply chain responsibility

Large renewable buildouts shift ESG risk into suppliers (labor conditions, procurement integrity, materials), so governance must extend beyond the company boundary.

<sup>59</sup>[https://ieefa.org/wp-content/uploads/2021/09/Orsted\\_A-Leading-Utility's-Green-Energy-Transition\\_September-2021.pdf](https://ieefa.org/wp-content/uploads/2021/09/Orsted_A-Leading-Utility's-Green-Energy-Transition_September-2021.pdf)

<sup>60</sup><https://www.iea.org/reports/renewable-energy-market-update-june-2023/executive-summary>

<sup>61</sup><https://trellis.net/resource/whitepaper-orsted-our-green-business-transformation/>

<sup>62</sup><https://www.theguardian.com/business/2017/may/24/ineos-buys-dong-energy-oil-and-gas-business>

## 8. Just transition and skills:

Moving from fossil operations to renewables changes workforce needs; reskilling and workforce planning become core to social sustainability.

## 10. Public Private Partnership - Regional Example

### Section 1: Basic Information

Title of Case Study	<b>The Red Sea Project: Pioneering Sustainable Water &amp; Waste Management for Regenerative Tourism</b>
Country / Region	Red Sea Coast, Saudi Arabia
Organization / Entity Name	Red Sea Global (formerly The Red Sea Development Company - TRSDC), in partnership with various private entities (e.g., ACWA Power, ENOWA)
Type of Institution	Public-Private Partnership (Public Investment Fund-backed entity leading with Private Sector implementation)
Date of Case Study	August 2025 (Ongoing Development/Operational Phases)

### Section 2: Summary

This case study focuses on the Red Sea Project, a mega-tourism development in Saudi Arabia designed to be one of the world's most ambitious regenerative tourism destinations. Its core sustainability strategy includes pioneering self-sufficient, off-grid sustainable water and waste management solutions.

This PPP aligns with green economy themes of water management, circular economy, renewable energy integration, and sustainable infrastructure. By committing to 100% renewable energy and zero waste to landfill, the project demonstrates how large-scale, public-backed initiatives can create a demand for cutting-edge green technologies and foster an ecosystem for sustainable enterprise development, setting new global benchmarks for environmental stewardship in tourism.

### Section 3: How to Apply?

This case is useful because it shows what happens when sustainability is treated as core infrastructure design and a performance requirement, not as a CSR add-on. The practical takeaway for Palestine is not to replicate the Project's scale, but to apply its operating logic in smaller, realistic PPPs and service contracts: define clear sustainability outcomes (water, waste, energy), design an integrated solution from the start, allocate risk to the parties best able to manage it, and manage delivery through measurable KPIs and strong oversight.

### FOR MSMEs (What to do):

1. Look for “entry points” you can deliver, not the whole megaproject.

Most MSMEs will not build utility plants, but they can deliver parts of the system: energy efficiency services, solar PV installation and O&M, smart metering, leak detection, wastewater pre-treatment, waste segregation and recycling, composting, digital monitoring, environmental testing, and operations support.

## **2. Start with a resource baseline for the customer site.**

Whether the customer is a hotel, industrial facility, municipality, university, or hospital: quantify current energy use, water consumption, wastewater volumes, and waste streams. A simple baseline turns “green ideas” into a decision-ready service offer.

## **3. Package integrated solutions instead of single interventions where feasible.**

The Red Sea logic is integration: energy, water, and waste are managed together. For MSMEs, that can mean bundling services (for example: efficiency plus solar; water efficiency plus wastewater reuse for non-potable uses where allowed; waste sorting plus offtake agreements). Bundles often improve performance and financeability.

## **4. Propose performance-based delivery and measurable KPIs.**

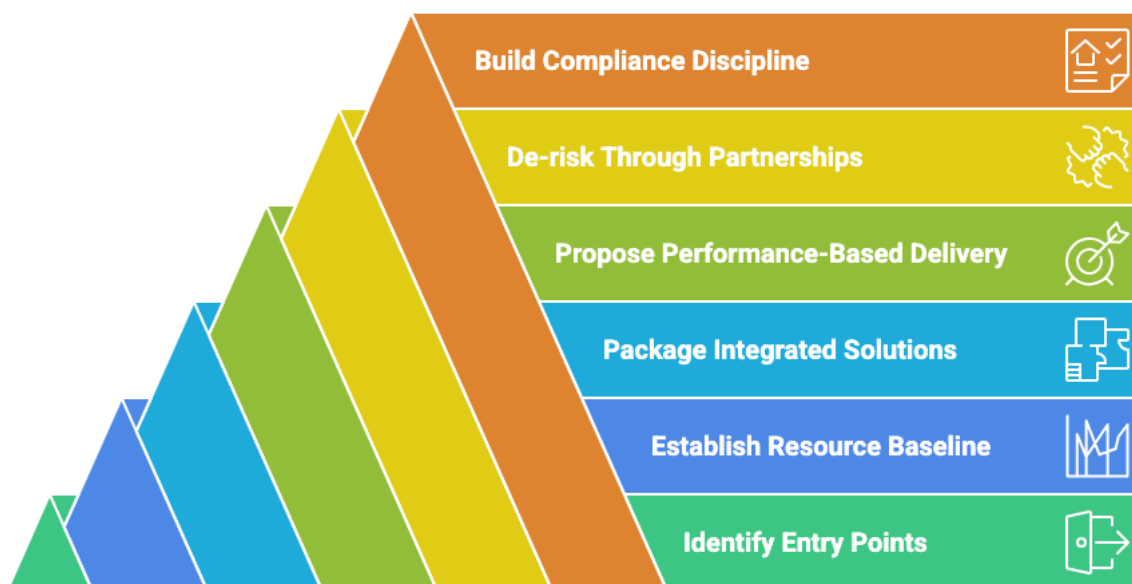
Move from “we will install” to “we will deliver outcomes.” Examples: kWh saved, percentage renewable supply, m<sup>3</sup> water saved, percentage wastewater reused, diversion rate from landfill, tonnes recycled. This makes your offer credible for PPPs and institutional buyers.

## **5. De-risk through partnerships and a clear role split.**

If your firm is small, build consortia: one company leads technical design, another handles O&M, another handles waste/recycling offtake, another handles monitoring. A clear split of responsibilities helps you meet procurement and bankability expectations.

## **6. Build compliance and E&S discipline into the offer from day one.**

Large buyers and PPPs increasingly require EHS procedures, safe waste handling, permits, and clear community safeguards. Even a light compliance file (licenses, safety procedures, training records, supplier standards) improves your competitiveness and reduces delays.



### FOR BSOs (How to Support MSMEs through Services):

#### 1. Work with anchor clients to create a steady pipeline.

Replication in Palestine works when there is a consistent demand driver. Convene municipalities, industrial zones, universities, hospitals, and large tourism operators as “anchor clients” and translate their needs into repeatable PPP opportunities.

#### 2. Provide PPP-ready documentation that reduces transaction cost.

Develop standard templates for: concept note, pre-feasibility outline, KPI sheet, technical specifications, service-level requirements, risk allocation checklist, and basic contract clauses for performance monitoring and penalties. This is often the difference between a good idea and a bankable tender. Sample forms and guide is available in the Green Toolkit.

#### 3. Support aggregation and bundling.

Many green infrastructure services are too small to interest serious providers or financiers when presented one-by-one. BSOs can bundle multiple sites (for example, a cluster of SMEs or public buildings) into one pipeline so it becomes investable and easier to procure.

#### 4. Broker the ecosystem, do not become the implementer.

The BSO role is to curate credible providers, verify minimum standards, and create structured referral pathways. Keep a roster of vetted suppliers and document minimum eligibility requirements to protect MSMEs and public entities from low-quality delivery.

#### 5. Translate implementation barriers into targeted policy asks.

When MSMEs repeatedly face the same bottlenecks (permitting, standards, unclear responsibilities between utilities and municipalities, lack of incentives, weak enforcement), consolidate evidence and convert it into 2 to 3 clear policy recommendations that improve feasibility for future PPPs.

#### Section 4: Primary Target Audience

- **Primary:** BSOs and sector bodies (chambers of commerce, industry associations, tourism and construction associations, investment promotion and SME support institutions) that want to structure and deliver practical services around green PPPs and sustainable infrastructure delivery, including pipeline development, partner matchmaking, tender readiness support, and monitoring frameworks.
- **Secondary:** MSMEs and local private sector service providers that can deliver parts of “green PPP” value chains as suppliers or subcontractors, such as: energy efficiency and solar PV (including O&M), water efficiency and smart metering, wastewater pre-treatment and non-potable reuse solutions (where permitted), waste segregation and recycling services, environmental monitoring/testing, digital monitoring platforms, and facility management services aligned with sustainability KPIs.
- **Also relevant for:**
  1. Policymakers and public procuring entities (municipalities, ministries, regulators, utilities, and public agencies) that are designing PPP frameworks, procurement specifications, and performance standards for sustainable infrastructure and services.
  2. Finance providers and donors (banks, DFI windows, blended finance facilities, guarantee schemes) supporting green infrastructure and service contracts, especially where investment readiness, risk allocation, and measurable outcomes are required.

#### Section 5: Background and Context<sup>63,64</sup>

##### Main Challenges

The Red Sea Project sits in a category of “high footprint by default” developments: large-scale destination infrastructure (airports, utilities, hotels, mobility, waste systems) built in a coastal ecosystem that is both fragile and economically valuable. The core challenge was not only to build a luxury tourism destination, but to hardwire sustainability requirements into the masterplan from day one so performance is achieved through systems, contracts, and operations, not marketing.

That meant solving several linked problems at the same time:

1. **Biodiversity and ecosystem protection at destination scale:** RSG positions the project as a nature-first development with a commitment to measurable conservation outcomes (including a stated target to deliver a net positive conservation impact).
2. **Off-grid, utility-grade sustainability:** rather than relying on “greener procurement” later, the project required utility systems that can operate reliably in a remote coastal setting while meeting high

<sup>63</sup> <https://www.redseaglobal.com/en/responsible-development/planet/>

<sup>64</sup> <https://iucn.org/story/202506/making-waves>

sustainability specifications. RSG states the destination will be powered by 100% renewable energy, 24/7, delivered through a long-term BOOT model with a private consortium.

3. **Water and waste in an arid coastal environment:** the operational reality is that water production, wastewater treatment, cooling demand, and waste logistics can become the main sustainability failure points for destinations in arid regions if they are not planned as one integrated system. Reporting on the Red Sea utilities package describes a bundled approach that includes power plus water production and wastewater treatment as part of the infrastructure delivery model.

## Local context

The project is in a hot, arid national context where freshwater is limited and the energy-water nexus matters. At country level, water supply has historically been closely linked to energy inputs (including desalination), which makes the “how” of water production and reuse a central sustainability issue, not a side topic.

Ecologically, the Red Sea coastline is not an empty development site. RSG describes the destination as covering a very large area (tens of thousands of square kilometers) and frames development as paired with marine and terrestrial protection measures, including habitat restoration and long-term environmental monitoring.

## Broader policy links and why this is a PPP-relevant case

This is not a standalone private project. It is widely discussed as part of Saudi Arabia's national economic diversification push, where tourism is a strategic growth sector and giga-projects are designed to build new industries, jobs, and investment pipelines.

What makes it relevant as a PPP style case is the delivery logic: sustainability targets are translated into performance requirements within long-term infrastructure and service arrangements (for example, the BOOT utilities model and the commitment to 24/7 renewable power), which shifts sustainability from aspiration into enforceable delivery obligations.

## Target groups and Stakeholders

- **Tourists and destination operators:** who benefit from a credible “sustainable luxury” proposition if performance is real and verified.
- **Local communities and workforce:** through employment, supply chain demand, and the long-term protection of natural assets that support livelihoods and regional identity.
- **Public sector entities and national programs:** seeking investable models that deliver diversification while managing environmental and reputational risk.
- **Private contractors, utilities partners, and technology providers:** operating under delivery models where sustainability requirements are built into design, construction, and long-term operations.
- **Regulators and environmental authorities:** because high-sensitivity coastal development requires permitting discipline, monitoring, and compliance over the full lifecycle, not just at EIA stage.

## Section 6: Description of the Practice

### Core Activities

Red Sea Global (then TRSDC) procured a single, integrated utilities concession as an independent public-private partnership (PPP) to deliver the entire “behind-the-scenes” sustainability backbone for Phase One of the destination. The package is designed to make ambitious sustainability targets implementable by embedding them into the utilities system design, performance requirements, and long-term operations.

The contract bundles multiple utility services under one agreement (a distinctive feature), covering renewable power, potable water production, wastewater treatment, solid waste management, and district cooling for the Phase One assets (hotels, airport, and enabling infrastructure).

Key Operational elements (as defined in public disclosures) include:

- 24/7 renewable power supply (off grid): Energy supplied via solar and wind, sized for an initial demand of about 210MW, with the system designed to expand as the destination grows.
- Energy storage to enable round-the-clock renewables: A large-scale battery energy storage system (BESS) is included to keep the destination fully off grid while maintaining continuous renewable power day and night.
- Water security through desalination: Construction of three seawater reverse osmosis (SWRO) plants for potable water supply.
- Wastewater treatment with environmental enhancement intent: An “innovative” sewage treatment plant intended to manage wastewater while creating wetland habitats and supporting irrigation demand for landscaping.
- Solid waste management with a no-landfill model on site: The utilities scope includes a waste management center and solid waste handling structured to avoid landfill disposal at the destination site.
- (As referenced in sector coverage) added utility services: Telecommunications and data services are also cited as part of the utilities scope in public reporting on the deal.

### Partners Involved

- **Public-side / Project company:** Red Sea Global (formerly TRSDC)- developer and contracting authority for the utilities PPP; the destination commits to purchasing utilities over the concession period.
- **Private consortium** led by ACWA Power: selected to design, build, operate, and transfer the utilities infrastructure under the PPP structure.
- **Financiers:** Saudi and international banks and institutions are cited as financing the consortium, including Standard Chartered and China’s Silk Road Fund.

### Funding Sources

This model is structured explicitly as a long-term concession with private financing and operational responsibility:

- **Concession term:** Utilities are delivered under a 25-year concession/BOOT style structure, after which operations are transferred back to the project company.
- **Offtaker model:** TRSDC (via an affiliate) acts as the sole offtaker, and the destination does not invest its own capital upfront, instead purchasing utilities from the consortium over the term.

- **Reported investment value:** The multi-utilities project is described publicly by the operator as having a total investment value of about US\$1.5 billion.
- **Bankable structure logic:** The PPP approach is presented to secure high-quality, performance-driven utilities while providing investable cash flows for backers.

### Technologies and Innovations

What is innovative here is not a single technology, but a systems package designed for “always-on” renewables plus closed-loop utilities:

- Hybrid renewable generation: solar plus wind to serve continuous demand at destination scale.
- Large-scale battery storage: disclosed as 1000 MWh in RSG’s announcement, and described as around 1.2 GWh by the operator, serving the core purpose of keeping the destination off-grid while powered by renewables day and night.
- SWRO desalination (three plants): potable water production suited to arid coastal conditions.
- Wastewater treatment with reuse and nature-based co-benefits: STP designed to create wetlands and support irrigation demand.
- District cooling: included in the bundled utilities agreement to reduce overall energy intensity for cooling loads in a hot climate (and to centralize performance and O&M).
- Solid waste management with “no landfill on site” intent: embedding waste outcomes into the utility delivery model, rather than leaving them to ad hoc operators.

### Legal and Policy Framework

- Independent PPP procurement: RSG describes the contract as procured as an independent PPP covering design, construction, and operation, with long-term utility purchase commitments by the destination.
- Alignment with national strategy: the project is explicitly positioned as aligned with Saudi Vision 2030 and framed as a flagship model for “regenerative tourism” and new standards in sustainable destination development.

## Section 7: Outcomes and Impact

### Key and Milestone Results:

- **Destination activation and delivery milestones:** The Red Sea welcomed its first guests in 2023, marking the start of phased operations as infrastructure and resorts come online.
- **Scale of the planned destination buildout:** Red Sea Global’s published vision for full completion includes 50 resorts, around 8,000 hotel keys, and around 13,000 residential units by 2030 (plus supporting leisure and mobility infrastructure).
- **Renewable power system delivered as enabling infrastructure:** Red Sea Global reports an off-grid renewable electricity system supported by five solar farms and 1,200 MWh of battery storage, positioned to provide 24/7 renewable power for the destination.

### Sustainability Improvement:

- Environmental performance embedded into “core infrastructure” decisions: A key outcome is that decarbonization is not treated as an add-on. Power supply is designed and delivered as a

renewable-first system, reducing long-term emissions exposure and future carbon cost risk versus conventional destination utilities.

- **Resilience and reliability for operations:** The combination of solar generation and large-scale battery storage is not only a climate measure. It is also an operational reliability solution for a remote destination where grid dependence would be a major risk.

### Impact on Beneficiaries and Stakeholders:

- **Tourism market positioning:** Opening and operating as a sustainability-led destination supports differentiation in a highly competitive global tourism market, especially for investors, operators, and guests increasingly sensitive to climate and nature impacts.
- **PPP and local economy effects:** While the project is still in phased delivery, the model is designed to create ongoing demand for Saudi-based operations, maintenance, hospitality employment, and green technology supply chains as more assets enter operation. (Quantified local job and procurement results should be confirmed from the latest Red Sea Global public reporting before we lock figures in the case study.)

### Results verification and measurement:

Red Sea Global's sustainability reporting is the most appropriate reference point for tracking delivery against targets, including energy system delivery and performance indicators

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Designing sustainability into the concession model from day one**

The destination's sustainability intent is translated into enabling infrastructure, especially the power system, rather than being left to operator-level "good intentions."

- **A bankable, systems approach (no single projects)**

Treating power, utilities, and destination operations as an integrated system increases the chance of achieving performance outcomes at scale.

- **Phased delivery with visible milestones**

Welcoming first guests early (while continuing buildout) helps prove delivery capacity, de-risk perception, and create learning loops before full scale completion.

- **Clear market logic**

Sustainability is positioned as a competitiveness lever for tourism, investment attraction, and long-term operating resilience, not only as compliance.

### Main Challenges and Mitigation Strategies

- **High capex and technology integration risk (renewables, storage, utilities)**

Mitigation: Lock performance requirements into EPC and O&M contracts, use staged commissioning, and maintain conservative design margins for critical loads and redundancy.

- **Remote-site logistics and supply chain constraints**

Mitigation: Early procurement planning, framework agreements for critical components, and local capability-building for O&M to reduce dependence on external mobilization.

- **Credibility risk (greenwashing concerns in giga-projects)**

Mitigation: Publish performance data and boundaries clearly (what is included in “100% renewable,” what is excluded, and how reliability is maintained) and use third-party assurance where feasible. (Recommendation: strengthen this element explicitly in the written case.)

- **Nature and biodiversity tradeoffs in coastal development**

Mitigation: Apply strict zoning, construction controls, marine safeguards, and long-term ecological monitoring tied to operator KPIs.

## Replication Potential

**The most transferable lesson is the PPP logic:** bundle sustainability performance into core infrastructure delivery (power, water, waste) so operators inherit a system that makes the sustainable option the default, not the exception.

## Policy, Operational, and Funding Recommendations

### Policy and PPP design

- **Translate sustainability goals into contractual KPIs**, not marketing language (energy reliability, renewable share definition, waste diversion, wastewater reuse, nature safeguards).
- **Require transparent reporting and assurance clauses** as part of the concession, including audit rights and consequences for underperformance.

### Operational

Build a local O&M competency plan early (certification pathways, spare parts strategy, and response-time SLAs), because reliability will define reputation in remote destinations.

### Funding

Where capex is heavy, structure blended finance or guarantees around measurable sustainability outcomes (for example, verified renewable generation or verified waste diversion), not only construction milestones.

## Section 9: Linkage to the Green Forward Toolbox

This case links strongly to the Green Forward Toolbox because it demonstrates how a large-scale, public-sector-led development can translate ambitious sustainability targets into investable packages, operating systems, and measurable delivery. The same logic can be applied at MSME and BSO level in Palestine by structuring green tourism and service value chains as a pipeline: screen readiness, map stakeholders, design circular resource loops (water, waste, materials), package finance, then track and communicate performance credibly.

- **Green Readiness Screening and Assessment Tools**

Use these to screen MSMEs that want to join green tourism and destination supply chains (hospitality, transport, catering, construction services, facility management).

1. MSMEs Sustainability Simple Self-Assessment
2. MSME Green Economy Readiness Assessment
3. MSME Green Economy Readiness – Survey

- **ESG and impact management Tools**

Use these to operationalize stakeholder discipline, which is critical in PPPs and destination developments where social license, community impacts, and contractor performance determine success.

1. Stakeholder Mapping Template
2. Engagement Action Plan Template
3. ESG Logbook Sections

(Also useful: Tool No.1 and Tool No.2 as quick ESG baselines for suppliers.)

- **Circular Economy and Resources Flow Assessment Tools**

Use these to design “no waste to landfill”, resource efficiency, and reuse loops in tourism and infrastructure operations (waste segregation, organics, construction waste, packaging, water reuse).

1. Circular Economy Implementation Roadmap
2. Circular Business Model Canvas
3. Identifying Sources of Waste with the Big Five Structural Wastes Tool
4. Cost benefit Analysis Tool

- **Green and Circular Innovation and Business Modelling Tools**

Use these to translate sustainability requirements into workable supplier business models (service contracts, circular procurement offers, concession-ready packages).

1. Value Proposition
2. Circular Business Model Roadmap
3. MSMEs Assessment Criteria – for BSOs
4. MSMEs green Transition Action Plan Template

- **Green Finance and investment readiness Tools**

Use these to convert green infrastructure or supplier upgrades into finance-ready requests, including clear evidence, costs, payback logic, and risk controls.

1. Tool No.1: Common Green Finance Screening Requirements
2. Tool No.2: MSME-Friendly Savings and Sizing Sheet
3. Tool No.3: Investment Case Template

(Use the Quick Map to position options in the Palestine finance landscape.)

## Section 10: Supporting Materials

- Red Sea Global sustainability overview and commitments, including the project's positioning and sustainability approach<sup>65</sup>.
- Red Sea Global "Planet" page outlining core environmental priorities (including water stewardship and wastewater treatment/reuse framing)<sup>66</sup>.
- Red Sea Global "100% Renewable Energy" page describing the planned off-grid renewable power system and its architecture (solar plus battery storage)<sup>67</sup>.
- Public Investment Fund (PIF) newswire confirming Red Sea Global as a PIF-owned developer and linking its role to tourism sector development and Vision 2030 economic diversification framing<sup>68</sup>.

Those are the primary resources- project and official.

## Section 11: Cross-Cutting Themes

### 1. PPP design as a sustainability delivery mechanism

Sustainability targets are embedded upfront in destination design and utility systems, not added later. This is the transferable lesson for green PPPs: put performance requirements into contracts, KPIs, and monitoring from day one.

### 2. Resource security and resilience (water-energy-waste nexus)

The case is fundamentally about operating in an arid, environmentally sensitive area, which makes water stewardship, wastewater treatment and reuse, and reliable clean power central to viability, not "extra ESG".

### 3. Circular economy and zero-landfill ambition

The project positions waste minimization and diversion as part of destination operations, which highlights the need for end-to-end systems: segregation, contracting, traceability, and stable offtake markets for recovered materials.

### 4. Biodiversity and sensitive-area development risk

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<sup>65</sup> <https://www.redseaglobal.com/en/>

<sup>66</sup> <https://www.redseaglobal.com/en/responsible-development/planet/>

<sup>67</sup> <https://www.redseaglobal.com/en/w/media-center/contract-of-power-with-100-percent-renewable-energy/>

<sup>68</sup> <https://www.pif.gov.sa/en/news-and-insights/newswire/2023/red-sea-global-and-alula-collaborate-to-boost-saudi-tourism-industry/>

“Regenerative” destination claims are high-stakes. The cross-cutting message for our report is governance and proof: clear baselines, transparent indicators, independent verification where possible, and honest boundaries to reduce greenwashing risk.

### 5. Local value creation and workforce development

Large destination projects can create meaningful jobs and supplier opportunities, but only if local content, skills development, and supplier upgrading are treated as deliberate workstreams (not assumed).

### 6. Replicability for Palestine (right-sized)

Palestine will not replicate giga-project scale but can replicate the operating logic through smaller “green destination pilots” (eco-lodges, heritage tourism clusters, agritourism nodes) that hardwire renewable energy, water reuse where safe and permitted, and circular waste systems into the business model, supported by BSOs using the Toolbox pathway.

## 11. Renewable Energy and PPP - Regional Example

### Section 1: Basic Information

Title of Case Study	<b>Noor Ouarzazate Solar Complex: Morocco's Giant Leap in Renewable Energy</b>
Country / Region	Morocco
Organization / Entity Name	Moroccan Agency for Sustainable Energy (MASEN) in partnership with various private consortia (e.g., ACWA Power, ENGIE, TSK, Sener, Siemens Gamesa)
Type of Institution	Public-Private Partnership (Public Sector leading with Private Sector implementation)
Date of Case Study	August 2025 (Ongoing Development/ Impact)

### Section 2: Summary

This case study highlights the Noor Ouarzazate Solar Complex, one of the world's largest concentrated solar power (CSP) plants, as a landmark Public-Private Partnership (PPP) in renewable energy. It showcases Morocco's strategic vision to reduce energy dependence and become a regional leader in clean energy.

The project aligns with green economy themes of renewable energy integration, green finance, and sustainable infrastructure. By mobilizing significant private investment and leveraging advanced solar technologies, the complex has not only boosted Morocco's energy security but also created a robust

framework for large-scale green projects, demonstrating the immense potential of PPPs in driving national green transitions.

### Section 3: How to Apply?

This case is useful because it shows how a renewable energy mega project becomes financeable and deliverable when it is structured as a disciplined PPP: clear public strategy, a capable public anchor institution (MASEN), competitive procurement, long term PPAs, blended finance from DFIs, and a technology choice (CSP with storage plus PV) that matches grid needs. The transferable lesson is not “build a giant CSP plant”, it is how to design a bankable pipeline of clean energy projects where roles, risks, and revenues are clear enough for the private sector and financiers to commit at scale.

#### FOR MSMEs (What to do):

##### 1. Choose your entry point in the value chain, then specialize.

Most MSMEs will not be project sponsors. Instead, position yourself as a credible supplier or service provider: civil works, electrical works, logistics, O&M, cleaning and water efficiency services, environmental monitoring, HSE services, metering and SCADA support, security and access control, or workforce training.

##### 2. Build “bankable supplier readiness”, not just technical capability.

Large PPPs select suppliers that can document performance, quality, and compliance. Strengthen: HSE procedures, quality assurance plans, basic ESG practices, insurance, and traceable procurement records.

##### 3. Get procurement ready early.

Track upcoming tenders, prequalification requirements, and consortium supply needs. Prepare a short capability statement, past performance evidence, certifications, and a clear subcontracting offer.

##### 4. Treat O&M and performance as a business line.

Utility scale renewables reward reliability. Develop O&M packages, preventive maintenance schedules, fault response times, and performance reporting routines. These services often outlast construction and can be more stable revenue.

##### 5. Use the project logic to develop smaller “replicable products”.

Convert what you learn into SME scale offerings: rooftop PV packages, small ground mount systems, energy efficiency upgrades, monitoring solutions, and maintenance contracts that local businesses can buy.

#### FOR BSOs (How to Support MSMEs through Services):

##### 1. Offer capacity building.

Help MSMEs understand how PPP projects procure, what documentation is required, and how to position themselves in EPC and O&M supply chains.

## 2. Create a supplier readiness pathway.

Standardize a practical pathway: eligibility check, HSE and quality baseline, ESG minimums, tender documentation pack, and matchmaking with prime contractors.

## 3. Broker partnerships and reduce transaction cost.

Build a roster of credible developers, EPCs, financiers, labs, and certification bodies. The BSO role is coordination and quality filtering so MSMEs do not navigate the market blindly.

## 4. Turn local content from a slogan into a pipeline.

Support MSMEs to meet local content expectations by bundling them into joint bids, consortium subcontracting pools, or framework agreements.

## 5. Translate lessons into evidence based advocacy.

Use supplier feedback to identify the top bottlenecks (permits, grid connection steps, tender complexity, payment delays, standards) and convert them into focused policy asks.

### Section 4: Primary Target Audience

- **Primary:** Public sector institutions leading energy transition delivery (energy ministries, national renewable energy agencies, PPP units, regulators, and offtakers) that need to structure bankable renewable energy projects and attract private investment through competitive procurement and PPAs.
- **Secondary:** Private developers, EPC contractors, IPPs, technology providers, and investors (including DFIs and commercial lenders) seeking a proven model for structuring, financing, and delivering large scale renewable energy assets in emerging markets.
- **Also relevant for:**
  1. MSMEs aiming to enter renewable energy supply chains (construction, electrical works, O&M, HSE, monitoring, logistics, services).
  2. BSOs building practical service offers around supplier readiness, matchmaking, tender support, and policy feedback loops.
  3. Local communities and workforce actors concerned with jobs, local procurement, skills transfer, and benefit sharing arrangements.

### Section 5: Background and Context<sup>697071</sup>

#### Main Challenges

<sup>69</sup>[https://www.kfw-entwicklungsbank.de/PDF/Evaluierung/Ergebnisse-und-Publikationen/PDF-Dokumente-L-P\\_EN/Marokko\\_Ouarzazate\\_2022\\_E.pdf](https://www.kfw-entwicklungsbank.de/PDF/Evaluierung/Ergebnisse-und-Publikationen/PDF-Dokumente-L-P_EN/Marokko_Ouarzazate_2022_E.pdf)

<sup>70</sup> <https://www.ppiaf.org/documents/4689>

<sup>71</sup> <https://mapafrica.afdb.org/en/projects/46002-P-MA-FF0-004>

Morocco's power sector challenge was not only "add renewables", but it was also to shift a system that had become economically and strategically exposed. At the time Noor Ouarzazate was being prepared, Morocco's primary energy consumption depended heavily on imported fossil fuels, and rising demand meant that expanding the existing fossil-heavy mix would deepen import dependence, strain public budgets, and increase exposure to price volatility.

There was also a power-system challenge behind the technology choice. Morocco needed renewable generation that could still supply electricity during non-sun hours, particularly to help meet evening peak loads. At the time, large-scale battery storage at the required capacity and cost was not considered a realistic option, which is one reason CSP with thermal storage became central to Noor's design.

### Local context

Morocco combines high solar potential with a strong national interest in energy security. This made large-scale solar a strategic fit, not a niche pilot. Morocco's solar resource is widely recognized as strong, and the national push for renewables was framed partly as a response to import dependence.

At the same time, Noor sits in an arid context, where water availability is a real constraint for infrastructure planning. This matters for CSP plants that can require water for cooling and operations, and it is part of why Noor is often discussed as a "systems project" where environmental tradeoffs (energy, water, land, biodiversity) must be managed explicitly, not assumed away.

### Policy and strategic framework

Noor Ouarzazate was not a standalone investment. It was built as a flagship implementation of Morocco's national energy strategy and solar plan launched in 2009. That strategic direction targeted a major scale-up of renewables and energy efficiency, including a goal for renewables (wind, solar, hydro) to reach 42% of installed electricity capacity by 2020, and a solar expansion plan targeting 2,000 MW by 2020 and 6,000 MW by 2030.

The project is also a reference PPP model because it shows how Morocco coordinated multiple development finance partners and mobilized private capital alongside public leadership. The KfW evaluation highlights exceptionally strong donor coordination via a steering committee and the integration of private capital through a PPP structure, with international partners including AfDB, AFD, the Clean Technology Fund, EIB, and the World Bank.

### Target group(s) and stakeholders

Noor's primary "target group" is national scale: Moroccan electricity consumers connected to the interconnected grid, including households and businesses. The Ouarzazate complex (Noor I to Noor IV) is framed as large enough to supply hundreds of thousands of households, which signals why the project is treated as strategic infrastructure rather than a boutique renewable project.

### Key stakeholder groups include:

- **National institutions and the power system** (energy security, peak management, long-term cost stability).
- **Local communities and workforce in Ouarzazate** (construction and operations jobs, local procurement potential, and local development benefits, alongside managing environmental and land-use impacts).

- **Private developers, EPCs, and investors** participating through the PPP model and long-term project finance structures.
- **International climate and development finance partners** who used Noor as a de-risking and demonstration platform for CSP and large-scale solar in emerging markets.

## Section 6: Description of the Practice

### Core Activities

The Noor Ouarzazate complex is a multi-phase solar power plant project (Noor I, II, III, IV) primarily utilizing Concentrated Solar Power (CSP) technology, with Noor IV being a photovoltaic (PV) plant. The project involves the design, financing, construction, operation, and maintenance of these plants by private consortia selected through competitive bidding processes. MASEN acts as the public off-taker, purchasing the electricity generated under long-term power purchase agreements (PPAs). The logic is to leverage private sector efficiency, technology, and finance for large-scale renewable energy deployment, de-risking the investment for private partners through government-backed PPAs.

### Partners Involved

- **Public:** Moroccan Agency for Sustainable Energy (MASEN) – project developer, owner, and off-taker.
- **Private Consortia:** Led by international developers like ACWA Power (Saudi Arabia), ENGIE (France), and various technology providers and EPC (Engineering, Procurement, and Construction) contractors (e.g., TSK, Sener, Siemens Gamesa).
- **Financial Institutions:** African Development Bank (AfDB), World Bank, European Investment Bank (EIB), KfW (German Development Bank), Agence Française de Développement (AFD), and others.

### Funding Sources

The project is financed through a mix of public funds (from MASEN), significant international development finance (loans from multilateral and bilateral institutions), and private equity/debt from the selected consortia. It's a classic PPP financing model.

### Technologies and Innovation

Primarily Concentrated Solar Power (CSP) with thermal energy storage (molten salt technology) to allow electricity generation even after sunset, ensuring grid stability. Noor IV uses advanced Photovoltaic (PV) technology.

### Legal and Policy Framework

Morocco's Renewable Energy Law (Law 13-09), National Energy Strategy, and specific PPP frameworks established by the government to attract private investment in infrastructure.

## Section 7: Outcomes and Impact<sup>7273</sup>

### Key Results:

- **Large-scale renewable capacity** added through phased development. The World Bank financed the Ouarzazate Concentrated Solar Power programme as a multi-phase buildout, with a combined 410 MW across the first three CSP phases (Noor I, Noor II, Noor III).
- **Meaningful grid-scale electricity output.** The same programme documentation estimates annual electricity generation of around 1,150 GWh/year from the CSP phases supported under the programme.
- **Material greenhouse gas emissions avoidance.** The programme's results framework estimates around 522,000 tCO<sub>2</sub>e/year avoided (ex-ante) due to displacement of fossil-based generation.

### Sustainability Improvement:

- **Environmental and Climate:** Lower-carbon power at scale, with emissions benefits anchored in a formal results framework and linked to monitored generation.
- **Economic and Systems:** Energy security and system flexibility value: CSP with thermal storage was pursued specifically to support generation beyond daylight hours and to strengthen system reliability and peak supply, not only add "nameplate" solar capacity.

### Operational reality check (important for balanced reporting)

Public reporting also shows that CSP operational reliability and storage performance can be a material risk. Reuters reports that a 150 MW unit at Noor Ouarzazate experienced a prolonged outage (around a year) starting in 2021, and that ACWA Power later reported a thermal storage failure that would keep the unit idle until November 2024. This is relevant as an implementation lesson on technology choice, O&M capability, and risk allocation in PPPs.

### Impact on beneficiaries and stakeholders (practical "who benefits" framing)

National power system and consumers benefit from additional domestic generation capacity and reduced exposure to imported fuels, with CSP designed to help meet demand more reliably at critical hours.

Local workforce and firms benefit mainly through construction-phase employment, operations and maintenance jobs, and supply chain contracting associated with large infrastructure delivery (numbers vary by phase and source, so they should be reported only where confirmed in official project reporting).

### Results verification and measurement (credibility)

Outcomes are anchored in formal lender project documentation and results frameworks (generation and emissions outcomes linked to plant output and displacement assumptions).

Independent reporting and market disclosures (including incident reporting in financial markets and major media) also provide an external "reality check" on operational performance and risks.

## Section 8: Lessons Learnt and Recommendations

<sup>72</sup><https://documents1.worldbank.org/curated/en/103151506335526236/pdf/BRI-PUBLIC-tre-project-morocco-noor-p122028.pdf>

<sup>73</sup> <https://www.reuters.com/world/africa/moroccan-solar-plans-hampered-by-dispute-over-technology-2024-02-27>

### Main Success Factors

- **A clear national “why”, backed by policy targets:** Morocco treated Noor as part of a long-term energy transition, driven by very high energy import dependence and a national renewable. This provided predictability for investors and DFIs and helped sustain the project through long procurement and construction timelines.
- **A bankable PPP structure that separated roles and made risk manageable:** Noor was structured as a BOOT PPP with a long-term PPA between MASEN and the private consortium, while MASEN had a separate power sales arrangement with ONEE for dispatch. This created a workable “public buyer and system operator” model while keeping private responsibilities focused on delivery and performance.
- **Concessional and blended finance that closed the affordability gap:** CSP was still expensive at the time. Noor’s structure explicitly used concessional finance (including CTF and multiple IFIs) and government support to bridge the gap between the PPA tariff and what the grid could absorb, enabling financial close.
- **Competitive procurement that pushed pricing down:** the tariff was driven by a competitive bid and was described as among the lowest globally for thermal solar at the time, supported by the project’s structuring and concessional finance package.
- **Technology choice matched to the system need (dispatchability):** using parabolic trough CSP with thermal storage addressed a real grid value proposition: producing electricity beyond daylight and during peak demand, not only adding intermittent generation.

### Main Challenges and Mitigation Strategies

- **High capex and “tariff-to-grid” affordability risk**

Challenge: Early-stage CSP tariffs were higher than conventional power and typical grid purchase levels.

Mitigation used: Blended finance, operational support mechanisms, and a contractual structure that explicitly managed the tariff gap through public support and concessional lending.

- **Complex risk allocation across multiple public entities**

Challenge: PPP success depended on clean interfaces between MASEN (buyer and coordinator) and ONEE (system dispatch and grid interface), plus government support commitments.

Mitigation used: Standardized, clearly defined contractual documentation and streamlined procurement to reduce uncertainty and risk premiums priced into bids.

- **Technology and performance risk (CSP and storage operations)**

Challenge: CSP plants are operationally complex (thermal systems, storage, O&M discipline), and performance risk can quickly become a financial risk under long-term PPAs.

Mitigation used: Sponsors carried key delivery and optimization responsibilities under the BOOT model, with performance and completion expectations embedded in the PPP delivery approach.

- **Water stress and environmental and social safeguards**

Challenge: The project is in an arid region, and water use (cooling, cleaning, site needs) is a sensitive constraint that can drive stakeholder risk.

Mitigation used: A safeguards approach that emphasized framework and then project-specific assessment and management planning, with explicit calls to address water-use issues carefully in detailed ESIA and EMPs.

### Improvement and Replication Potential

What could be improved?

- Improve “next projects” cost trajectory through learning and standardization
- Replicate the agency-led platform model, not only the technology
- Strengthen water-smart design and monitoring as CSP scales
- Scale local value realistically

### Policy, Operational, and Funding Recommendations

Policy level

- **Establish or empower a dedicated “clean energy delivery agency”** with procurement authority and bankable contracting capability (a MASEN-style platform), rather than leaving projects to fragmented mandates.
- **Align projects to grid strategy:** prioritize technologies that solve system constraints (peak supply, flexibility, firm capacity), not only headline MW.
- **Treat water and biodiversity constraints as “project design parameters”**, not permitting afterthoughts, especially in arid regions.

Operational level

- **Use transparent competitive tenders and publish clear risk allocation**, grid connection responsibilities, and performance expectations to reduce bid risk premiums.
- **Build strong owner-engineer and O&M capacity early for complex technologies** (CSP and storage), including performance monitoring routines and corrective maintenance systems.

Funding level

- **Use blended finance strategically** where technologies are not yet fully cost-competitive but design the package to shrink over time as learning reduces costs.
- **Structure affordability support transparently** (who pays the tariff gap and why), to avoid hidden fiscal risk and to protect the long-term credibility of the PPP programme.

### Section 9: Linkage to the Green Forward Toolbox

This case links strongly to the Green Forward Toolbox because Noor Ouarzazate shows how a green transition becomes real when it is treated as a bankable system, not just a technology choice: clear institutional leadership, transparent procurement, risk allocation through PPP contracts, blended finance to reduce tariff pressure, and credible monitoring of results. The toolbox tools below help BSOs, MSMEs,

and public actors replicate that “pipeline” logic in smaller projects (and help local firms participate in large projects through supply chains).

- **Green Readiness and Strategy Tools**

Use these tools to decide if an MSME, supplier, or local contractor is ready to participate in renewable-energy value chains (EPC, O&M, civil works, electrical works, services), and to prioritise gaps that block bankability.

1. Introduction to the Green Toolkit (BSO to MSME)
2. MSMEs Sustainability Simple Self-Assessment.
3. MSME Green Economy Readiness Assessment.
4. MSME Green Economy Readiness Survey.

- **Green and Circular Innovation and Business Modelling Tools**

Use these to translate “renewable energy opportunity” into a structured model: who pays, who benefits, who carries which risks, and what is the value proposition for each stakeholder. This is the same discipline Noor applied at national scale through MASEN’s structured approach and PPP delivery model.

1. Values and Vision Tool
2. Green Product Development Checklist
3. Value Proposition
4. MSMEs Assessment Criteria for BSOs (MSMEs Selection Criteria)
5. Investment Pitch Deck and Presentation Guide

- **Green Finance and investment readiness Tools**

Use these tools to turn a renewable-energy or enabling-infrastructure idea into “finance language”: baseline, costs, cashflow logic, risks, mitigation, and evidence. Noor’s experience shows that investors and DFIs respond when projects are packaged with clear documentation, defined roles, and credible risk management, especially under PPP structures.

1. Tool No.1: Common Green Finance Screening Requirements.
2. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet.
3. Tool No.2: Investment Case Template.

- **ESG and Impact Management Tools**

Large renewable projects succeed when stakeholder risks are actively managed (community engagement, land access, labor and OHS, grievance pathways, supplier conduct). Use these tools to build the “social license” and governance discipline that protects delivery timelines and reputation.

1. Diagnostic Tool No.1: ESG Self-Assessment Tool.
2. Diagnostic Tool No.2: Logbook Sections.
3. Tool No.1: Stakeholder Mapping Template.
4. Tool No.2: Engagement Action Plan Template.

## Section 10: Supporting Materials

- **Primary Resources:** World Bank project documentation on the Noor Ouarzazate CSP program (including Noor II and Noor III) and the PPP approach led by MASEN<sup>74</sup>.
- **Technical and implementation references:** KfW Development Bank ex-post evaluation for Noor I (objectives, development outcomes framing, and lessons relevant to scaling CSP in emerging markets)<sup>75</sup>.

## Section 11: Cross-Cutting Themes

### 1. PPP structuring is the real “technology” behind scale

Noor is not only a CSP story. It is a structuring story: MASEN used a PPP approach with competitively selected private partners and long-term power purchasing arrangements to make large-scale renewable generation investable. That model is transferable: when roles, risks, and payment logic are clear, capital can mobilize at scale.

### 2. Blended finance reduces tariff pressure and unlocks first-mover markets

Early large-scale solar (especially CSP with storage) can be capital intensive. The Noor model demonstrates how concessional and development finance can help bridge affordability gaps, crowd-in private partners, and establish a “reference transaction” that reduces perceived risk for future projects.

### 3. Dispatchability and grid value matter, not only installed megawatts

CSP with thermal storage is often justified because it can deliver electricity beyond daylight hours and support grid stability. The cross-cutting lesson is to match technology choice to system needs and to be explicit about what is being bought: energy only, capacity value, flexibility, or a mix.

### 4. Institutional leadership and procurement discipline determine credibility

A capable public anchor that can run tenders, manage contracts, coordinate lenders, and enforce standards is often what separates “announced projects” from delivered assets. Noor shows the importance of an empowered delivery institution with a repeatable procurement approach.

### 5. ESG risk management protects schedules and reputations

Large renewable projects still carry material E&S risks (land, biodiversity, labour and OHS, community impacts, supply chain integrity). The cross-cutting lesson is that ESG is not an add-on, it is schedule protection: strong stakeholder engagement, grievance handling, and contractor management reduce delays and conflicts and improve long-term acceptance.

### 6. Local value creation is a strategic pillar, not a side benefit

Flagship infrastructure becomes politically and socially durable when it builds domestic capability: local contractors, local services, skills development, and O&M ecosystems. This is especially relevant for MENA and for Palestine where job creation and local enterprise participation are core development goals.

<sup>74</sup><https://consultations.worldbank.org/content/dam/sites/consultations/doc/migration/morocco-ouarzazate2.pdf>

<sup>75</sup>[https://www.kfw-entwicklungsbank.de/PDF/Evaluierung/Ergebnisse-und-Publikationen/PDF-Dokumente-L-P\\_EN/Marokko\\_Ouarzazate\\_2022\\_E.pdf](https://www.kfw-entwicklungsbank.de/PDF/Evaluierung/Ergebnisse-und-Publikationen/PDF-Dokumente-L-P_EN/Marokko_Ouarzazate_2022_E.pdf)

## 7. Transparency, monitoring, and learning enable replication

Replication depends on documented learning: what the procurement model was, what risks were hardest, what assumptions drove cost, and how performance is measured. Noor-related documentation and evaluations matter because they convert a flagship project into a practical reference for the next generation of projects

## 12. Collaborative Innovation for Green Technology - National Example

### Section 1: Basic Information

Title of Case Study	<b>Palestine Cleantech Innovation Program: Building the First Regional Cleantech Innovation Ecosystem through Multi-Stakeholder Collaboration</b>
Country / Region	Palestine - West Bank, East Jerusalem, and Gaza Strip
Organization / Entity Name	Palestine Technology Park (Birzeit), Al-Quds University (Abu Dis), Gaza University
Type of Institution	<ul style="list-style-type: none"> <li>- Lead: United Nations Industrial Development Organization (UNIDO) Palestine</li> <li>- Primary Partner: European Union Representative Office in Jerusalem (EUREP)</li> <li>- Government Partners: Ministry of National Economy (MoNE), Palestine Energy and Natural Resources Authority (PENRA), Ministry of Entrepreneurship and Empowerment</li> <li>- Implementing Entities: Palestine Technology Park (Birzeit), Al-Quds University (Abu Dis), Gaza University</li> </ul>
Date of Case Study	July 2021 - 2024

### Section 2: Summary

The Palestine Cleantech Innovation Program represents a pioneering multi-stakeholder collaboration between UNIDO, the European Union, Palestinian government ministries, and academic institutions to develop the first regional cleantech innovation ecosystem in Palestine. Launched in July 2021 under the MOUSTADAMA Programme, the initiative addresses critical energy challenges facing Palestinian industries through innovation and entrepreneurship.

The program established a network of three physical Cleantech hubs across West Bank, East Jerusalem, and Gaza, providing comprehensive acceleration services including training, mentorship, and seed funding up to €25,000 for early-stage cleantech entrepreneurs. Through structured competition and acceleration programs spanning 12 weeks, the initiative supports innovative solutions in energy efficiency,

renewable energy, and water-energy nexus applications for industrial sectors. This collaborative model demonstrates how international development partners, government entities, and educational institutions can pool resources to overcome systemic barriers in constrained operating environments while building local capacity for green technology innovation.

**Green Economy Themes:** Renewable energy, energy efficiency, clean technology innovation, water-energy nexus, circular economy, entrepreneurship development.



### Section 3: How to Apply?

This case is useful because it shows what it takes to build a functioning cleantech innovation pipeline in a constrained context: a structured entry point for innovators, trusted institutions that can host and convene, a time-bound acceleration process that forces market validation, and small, catalytic funding that helps teams move from prototype to pilot. The lesson is not “run a competition”. The lesson is “build a repeatable pathway from problem to pilot to scale” with real partners, real customers, and practical support.

#### FOR MSMEs (What to do):

##### 1. Start by framing your energy or resource problem as a business problem with numbers.

Pick one pain point you can quantify: electricity cost, downtime, fuel use, process heat losses, water pumping costs, cold chain losses, compressed air leakage, waste disposal cost. Gather 6 to 12 months of bills, downtime notes, and production volumes. This is what makes you a credible pilot partner.

##### 2. Become a pilot site, not just a “beneficiary”.

If you are an industrial MSME, your biggest value to the ecosystem is access to a real operating environment. Offer a small pilot slot: one production line, one building, one refrigeration unit, one pump station. Define basic conditions: timeline, safety rules, access hours, and what data you can share.

##### 3. Ask for a solution package, not a gadget.

Push for a complete package: expected savings logic, O&M needs, installation requirements, safety considerations, and what happens if performance is below expectation. This protects you from “prototype risk”.

##### 4. Use a staged approach to de-risk adoption.

Do not jump directly to full investment. Start with diagnosis, small pilot, measured results, then scale. Insist on simple monitoring metrics from day one (baseline vs. after).

##### 5. Treat procurement as part of the innovation process.

If a pilot works, plan the pathway to procure legally and transparently: quotations, supplier checks, warranties, and any required approvals (for example, distribution company approvals for energy systems). A good pilot that cannot be procured is a dead end.



## FOR BSOs (How to Support MSMEs through Services):

### 1. Run an “Clean-tech support” before you run acceleration.

Most innovation programs fail because they start with ideas, not demand. BSOs should first collect 30 to 50 real industrial pain points and turn them into problem statements with baseline data ranges. Then match innovators to verified problems.

### 2. Create a pipeline that includes both innovators and pilot customers.

Build two lists in parallel: (i) cleantech teams and researchers, and (ii) MSMEs willing to host pilots. Your job is matchmaking and risk reduction, not only training.

### 3. Standardize the pilot agreement and data pack.

Provide simple templates that cover pilot scope, safety rules, responsibilities, data sharing boundaries, performance indicators, and an exit plan. This reduces friction and makes MSMEs more willing to participate. Sample forms and guide is available in the Green Toolkit.

### 4. Offer “commercialization readiness”, not only pitching skills.

Support innovators with the hard parts: unit economics, installation model, warranty logic, maintenance plan, certifications, and pricing for Palestinian market constraints. This is where many teams collapse after the demo day.

### 5. Build a local roster of technical validators.

Create a trusted list of engineers, labs, safety specialists, and sector experts who can validate claims. Even light validation increases confidence for MSMEs and financiers.

### 6. Link winners to financing pathways, not only grants.

Treat the €25k style seed support as a bridge. The BSO role is to connect the next step: supplier credit, bank pilots, guarantee instruments, donor scale-up grants, and corporate procurement pathways.

### 7. Turn ecosystem lessons into focused advocacy.

Track barriers across cohorts (approvals in Area C, licensing confusion, lack of standards, import constraints, lack of patient capital). Convert them into 3 to 5 actionable policy recommendations with evidence from pilots.

## Section 4: Primary Target Audience

### Primary:

- Palestinian cleantech entrepreneurs and early-stage startups (energy efficiency, renewable energy, water-energy nexus, waste-to-energy, circular solutions) seeking structured acceleration, validation, and seed support.
- Industrial and energy-intensive MSMEs that need affordable, reliable energy and resource-efficiency solutions, and can act as pilot hosts and first customers (manufacturing, food processing, agriculture-related industry, cold chain, services with high electricity demand).

### Secondary:

- BSOs, incubators, accelerators, chambers, and sector associations that can institutionalize the “problem to pilot to scale” pathway and provide standard tools, matchmaking, and readiness services.
- Universities, technoparks, and research centers that can host hubs, support prototyping, and provide talent pipelines and applied research capacity.

### Also relevant for:

- Government counterparts and regulators (MoNE, PENRA, entrepreneurship institutions, municipalities) who shape permitting, standards, incentives, and public procurement pathways for cleantech.
- Electricity distribution companies and large anchor firms that can enable approvals, provide technical feedback, and adopt solutions at scale.
- Donors, impact investors, and financiers seeking bankable pipelines and credible local partners in a constrained market.
- Women and youth focused organizations and networks that can increase inclusion, participation, and decent work outcomes in green innovation.

## Section 5: Background and Context<sup>76</sup>

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1. <sup>76</sup> MOUSTADAMA. (2021). "Palestine CleanTech Innovation Program to boost opportunities for local cleantech entrepreneurship." <https://moustadama.ps/news-center/press-releases/palestine-cleantech-innovation-program-boost-opportunities-local>
  2. MOUSTADAMA. (2023). "Palestine CleanTech Champions Day – 2nd Edition 2022." <https://moustadama.ps/news-center/press-releases/palestine-cleantech-champions-day-2nd-edition-2022>



## Main Challenges

Palestine faces severe energy security challenges that significantly undermine industrial competitiveness and economic development. Palestinian industries rely almost entirely on imported electricity from Israel at costs ranging from \$0.14-0.18 per kilowatt-hour, the highest electricity prices in the Middle East. This dependence, combined with frequent power interruptions and restrictions on energy infrastructure development under Oslo Accord constraints, creates a fundamental barrier to economic resilience. The lack of local innovation capacity in cleantech solutions, limited access to seed funding for early-stage entrepreneurs, and fragmented support ecosystems further compound these challenges. Palestinian entrepreneurs developing energy solutions faced isolation from international cleantech networks, absence of specialized business acceleration services, and minimal pathways to scale innovations to market viability.

## Local context

The program operates within Palestine's unique political and economic context, where Area C restrictions (covering 60% of West Bank) limit renewable energy infrastructure development, and Gaza faces additional constraints from blockade conditions. Despite these challenges, Palestine possesses significant human capital with educated youth, growing entrepreneurial spirit, and urgent need for energy independence. The Palestinian Authority had established the Palestinian Solar Initiative and feed-in tariff systems but lacked structured mechanisms to nurture cleantech innovation from idea to market. Palestinian industries, particularly manufacturing, food processing, and agriculture sectors, require affordable, reliable energy to maintain competitiveness. The fragmentation between West Bank and Gaza Strip necessitated a program design that could connect entrepreneurs across geographies through virtual platforms and synchronized physical hubs.

## Broader Policy/Program Context

The initiative is implemented within the broader MOUSTADAMA Programme (Arabic for "sustainable"), funded by the European Union with approximately €40 million and implemented by UNIDO in partnership with Palestinian authorities. MOUSTADAMA aims to enhance competitiveness of Palestinian small and medium industries through sustainable production methods and market access. The cleantech component aligns with Palestine's National Energy Strategy, which targets increased renewable energy generation and reduced import dependence. It connects to UNIDO's Global CleanTech Innovation Programme (GCIP), establishing Palestine as the 10th country in the global network. The program supports the European Green Deal objectives in the Southern Neighbourhood and contributes to Palestine's

3. MOUSTADAMA. (2021). "Palestine CleanTech Champions Day - 1st Edition 2021." <https://moustadama.ps/news-center/press-releases/palestine-cleantech-champions-day-1st-edition-2021-three-winning>
4. Palestine Technopark. (2023). "Palestine CleanTech Acceleration Program Takes Off with its Third Edition." <https://www.technopark.ps/en/article/511/>
5. UNIDO. (2024). "Global Cleantech Innovation Programme." <https://www.unido.org/GCIP> and <https://gcip.tech/>
6. Zawya. (2021). "UNIDO's Palestine CleanTech Acceleration Program, the selected candidates at the starting lines." <https://www.zawya.com/en/press-release/>
7. Bnews. (2024). "MOUSTADAMA Launches Regional CleanTech Investment Event in Cairo." <https://www.bnews.ps/en/node/23403>
8. European Union. (2022). "Green Growth Palestine - Team Europe launches joint initiatives." <https://www.eeas.europa.eu/delegations/palestine/>

climate commitments, despite limited international recognition constraining direct access to climate financing mechanisms.

### Target group(s) and stakeholders

- **Entrepreneurs and startups** (individual innovators and teams)
- **Palestinian industries seeking energy efficiency solutions**
- **Youth** (60% of participants under 35 years)
- **Women entrepreneurs** (encouraged through outreach; representation varied by cohort)
- **Academic and research institutions**
- **Micro, small and medium enterprises (MSMEs) in energy-intensive sectors**

### Section 6: Description of the Practice

Timeline: July 2021 (Launch) - through 2024 (Three annual editions completed: 2021, 2022, 2023)

### Core Activities

The program operates through three interconnected components:

#### 1. CleanTech Hub Network Development (2021):

Established three physical innovation hubs at Palestine Technology Park (Birzeit), Al-Quds University Abu Dis Campus, and Gaza University. Each hub provides co-working spaces, hardware labs, prototyping facilities, and video-streaming connection between sites to enable real-time collaboration across geographic separation. Hubs serve as anchor points for national cleantech ecosystem, hosting workshops, clinics, and mentorship sessions.

#### 2. Annual CleanTech Innovation Competition:

Open call for applications from Palestinian entrepreneurs and startups (including diaspora) with innovative cleantech business ideas, proof of concepts, prototypes, or products focused on:

- Energy Efficiency for industries
- Renewable Energy technologies
- Water-Energy Nexus efficiency solutions

First Edition (2021): Received 92 eligible applications; 45 candidates submitted detailed proposals; 32 ideas selected for acceleration program

Second Edition (2022): Significant participation with 8 finalists reaching Champions Day

Third Edition (2023): 29 innovative ideas selected for acceleration

#### 3. CleanTech Acceleration Program (12-week intensive): Selected candidates receive comprehensive support:

- Business Training: Business model development, financial planning, market analysis, pitch preparation
- Technical Mentorship: Product development guidance, technology validation, industrial application testing

- Entrepreneurial Clinics: Specialized sessions on manufacturing, supply chain, regulatory compliance
  - Webinars and Workshops: Topics including intellectual property, investor relations, scaling strategies
  - Mock Judging: Practice pitching to receive feedback before final competition
  - International and Local Expert Mentoring: Coordinated by UNIDO Palestine team with support from GCIP global network
  - Networking: Connections to potential investors, industry partners, distribution companies, and international accelerators
- 4. Final Pitching and Awards: Champions Day events held simultaneously in Ramallah (West Bank) and Gaza, featuring:**
- Five-minute pitches before international jury of cleantech experts and business consultants
  - Selection of three winners receiving €25,000 each for research and development activities
  - Post-acceleration services including linkages to investors, participation in GCIP Global Forum (Silicon Valley/Vienna)

### Partners Involved

- **Main Partners:**
  1. UNIDO Palestine (program management, technical assistance, international expert coordination)
  2. Palestine Technology Park (West Bank hub hosting, facilities)
  3. Al-Quds University (East Jerusalem hub, academic support)
  4. Gaza University (Gaza Strip hub, facilities, local coordination)
- **Government Partners:**
  1. Ministry of National Economy (policy alignment, institutional support)
  2. Ministry of Entrepreneurship and Empowerment (entrepreneurial ecosystem development)
  3. Palestine Energy and Natural Resources Authority (PENRA) (technical guidance, regulatory insights)
- **Funding and Supporting Partners**
  1. European Union (primary funding through MOUSTADAMA Programme)
  2. UNIDO Global CleanTech Innovation Programme (technical expertise, international network access, global forum participation)

### Funding Sources

Total program funding embedded within MOUSTADAMA Programme budget (€40 million total for all components). Specific cleantech component resources include:

Prize money: €75,000 per annual edition (€25,000 × 3 winners)

- Hub infrastructure and operations
- Mentorship and training delivery
- International expert missions
- Connection to GCIP global network

### Technologies and Innovation



Program supported diverse cleantech innovations including:

**2021 Winners:**

- Waste-to-energy gasification systems for industrial applications
- Energy-efficient building materials (insulation, thermal management)
- Solar performance optimization and efficiency enhancement technologies

**2022 Finalists:**

1. Flowless: Water conservation technologies
2. Food Harvest: Biogas production from organic waste with lab mixture to accelerate digestion and increase methane production
3. Free Wind Turbine: Vertical wind turbine with three-wing design for electricity generation.
4. Future Technology and Energy Solutions: Renewable energy applications
5. IceTech: Cooling and thermal management systems
6. Noor Tech: Solar technology solutions
7. Plastic Waste to Fuel: Converting plastic waste to usable fuel through pyrolysis
8. Sustain Tech: Various sustainability technologies

**2023 Cohort:**

29 diverse solutions across energy efficiency, renewable generation, and water management

**Digital Infrastructure:**

- Virtual connection platforms enabling real-time collaboration between West Bank and Gaza hubs
- TheSwitchers.org online platform for some cohorts
- Video streaming for synchronized training across three locations

**Legal/Policy Framework: Program operates within:**

1. Palestinian Authority legal framework for business registration and operation
2. PENRA regulations on renewable energy and energy efficiency
3. Palestinian Solar Initiative guidelines
4. UNIDO's programmatic frameworks and GCIP global standards
5. EU development cooperation regulations and visibility requirements
6. Alignment with Palestinian National Energy Strategy objectives

**Entrepreneurs receive guidance on navigating:**

1. Israeli Civil Administration approval requirements for Area C projects
2. Palestinian licensing and permitting procedures
3. Intellectual property protection mechanisms (limited by non-state status)
4. Environmental compliance standards

**Section 7: Outcomes and Impact****Quantitative Outcomes:**

- Total Applications: 92+ eligible applications in first edition alone, demonstrating strong demand
- Entrepreneurs Trained: 90+ candidates received intensive 12-week acceleration across three editions
- Startups Accelerated: 32 ideas (2021), 8 finalists (2022), 29 ideas (2023) = 69+ cleantech ventures supported.
- Seed Funding Disbursed: €225,000 in prize money (€75,000 × 3 editions) for R&D activities
- Hub Network Established: 3 permanent physical cleantech hubs operational across Palestine
- Geographic Reach: West Bank, East Jerusalem, and Gaza Strip coverage
- International Exposure: Winners participated in GCIP Global Forums in Silicon Valley and Vienna
- Ecosystem Actors: Engaged 100+ mentors, judges, experts (local and international)

### Qualitative Outcomes:

- First Regional Innovation Ecosystem: Created Palestine's first dedicated cleantech innovation and entrepreneurship ecosystem with permanent physical and institutional infrastructure
- Knowledge Transfer: Introduced systematic innovation methodologies adapted from UNIDO's global GCIP experience to Palestinian context
- Market Linkages: Connected entrepreneurs to electricity distribution companies, industrial clients, and potential investors
- International Recognition: Multiple projects received follow-on awards including UN Global Climate Action Award (2021) for related programs
- Capacity Building: Trained cohort of local mentors, judges, and facilitators who continue supporting ecosystem
- Policy Influence: Program insights informed discussions on renewable energy regulations and entrepreneurship support policies

### Sustainability Improvement:

#### Environmental Impact

- Cleantech solutions developed address industrial energy waste, reducing carbon emissions from imported electricity
- Waste-to-energy projects convert organic and plastic waste to useful energy, reducing landfill burden
- Water-energy nexus projects optimize scarce water resources while reducing energy consumption
- Renewable energy technologies reduce Palestinian dependence on fossil fuel-based imports

#### Social Impact

- **Job Creation:** Each startup has potential to create 5-15 direct jobs in manufacturing, installation, and maintenance
- **Skills Development:** Entrepreneurs gained business, technical, and leadership capabilities applicable beyond immediate projects
- **Youth Empowerment:** Program predominantly engaged young Palestinians (average age under 35), providing pathways for economic participation
- **Resilience Building:** Local innovation capacity reduces vulnerability to external energy supply disruptions



## Economic Impact

- **Cost Savings:** Energy efficiency solutions help industries reduce operational costs by 15-30%
- **Import Substitution:** Local cleantech production reduces expenditure on imported technologies and expertise
- **Market Creation:** Program stimulated emergence of cleantech service sector in Palestine
- **Investment Attraction:** Demonstrated viability attracted additional funding from impact investors and development finance institutions

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Multi-Stakeholder Coordination:** strong partnership between international organization (UNIDO), donor (EU), government ministries, and academic institutions created legitimacy, resources, and network access no single entity could provide. Regular coordination meetings and clear division of responsibilities prevented duplication and ensured complementarity
- **Physical Hub Infrastructure:** permanent physical spaces provided tangible anchors for ecosystem development, enabling ongoing engagement beyond individual competition cycles. Hubs became recognized gathering points for cleantech community.
- **Comprehensive Support Model:** combining business training, technical mentorship, seed funding, and investor connections addressed multiple barriers simultaneously. Entrepreneurs valued holistic approach over piecemeal interventions.
- **International-Local Balance:** leveraging UNIDO's global GCIP experience while adapting to Palestinian context created credibility and relevance. International jury members brought objective expertise while local mentors provided contextual guidance.
- **Geographic Inclusivity:** three-hub model with video streaming demonstrated commitment to serving all Palestinian territories despite separation. Gaza participation critical for legitimacy and impact.
- **Focus on Industrial Applications:** narrowing scope to industrial energy solutions increased relevance to Palestinian economic priorities and created clear market opportunities for entrepreneurs.

### Main Challenges and Mitigation Strategies

- **Geographic Fragmentation (West Bank-Gaza Separation)**

Impact: Physical movement between West Bank and Gaza impossible; limits in-person collaboration.

Mitigation: Video streaming infrastructure for synchronized sessions; separate judges visiting each location; digital document sharing; alumni networks connecting entrepreneurs across locations.

- **Political and Regulatory Uncertainty**

Impact: Israeli approval requirements for Area C projects; unclear regulatory frameworks; limited intellectual property protection.

Mitigation: Program focused on technologies deployable in Areas A/B initially; provided regulatory navigation guidance; connected entrepreneurs to legal advisors; emphasized business model development alongside technology.

- **Limited Local Investment Capital**

Impact: Winners struggled to secure follow-on funding after seed prizes; Palestinian venture capital ecosystem underdeveloped.

Mitigation: Program facilitated connections to international impact investors; organized investor events in Cairo and elsewhere; linked entrepreneurs to GCIP global investor network; provided post-acceleration support.

- **Market Access Barriers**

Impact: Small Palestinian domestic market; export challenges due to border restrictions; difficulty scaling.

Mitigation: Focused on solutions addressing clear industrial pain points; facilitated contracts with electricity distribution companies; explored regional market opportunities; emphasized service-based business models.

- **Brain Drain Concerns**

Impact: Top entrepreneurs risk emigration; talent loss from ecosystem.

Mitigation: Created compelling local opportunities; built community and peer networks; highlighted social impact mission; connected to Palestinian diaspora as potential partners rather than lost resources.

- **Sustainability Beyond Project Timeline**

Impact: Risk of ecosystem collapse when MOUSTADAMA Programme ends.

Mitigation: Built capacity of local institutions (universities, technoparks) to continue operations; established hubs as permanent infrastructure; connected to Palestinian private sector for continued funding; integrated into broader entrepreneurship support ecosystem.

## Improvement and Replication Potential

What could be improved?

- **Gender Balance:** more intentional gender targeting needed with specific support for women entrepreneurs addressing cultural and mobility barriers. Consider women-specific tracks or quotas in future editions.
- **Post-Acceleration Support:** current follow-on support limited; entrepreneurs need 12-24 months of ongoing mentorship and investor facilitation after acceleration ends. Establish alumni program with dedicated resources.
- **Market Validation Earlier:** some entrepreneurs spent acceleration time on technical refinement without sufficient market validation. Introduce customer discovery and pilot testing requirements earlier in process.
- **Manufacturing and Supply Chain Support:** program focused on innovation and business model; insufficient support for manufacturing setup and supply chain establishment. Partner with manufacturing associations and logistics providers.

- **Linkage to Finance Beyond Prizes:** seed funding valuable but insufficient for commercialization; need systematic connections to SME lenders, guarantee facilities, and patient capital sources. Establish cleantech-specific financing mechanisms.
- **Policy Advocacy Component:** program operated within existing regulatory framework without actively advocating for policy improvements. Future iterations should include regulatory barrier documentation and reform advocacy.

#### Replication in Other Palestinian Regions

##### Within Palestine:

- Model proven successful across West Bank, Jerusalem, and Gaza; no major geographic constraints to replication
- Could expand to additional sectors beyond industrial cleantech (agriculture, water, waste, healthcare)
- Additional hubs could be established in underserved cities (Nablus, Hebron, Khan Younis)

##### Regional Replication Potential:

- Model highly applicable to other MENA countries facing similar energy security challenges
- UNIDO GCIP framework already operating in 40+ countries globally; Palestine experience adds valuable insights on operating in constrained/conflict-affected environments
- Regional network of Palestinian diaspora entrepreneurs could facilitate cross-border knowledge transfer

### Policy, Operational and Funding Recommendation

#### Policy Recommendation

- Establish simplified regulatory pathway for cleantech pilot projects
- Create tax incentives for companies purchasing locally-developed cleantech solutions
- Allocate public procurement preference for Palestinian cleantech innovations
- Develop Palestinian Cleantech Certification system to ensure quality and attract investment

#### Operational Recommendation

- Extend acceleration program to 16 weeks for deeper technical and market development
- Introduce mandatory customer pilots during acceleration period
- Establish rolling admissions rather than annual competitions to provide continuous support
- Create sector-specific expert panels to provide targeted technical mentorship
- Develop online learning modules to reach more entrepreneurs before selecting acceleration candidates

#### Funding Recommendation

- Establish Palestinian Cleantech Fund (5-10M USD) combining donor grants, government capital, and private investment
- Create guarantee facility to de-risk commercial bank lending to cleantech startups
- Attract impact investors through dedicated investment events and showcases



- Develop blended finance structures linking concessional donor funds with commercial capital
- Explore carbon finance mechanisms once regulatory frameworks established

## Section 9: Linkage to the Green Forward Toolbox

This practice links strongly to the Green Forward Toolbox because it is essentially an “innovation to market” pathway for green solutions: screen and prioritize feasible ideas, design the business model and value proposition, package the solution for finance and partnerships, and track results credibly so solutions can scale beyond pilots. The toolbox modules below help both cleantech MSMEs and ecosystem actors replicate that pathway in Palestine, even outside a donor-funded programme.

- **Green Readiness and Strategy Tools**

Use these tools to help entrepreneurs and MSMEs move from an idea to a clear, feasible entry point, and to help BSOs filter which ventures are ready for incubation or acceleration.

1. Tool No.1: Sustainability Maturity – BSO to MSME Assessment: use to quickly assess where a startup or MSME sits in capability (governance, operations, risk, evidence) before allocating intensive support.
2. Tool No.2: MSMEs Sustainability Simple Self-Assessment: use with founders to identify immediate gaps that block market readiness (H&S, governance basics, data discipline, supplier basics).
3. Tool No.3: MSME Green Economy Readiness Assessment and
4. Tool No.4: MSME Green Economy Readiness – Survey: use to shortlist the most feasible innovations for piloting with industry, and to prioritize solutions with clear customer demand (energy cost, reliability, water efficiency).

- **Green and Circular Innovation and Business Modelling Tools**

Use these tools as the core “acceleration spine”, especially relevant for cleantech ventures that often over-focus on the technology and under-focus on the business model and customer uptake.

1. Tool: Values and Vision Tool: align the venture's mission with a practical market problem (for Palestine, usually energy cost, reliability, import dependence, water constraints).
2. Tool: PESTEL Analysis: stress-test feasibility under Palestinian constraints (movement restrictions, Area C permitting risks, Gaza import constraints, standards, grid access).
3. Tool: Value Proposition: translate the solution into clear buyer language: “what cost is reduced, what risk is reduced, what compliance requirement is met, what performance is guaranteed”.
4. Tool: Circular Business Model Roadmap and Tool No.3: Circular Business Model Canvas: use to define operating model and partnerships, especially for waste-to-energy, plastic-to-fuel, and circular resource solutions.
5. Tool: MSMEs Assessment Criteria – for BSOs: apply as selection criteria for cohorts, demo-day readiness, and prioritizing who receives follow-on support.
6. Tool: Investment Pitch Deck and Presentation Guide: use to professionalize pitching and make the business case credible for investors, donors, and industrial offtakers.

- **Green Finance and investment readiness Tools**

Use these tools to convert a cleantech concept into something funders can evaluate, and to reduce the common “valley of death” between prototype and market rollout.

1. Tool No.1: Common Green Finance Screening Requirements: use as a pre-check before pitching to donors, banks, or impact investors (eligibility, documents, risk expectations).
2. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet: use for energy efficiency and renewable energy solutions to quantify baseline, savings logic, system sizing assumptions, and payback narrative.
3. Tool No.2: Investment Case Template: use to package capex, opex, expected savings or revenues, risks, mitigation, and repayment comfort in a finance-ready mini case.

- **ESG and Impact Management Tools**

This matters because cleantech ventures increasingly face due diligence from buyers, donors, and investors, even when the business is small.

1. Diagnostic Tool No.1: ESG Self-Assessment Tool: establish minimum ESG credibility (worker safety, labor basics, governance discipline, stakeholder risk).
2. Diagnostic Tool No.2: Logbook Sections: maintain evidence of testing, performance, incidents, corrective actions, and lessons learnt (useful for investment readiness and partner trust).
3. Tool No.1: Stakeholder Mapping Template and Tool No.2: Engagement Action Plan Template: apply where pilots involve communities, municipalities, utilities, universities, or industrial sites, and where social acceptance affects scale-up.

- **Certification and Green Labelling**

For solutions that move into products and services sold to institutions and corporates, credibility often depends on standards.

1. Tool No.1: Green Certification Pathway Map,
2. Tool No.2: Green Labeling Development Kit,
3. Tool No.3: Certification Implementation Strategy: use selectively where certification is realistic and demanded by the market (for example, building materials, efficiency equipment, or waste processing services that need permits and compliance proof).

## Section 10: Supporting Materials

Below are reliable sources that document the programme's design, partners, and delivery model (hubs, competitions, acceleration support, and grants), and that can be used as references in the report:

- UNIDO Palestine, MOUSTADAMA programme brochure (includes cleantech component and programme framing)<sup>77</sup>.
- UNIDO Palestine CleanTech programme factsheet (summary statistics and programme outputs, including the competition model, hub approach, and grant support)<sup>78</sup>.

<sup>77</sup> [https://moustadama.ps/wp-content/uploads/2023/09/MOUSTADAMA-fact-sheet- -ENG\\_Sep-2023.pdf](https://moustadama.ps/wp-content/uploads/2023/09/MOUSTADAMA-fact-sheet- -ENG_Sep-2023.pdf)

<sup>78</sup> [https://moustadama.ps/wp-content/uploads/2023/09/MOUSTADAMA-fact-sheet- -ENG\\_Sep-2023.pdf](https://moustadama.ps/wp-content/uploads/2023/09/MOUSTADAMA-fact-sheet- -ENG_Sep-2023.pdf)



- Palestine Technology Park (Berytech), programme page or news items referencing cleantech innovation activities and ecosystem support<sup>79</sup>.
- Government of Palestine, Ministry of National Economy documentation related to calls and programme activities under MOUSTADAMA (official institutional anchoring)<sup>80</sup>.
- UNIDO Global CleanTech Innovation Programme (GCIP) global programme materials (methodology, model, and international network context)<sup>81</sup>.

## Section 11: Cross-Cutting Themes

### 1. Ecosystems beat one off competitions

Competitions create visibility, but ecosystems create survival. What made this model meaningful was not only the annual Champions Day, but the permanent hubs, repeated cohorts, mentor pools, and institutional anchoring in universities and the technopark. The transferable lesson is that innovation support should be designed as a continuing service line, not a one-time event.

### 2. “Physical plus digital” is essential in fragmented geographies

In Palestine, geography is not a detail, it is a design constraint. The three hub model combined physical anchor points with synchronized remote delivery, allowing participation from Gaza, the West Bank, and East Jerusalem. This model is transferable for any national programme that must operate under movement restrictions or political fragmentation.

### 3. Clean tech works when it is anchored in real industrial pain points

The programme's strongest logic is that it frames cleantech innovation around operational problems industries actually pay for: high electricity costs, unreliable supply, and resource inefficiency. This increases the chances that innovations become saleable solutions rather than “good ideas”.

### 4. The real bottleneck is the “valley of death” between seed grants and bankable finance

A €25,000 prize can move a prototype forward, but it rarely funds commercialization, certification, manufacturing setup, or early market rollout. The cross cutting lesson is that green innovation needs staged finance, including follow on grants, patient capital, guarantees, and pathways into procurement or purchase agreements.

### 5. Policy and permitting shape feasibility more than technology does

Even strong solutions can be blocked by permitting, licensing, import and export constraints, or restrictions in Area C and Gaza. The case shows why innovation programmes should include regulatory navigation support and a structured feedback loop into policy dialogue, so barriers are documented and translated into practical reform asks.

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<sup>79</sup> <https://technopark.ps/en/unido-palestine-cleantech-acceleration-program-is-now-open-for-application/>

<sup>80</sup> <https://www.unido.org/sites/default/files/unido-publications/2023-11/Moustadama-Brochure.pdf>

<sup>81</sup> <https://downloads.unido.org/ot/23/29/23294804/10461%20Global%20ProDoc.pdf>

**6. Inclusion needs to be operational, not aspirational**

Youth participation happens naturally in innovation programmes, but women’s participation often requires deliberate design: targeted outreach, safe and accessible training schedules, childcare friendly formats, and mentoring that addresses barriers to networking and investment access. Inclusion becomes real when built into selection criteria, support services, and follow on opportunities.

**7. Credibility comes from testing, evidence, and customer pilots**

For green technology, trust is everything. Industrial clients and utilities will not adopt solutions without evidence of performance, safety, and cost savings in local conditions. The transferable lesson is to make market validation and pilots a core milestone, not an optional activity, and to document results in a way that investors and customers can use.

**8. Sustainability after donor funding requires local ownership and revenue logic**

The hubs and mentor networks can outlive the project only if host institutions and partners have a plan to finance ongoing operations, for example through membership models, paid advisory clinics for MSMEs, sponsorships, service contracts with industry, or partnerships with finance providers. The cross-cutting lesson is that ecosystem sustainability needs a business model, not only goodwill.

**13. Green Finance Case Study - Local Example**

**Section 1: Basic Information**

Title of Case Study	<b>First Green Financing Line in Palestine through Microfinance: How GGF and Vitas Opened a Pathway for Energy Efficiency Lending</b>
Country / Region	Palestine
Organization / Entity Name	Green for Growth Fund (GGF) and Vitas Palestine Microfinance Company (Vitas)
Type of Institution	Development / Impact Investment Fund (GGF) + Microfinance Institution (Vitas)
Date of Case Study	2017

**Section 2: Summary**

In December 2017, the Green for Growth Fund (GGF) announced a USD 2 million senior loan to Vitas Palestine Microfinance Company, described as GGF’s first investment in Palestine and the first green facility by a development finance institution in the country. The facility aimed to address a persistent barrier in Palestine’s green transition: limited access to affordable, dedicated green finance for households and micro- and small enterprises. By linking capital with technical assistance and capacity

building; an established feature of the GGF model, Vitas planned to expand lending for energy efficiency improvements, leveraging an existing home improvement lending approach and extending awareness to small businesses<sup>82</sup>.

The case illustrates a replicable green economy practice: using local financial intermediaries to translate international climate/green capital into end-user investments in challenging environments. For Palestine practitioners, the practical value is the delivery model, not the loan size: climate-focused capital was channelled through a local financial intermediary, paired with technical assistance, and anchored in clear eligibility and impact tracking rules. GGF's investment approach includes a minimum threshold of at least 20% reduction in energy consumption and/or CO2 emissions for financed investments, with impact assessment and monitoring supported by the fund's tools and processes<sup>83</sup>.

### Section 3: How to Apply?

This case is useful because it shows that green finance at the household and micro, small enterprise level works best when it is treated as a practical pathway, not a one off loan. The core mechanism is simple: channel dedicated climate and green capital through a trusted local financial intermediary, pair it with technical assistance and basic eligibility criteria, and make it easy for end users to implement and document energy efficiency upgrades.

#### FOR MSMEs (What to do):

##### 1. Start with a simple baseline that a lender can understand.

Collect what you already have: 6 to 12 months of electricity bills, operating hours, and a short list of the main equipment or building issues driving consumption (HVAC, refrigeration, motors, insulation, lighting). Do not overcomplicate it. The goal is to show the "before" picture clearly enough to size the investment.

##### 2. Pick one upgrade track and keep it focused.

Choose one priority measure that is easy to implement and explain. Examples include building envelope improvements, efficient lighting, efficient appliances, or HVAC upgrades. Avoid bundling many unrelated upgrades in one request unless you can document each part cleanly.

##### 3. Aim for savings that are measurable, not aspirational.

Programs like GGF typically define "green eligibility" around measurable reductions (for example, targeting at least 20% energy savings and or emissions reductions). You do not need perfect engineering models, but you do need a credible savings logic that can be tracked after implementation.

##### 4. Use qualified suppliers and request performance details in writing.

Get 2 to 3 quotations and insist they include: expected energy savings or reduced consumption logic, warranty terms, installation timeline, after sales and maintenance responsibilities, and what data you will use to confirm performance (for example monthly bill comparison).

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<sup>82</sup><https://south.euneighbours.eu/en/news/ggf-provides-first-ever-green-financing-line-in-palestinian-territories-to-support-energy-efficiency/>

<sup>83</sup> <https://www.ggf.lu/about-green-for-growth-fund>

## 5. Prepare a short, finance ready package.

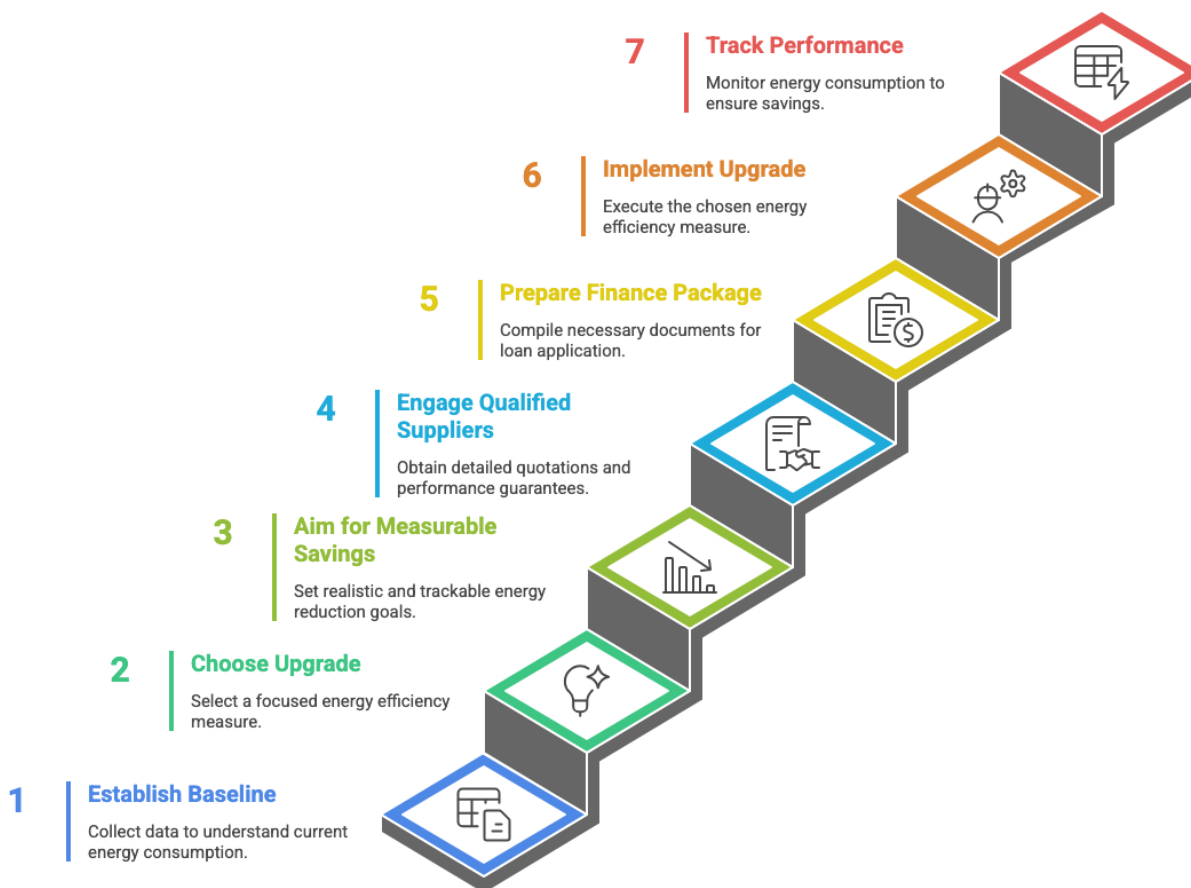
Keep it decision friendly: Baseline bills and operating profile, Supplier quotation(s), Simple payback range and how the monthly installment fits your cashflow, Basic risks and mitigation (maintenance plan, operational disruption, permitting if any).

## 6. Implement with basic quality control.

Confirm commissioning, user training, and a simple maintenance plan. Many efficiency upgrades fail on performance because operation and maintenance are unclear.

## 7. Track performance monthly for at least 6 to 12 months.

Track 3 to 5 indicators consistently, such as kWh consumption, electricity bill, operating hours, downtime, and any output proxy relevant to the business. This protects you with the lender and builds evidence for future financing and buyer ESG requests.



### FOR BSOs (How to Support MSMEs through Services):

#### 1. Set up a “Green Finance Readiness Clinic” that reduces friction for MSMEs and lenders.

Offer a short support service that helps MSMEs and households: build a baseline, select a feasible measure, compare quotations, and produce a one to two page investment note that a lender can process.

## **2. Standardize the documentation and eligibility screen.**

Use one checklist and one simple template so submissions are consistent. Standardization reduces rejection rates and makes it easier for MFIs and banks to build a repeatable green lending product. Sample forms and guide is available in the Green Toolkit.

## **3. Build and manage a trusted referral ecosystem.**

BSOs should not be installers. Maintain a roster of credible suppliers, auditors, and service providers who can quote properly, deliver, and provide after sales support. This is especially important for household level upgrades where quality assurance is often weak.

## **4. Bundle demand into a pipeline.**

Work with lenders and suppliers to group multiple similar upgrades into a pipeline (for example, a batch of SMEs needing efficient refrigeration, or a batch of households needing envelope improvements). Volume reduces transaction costs and speeds up approvals.

## **5. Support lenders with basic monitoring logic, not heavy reporting.**

Help lenders and end users agree upfront on what will be tracked post investment (bill comparison approach, simple verification steps). This aligns well with how facilities like GGF pair financing with technical assistance and capacity building to ensure investments are implemented and tracked.

## **6. Turn implementation bottlenecks into evidence-based advocacy.**

Track recurring blockers (supplier quality issues, lack of awareness, weak documentation, approval delays). Convert them into short, practical asks for lenders, municipalities, and relevant public actors to improve the enabling environment.

### **Section 4: Primary Target Audience**

#### **Primary:**

- Micro and small enterprises in Palestine with high energy costs relative to turnover and clear opportunities to reduce consumption through practical energy efficiency upgrades.
- Palestinian microfinance institutions and lenders seeking to introduce or scale a small-ticket green lending product.

#### **Secondary:**

- BSOs and donor programs supporting MSME competitiveness and resilience.
- Policymakers and regulators advancing sustainable finance and energy efficiency market development.

## Section 5: Background and Context<sup>848586</sup>

### Main Challenges

Even when energy efficiency upgrades have a reasonable payback, MSMEs and households often cannot finance the upfront cost. Lenders may also struggle to appraise “savings-based” investments at small ticket sizes, especially in high-risk operating environments. This creates a gap where cost-saving, low-carbon investments are technically viable but financially blocked.

### Local context

Energy security and cost pressures make energy efficiency a practical competitiveness lever in Palestine. A World Bank assessment in 2017 noted that (at the time of publication) Israel supplied about 99% of the electricity consumed in the West Bank and about 64% of the electricity consumed in Gaza at the time, highlighting the structural reliance on imported electricity and the importance of demand-side efficiency. Microfinance is one of the channels that can reach micro and small enterprises with small loan sizes and simplified processes. CFI documents that Vitas Palestine's incorporation as a for-profit company in 2014 made it easier for the institution to borrow from local and international lenders. EBRD has also described Vitas as the second-largest microfinance institution in the West Bank and Gaza, licensed and monitored by the Palestine Monetary Authority.

### Broader Policy and Strategy links

Energy efficiency and renewable energy are anchored in Palestine's climate and energy policy framework. The State of Palestine's NDC and related implementation planning include energy sector actions and reference national enabling instruments including the Decree-Law No. 14 of 2015 on Renewable Energy and Energy Efficiency.

### Target group(s) and stakeholders

- **End borrowers:** households and micro and small enterprises investing in cost-saving energy efficiency upgrades.
- **Financial intermediaries:** microfinance institutions and banks originating and servicing loans.
- **Technical ecosystem:** suppliers, installers, and auditors supporting measure selection, installation quality, and basic verification.
- **Development finance actors:** blended-finance funds and technical assistance providers building green finance capacity.

## Section 6: Description of the Practice

### Core Activities

The practice combined three operational elements:

<sup>84</sup> <https://www.worldbank.org/en/news/feature/2017/05/08/securing-energy-for-development-in-west-bank-and-gaza>

<sup>85</sup> <https://www.centerforfinancialinclusion.org/weathering-the-storm-ii-vitas-palestine/>

<sup>86</sup> <https://www.ebrd.com/home/news-and-events/news/2024/ebrd-and-vitas-palestine-provide-financial-support-to-palestina.html>

### 1. A dedicated green credit line

GGF provided a USD 2 million senior loan to Vitas for on-lending to energy efficiency investments.

### 2. Market translation and product fit

Vitas planned to leverage its home-improvement lending approach to expand household energy efficiency lending and to extend energy efficiency awareness to micro and small businesses.

### 3. Capacity support alongside financing

GGF's model pairs investment with technical assistance to support partner institutions with know-how and capacity building.

#### Partners Involved

- Green for Growth Fund (GGF): funder and impact framework owner.
- Vitas Palestine Microfinance Company: local financial intermediary responsible for origination, credit appraisal, and portfolio management.
- Finance in Motion: fund manager for GGF.
- GGF Technical Assistance Facility and technical partners: capacity building and technical support for partner institutions.

#### Funding Sources

GGF is a layered, blended-finance public-private partnership initiated by the European Investment Bank and Germany's KfW Development Bank, supported by public institutions (including the European Commission and Germany's Federal Ministry for Economic Cooperation and Development) and private investors. It channels financing through local financial institutions and supports them through a dedicated Technical Assistance Facility.

#### Technologies and Innovation

The key innovation in this case is the finance-and-capacity package applied to small-ticket energy efficiency.

On the impact side, GGF's investments target at least a 20% reduction in energy consumption and/or CO2 emissions, with environmental due diligence and monitoring supported by the fund's systems and tools (including eSave).

#### Section 7: Outcomes and Impact

##### Key Results:

- USD 2 million senior loan from GGF to Vitas (announced December 2017).

##### Sustainability Improvement:



- **Intended environmental impact:** channel financing to investments that reduce energy consumption and associated emissions. GGF's framework sets a minimum threshold of at least 20% reduction in energy consumption and/or CO2 emissions for investments.
- **Intended economic impact:** reduce energy costs for borrowers and improve cashflow resilience, particularly for micro and small enterprises with limited buffers.

### Inclusion and gender

Microfinance channels can be pro-inclusion because they reach smaller enterprises and often women borrowers through smaller ticket sizes. However, no trusted public source was found that reports gender-disaggregated results specifically for the 2017 GGF-Vitas green credit line.

As a reference point on Vitas's broader outreach (not the GGF line), an EIB press release on a later Vitas facility stated that a USD 3.3 million top-up loan was expected to reach about 1,237 micro-entrepreneurs, with 30% women. This illustrates the type of inclusion metrics DFIs sometimes apply to microfinance facilities, but it should not be treated as evidence of the 2017 green line's gender results<sup>87</sup>.

Economic Impact

### Results verification and measurement

GGF's impact system includes environmental due diligence and monitoring supported by its eSave tool and internal impact assessment approach. This is relevant for Palestine practitioners because it demonstrates how to keep minimum impact standards consistent across many small sub-loans.

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Use the right last-mile channel:** microfinance institutions can deliver green lending to client segments that banks often do not reach, especially for small-ticket energy efficiency upgrades.
- **Pair capital with capacity:** technical assistance for lender staff and borrower guidance improves project selection, eligibility screening, and monitoring.
- **Keep minimum impact criteria clear:** a simple threshold (for example, minimum savings) helps avoid greenwashing, but only if lenders and borrowers have practical screening tools that do not overload staff.

### Main Challenges and Mitigation Strategies

- **High transaction costs per loan**

Mitigation: standardize the application pack, pre-approve measure categories, and aggregate pipelines through BSOs.

- **Technical performance risk (low-quality suppliers, poor installation, weak maintenance)**

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<sup>87</sup> <https://www.eib.org/en/press/all/2021-215-palestine-eib-steps-up-support-to-palestinian-private-sector>

Mitigation: vetted supplier rosters, minimum warranty requirements, commissioning checklists, and basic after-sales provisions.

- **Weak baseline data and inconsistent documentation**

Mitigation: make baseline bill collection a core pre-condition and provide simple tracking templates that MSMEs can actually maintain.

### Improvement and Replication Potential

- Replication is most realistic where BSOs and lenders jointly design a low-friction pathway for typical upgrades (refrigeration, HVAC, motors, lighting, pumping).
- Over time, lenders can treat energy efficiency as a standard use-of-funds category, with pre-approved evidence requirements and simplified impact screening.

### Policy, Operational and Funding Recommendation

- **For lenders and DFIs:** publish minimum requirements and sample calculations so MSMEs know what “good” looks like. If feasible, disclose aggregated portfolio impact to build market trust and reduce greenwashing risk.
- **For BSOs:** institutionalize “green finance readiness” as a core service line (not ad-hoc coaching) and maintain supplier quality systems (rosters, minimum specs, warranty guidance).
- **For policymakers and development partners:** support risk-sharing and technical assistance for microfinance green lending, since small-ticket loans often need external support to cover setup costs and build lender confidence.

### Section 9: Linkage to the Green Forward Toolbox

This case links directly to the Green Forward Toolbox because it is a finance translation model: turning energy savings opportunities into finance-ready micro-investments that local lenders can deploy at scale.

- **Green Readiness and Strategy (baseline and priority measure)**

1. Sustainability Maturity – BSO to MSME Assessment.
2. MSMEs Sustainability Simple Self-Assessment
3. MSME Green Economy Readiness Assessment
4. MSME Green Economy Readiness – Survey

- **Green Monitoring and Evaluation Framework**

1. Tool No.1: Monthly Environmental Dashboard
2. Tool No.2: Quarterly Business Impact Report
3. Tool No.3: Evaluation Framework

- **Green Finance and investment readiness Tool**

1. Green Finance Options in Palestine- Quick Map (As of Q4 2025).
2. Tool No.1: Common Green Finance Screening Requirements.
3. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet.

4. Tool No.2: Investment Case Template.
- **ESG and Impact Management**
    1. Diagnostic Tool No.1: ESG Self-Assessment Tool.
    2. Diagnostic Tool No.2: Logbook Sections.
    3. Tool No.1: Stakeholder Mapping Template
    4. Tool No.2: Engagement Action Plan Template

## Section 10: Supporting Materials

- GGF facility and model<sup>888990</sup>
- Announcement on the Vitas facility<sup>91</sup>
- Palestinian Policy Context (energy efficiency and climate)<sup>929394</sup>
- Energy sector context<sup>95</sup>
- Vitas Background and microfinance context<sup>9697</sup>

## Section 11: Cross-Cutting Themes

### 1. Green finance is a delivery system problem, not only a money problem

Capital matters, but uptake is driven by borrower pathways, standard documents, and lenders who can appraise savings-based cases quickly.

### 2. Technical assistance is part of the financing product

Without capacity building and practical tools, lenders do not lend or lend with weak eligibility and weak impact credibility.

### 3. Standardization is the main lever for scaling small-ticket green lending

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<sup>88</sup> <https://www.ggf.lu/about-green-for-growth-fund>

<sup>89</sup> <https://www.ggf.lu/impact-of-the-fund>

<sup>90</sup> <https://www.ggf.lu/technical-assistance-facility>

<sup>91</sup> <https://south.euneighbours.eu/en/news/ggf-provides-first-ever-green-financing-line-in-palestinian-territories-to-support-energy-efficiency/>

<sup>92</sup> <https://unfccc.int/sites/default/files/NDC/2022-06/State%20of%20Palestine%20First%20NDC.pdf>

<sup>93</sup> [https://environment.ps/wp-content/uploads/2025/05/2\\_Palestine-NDC-Implementation-Plans-Energy-efficiency-FINAL-310821.pdf](https://environment.ps/wp-content/uploads/2025/05/2_Palestine-NDC-Implementation-Plans-Energy-efficiency-FINAL-310821.pdf)

<sup>94</sup> <https://leap.unep.org/en/countries/ps/national-legislation/decre-law-no14-2015-renewable-energy-and-energy-efficiency>

<sup>95</sup> <https://www.worldbank.org/en/news/feature/2017/05/08/securing-energy-for-development-in-west-bank-and-gaza>

<sup>96</sup> <https://www.centerforfinancialinclusion.org/weathering-the-storm-ii-vitas-palestine/>

<sup>97</sup> <https://www.ebrd.com/home/news-and-events/news/2024/ebd-and-vitas-palestine-provide-financial-support-to-palestina.html>

Pre-approved measure categories, supplier templates, and simple savings calculators reduce cost per loan and improve processing speed.

**4. Measure what matters, but keep it light**

At micro-loan scale, heavy monitoring kills demand. Minimum viable evidence (baseline bills, conservative assumptions, short post-installation check) is more realistic.

**5. Supplier quality is a finance risk**

Green lending fails when technical delivery fails. Supplier rosters, warranty minimums, and commissioning checklists reduce underperformance risk.

**6. A minimum impact threshold helps avoid greenwashing, but it needs operational tools**

A threshold is useful only if borrowers and loan officers have a practical method to estimate and document savings.

**7. Inclusion should be tracked, not assumed**

Microfinance can reach smaller borrowers and women, but inclusion outcomes should be measured and reported as part of the facility design.

**8. What to watch out for: “green lending” turning into expensive consumer credit**

If eligibility is unclear and suppliers are not vetted, green lending can drift into financing low-impact purchases with high repayment stress. Keeping the product tied to measurable savings protects both clients and lenders.

**14. Overcoming Regulatory Barriers - Palestinian Example**

**Section 1: Basic Information**

Title of Case Study	<b>Overcoming Regulatory Barriers to Renewable Energy Development under Political Constraints: The Palestinian Solar Energy Experience</b>
Country / Region	Palestine, West Bank
Organization / Entity Name	Palestinian National Energy Authority (PENRA)/ Palestinian Electricity Regulatory Council (PERC)
Type of Institution	Public Sector / Regulatory Authorities
Date of Case Study	2025

## Section 2: Summary

This case study shows how Palestinian energy institutions used regulatory design to unlock solar PV deployment under political and infrastructure constraints that normally deter private investment. Palestine's power system has long relied heavily on imported electricity, with the World Bank reporting that Israeli imports amounted to 99% of total supply in the West Bank and 64% in Gaza (as of 2015). In parallel, peer reviewed analysis highlights how restrictions linked to territorial fragmentation and limited Palestinian control over transmission and land access shape what is feasible, pushing regulators to rely on distributed and locally connected solutions like solar PV<sup>9899</sup>.

The regulatory response centered on practical instruments that reduce investor uncertainty and make projects bankable: feed in tariffs for early household scale PV, net metering for larger customer and institutional systems, and longer horizon promotional tariffs to restore predictability. Peer reviewed research documents that the Palestinian Solar projects initially started with a feed in tariff of 1.03 NIS/kWh for the first 100 homes, and later highlights how declining tariffs became a barrier to continued uptake. The same source describes net metering arrangements where surplus exported to the grid may be credited at up to 75% of the original tariff, and notes that promotional tariffs were specified with validity of twenty years, which directly addresses one of the main risks for developers and lenders, revenue uncertainty over time. A separate technical assessment prepared to support PERC also confirms that net metering in Palestine is rooted in legal documents already issued on the topic and reviews the regulatory and technical considerations for implementation<sup>100101</sup>.

The Noor Jenin Solar PV Plant demonstrates how utility- and medium-scale solar can move from policy to operation when regulatory pathways, grid connections, and institutional coordination are in place. According to PIF's 2020 report, the 5 MW plant was connected to the grid, sold to the North Electricity Distribution Company, and equipped with 13,500 panels, supplying about 2,400 households. This illustrates the scale made possible when regulation, licensing, and grid integration are workable.

The key lesson is not to copy specific tariffs, but to follow a regulatory sequence: begin with simple instruments, refine them based on grid capacity and investor response, and extend time horizons to reduce risk. In Palestine, effective solar regulation must also address land access, grid planning, connection procedures, and dispute resolution to prevent project delays.

## Section 3: How to Apply?

This case is useful because it shows that renewable energy uptake in Palestine depends as much on regulatory design and grid integration rules as it does on technology cost. The practical takeaway for MSMEs is not "copy a specific tariff," because tariffs and rules change. It's used the existing regulatory mechanisms (especially net metering where applicable) to reduce your energy cost exposure, and package your project so it is technically compliant, approvable by the distribution company, and easy to finance. For BSOs, the lesson is: reduce friction between MSMEs, EPCs, and utilities by translating regulations into step-by-step pathways, standard documents, and evidence-based policy feedback.

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<sup>98</sup><https://www.worldbank.org/en/country/westbankandgaza/brief/securing-energy-for-development-in-west-bank-and-gaza-brief>

<sup>99</sup> <https://dspace.alquds.edu/bitstream/20.500.12213/6406/1/Husain%20and%20Nour%202021-1.pdf>

<sup>100</sup> <https://dspace.alquds.edu/bitstream/20.500.12213/6406/1/Husain%20and%20Nour%202021-1.pdf>

<sup>101</sup> [https://www.medreg-regulators.org/Portals/\\_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf](https://www.medreg-regulators.org/Portals/_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf)

**FOR MSMEs (What to do):****1. Start with site reality and constraints, not panel sizing.**

Confirm what you have: roof area, structural condition, shading, and your grid connection point. If your site is in areas with higher restriction risk (for example, Area C), treat permitting and access as a first order constraint that can determine whether a project is feasible at all.

**2. Choose the right regulatory pathway for your business objective.**

If your goal is to reduce your own electricity bill, net metering is typically the most practical pathway because it is designed around self-consumption and using the distribution grid as “virtual storage” where surplus generation is exported and credited. Do not assume the same rules apply to every project type or size. Confirm which mechanism applies to you and what crediting method is used.

**3. Check distribution company requirements early and plan around the timeline.**

Before paying deposits to suppliers, engage your electricity distribution company to confirm the connection pathway and technical requirements. In Palestine, the “can I connect” question often matters as much as the “is it profitable” question. Treat utility approval and metering arrangements as core steps, not paperwork you handle at the end.

**4. Right size the system to your stable load and avoid overproduction risk.**

Solar economics improve when generation matches your stable daytime consumption. Oversizing can create disputes and delays if grid export limits apply, and it can weaken the investment case if you cannot reliably use or credit the surplus.

**5. Use qualified suppliers and insist on compliance and performance details.**

Request 2 to 3 comparable quotations that include: system design assumptions, expected generation logic, warranty terms, installation timeline, and operation and maintenance responsibilities. Require documentation needed for approvals and financing to be included in the supplier scope, not left vague.

**6. Prepare a simple finance ready mini business case.**

Even if your self-finance, write a one-to-two-page note: baseline bills, proposed system size, expected bill reduction logic, total cost, payback range, and key risks (approvals, downtime, maintenance). This strengthens approvals and financing discussions. Refer to the Green Toolkit for guidance.

**7. Treat monitoring as part of the investment, not an optional extra.**

Track solar generation (if applicable) and compare electricity bills monthly. Keep a simple file with approvals, invoices, commissioning documents, and any metering records. This protects you if performance is disputed and helps you replicate or scale later.

**FOR BSOs (How to Support MSMEs through Services):**

### **1. Translate regulations into a practical pathway that MSMEs can follow.**

Regulatory documents are not written for MSMEs. Provide a short guidance product that explains, in plain language: which mechanism applies (especially net metering), what the typical approval steps are, what documents are usually required, and what common delays look like.

### **2. Offer a “Renewable Energy Adoption” as a standard service.**

Run a short clinic that helps MSMEs: build an energy baseline, assess site viability, choose the right regulatory pathway, and compile a minimum viable application pack for suppliers and utilities.

### **3. Standardize documentation so lenders and utilities see consistent quality.**

Develop one checklist and a short template set for: baseline bills, load profile, supplier quotation comparison, and a mini-investment case. Standardization reduces rejection, reduces back and forth with utilities, and shortens time to approval.

### **4. Broker the ecosystem instead of acting as a technical provider.**

Maintain a roster of credible EPCs, auditors, and legal or permitting support where needed. The BSO's role is to reduce transaction costs and improve project quality, not to install systems.

### **5. Bundle demand into pipelines and coordinate with utilities.**

Utilities and suppliers move faster when projects are grouped and documentation is predictable. BSOs can organize MSME clusters by geography or sector and create a pipeline approach with consistent readiness and compliance steps.

### **6. Use aggregated experience for evidence-based policy feedback.**

Track recurring blockers: unclear or changing rules, approval delays, grid constraints, supplier quality issues, and Area C access limitations. Package them into short, actionable asks to PERC, PENRA, and relevant stakeholders, supported by MSME experience and data.

## **Section 4: Primary Target Audience**

### **Primary:**

- MSMEs and commercial end users planning behind the meter solar PV systems to reduce electricity costs and exposure to supply constraints, especially where net metering or similar self-consumption-based mechanisms are applicable.
- Energy sector regulators and institutions responsible for designing and updating renewable energy and net metering rules and procedures (PERC and other relevant public energy entities).
- Electricity distribution companies that process interconnection requests and manage metering and crediting arrangements.
- BSOs and private sector support programs helping MSMEs translate regulatory requirements into finance-ready, approval-ready solar projects.

### **Secondary:**

- Municipalities and public institutions (schools, hospitals, local service providers) interested in rooftop and facility scale solar under clear interconnection rules.
- Financial institutions and lenders exploring solar lending, where regulatory predictability and standardized interconnection procedures reduce credit risk.

#### Also Relevant for:

- Donors and development partners supporting energy access, resilience, and green growth who need regulatory levers to complement project finance.
- Policy researchers and advocacy actors tracking how regulation interacts with grid constraints, territorial fragmentation, and investment feasibility in Palestine.

### Section 5: Background and Context

#### Main Challenges

- **Bankability and investor confidence under changing rules**

Early solar uptake depended on incentives and clear compensation rules (feed-in tariffs, then net metering). When tariff levels, crediting rules, licensing horizons, or connection procedures shift without predictable timelines, projects become harder to finance and developers hesitate. Peer-reviewed work on Palestine's solar policy evolution documents how tariff and scheme design affected investor confidence and uptake, making "regulatory predictability" a central challenge rather than a secondary issue<sup>102</sup>.

- **Grid integration constraints and connection uncertainty**

Even when the business case is strong, solar projects can stall if grid connection requirements, metering configurations, and technical limits are unclear or inconsistently applied. The MEDREG assessment prepared to support PERC emphasizes that net metering effectiveness depends on both legal grounding and technical conditions of the grid, and it assesses expected technical and economic impacts in the Palestinian context<sup>103</sup>.

- **Land access and planning restrictions for utility-scale projects**

Scaling beyond rooftops requires land and permitting. Area C encompasses more than 60% of the West Bank, where Israel retains exclusive control over planning and zoning, and OCHA reports that less than 1% of Area C has been planned for Palestinian development. This materially constrains siting options for ground-mounted renewable energy and increases the practical importance of distributed, behind-the-meter systems where feasible<sup>104</sup>.

#### Local context

- **High technical potential for solar, but deployment needs workable rules:** Solar PV is attractive in Palestine because solar resources are strong. A GIS-based research paper from An-Najah National University reports that Palestine receives about 3,000 sunshine hours per year and provides

<sup>102</sup> <https://dspace.alquds.edu/bitstream/20.500.12213/6406/1/Husain%20and%20Nour%202021-1.pdf>

<sup>103</sup> [https://www.medreg-regulators.org/Portals/\\_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf](https://www.medreg-regulators.org/Portals/_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf)

<sup>104</sup> <https://www.unocha.org/publications/map/occupied-palestinian-territory/west-bank-west-bank-demolitions-2009-2018>

indicative solar radiation ranges across different parts of the West Bank. This makes solar technically promising, but the pace and quality of deployment depend on whether regulation translates that potential into financeable, grid-compatible projects<sup>105</sup>.

- **A market shaped by many small systems and constrained larger ones:** because utility-scale development faces land and grid constraints, the regulatory system had to accommodate large numbers of small and medium producers and consumers. This increased the importance of net metering design, dispute resolution, standardized procedures, and transparent roles for distribution companies and the regulator.

### Broader Policy and Strategy links

- **Renewable energy and energy efficiency are anchored in national legislation and climate planning:** Palestine's Decree-Law No. 14 of 2015 aims to encourage renewable energy development and energy conservation across sectors. National climate planning also links energy actions to enabling instruments including the Decree-Law and national energy efficiency planning, as reflected in the NDC implementation planning documents<sup>106</sup>.
- **Energy sector strategies provide the sector planning umbrella:** Palestine's National Inclusive Strategy for the Energy Sector (2017–2022) updates earlier policy frameworks and reflects ongoing efforts to define sector priorities, institutional roles, and planning assumptions relevant to renewable energy integration.

### Target group(s) and stakeholders

- **Regulators and public institutions:** PENRA and PERC as the core actors shaping renewable energy rules, tariff instruments, and procedural guidelines.
- **Distribution companies and grid operators:** responsible for interconnection processing, metering arrangements, and operational integration of distributed PV.
- **Private sector actors:** solar developers, EPCs, equipment suppliers, and O&M providers who need predictable rules to price risk and deliver quality systems.
- **End users:** households, MSMEs, municipalities, and public institutions investing in rooftop and facility-scale solar to reduce costs and improve resilience.
- **Financiers and development partners:** banks and donors that depend on regulatory predictability and standardized procedures to scale lending and blended-finance mechanisms.

## Section 6: Description of the Practice

### Core Activities

#### 1. Regulatory reform trajectory (2012 – 2021)

PENRA and PERC followed an iterative approach to stimulate solar PV deployment while managing grid and market risks. The practice is best understood as a sequence of policy instruments that were tested, adjusted, and complemented with implementation guidance<sup>107</sup>.

<sup>105</sup>[https://staff.najah.edu/media/published\\_research/2023/05/22/Mapping\\_of\\_Solar\\_Energy\\_Potential\\_in\\_the\\_West\\_Bank\\_Palestine\\_Using\\_Geographic\\_Information\\_Systems.pdf](https://staff.najah.edu/media/published_research/2023/05/22/Mapping_of_Solar_Energy_Potential_in_the_West_Bank_Palestine_Using_Geographic_Information_Systems.pdf)

<sup>106</sup> <https://leap.unep.org/en/countries/ps/national-legislation/decreed-law-no14-2015-renewable-energy-and-energy-efficiency>

<sup>107</sup> <https://dSPACE.alquds.edu/bitstream/20.500.12213/6406/1/Husain%20and%20Nour%202021-1.pdf>

## 2. Early feed in tariff to trigger initial uptake

Early schemes introduced a feed in tariff that helped demonstrate bankability for small scale PV. Peer reviewed research documents an early tariff of about 1.03 NIS/kWh for an initial tranche of household systems, followed by adjustments over time. While the approach supported early market entry, the same research notes that declining tariffs later reduced attractiveness for investors.

## 3. Net metering rules to scale distributed, behind the meter PV

Net metering was used to support self-consumption and bill reduction for customers installing rooftop systems. Technical assessments supporting PERC describe net metering as being grounded in legal documents already issued on the topic and analyze its technical and economic implications for the Palestinian grid. Academic analysis also documents design features that can reduce returns for end users, including deductions on exported surplus energy<sup>108</sup>.

## 4. Promotional tariffs and longer horizon licensing to restore predictability

To rebuild investor confidence and reduce revenue uncertainty, PERC developed promotional tariff approaches with longer validity horizons. Peer reviewed research describes promotional tariff validity periods of up to 20 years, highlighting the practical role of longer duration incentives in restoring project bankability.

## 5. Procedures and guidelines to reduce implementation friction

Beyond the tariff mechanism itself, the regulatory practice includes procedural guidance and workflow facilitation for connecting new renewable energy projects, along with dispute resolution mechanisms as part of broader market regulation functions described by regional regulatory networks.

### Partners Involved

- **Primary Public Sector Partners**

1. PENRA (Palestinian Energy and Natural Resources Authority): energy policy setting and sector leadership.
2. PERC (Palestinian Electricity Regulatory Council): regulation, market oversight, tariff and procedural development, and dispute resolution functions under the electricity law framework.

- **System and market actors**

1. Electricity distribution companies: implement interconnection processes, apply metering arrangements, and manage customer billing and crediting under net metering rules.
2. Private sector solar developers, EPCs, and equipment suppliers: translate the regulatory framework into installed systems and operational projects.

### Legal and Policy Framework

1. General Electricity Law No. 13 (2009) and the institutional establishment of PERC as the sector regulator (as summarized by regional regulatory networks).
2. Decree Law No. 14 of 2015 on Renewable Energy and Energy Efficiency, which aims to encourage renewable energy development and energy conservation across sectors.

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<sup>108</sup>[https://www.medreg-regulators.org/Portals/\\_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf](https://www.medreg-regulators.org/Portals/_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf)

3. Renewable energy and net metering regulations and guidance issued or overseen by PERC, including analysis and evaluation of net metering implementation and its system implications.
4. Climate and energy planning linkages through national NDC implementation planning for renewable energy and energy efficiency, which provides broader strategic justification for scaling distributed renewables.

### Featured Project: Noor Jenin Solar Power Plant Summary

Commissioned in 2018, the Noor Jenin Solar PV Plant (approximately 5 MW capacity) became Palestine's first utility-scale solar power station. Developed through public-private cooperation, the project supplies electricity directly to the Jenin distribution network under a special regulatory arrangement approved by PERC. The project demonstrated the practical viability of solar generation under restrictive political conditions and validated the effectiveness of adaptive regulatory frameworks.

#### Key partners included:

- Palestinian National Energy Authority (PENRA)
- Palestinian Electricity Transmission Company (PETL)
- Local electricity distribution companies
- Private solar developers

#### Legal and policy framework:

- Palestinian Renewable Energy and Energy Efficiency Strategy
- PERC Renewable Energy Regulations
- National Energy Sector Strategy (2017–2022)

#### Noor Jenin Solar Power Plant

The Noor Jenin Solar Power Plant marks a milestone in Palestine's renewable energy transition, not only for its infrastructure but for the regulatory pathway that enabled its development. Implemented amid political fragmentation, limited grid control, and restricted land access, the project demonstrates how adaptive regulation can unlock green investment under challenging conditions.

Located in the Jenin Governorate, Noor Jenin emerged as Palestine sought to move beyond small-scale rooftop systems toward utility-scale renewable generation. Previously, solar development focused mainly on net-metered installations on homes, public buildings, and businesses, which, while valuable, could not significantly reduce dependence on imported electricity.

As a result, Noor Jenin was designed as a strategic pilot to test whether evolving regulations could support larger, grid-connected solar facilities despite ongoing political and infrastructural constraints.

#### Regulatory Innovation as the Enabling Factor

What distinguished Noor Jenin from earlier solar initiatives was not only its scale, but the regulatory architecture designed around it. The project required tailored approvals from the Palestinian Electricity

Regulatory Council (PERC) and close coordination with the Palestinian National Energy Authority (PENRA) and the Palestinian Electricity Transmission Company (PETL). Given the lack of full Palestinian control over transmission infrastructure, regulatory flexibility became essential.

To mitigate investor risk, PERC approved a special tariff and licensing arrangement aligned with its broader effort to introduce long-term promotional tariffs for renewable energy projects. These regulatory measures addressed one of the most critical barriers identified in prior research: uncertainty regarding revenue streams and contract duration, which had previously discouraged private sector participation in larger solar projects.

Academic analysis confirms that this approach reflected a deliberate policy shift, from short-term, conservative regulatory instruments toward long-horizon mechanisms designed to attract investment under uncertainty. Noor Jenin thus functioned as both an energy project and a regulatory learning platform, allowing authorities to test, refine, and validate new regulatory tools.

### **Navigating Political and Spatial Constraints**

Like all large infrastructure projects in the West Bank, Noor Jenin was developed under the constraints imposed by the Oslo Accords and the fragmented territorial governance regime. Land availability, construction permits, and grid interconnection all required careful negotiation within a politically sensitive environment. Unlike projects located entirely within Israeli-controlled areas, Noor Jenin benefited from its siting within an area where Palestinian institutions could exercise partial administrative authority, although broader transmission constraints remained.

The project's successful commissioning demonstrated that site selection combined with regulatory adaptation can enable renewable energy development even in politically constrained territories. This lesson has been repeatedly highlighted in policy analyses as a key takeaway for other fragile and conflict-affected contexts.

### **Institutional and Market Impact**

Beyond electricity generation, Noor Jenin had important institutional and market-shaping effects. For Palestinian regulators, the project strengthened internal capacity in licensing, tariff design, and grid coordination for renewable energy. For local distribution companies, it provided first-hand experience in integrating utility-scale solar power into the distribution network.

From a market perspective, Noor Jenin sent a strong signal to domestic and regional investors that renewable energy projects in Palestine could be bankable, provided that regulatory certainty was present. Subsequent policy documents and academic studies cite the project as evidence that Palestinian renewable energy regulation, while constrained, can support larger-scale investment when designed strategically.

### **A Model for Replication under Constraint**

Importantly, Noor Jenin was never intended to be an isolated success. Policymakers and researchers alike describe it as a proof-of-concept project, demonstrating how regulatory creativity can partially compensate for structural political barriers. While it did not eliminate dependence on imported electricity, it contributed to a gradual diversification of Palestine's energy mix and laid the groundwork for future renewable projects.

As such, Noor Jenin stands as a best-practice example of regulatory resilience: a project where institutional coordination, adaptive tariff design, and strategic site selection converged to advance green economy objectives under conditions that would typically deter infrastructure investment.

## Section 7: Outcomes and Impact

### Key Results:

- Expansion of grid-connected solar PV capacity across the West Bank
- Establishment of Palestine's first utility-scale solar power plant
- Improved regulatory certainty through long-term tariff mechanisms

### Sustainability Impact:

- **Environmental:** Reduced greenhouse gas emissions and decreased reliance on imported electricity
- **Economic:** Increased private sector participation and local job creation in solar installation and maintenance
- **Institutional:** Strengthened regulatory capacity within PENRA and PERC

### Community and Inclusion Impact

Municipalities such as Jenin benefited from improved electricity supply stability, while local technical firms gained experience in renewable energy deployment. Although not gender-specific by design, the regulatory framework enabled broader participation by SMEs and young engineers in the renewable energy value chain.

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Sequencing policy instruments to match market maturity:** the regulatory approach evolved from early incentive mechanisms (feed in tariff) to broader uptake mechanisms (net metering), then toward longer-horizon promotional tariffs to restore predictability. This sequencing reflects a practical learning loop: start simple to trigger uptake, then adjust design when grid constraints and market responses become clear.
- **Using net metering as an anchor mechanism for distributed solar:** net metering is particularly suited to Palestine's context because it supports behind the meter generation that reduces customer bills and reliance on imported electricity, while using the distribution network as the balancing

mechanism. The PERC net metering assessment highlights the importance of grounding net metering in clear legal and technical design to avoid instability and unintended grid impacts.

- **Introducing longer validity horizons to reduce risk and attract finance:** promotional tariff validity periods of up to 20 years, as described in peer-reviewed research, directly address the bankability problem: lenders and investors need predictable cashflows across repayment horizons. This is a core mechanism that is transferable beyond Palestine.
- **Anchoring regulation in institutional functions, not only tariff numbers:** the practice is not just “set a tariff,” it is building the regulatory functions that keep the market stable: rule making, oversight, procedures, and dispute resolution. Regional regulatory networks summarize PERC’s role and functions, which are critical for maintaining market confidence as the number of solar systems increases.

### Main Challenges and Mitigation Strategies

- **Revenue uncertainty from changing tariffs and scheme rules**

Why it matters: small changes to crediting rules or tariff levels can make projects unfinanceable, especially when loan terms depend on predictable savings or revenues.

Mitigation: adopt rule stability principles such as fixed validity windows for approved projects, clear transition rules when tariffs are updated, and transparent schedules for review and adjustment.

- **Grid constraints and inconsistent application of technical requirements**

Why it matters: even when the economics are strong, projects stall if distribution companies lack clear guidance or capacity to process interconnection requests, or if technical limits vary by location with limited transparency.

Mitigation: standardize technical procedures, publish connection requirements in plain language, and use periodic grid capacity updates to guide what is feasible where. The net metering assessment emphasizes that net metering outcomes depend on both legal design and technical grid conditions.

- **Territorial fragmentation and planning restrictions that block larger projects**

Why it matters: utility scale solar needs land and permits. In Area C, Israel retains exclusive control over planning and zoning, and OCHA reports that less than 1% of Area C has been planned for Palestinian development. This constrains siting and slows scale-up beyond rooftops.

Mitigation: focus near-term regulatory support on distributed and rooftop solar where feasible, and pair utility scale ambitions with coordinated land access and planning efforts where possible.

- **Investor trust and market quality risks**

Why it matters: rapid growth can attract low-quality suppliers, weak installation standards, and disputes over performance and billing credits, which can undermine confidence in the sector.

Mitigation: strengthen technical certification expectations, minimum warranty requirements, and basic commissioning documentation as part of the regulatory compliance pathway.

## Improvement and Replication Potential

What could be improved in Palestine?

- Transparency and predictability: publish clear transition rules when tariffs or crediting rules are updated, to protect projects already in the pipeline and reduce perceived regulatory risk.
- Standardization: unify documentation and processing steps across distribution companies to reduce delays and inconsistent outcomes.
- Grid capacity information: issue periodic, public grid hosting capacity guidance so MSMEs and developers can assess feasibility early.
- Dispute resolution visibility: publicize typical dispute resolution steps and timelines to reduce uncertainty for end users and lenders.

Replication potential (how to generalize the mechanism)

- In other constrained or fragile markets, the transferable elements are:
- Start with simple, adoption-triggering incentives.
- Move toward self-consumption mechanisms like net metering to scale distributed systems.
- Stabilize the market with longer validity horizons and clear transition rules.
- Invest in procedures and institutional functions, not only tariff design.

## Policy, Operational and Funding Recommendation

Policy level:

- Codify stability principles: define how tariff adjustments apply to approved projects and publish validity and grandfathering rules in advance to reduce perceived risk.
- Align incentives with grid realities: ensure that compensation and export rules do not unintentionally block uptake where the grid can safely host distributed generation.
- Strengthen enforcement of technical quality: ensure minimum standards for metering, commissioning, and installation quality are embedded in compliance procedures.

Operational level

- One pathway, many actors: standardize the solar project journey end to end, with clear roles for MSMEs, EPCs, distribution companies, and regulators.
- Build utility processing capacity: streamline interconnection review steps and equip distribution companies to handle volume with consistent timelines.
- Create a basic market transparency loop: publish common rejection reasons, typical processing time ranges, and frequent technical non-compliances so the market can self-correct.

Funding level

- Pair regulation with finance readiness support: even good regulation will not scale investment if MSMEs cannot package projects for lenders. Fund programs that cover technical audits, standard templates, and aggregation support through BSOs.
- Support grid enabling investments: funding for monitoring, grid upgrades, and advanced metering can expand hosting capacity and reduce the friction that stalls projects.



## Section 9: Linkage to the Green Forward Toolbox

This case is about making solar PV investable and scalable by reducing regulatory and implementation friction. The toolkit can support BSOs and MSMEs by turning "regulation" into a practical, finance-ready pathway with minimum evidence, clear decision points, and light monitoring.

- **Green Readiness and Strategy Tools**

Use these tools to help MSMEs understand whether they are ready to move, and to build the minimum evidence set (bills, permits, basic documentation) that utilities and financiers typically expect:

1. Sustainability Maturity – BSO to MSME Assessment
2. MSMEs Sustainability Simple Self-Assessment
3. MSME Green Economy Readiness Assessment and
4. MSME Green Economy Readiness – Survey.

- **Green Finance and Investment readiness Tools**

Use these tools to translate PV into clear economics, right-sized systems, and a clean application pack:

1. Tool No.1: Common Green Finance Screening Requirements
2. Diagnostic Tool No.1: MSME-Friendly Savings and Sizing Sheet: the embedded SAVINGS & SIZING SHEET – ROOFTOP PV (grid-tied) where relevant
3. Tool No.2: Investment Case Template

- **Green Monitoring and Evaluation Frameworks**

Use these tools to track energy outcomes simply and consistently:

1. Tool No.1: Monthly Environmental Dashboard
2. Tool No.2: Quarterly Business Impact Report
3. Tool No.3: Evaluation Framework

## Section 10: Supporting Materials

- World Bank energy sector brief (dependency on imports and sector context)<sup>109</sup>
- World Bank energy sector report (demand growth and system constraints)<sup>110</sup>
- Net metering assessment report prepared to support PERC (design and implementation considerations)<sup>111</sup>
- Peer-reviewed paper on solar policy evolution in Palestine (FIT, net metering, promotional tariff logic)<sup>112</sup>

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<sup>109</sup> <https://www.worldbank.org/en/country/westbankandgaza/brief/securing-energy-for-development-in-west-bank-and-gaza-brief>

<sup>110</sup> [https://www.un.org/unispal/wp-content/uploads/2017/11/WBRpt\\_300617.pdf](https://www.un.org/unispal/wp-content/uploads/2017/11/WBRpt_300617.pdf)

<sup>111</sup> [https://www.medreg-regulators.org/Portals/\\_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf](https://www.medreg-regulators.org/Portals/_default/Skede/Allegati/Skeda4506-318-2018.12.12/Net%20metering%20assessment%20report%20for%20PERC.pdf)

<sup>112</sup> <https://dspace.alquds.edu/bitstream/20.500.12213/6406/1/Husain%20and%20Nour%202021-1.pdf>



- PIF annual report (Noor Jenin operationalization and capacity reference)<sup>113</sup>
- PIF project page (Noor Jenin project summary)<sup>114</sup>
- Decree-Law No. 14 of 2015 on Renewable Energy and Energy Efficiency (legal anchor)<sup>115</sup>
- ERRA member profile for PERC (institutional role reference)<sup>116</sup>
- OCHA West Bank Atlas (Area C planning constraint context)<sup>117</sup>

## Section 11: Cross-Cutting Themes

### 1. Regulation is a risk-management tool for MSMEs and lenders

When rules are predictable and applied consistently, the “solar risk premium” drops, and small businesses become more financeable. When rules feel unstable, even good projects stall.

### 2. Grid connection and approval workflows are the real bottleneck

In practice, the hardest part is often not buying panels. It is getting a clear, timely, and consistent connection pathway. BSOs add value by translating procedures into steps and minimum document packs.

### 3. Distributed solar is not just a technology choice, it is a context choice

In Palestine, territorial and planning constraints make rooftop and behind-the-meter solutions a practical near-term route for many actors, especially MSMEs and institutions.

### 4. Transition rules matter as much as the rule itself

Markets lose confidence when tariffs or crediting approaches change without clear grandfathering or transition arrangements. The lesson is to manage change transparently, not to avoid change.

### 5. Utilities are co-implementers, not just service providers

Distribution companies shape project feasibility through approvals, metering, and operational limits. Scaling solar requires their capacity, standard operating procedures, and customer-facing transparency.

### 6. Standardization beats bespoke projects for scaling

Repeated templates for baseline data, quotations, sizing, and approval documents reduce transaction costs for everyone. This is where BSOs can have outsized impact.

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<sup>113</sup> <https://www.pif.ps/wp-content/uploads/2021/08/Annual-Report-Eng-2020-Website.pdf>

<sup>114</sup> <https://pifprojects.ps/en/completed-projects/%D9%85%D8%AD%D8%B7%D8%A9-%D9%86%D9%88%D8%B1-%D8%AC%D9%86%D9%8A%D9%86-%D9%84%D9%84%D8%B7%D8%A7%D9%82%D8%A9-%D8%A7%D9%84%D8%B4%D9%85%D8%B3%D9%8A%D8%A9/>

<sup>115</sup> <https://leap.unep.org/en/countries/ps/national-legislation/decre-law-no14-2015-renewable-energy-and-energy-efficiency>

<sup>116</sup> <https://erranet.org/member/perc-palestine/>

<sup>117</sup> [https://www.ochaopt.org/atlas2019/images/db/wb-thematic/wb\\_thematic.pdf](https://www.ochaopt.org/atlas2019/images/db/wb-thematic/wb_thematic.pdf)

### 7. Quality assurance is a market protection mechanism

Weak installation quality and unclear warranties create disputes and reputational damage that can slow adoption across the market. Practical quality gates protect MSMEs and improve investor confidence.

### 8. What to watch out for: “solar hype” that outruns procedures and proof

If MSMEs are pushed into projects without clear approvals, conservative sizing, and basic monitoring, disappointment spreads fast. The fix is not more marketing; it is better preparation and evidence.

## 15. Green Technology and PPP - Regional Example

### Section 1: Basic Information

Title of Case Study	<b>Morocco-UAE Green Hydrogen Collaboration: South-South Cooperation for Renewable Energy Technology Advancement</b>
Country / Region	Morocco (primary), United Arab Emirates, with regional MENA integration.
Organization / Entity Name	<ul style="list-style-type: none"> <li>- Morocco: Moroccan Agency for Sustainable Energy (MASEN), Ministry of Energy Transition and Sustainable Development</li> <li>- UAE: Masdar (Abu Dhabi Future Energy Company), owned by TAQA, ADNOC, and Mubadala</li> <li>- Supporting Partners: International consortia (TotalEnergies, ACWA Power, CEPSA, Siemens Energy, others)</li> </ul>
Type of Institution	Government agencies, Sovereign-owned clean energy companies, Public-private partnerships
Date of Case Study	2020-2025 (Ongoing strategic partnership)

### Section 2: Summary

The Morocco-UAE green hydrogen partnership exemplifies innovative South-South cooperation in renewable energy technology development within the MENA region.

Morocco, with its exceptional solar and wind resources (3,000+ sunshine hours annually, 52% renewable energy target by 2030), partnered with UAE's Masdar, one of the world's largest clean energy companies, to develop green hydrogen production, infrastructure, and export capabilities. This collaboration combines Morocco's abundant renewable resources and strategic geographic position (proximity to Europe, existing energy interconnections) with UAE's financial capital, technological expertise in large-scale renewable projects, and global market access. The partnership encompasses knowledge sharing

on hydrogen production technologies, storage systems, ammonia conversion, and export infrastructure development. Morocco's "Morocco Offer" investment program (launched March 2024) and National Hydrogen Strategy (2021) created frameworks attracting \$31.9 billion in committed investments from international consortia including UAE-based TAQA.

This model demonstrates how MENA countries can pool complementary strengths to accelerate clean energy transitions while building regional innovation ecosystems and positioning the Arab world as major green hydrogen producers for global markets.

**Green Economy Themes:** Green hydrogen production, renewable energy integration, clean technology transfer, sustainable aviation fuel, South-South cooperation, export-oriented green economy development.

### Section 3: How to Apply?

This case is useful because it shows how a green transition opportunity becomes real when it is structured as a coordinated pathway, not a standalone project. The transferable lesson is the architecture: align policy signals and investment frameworks, bring complementary partners together (resources, capital, delivery capability, market access), and reduce uncertainty through clear governance, standards, and bankable project pipelines. For MSMEs, the takeaway is how to position for emerging green markets through capability, compliance, partnerships, and proof. For BSOs, the takeaway is how to build an enabling service pipeline that helps firms become "procurement-ready" and investment-ready without chasing hype.

#### FOR MSMEs (What to do):

##### 1. Treat emerging green opportunities as a market shift, not a one-off tender.

Do a quick scan of where demand is moving (buyers, exporters, large contractors, public procurement). Then pick one realistic niche that fits what you already do.

##### 2. Build "procurement readiness" before you spend money on new equipment.

Most MSMEs lose opportunities because they cannot pass basic screening. Prepare a simple pack:

- company profile and track record
- basic QA/QC approach
- basic health and safety procedures
- financial and delivery capacity evidence (even if simple)

Refer to the Green Toolkit for Guidance.

##### 3. Invest in capability upgrades that unlock access, not upgrades that sound impressive.

Choose 2 to 3 upgrades that directly improve eligibility and competitiveness, such as:

- certifications or standards alignment where relevant
- documented operating procedures (quality, safety, traceability)
- staff training tied to buyer requirements
- simple performance and data tracking (delivery, defects, downtime, energy, waste)



**4. Partner early to cover gaps instead of overpromising.**

Form practical partnerships with complementary firms so you can bid on larger scopes without taking on risks you cannot manage alone.

**5. Build proof through pilots and documentation.**

Run one small pilot project that you can document well (baseline, what changed, results). This proof becomes your strongest asset for sales, finance, and buyer ESG requests. Refer to the Green Toolkit for guidance.

**6. Keep your claims conservative and evidence-based.**

In fast-moving green markets, credibility matters. Avoid inflated impact statements. Use simple evidence and clear assumptions.



**FOR BSOs (How to Support MSMEs through Services):**

**1. Run a readiness clinic focused on market access, not awareness.**

Offer a standard service that helps MSMEs: choose a niche, understand buyer requirements, build a procurement pack, and identify capability gaps.

**2. Translate standards and compliance into MSME-friendly checklists and templates.**

Do not overwhelm firms with frameworks. Convert requirements into:

- a short checklist of minimum requirements

- templates for policies and documentation
- a pathway showing what to do in 30, 60, and 90 days

Refer to the Green Toolkit for Guidance.

### **3. Build matchmaking as a structured pipeline, not ad hoc introductions.**

Maintain a roster of MSMEs with verified capabilities, then connect them to larger buyers and contractors through targeted, sector-specific matchmaking.

### **4. Support consortium formation and subcontracting readiness.**

Help MSMEs form bid-ready consortia and clarify roles, risk allocation, and documentation standards before they approach large contracts.

### **5. Help MSMEs package finance for capability upgrades.**

Many readiness investments are small but still blocked by cashflow. Provide a finance-ready mini business case and connect MSMEs to lenders and grant windows.

### **6. Use aggregated MSME feedback for policy and market-shaping dialogue.**

Track recurring barriers (certification cost, unclear requirements, weak testing facilities, missing data systems, long approvals). Convert them into practical, evidence-based recommendations.

## **Section 4: Primary Target Audience**

### **Primary:**

- MSMEs seeking to access green value chains and emerging transition-related markets by upgrading quality, safety, documentation, and delivery capability.
- BSOs delivering practical MSME readiness services (market access clinics, standards translation, matchmaking, finance packaging).

### **Secondary:**

- Large buyers, anchor firms, EPCs, and contractors that rely on supplier ecosystems and need local and regional suppliers who can meet procurement requirements.
- Training providers and technical institutes supporting workforce and skills upgrading for new market demand.

### **Also Relevant for:**

- Policymakers and regulators shaping investment frameworks, standards adoption, and enabling conditions for green markets.
- Finance providers and DFIs supporting MSME capability upgrades, supplier development, and transition-oriented investments.



## Section 5: Background and Context<sup>118</sup>

### Main Challenges

Both Morocco and UAE face imperative needs to decarbonize economies while securing energy futures. Morocco imports 90%+ of its energy needs, creating economic vulnerability and hindering industrial competitiveness. The country's fertilizer industry (OCP Group - world's largest phosphate producer) requires massive ammonia supplies currently produced from fossil fuels. UAE, despite oil wealth, recognizes climate transition necessity and seeks to position itself as global clean energy leader beyond hydrocarbons. Both countries identified green hydrogen as critical pathway to:

1. Industrial decarbonization (steel, ammonia, fertilizers, chemicals)
2. Export revenue diversification
3. Energy security enhancement
4. Climate commitment fulfilment (Morocco: 52% renewables by 2030; UAE: Net Zero by 2050)
5. Hard-to-abate sector solutions (aviation, maritime shipping, heavy industry)

Green hydrogen production requires substantial capital investment, technological expertise, renewable energy capacity, and export infrastructure; no single country possesses all elements optimally. Collaboration enables risk-sharing, knowledge transfer, and accelerated deployment.

### Context

Morocco:

- Abundant solar and wind resources: Southern regions (Guelmim-Oued Noun, Dakhla) offer ideal conditions for renewable energy generation
- Existing renewable energy infrastructure: 5.3 GW operational capacity (44.3% of total) in 2024
- Strategic location: Proximity to European markets (Spain connection via Strait of Gibraltar); potential integration with H2Med Corridor
- MASEN experience: Successful development of Noor Ouarzazate Solar Complex and other large-scale renewables
- Government commitment: National Hydrogen Commission (2019), National Hydrogen Strategy "H2 Morocco" (June 2021), "Morocco Offer" investment framework (March 2024)
- Export orientation: Targeting 4% of global hydrogen demand by 2030
- Anchor demand: OCP fertilizer value chain requires 100,000 tons/year green ammonia initially

UAE:

- Financial capital: Masdar backed by sovereign wealth (Mubadala), national oil company (ADNOC), and utility (TAQA) with combined capacity to mobilize billions
- Technological expertise: Nearly two decades of renewable energy project development globally
- Global reach: Masdar operates in 40+ countries with 20+ GW renewable capacity operational

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<sup>118</sup> 1. Morocco Ministry of Energy Transition and Sustainable Development. (2021). "National Hydrogen Strategy - H2 Morocco." <https://www.mem.gov.ma/>

2. Morocco Ministry of Energy Transition. (2024). "Morocco Offer - Green Hydrogen Investment Program." <https://www.mem.gov.ma/>

3. United Arab Emirates Ministry of Energy

- Strategic vision: Green hydrogen central to UAE Net Zero 2050 initiative; targeting 1 million tons annual production by 2030
- Diversification imperative: Moving beyond hydrocarbons to position UAE as clean energy hub
- Industrial integration: ADNOC infrastructure and petrochemical expertise applicable to hydrogen derivatives (ammonia, methanol, synthetic fuels)

### Broader Policy and Program Context

#### International Framework:

- EU-Morocco Green Partnership (October 2022): First EU Green Partnership with non-EU country; explicit hydrogen economy development component
- H2Global mechanism: Germany-led international hydrogen purchase agreements
- Power-to-X (PtX) Alliance (2020): Morocco-Germany collaboration on green hydrogen derivatives
- European Green Deal: External dimension includes Southern Neighbourhood clean energy cooperation
- Paris Agreement: Both countries' Nationally Determined Contributions emphasize renewables and clean hydrogen

#### National Strategies:

- Morocco National Hydrogen Strategy (2021): Three-phase roadmap (2020-2030 pilot phase; 2030-2040 cost reduction; 2040-2050 full commercialization)
- UAE National Hydrogen Strategy: Establishes UAE as leading global low-carbon hydrogen producer by 2031
- Abu Dhabi Low Carbon Hydrogen Policy: Promotes low-carbon hydrogen for economic growth, sustainability, energy security

#### Regional Context:

- MENA region emerging as major green hydrogen production zone due to abundant solar/wind resources
- Competition with Gulf neighbors (Saudi Arabia, Oman) and North African peers (Egypt, Mauritania) driving innovation
- Regional integration potential: Hydrogen pipelines, shared infrastructure, knowledge networks

### Target group(s) and stakeholders

- National governments and energy ministries
- Sovereign wealth funds and development finance institutions
- Industrial off-takers (fertilizer companies, steel producers, refineries)
- Renewable energy developers and technology providers
- Export markets (European utilities, shipping companies, aviation sector)
- Local communities hosting projects (employment, infrastructure benefits)
- Research institutions and universities (knowledge generation, workforce development)

### Section 6: Description of the Practice

## Core Activities

This practice is not a single project. It is a structured investment and governance approach that Morocco used to move green hydrogen from “strategy talk” into an investor-ready pipeline, while bringing in regional partners (including UAE-linked companies) through competitively selected consortia.

At the core is the “Morocco Offer” for green hydrogen, launched through a government circular in March 2024. It is designed for integrated value chain projects, starting from renewable electricity generation and electrolysis, through downstream conversion into derivatives (including ammonia, methanol, and synthetic fuels) and the associated logistics. It also defines how investors are selected and contracted, and how roles are split across public entities<sup>119</sup>.

A second core activity is structured investor selection and land reservation for feasibility. In March 2025, Morocco’s steering committee selected five investors to implement six projects in the southern regions, with total announced investment of 319 billion dirhams. The selected consortia were granted time-bound land reservation contracts to complete detailed technical studies before negotiations and contracting move forward. This is a practical de-risking step: it converts political intent into a sequenced pipeline (reserve land, study, then contract)<sup>120,121</sup>.

A third activity is regional and international partnership layering around the investment pipeline. Morocco has linked its hydrogen agenda to external cooperation platforms, including EU cooperation under the EU-Morocco Green Partnership and technical cooperation under the Morocco-Germany Energy Partnership (including Power-to-X workstreams).

## Partners Involved

- **National governance and implementing actors (Morocco)**

1. Head of Government and the steering committee overseeing the “Morocco Offer” process (investor selection, negotiation pathway).
2. Ministry of Investment, Convergence and Evaluation of Public Policies (publishes the operational circular and outlines governance and investor process).

- **Selected investor consortia and project developers (international and regional)**

Based on publicly reported selections under “Offre Maroc” (March 2025), the selected investors include:

1. Ortus Power Resources, Nordex, Acciona (green ammonia focus).
2. TAQA (Abu Dhabi) and Cepsa (Spain) (green ammonia and synthetic fuels).
3. Nareva (Morocco) (ammonia, industrial fuels, and green steel).
4. ACWA Power (Saudi Arabia) (green steel focus).
5. United Energy Group and China Three Gorges (green ammonia focus).

- **International cooperation partners supporting the enabling environment**

<sup>119</sup> <https://micepp.gov.ma/en/le-ministere/actualites/application-royal-high-directives-head-government-issues-circular>

<sup>120</sup> <https://energypartnership.ma/news/default-ea419f64cd03ad593bc6115a1b2902db/>

<sup>121</sup> <https://www.maroc.ma/en/news/govt-head-hails-green-hydrogen-investor-selection-promising-aligned-royal-vision>

European Union, through the EU-Morocco Green Partnership framework (political, technical, and investment cooperation on energy transition and decarbonized industry, among other themes).

### **Funding Sources**

The public signal for scale is the announced investment volume attached to the March 2025 selection: 319 billion dirhams for six projects. This figure is reported as the total investment value associated with the selected project pipeline, with negotiations expected to follow.

The public sector contribution is primarily enabling and de-risking rather than direct budget financing (based on what is publicly described). The “Morocco Offer” sets out land allocation, supporting infrastructure needs, incentive measures, and a structured contracting process. It also identifies around one million hectares of public land, with a first phase of 300,000 hectares to be allocated in parcels based on project size.

### **Technologies and Innovation**

The technology model is “integrated Power-to-X”: pair large-scale renewable electricity with electrolysis and then convert hydrogen into products that are easier to use, store, and transport.

What is clearly evidenced in public sources about the Morocco Offer and the selected pipeline includes:

- Integrated project scope from renewables and electrolysis to downstream transformation into derivatives such as ammonia, methanol, and synthetic fuels, plus logistics.
- A project portfolio emphasizing hydrogen derivatives and industrial end-products (examples reported for selected consortia include green ammonia, synthetic fuels, and green steel).
- A deliberate linkage to Power-to-X ecosystem development, including reference projects and investment pipelines supported through Morocco-Germany cooperation frameworks.

### **Legal and policy framework:**

This practice is anchored in a “stack” of governance and cooperation instruments that reduce ambiguity for investors:

- National coordination: Morocco’s National Hydrogen Commission was established to coordinate key ministries and institutions around hydrogen development.
- Operational investment framework: the March 2024 “Morocco Offer” circular sets out scope, land allocation, infrastructure needs, incentives, investor selection and contracting steps, and governance for green hydrogen development.
- Investor pipeline milestone: in March 2025, five investors were selected to lead six projects with a stated total investment value of 319 billion dirhams, moving the framework into an active project pipeline.
- International cooperation: the EU-Morocco Green Partnership provides a formal cooperation basis across climate, energy transition, and green economy priorities, which can support alignment on standards, investment, and industrial decarbonization pathways relevant to hydrogen trade and value chains.
- Enabling renewables framework: Morocco’s renewable energy legal framework (including Law 13-09 as referenced in credible climate finance and legal reform commentary) is part of the

broader enabling environment because large-scale green hydrogen depends on large-scale renewable generation and grid rules that allow private investment.

## Section 7: Outcomes and Impact

### Key Results:

- Land and pipeline de-risking under the “Morocco Offer” (March 2024): Morocco identified a public land base of around 1 million hectares, with an initial 300,000 hectares to be provided in the first phase, allocated in parcels of 10,000 to 30,000 hectares depending on project size.
- Investor selection milestone (March 2025): The steering committee of the national hydrogen investment program (“Offre Maroc”) selected five investors to implement six projects with a stated total investment value of 319 billion dirhams (reported by the Morocco-Germany Energy Partnership as approximately 30 billion euros). The selected consortia received six-month land reservation contracts to complete detailed technical studies.
- UAE-linked participation (publicly listed in the selected investors): The selected investors include a consortium of TAQA (Abu Dhabi) and Cepsa (Spain), with a stated focus on green ammonia and synthetic fuels.
- Scope clarity that reduces investor uncertainty: The “Morocco Offer” is explicitly defined as an offer for integrated projects from renewable electricity generation and electrolysis through downstream transformation into derivatives such as ammonia, methanol, and synthetic fuels, plus associated logistics.

### Sustainability Improvements:

- **Environmental:** integrated renewable hydrogen and its derivatives can replace fossil fuels in hard-to-abate sectors, but only if they meet recognized compliance and certification standards. For exports to the EU, “renewable” status depends on meeting RFNBO rules, which set strict conditions on when production electricity counts as fully renewable.
- **Economic:** pipeline creation and investor signalling, through a structured process that defines land availability, scope, and governance, enabling large investments to move into feasibility and negotiation stages.
- **Social:** job creation, local procurement, and community benefits remain largely planned and are not yet publicly verified. A credible assessment will only be possible once projects reach contracting, construction, and operation with transparent monitoring results.
- **Market credibility and traceability:** certification schemes support market access, with CertifHy operating an EU-recognized RFNBO voluntary scheme that positions certification as a compliance and access tool rather than a branding claim.

### Inclusion and Gender

Information on inclusion targets, gender commitments, or local community benefit-sharing arrangements for the selected consortia is not publicly available in trusted sources in a consistent, verifiable way. This should not be stated as an achieved outcome.

### Results Verification and Measurement

- Progress assessment built into State-investor agreements: The Morocco Offer communication notes that investment framework agreements between the State and investors include provisions for regular progress assessments of the investment program.
- Stage-gated development with time-bound feasibility: The investor selection under “Offre Maroc” includes six-month land reservation contracts and a requirement for detailed technical studies, creating a verification checkpoint before full contracting and implementation.
- Export-oriented proof requirements: If exports target EU markets, compliance will hinge on RFNBO methodology requirements and credible certification and auditing pathways, which are external verification mechanisms rather than self-declared claims.

## Section 8: Lessons Learnt and Recommendations

### Main Success Factors

- **Complementary Strengths:** Partnership success built on clear complementarity: Morocco's resources and geography and UAE's capital and technology. Neither partner attempting to dominate, both contributing unique value. South-South cooperation framework avoided dependency dynamics often present in North-South partnerships.
- **Government-Level Commitment:** Strong political will from both countries' leadership ensured sustained focus. Institutional frameworks (MASEN, Masdar mandates) provided continuity beyond individual officials. Integration into national strategies (Morocco National Hydrogen Strategy, UAE Net Zero 2050) ensured long-term commitment.
- **Comprehensive Policy Frameworks:** Morocco Offer provided clarity and streamlined processes, reducing investor uncertainty. Clear regulations on land rights, permitting, offtake arrangements, export procedures created investable environment. UAE's established legal frameworks for international energy investments facilitated capital flows.
- **Industrial Anchor Demand:** OCP's immediate need for green ammonia created guaranteed offtake reducing market risk. Existing industrial infrastructure (ports, chemical facilities) lowered capital requirements. Demand certainty attracted private sector co-investment alongside government capital.
- **European Market Integration:** EU Green Partnership and H2Med corridor planning provided clear export pathways and market access. European regulatory alignment (RFNBO standards) ensured Morocco's hydrogen would meet import requirements. Geographic proximity to Europe (vs. UAE's Asian focus) differentiated Morocco's value proposition.
- **Multi-Partner Consortia:** Bringing together Moroccan, Emirati, European, and other partners distributed risk and combined diverse expertise. No single entity bearing full project risk enabled scale impossible for bilateral partnerships alone. Technology providers, financial institutions, off-takers all aligned in shared value creation.

### Main Challenges and Mitigation Strategies

- **Water Scarcity for Hydrogen Production Impact:** Electrolysis requires substantial water (9-10 liters per kg hydrogen); Morocco faces water stress

Mitigation: Dedicated desalination plants powered by renewable energy; priority for seawater locations (Dakhla coastal region); water recycling systems integrated into facilities; Environmental Impact Assessments addressing water sustainability

- **Financing Scale and Risk Impact:** Individual projects require \$3-10 billion capital; perceived political risk in Morocco; technology and market uncertainties

Mitigation: Blended finance combining UAE sovereign capital (patient equity), commercial debt, development finance (concessional terms); offtake agreements reducing revenue risk; government guarantees; phased development starting with pilot/demonstration projects before full commercial scale

- **Infrastructure Gaps Impact:** Remote project locations lack adequate electricity grid, roads, ports; H2Med pipeline not yet built

Mitigation: Focus on applications where carbon premium justifies costs (fertilizers, aviation fuel, premium European markets); leverage scale to drive cost reductions; technology partnerships with leading providers advancing efficiency; long-term offtake contracts with price floors and ceilings managing volatility

- **Technology and Cost Uncertainty Impact:** Green hydrogen not yet cost-competitive with grey hydrogen; electrolyzer costs high; technology still maturing

Mitigation: Focus on applications where carbon premium justifies costs (fertilizers, aviation fuel, premium European markets); leverage scale to drive cost reductions; technology partnerships with leading providers advancing efficiency; long-term offtake contracts with price floors and ceilings managing volatility

- **Regulatory and Standards Alignment Impact:** No globally harmonized hydrogen standards; EU RFNBO criteria complex and evolving; certification systems nascent

Mitigation: Early engagement with EU regulatory development; investment in certification infrastructure; participation in international standards bodies (ISO/TC 197); bilateral working groups addressing regulatory barriers; building domestic Moroccan standards framework aligned with international best practices

- **Skills and Capacity Gaps Impact:** Limited domestic expertise in hydrogen technologies; insufficient training programs; brain drain risk

Mitigation: Comprehensive training programs developed jointly by Masdar, MASEN, and international technology partners; university curriculum development; overseas training opportunities with return commitments; competitive compensation to retain talent; knowledge management systems capturing and sharing lessons learned

- **Local Content and Inclusion Impact:** Risk of projects becoming enclaves with limited local benefit; international consortia may bypass local suppliers; high-skill jobs inaccessible to marginalized communities

Mitigation: Morocco Offer includes local content requirements; supplier development programs building domestic capabilities; training programs in project regions; community benefit agreements; transparent procurement processes; monitoring and reporting on inclusion metrics

### Improvement and Replication Potential

What could be improved?

- **Earlier Community Engagement:** Large-scale land allocations occurred before comprehensive community consultations. Future projects should begin with participatory planning involving local populations in project design, not just compensation negotiations after decisions made.
- **Clearer Benefit Sharing Mechanisms:** Current frameworks focus on national-level economic benefits; community-level benefit sharing mechanisms underdeveloped. Establish clearer frameworks for local revenue sharing, employment quotas, and community development funds.
- **Gender Integration from Design Phase:** Gender considerations addressed reactively rather than proactively in initial project designs. Future projects should conduct gender impact assessments upfront and integrate women's economic empowerment explicitly into project planning.
- **Supply Chain Localization Strategy:** Current approach emphasizes international procurement; insufficient focus on building domestic manufacturing capacity. Develop deliberate industrial policy supporting local production of components (solar panels, wind turbines, electrolyzers, balance of plant).
- **Knowledge Documentation and Dissemination:** Lessons learned from early projects not systematically documented or shared. Establish dedicated knowledge management platforms capturing technical, commercial, social, and environmental lessons for replication.
- **Regional Integration Mechanisms:** While Morocco-UAE partnership strong, broader MENA regional coordination limited. Create regional hydrogen collaboration framework (like EU Hydrogen Strategy) fostering knowledge sharing, infrastructure interconnection, and collective bargaining power with technology providers.

High Replication potential

- **Egypt:** Similar renewable resources (Red Sea wind, Aswan/Benban solar); Suez Canal strategic location for bunkering; UAE-Egypt relations strong
- **Oman:** Excellent wind resources (Dhofar region); UAE neighbor facilitating coordination; government launching major hydrogen initiatives
- **Mauritania:** Vast land availability; Atlantic wind resources; seeking development partnerships
- **Saudi Arabia:** NEOM green hydrogen project already UAE collaboration model; PIF-Masdar potential partnerships

### Model Adaptability: MENA countries can replicate:

- South-South cooperation framework reducing North-South dependency
- Comprehensive investment frameworks (Morocco Offer model)
- Integration of sovereign wealth capital with commercial investment
- Anchor industrial demand reducing market risk
- Linkage to export markets through bilateral agreements

### Adaptation Requirements:

- Adjust for local policy and regulatory contexts
- Consider different geographies and renewable resource profiles
- Address varying levels of industrial development and demand
- Account for political relationships and bilateral dynamics

### Section 9: Linkage to the Green Forward Toolbox

This case is about making solar PV investable and scalable by reducing regulatory and implementation friction. The toolkit can support BSOs and MSMEs by turning “regulation” into a practical, finance-ready pathway with minimum evidence, clear decision points, and light monitoring.

**Start with readiness and evidence discipline (so opportunities do not stay as talk):** Use the readiness tools to baseline what the MSME can credibly deliver today, what is missing, and what proof exists.

- **Green Readiness Screening and Assessment Tools**

1. Sustainability Maturity – BSO to MSME Assessment
2. MSMEs Sustainability Simple Self-Assessment
3. MSME Green Economy Readiness Assessment and
4. MSME Green Economy Readiness – Survey.

**Convert the opportunity into a practical business model and partnership plan:** This is where the “big opportunity” becomes a real offer: value proposition, delivery model, roles, and the minimum viable pilot.

- **Green Finance and Business Modelling Tools**

1. Values and Vision Tool
2. Value Proposition
3. Circular Business Model Roadmap
4. Investment Pitch Deck and Presentation Guide

**Build finance ability (bankable packaging, not vague ambition):** Use the finance tools to convert the plan into a lender-ready, decision-friendly package.

- **Green Finance and investment readiness Tools**

1. Tool No.1: Common Green Finance Screening Requirements
2. Tool No.2: MSME-Friendly Savings and Sizing Sheet
3. Tool No.3: Investment Case Template

**Manage ESG, stakeholder expectations, and compliance risk early:** Large opportunities fail when social, labor, safety, and stakeholder issues are treated as an afterthought. Use the ESG tools to keep the approach credible and investable.

- **ESG and impact management Tools**

1. Diagnostic Tool No.1: ESG Self-Assessment Tool
2. Diagnostic Tool No.2: Logbook Sections
3. Tool No.1: Stakeholder Mapping Template
4. Tool No.2: Engagement Action Plan Template

## Section 10: Supporting Materials

- Morocco “Green Hydrogen Offer” overview (MASEN)<sup>122</sup>
- Official Morocco circular launching the “Morocco Offer” framework (March 2024)<sup>123</sup>
- Morocco investor selection announcement summary (March 2025)<sup>124</sup>
- Morocco-Germany Energy Partnership summary of the five selected investors and the six projects (March 2025)<sup>125</sup>
- EU Morocco Green Partnership decision annex (framework for cooperation, including energy transition)<sup>126</sup>
- EU delegated act on RFNBO methodology (example of how export markets define “renewable” claims)<sup>127</sup>
- CertifHy (example of certification infrastructure used for credibility and market access)<sup>128</sup>

## Section 11: Cross-Cutting Themes

### 1. Big green opportunities succeed when they are built as pipelines, not announcements

The transferable mechanism is stage-gating: define scope, reserve resources, run feasibility, then contract and implement. For Palestine, the lesson is to structure MSME and sector initiatives as pipelines with clear gates, not one-off events.

### 2. Governance and clarity reduce risk more than technology does

What attracts credible partners is not the “buzz” of a green idea. It is clear roles, clear decision rights, and clear process. BSOs can replicate this by creating standard pathways and templates that reduce uncertainty for MSMEs and financiers.

### 3. Standards and proof are market access tools, not paperwork

Export and high-value markets increasingly define what counts as “renewable” or “low carbon” through specific methodologies and evidence requirements. Palestinian MSMEs and BSOs should treat proof systems as early design inputs, not end-of-project reporting.

### 4. Partnership design is a competitive advantage

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<sup>122</sup> <https://www.masen.ma/en/green-hydrogen-moroccan-offer>

<sup>123</sup> <https://micepp.gov.ma/en/le-ministere/actualites/application-royal-high-directives-head-government-issues-circular>

<sup>124</sup> <https://www.maroc.ma/en/news/govt-head-hails-green-hydrogen-investor-selection-promising-aligned-royal-vision>

<sup>125</sup> <https://energypartnership.ma/news/default-ea419f64cd03ad593bc6115a1b2902db/>

<sup>126</sup> [https://enlargement.ec.europa.eu/system/files/2022-11/C\\_2022\\_7308\\_F1\\_ANNEX\\_EN\\_V3\\_P1\\_2128231.PDF](https://enlargement.ec.europa.eu/system/files/2022-11/C_2022_7308_F1_ANNEX_EN_V3_P1_2128231.PDF)

<sup>127</sup> [https://eur-lex.europa.eu/eli/reg\\_del/2023/1184/oj/eng](https://eur-lex.europa.eu/eli/reg_del/2023/1184/oj/eng)

<sup>128</sup> <https://www.certifyhy.eu/>

Complex green value chains are rarely delivered by one actor. The lesson for MSMEs is to partner to cover gaps instead of overpromising. The lesson for BSOs is to structure matchmaking as a pipeline service with verified evidence, not informal introductions.

### **5. Public sector value is often in de-risking and coordination, not direct spending**

The replicable role is creating predictable rules, transparent selection processes, and enabling infrastructure planning. In Palestine, BSOs can mirror this logic at a smaller scale by providing de-risking services: readiness screening, standardized documentation, and evidence packs that shorten approval cycles.

### **6. Regional cooperation is a practical pathway when domestic scale is limited**

For Palestine, many green market opportunities are regional and cross-border by nature. The transferable lesson is to build “complementary value” and connect to regional networks through credible positioning, not through generic claims.

### **7. Monitoring makes scale possible because it protects credibility**

Scaling requires trust. Trust requires simple, repeatable proof that outcomes are real. The practical lesson is to build light monitoring habits early so results can be aggregated across many MSMEs and used for finance, buyers, and policy feedback.

### **8. What to watch out for: hype that outruns readiness and proof**

Fast-moving green topics attract inflated claims. If readiness, documentation, and standards are not in place, projects stall, trust drops, and the market becomes noisy. The correction is disciplined sequencing: baseline, pilot, proof, then scale.

## ***PART 3. Key Takeaways and Conclusions***

### **3.1. WHAT THE CASES COLLECTIVELY SHOW ABOUT WHAT WORKS**

Across the thematic chapters, one message is consistent: green transition becomes implementable when it is treated as a practical pathway that reduces cost, improves resilience, and strengthens market access, not as a standalone “sustainability” label. This is exactly why this guide frames green and circular economy as both pressure (buyer and finance expectations) and opportunity (new products, services, partnerships, investment models), and positions BSOs as the translation layer between concepts and usable services for SMEs.

The strongest transferable mechanisms that appear repeatedly across the cases are the following:

- **Build pipelines, not announcements.**

Big green opportunities succeed when they are structured as pipelines with clear gates: define scope, reserve resources, run feasibility, then contract and implement. For Palestine, this applies at MSME scale

too: a BSO should run a pipeline of “finance-ready upgrades” rather than a one-off workshop that ends with vague interest.

- **Governance and clarity reduce risk more than technology does.**

Partners and financiers are attracted by clear roles, decision rights, documentation, and process. Technology matters, but unclear governance kills deals faster than technical issues.

- **Standards and proof are market access tools, not paperwork.**

Whether the topic is ESG, circularity, renewable energy, or green products, markets increasingly require evidence and specific methodologies. Proof systems should be designed from the beginning (baseline, indicators, documentation), not bolted on at the end.

- **Partnership design is a competitive advantage.**

Complex green value chains are rarely delivered by one actor. The practical lesson is to partner to cover gaps rather than overpromise. For BSOs, “matchmaking” works when it is structured as a service pipeline supported by verification and evidence, not informal introductions.

- **Public sector value is often de-risking and coordination.**

The replicable role is predictable rules, transparent selection, and enabling infrastructure planning. BSOs can mirror this logic at smaller scale through de-risking services such as readiness screening, standardized documentation, and evidence packs that shorten approval cycles.

- **Monitoring makes scale possible because it protects credibility.**

Scaling requires trust. Trust requires simple, repeatable proof that outcomes are real. Light monitoring habits allow aggregation across many SMEs and enable follow-on finance, buyer confidence, and credible policy feedback.

- **What to watch out for: hype that outruns readiness and proof.**

Fast-moving green topics attract inflated claims. If readiness, documentation, and standards are not in place, projects stall and trust drops. The correction is disciplined sequencing: baseline, pilot, proof, then scale.

### 3.2. PRACTICAL TAKEAWAYS FOR PALESTINIAN MSMEs

This guide is not asking MSMEs to replicate the exact projects in Part II. It is asking MSMEs to adopt the mechanisms that make green transition financeable, implementable, and credible.

#### 1. Start with a business driver, not a concept

Choose one clear driver: cost reduction (energy, water, materials), resilience (continuity, input volatility), or market access (buyer requirements, tenders, export, financing).

Translate it into one focused “track” for 8 to 12 weeks. Avoid mixing many upgrades into one messy effort.

#### 2. Build a minimal “proof package” early



Keep a baseline: bills, production volumes, operating profile, simple waste and materials estimates.  
Specify the intervention: quotations, scope, timeline, O&M responsibilities.  
Track a small set of indicators monthly. If you cannot measure it simply, you cannot defend it later.

### **3. Partner to cover gaps instead of overpromising**

Use credible suppliers and service providers, and ask for performance details, warranties, and monitoring expectations.

If your team cannot manage permitting, QA/QC, or technical supervision, bring partners.

### **4. Pilot first, then scale**

Run one pilot intervention (one production line, one site, one product). Use it to generate evidence and operational lessons.

Only after you can show stable performance should you expand to additional sites, suppliers, or bigger investments.

## **3.3. PRACTICAL TAKEAWAYS FOR BSOS**

The core premise of this report is that BSOs can turn broad sustainability concepts into repeatable services that MSMEs can use. In practice, that means moving away from one-off awareness sessions and toward service lines that have a clear pathway, standard templates, and predictable outputs.

A practical way to convert Part II into action is to treat the case studies as a menu of service lines. Each service line should produce something tangible that the MSME can take to a bank, a buyer, a supplier, or an internal decision-maker.

### **1. Green Readiness Diagnostic Clinic**

This is a light, standardized service that quickly triages MSMEs into two or three realistic tracks such as resource efficiency, ESG basics, circular opportunity, or green finance readiness. The value is speed and clarity: one page baseline summary, a short shortlist of feasible measures (not a long wish list), and a documentation checklist that makes the next step easier.

### **2. Circular Opportunity Sprint**

This is a structured sprint that helps MSMEs move from a circular idea to a defensible business model in weeks, not months. The goal is to identify opportunities that are technically plausible and commercially realistic, such as waste-to-input, reuse loops, repair and maintenance models, or byproduct valorization. The outputs should be simple and decision-friendly: a circular value proposition, a partner map showing who must be involved, and high-level unit economics assumptions.

### **3. ESG “Start Simple” Support**

This service is designed for MSMEs who need to respond to buyer and investor ESG requests without pretending they can implement full frameworks immediately. It focuses on building the basics: a starter ESG data room (key policies, basic metrics, supplier list, and a simple complaints or grievance channel where relevant), plus a 90-day improvement plan with a small number of actions that are implementable.

#### 4. Green Finance Packaging and Facilitation

This is one of the highest-value BSO service lines in Palestine because it reduces friction between MSMEs, suppliers, and lenders. The service converts "I want solar or efficiency" into a finance-ready package: baseline and sizing logic, supplier quotations, a conservative payback range, and a short risk and mitigation note that addresses typical lender concerns such as permitting, maintenance, and operational disruption. The goal is not to guarantee approval; it is to make applications processable.

#### 5. Verified Ecosystem Roster

MSMEs lose time and money when they cannot distinguish between credible providers and weak providers. A BSO can add real value by maintaining a trusted roster of auditors, suppliers, EPCs, recyclers, labs, consultants, and certifiers with basic verification. This should not be an informal referral list. It should have minimum criteria, required documentation, and clear rules on what an MSME must prepare before a referral is made.

#### 6. Monitoring and Proof-as-a-Service

Credibility is a core constraint in the green transition. Monitoring does not need to be heavy, but it must be consistent. This service helps MSMEs track three to six indicators and capture evidence that can be reused for lenders, buyers, and reporting. The practical outputs are a simple monitoring sheet and a quarterly "results snapshot" that is conservative, evidence-based, and reusable. This also creates a portfolio-level benefit for BSOs because results can be aggregated and used for advocacy and program design.

### 3.3.1 SCOPE OF THIS GUIDE

Green Forward is designed to move from peer learning into implementation through workshops, roundtables, and Peer Pods, then consolidate insights into usable guidance. The simplest operational rhythm is to treat each session as a trigger for one service improvement. After each session, select one case that fits your MSME base and convert it into one service offer (clinic, sprint, or pipeline). Use Peer Pods to test that service with a small cohort, refine templates, and document where MSMEs drop off and why. On a quarterly basis, publish one short learning note that captures what worked, what did not, and which enabling condition was missing.

### 3.4. ECOSYSTEM-LEVEL IMPLICATIONS (WHAT PARTNERS SHOULD CHANGE TO MAKE THIS SCALABLE)

The cases highlight that many green solutions are multi-actor by nature, and partnership mechanics are part of the "how," not a side note. Scaling in Palestine will depend less on isolated success stories and more on whether the ecosystem reduces friction for MSMEs to invest, comply, and prove results.

- **For finance providers and investors**

Scaling requires lower transaction cost. Standardized documentation requirements for small-ticket green investments can cut processing time and reduce rejection. Technical validation also matters even a light technical review or an approved supplier roster improves performance and reduces defaults. Finally,

financiers should reward proof. MSMEs that track performance and keep documentation are lower risk and easier to serve, so incentives should reinforce that behavior.

- **For policymakers and public actors**

The most valuable contribution is often de-risking and coordination: predictable rules, transparent selection processes, and enabling infrastructure planning. Policymakers should also protect pilots. MSMEs need “pilot-friendly” pathways where they can test solutions without being trapped in unclear approvals or inconsistent enforcement. Finally, government should use aggregated BSO feedback to identify recurring bottlenecks and prioritize targeted reforms that remove friction, rather than launching broad strategies with limited operational change.

- **For donors and development partners**

Donors should fund the unglamorous pieces that make implementation work: baseline assessments, supplier verification, monitoring systems, and BSO service productization. Donors should also avoid pushing inflated impact claims. Conservative reporting and credible measurement protect trust and make scaling easier. Finally, donors should support learning loops: pilots, proof, and replication, rather than one-time grant cycles that end before results are measured and refined.

### 3.5. CONCLUSIONS: WHAT “GOOD IMPLEMENTATION” LOOKS LIKE FOR PALESTINE

This report argues for a disciplined approach because it keeps content grounded, supports replication, and makes partnership mechanics visible. In practice, “good implementation” in Palestine looks less like ambitious statements and more like repeatable sequencing.

It starts with MSMEs choosing one clear track, building a simple baseline, and piloting a feasible intervention with credible suppliers. It continues with BSOs converting lessons into repeatable service offers with templates, stage gates, and quality control. Evidence is treated as an asset, not a compliance burden. Proof systems are designed early and then reused to unlock finance and market access. Partnerships are structured rather than improvised, and monitoring is light but consistent so results can be aggregated and scaled across many firms.

If Part II is the “what good can look like,” Part III is the “how we avoid wasting time.” The main conclusion is simple: [in Palestine’s operating environment, credibility is the scarcest resource in the green transition.](#) The way to protect it is not bigger claims. It is better sequencing, better documentation, and repeatable pathways that make it easier for MSMEs, BSOs, financiers, and public actors to move together.