



Project Report

Green Pack – Eco-Friendly Packaging Solutions

Course Title: Engineering Project Management

Courser Code: EEE 399

Semester: Summer 2025

Section: 01

Submitted By:

Niaz Morshed Razon

ID: 2022-2-80-008

Submitted to:

Mohammed Masud Karim

Adjunct Professor

Department of Electrical and Electronic Engineering

East West University

1st September 2025

1. Introduction & Background

GreenPack is a 12-week (3-month) pilot project to supply eco-friendly, food-safe packaging—primarily **bagasse clamshells and plates** and **recycled kraft paper bags**—to a small cohort of restaurants and retailers in Dhaka. The pilot follows PMBOK process groups (Initiating, Planning, Executing, Monitoring & Controlling, Closing) and related knowledge areas to validate service reliability, product quality, unit economics, and environmental/compliance readiness before scale-up.

The hospitality sector faces rising pressure to reduce single-use plastic while protecting margins and customer experience. Many outlets lack a low-risk way to test compostable alternatives at stable price/quality and predictable delivery. GreenPack's value proposition is curated eco-SKUs, simple MoUs, weekly deliveries, basic QA, and transparent claims—so outlets can switch with minimal disruption.

1.1 Problem Statement & Rationale

Problem. Small and mid-sized food outlets want to reduce plastic use, but they are constrained by inconsistent quality in eco-alternatives (warping, leakage, weak bags), uncertain lead times and MOQs, limited working capital, and confusion about environmental claims and compliance. As a result, many stay with plastics despite reputational and regulatory risks.

Rationale for GreenPack.

- **Operational:** Offer a reliable weekly replenishment model with batch-level QA to remove supply uncertainty.
- **Economic:** Prove a margin-positive SKU mix at pilot scale so outlets can switch without hurting profitability.
- **Environmental:** Replace a meaningful count of plastic items with compostable/recycled alternatives and document impacts.
- **Compliance & Trust:** Use vendor certificates and accurate labeling/claims to avoid greenwashing and build confidence.

Hypothesis (to be tested in 12 weeks). If GreenPack delivers OTIF $\geq 95\%$, defect rate $< 2\%$, and blended gross margin $\geq 15\%$ by Month-2, partner satisfaction (NPS ≥ 50 by Month-3) and the annualized NPV/IRR will justify scaling beyond the pilot.

1.2 Project Objective (SMART)

Primary objective. Plan, execute, and control a 12-week pilot supplying eco-friendly packaging to **five** partner outlets in Dhaka, achieving predefined service, quality, margin, and compliance thresholds that support a **go/no-go** scale decision.

Key results (measurable targets).

- **Partners & Demand (M1):** 5 outlets under MoUs; each plans ≥ 300 units per SKU per month during the pilot.
- **Service Reliability (by M2):** OTIF $\geq 95\%$ (weekly measured, monthly averaged).
- **Product Quality (by M2):** Defect/return $< 2\%$ (leak, stiffness, burst, labeling).
- **Economics (by M2):** Gross margin $\geq 15\%$ on blended SKUs; SPI & CPI ≥ 0.95 .
- **Financial Viability (M3):** Positive monthly gross profit in Months 2–3; annualized NPV/IRR $> 10\%$ based on run-rate.
- **Stakeholder Satisfaction (M3):** NPS ≥ 50 from pilot partners.
- **Environmental Outcome (M3):** Displace $\geq 10,000$ single-use plastic items and complete EIA screening with mitigations.

1.3 Assumptions, Constraints & Dependencies

Assumptions

- Partners honor weekly order windows; demand stabilizes after Week-4.
- Two qualified suppliers for each critical SKU; lead time ≤ 14 days; prices vary within $\pm 10\%$.
- Local last-mile delivery available 6 days/week; no major transport shutdowns.
- Vendor documentation available for food safety and compostability claims.
- FX and energy costs remain within typical monthly volatility bands.

Constraints

- **Timebox:** 12 weeks only; no extension.
- **Budget/Working Capital:** Lean pilot budget; inventory capped at ≈ 1 month of COGS.
- **Capacity:** Small team (Founder + part-time assistants); limited storage space.
- **Regulatory:** Any move to semi-auto processing is out of scope (would require ECC/EIA review).

Dependencies

- Supplier performance (quality, lead time, documentation).
- Partner cooperation (MoUs, timely feedback, payment terms).
- Third-party logistics punctuality.
- Availability of basic QA tools and packaging materials.
- PMIS tools (Sheets/Trello) for tracking PV/EV/AC and issues/changes.

1.4 Scope Boundaries (In/Out)

In-Scope (Pilot, 12 weeks)

- Sourcing and procurement of finished **bagasse clamshells/plates** and **recycled kraft bags**.

- **QA gates:** incoming inspection (visual, leak/stiffness/burst checks), labeling verification.
- **Branding & Collateral:** basic brand kit and product one-pager with accurate claims.
- **Sales & MoUs:** five pilot partners with agreed SKUs, prices, delivery windows.
- **Operations:** weekly delivery runs, batch traceability, inventory control (FIFO, safety stock), returns handling.
- **Monitoring & Control:** baselines (scope/schedule/cost), **EVM (PV/EV/AC; SPI/CPI)**, KPI dashboard (OTIF, defects, GM).
- **Risk & Change:** risk register with responses; light-weight change control.
- **Compliance & EIA:** screening checklist, transport CO₂ estimate, claims review.
- **Close-Out:** final report with targets vs. actuals, lessons learned, and scale recommendation.

Out-of-Scope (Pilot)

- In-house pulp-molding/manufacturing or semi-auto machinery commissioning.
- Custom printed/graphics-heavy jobs beyond simple labeling.
- Direct waste collection/composting operations.
- E-commerce/retail to end consumers or export logistics.
- Long-term capital projects (new facility build-out).

awesome — here's your **Step 3: Scope Management** (ready to paste). It covers the scope statement, WBS tree, a detailed WBS Dictionary (10 packages), deliverables & acceptance criteria, a small Requirements Traceability Matrix (RTM) starter, and scope-change control so you can lock a scope baseline for the 3-month pilot.

3. Scope Management

3.1 Detailed Scope Statement

Purpose. Define and baseline all work required to deliver a 12-week pilot that validates GreenPack's service, quality, economics, and compliance.

In-scope.

- Sourcing finished **bagasse clamshells/plates** and **recycled kraft bags** (vendor qualification, samples, QA).
- Pilot **sales & MoUs** with five outlets; weekly ordering & delivery windows.
- **Operations:** procurement, inbound QA, storage/FIFO, batch traceability, weekly last-mile deliveries, returns.
- **Branding & collateral:** basic brand kit + one-pager with accurate eco/food-safety claims.
- **Monitoring & Control:** scope/schedule/cost baselines; EVM (PV/EV/AC; SPI/CPI); KPI dashboard (OTIF, defects, GM).
- **Risk & change:** risk register + responses; light change control.

- **Compliance & EIA screening** (transport CO₂ estimate, labeling review).
- **Close-out** package with lessons learned and scale recommendation.

Out-of-scope.

- In-house pulp-molding/semi-auto machinery; custom printing beyond labels.
- E-commerce/retail to end-consumers; export logistics.
- Post-consumer waste collection/composting operations.

Key constraints. 12-week timebox; lean budget/working capital (≈ 1 month COGS cap); small team; storage limits.

Major assumptions. Two qualified suppliers/SKU; lead time ≤ 14 days; prices $\pm 10\%$; partners keep weekly order windows; no major transport shutdown.

3.4 Project Deliverables & Acceptance Criteria

Deliverable	Description	Acceptance Criteria	Due (Week)
Approved Charter	Authorized scope, success metrics, budget cap, authority	Signed by sponsor; objectives & constraints clearly stated	1
Scope Baseline Pack	Scope statement, WBS, WBS dictionary, exclusions	≥ 10 WP entries documented; boundaries explicit	2
Schedule Baseline	Gantt (12 weeks) with CPM/PERT	Critical path confirmed; total duration ≤ 12 weeks	2
Cost Baseline & EVM Sheet	PV by month/week; EV/AC capture & thresholds	PV sums to BAC; SPI/CPI trigger set at < 0.95	3
Vendor Shortlist & QA	2+ qualified vendors/SKU; approved samples; AQL plan	CTQs pass; vendor docs on file; sampling plan defined	4
Brand Kit & One-Pager	Basic brand kit; product one-pager & label claims	Claims accurate; branding consistent; revision controlled	4
5 MoUs Signed	MoUs with SKUs, prices, delivery windows, returns policy	Five countersigned MoUs; effective within Week-4	4
Weekly Delivery Logs	Dispatch plans, PODs, exception records	OTIF $\geq 95\%$; issues logged & resolved within 24h	5–12
KPI/EVM Reports	PV/EV/AC; SPI/CPI; OTIF; defects; GM	SPI & CPI ≥ 0.95 from Month-2; corrective actions when breached	8–12
Close-Out Report	Targets vs. actuals; lessons learned; scale recommendation	$\geq 6/8$ SMART targets met; go/no-go rationale documented	12

3.5 Requirements (functional / non-functional) & RTM (starter)

Functional (F):

- F1: Receive, QA, and store SKUs with **batch traceability**.
- F2: Capture **weekly orders**, plan routes, deliver with **POD**.
- F3: Record **returns/credits** within 7 days.
- F4: Produce **KPI/EVM** dashboard weekly/monthly.

Non-functional (NF):

- NF1: **Service reliability: OTIF $\geq 95\%$** (M2 onward).
- NF2: **Quality: defects/returns $< 2\%$** of units.
- NF3: **Economics: blended GM $\geq 15\%$** by M2; **SPI/CPI ≥ 0.95** .
- NF4: **Compliance: accurate eco/food-safe claims; EIA screening done.**

RTM (excerpt):

3.6 Scope Baseline & Change Control

- **Baseline components:** Scope Statement, WBS, WBS Dictionary, Exclusions.
- **Change request (CR) includes:** ID, description, rationale, impact on **S/S/C/Q** (scope/schedule/cost/quality), risk, approval.
- **Approval authority:** Founder/PM (≤ 1 week slip or \leq Tk 5,000 impact); Sponsor required beyond that.
- **Versioning:** Baseline v1 (Week-2). Approved CRs \rightarrow v1.1, v1.2 ... archived in PMIS.

3.7 (Optional) Cost Breakdown by WBS (for linkage to Cost Mgmt)

WBS	Work Package	% of BAC	Notes
1.1	Initiation	3%	Admin/time
1.2	Planning	7%	Baselines/EVM setup
1.3	Sourcing & Quality	40–45%	Samples, first lots QA
1.4	Branding & Collateral	5%	Design/print
1.5	Sales & Onboarding	5%	MoUs/admin
1.6	Operations & Logistics	25–30%	Inbound/outbound, storage
1.7	Monitoring & Control	8%	PM effort/tools
1.8	Closing	2%	Report/LL

4. Schedule Management (3-Month / 12-Week Pilot)

4.1 Activity List & Dependencies

ID	Activity	Duration (weeks)	Immediate Predecessors	Deliverable/Note
A	Charter & Kickoff	0.5	—	Approved charter, authority, success criteria
B	Supplier Shortlist & Evaluation	1.0	A	2+ qualified vendors per critical SKU
C	Samples & Incoming QA (CTQs/AQL)	1.0	B	Approved samples; AQL plan for lots
D	Pilot MoUs (5 outlets)	1.0	A	5 countersigned MoUs
E	Brand Kit & One-Pager	1.0	A	Brand kit + product one-pager/labels
F	Initial Procurement & Inbound	1.0	C, D	POs placed; first lots received & passed
G	Weekly Deliveries (Pilot Run)	8.0	F, E	Weekly dispatches + POD; exceptions logged
H	Close-out & Lessons	0.5	G	Final report; lessons learned; go/no-go

Calendar assumption: week = 7 calendar days, no resource leveling (baseline). You can later show a 5-day workweek view if your template requires it; durations stay the same in week units.

4.2 CPM Network Results (ES/EF/LS/LF/Slack)

Computed by forward/backward pass on the network above.

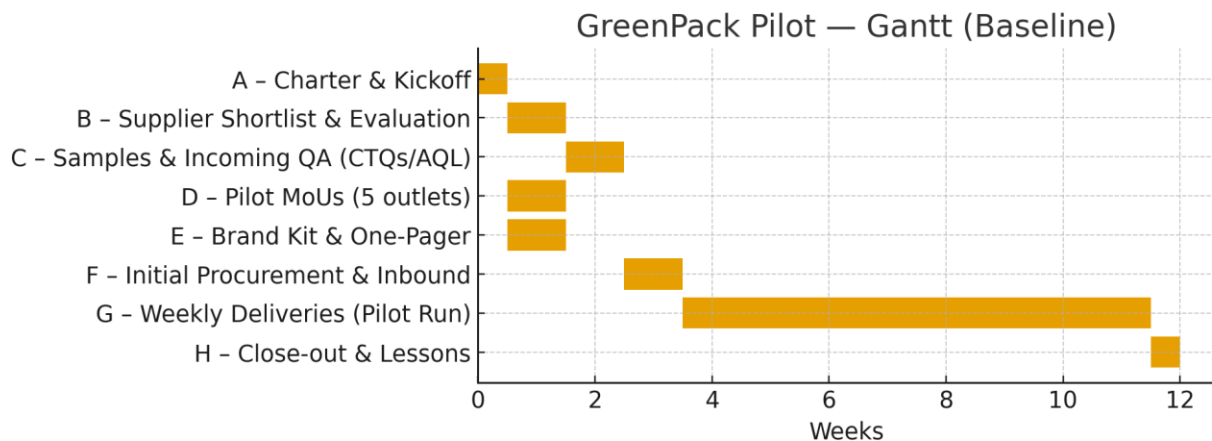
Project duration = **12.0 weeks**.

Critical Path: A → B → C → F → G → H

ID	Activity	Dur	ES	EF	LS	LF	Slack
A	Charter & Kickoff	0.5	0.0	0.5	0.0	0.5	0.0
B	Supplier Shortlist & Evaluation	1.0	0.5	1.5	0.5	1.5	0.0
C	Samples & Incoming QA (CTQs/AQL)	1.0	1.5	2.5	1.5	2.5	0.0
D	Pilot MoUs (5 outlets)	1.0	0.5	1.5	1.5	2.5	1.0
E	Brand Kit & One-Pager	1.0	0.5	1.5	2.5	3.5	2.0
F	Initial Procurement & Inbound	1.0	2.5	3.5	2.5	3.5	0.0
G	Weekly Deliveries (Pilot Run)	8.0	3.5	11.5	3.5	11.5	0.0
H	Close-out & Lessons	0.5	11.5	12.0	11.5	12.0	0.0

- **Total Float (Slack):** D = 1.0 wk; E = 2.0 wks. All critical-path tasks have zero slack.
- **Interpretation:** If D or E slip within their float, finish date stays at Week-12; any delay on A/B/C/F/G/H delays the project.

4.3 Gantt Chart — 12-Week Baseline



Placement (baseline):

- A: Wk 0.0–0.5
- B: 0.5–1.5
- C: 1.5–2.5
- D: 0.5–1.5 (float: can start as late as 1.5)
- E: 0.5–1.5 (float: can start as late as 2.5)
- F: 2.5–3.5
- **G: 3.5–11.5** (8 weeks of live pilot)
- H: 11.5–12.0

4.4 PERT Estimates (example)

Task C: Samples & Incoming QA

Task	Optimistic (o)	Most Likely (m)	Pessimistic (p)	Expected (te)	Std. Dev (σ)	Variance (σ²)
C – Samples & Incoming QA	0.5	1.0	2.0	1.083	0.25	0.0625

4.5 Milestone List (tied to Gantt)

Milestone ID	Milestone	Planned Week	Acceptance Proof
M1	Charter approved	0.5	Signed charter
M2	Supplier shortlist complete	1.5	Evaluation matrix, 2+ vendors/SKU
M3	Samples passed & AQL plan set	2.5	QA record; AQL table
M4	5 MoUs countersigned	1.5 (≤2.5 latest)	Signed MoUs
M5	Brand kit & product one-pager ready	1.5 (≤3.5 latest)	Final files/version
M6	Initial lots received & cleared	3.5	GRN + QC pass
M7	First live deliveries	4.0 (within G window)	POD, dispatch log
M8	Month-2 service/quality targets met	8.0	OTIF ≥95%, defects <2%
M9	Pilot close-out & report	12.0	Final report & lessons learned

4.6 Schedule Control & Thresholds

- **Baseline Freeze:** Week-2 (after 1.2.2 is signed off).
- **Measurement:** Weekly task progress; monthly EVM schedule index (SPI).
- **Control limits:**
 - **SPI < 0.95** for **2 consecutive weeks** ⇒ initiate corrective action and reforecast.
 - **Critical tasks** (A/B/C/F/G/H) delay > **2 days** ⇒ escalate to sponsor; evaluate CR (change request).
 - Consume **float** on D/E first before touching critical path.

Common schedule risk responses:

- Fast-track C and D in parallel (already modeled).
- Crash F with pre-approved overtime or alternate inbound slot.

- Add a mid-pilot buffer of **0.5 week** inside G by front-loading more deliveries in Week-4/5.

5. Cost Management (3-Month Pilot)

5.1 Estimating Approach & Cost Elements

Method. Bottom-up for direct materials and logistics; parametric for variable overhead; analog for fixed overhead; plus contingency and management reserve. Prices are in **BDT**.

Unit economics (assumptions for pilot SKUs).

SKU	Buy / unit (BDT)	Sell / unit (BDT)	Margin / unit (BDT)
Bagasse Clamshell (9x9)	27.36	34.21	6.84
Bagasse Plate (9")	14.59	19.70	5.11
Recycled Kraft Paper Bag (M)	8.50	15.00	6.50

Demand basis. 5 outlets × 300 units per SKU per month Ramp. Month-1 at 80%, Months-2/3 at 100%

Overheads.

- Variable overhead (packing/labels/consumables): **Tk 0.50** per shipped unit
- Fixed overhead (admin, comms, storage, PM effort): **Tk 20,000** per month
- Initial setup (branding/tools): **Capex Tk 40,000**

Monthly P&L (pilot run-rate).

Month	Revenue (Tk)	COGS (Tk)	Variable OH (Tk)	Fixed OH (Tk)	EBIT (Tk)
1 (80% ramp)	82,689.68	60,550.68	1,800.00	20,000.00	339.00
2	103,362.10	75,688.35	2,250.00	20,000.00	5,423.75
3	103,362.10	75,688.35	2,250.00	20,000.00	5,423.75

3-month totals (pilot). Revenue **Tk 289,413.87**; COGS **Tk 211,927.38**; Var OH **Tk 6,300.00**; Fixed OH **Tk 60,000.00**; EBIT **Tk 11,186.49**.

5.2 Time-Phased Cost Baseline (PV) & BAC

BAC (Budget at Completion):

Planned cost of the 12-week pilot (COGS + Var OH + Fixed OH + Capex)

$$\text{BAC} = 211,927.38 + 6,300.00 + 60,000.00 + 40,000.00 = \text{Tk } 318,227.38$$

Planned Value (PV) distribution by week. (front-loaded for setup, steady during operations)

Week	PV (Tk)	Week	PV (Tk)
1	15,911.37	7	31,822.74
2	25,458.19	8	31,822.74
3	31,822.74	9	28,640.46
4	31,822.74	10	25,458.19
5	31,822.74	11	19,093.64
6	31,822.74	12	12,729.10

$$\text{Sum(PV)} = \text{BAC} = \text{Tk } 318,227.38.$$

Freeze the **schedule & cost baseline** by end of Week-2. Keep PV fixed unless a change request is approved.

5.3 Earned Value Setup (PV / EV / AC; SV/CV; SPI/CPI)

Definitions.

- **PV (Planned Value)** = budgeted cost of work scheduled up to the status date
- **EV (Earned Value)** = budgeted cost of work actually accomplished
- **AC (Actual Cost)** = actual cost of work performed
- **SV = EV – PV** (schedule variance), **CV = EV – AC** (cost variance)
- **SPI = EV / PV**, **CPI = EV / AC**

Control thresholds.

- Trigger corrective action if **SPI < 0.95** or **CPI < 0.95** for **2 consecutive weeks**
- Escalate if any **critical-path task** threatens the Week-12 finish

EVM reporting template (fill weekly).

Week	PV (Tk)	EV (Tk)	AC (Tk)	SV (Tk)	CV (Tk)	SPI	CPI
1	15,911.37	—	—	—	—	—	—
2	25,458.19	—	—	—	—	—	—
3	31,822.74	—	—	—	—	—	—
...

Example (illustrative only): If Week-1 $\text{EV} = 0.92 \cdot \text{PV}$ and $\text{AC} = 1.05 \cdot \text{PV} \Rightarrow \text{SPI} \approx 0.92$, $\text{CPI} \approx 0.88$ (investigate plan realism and early learning curve).

5.4 Life-Cycle Costing (LCC) for the Pilot

Element	Estimate (Tk)	Notes
Acquisition / Setup (Capex)	40,000	Branding, QA tools, racks, small equipment
Working Capital (1 month COGS)	70,642	Based on pilot average monthly COGS
Operating – 3 months	278,227	COGS + Variable OH + Fixed OH
Maintenance (3-month share)	750	Annual ~3,000 (assumed), pro-rated
End-of-life / Waste handling	Minimal	Carton recycling; no machinery decommissioning
Total LCC (pilot horizon)	389,619	Operating already includes running costs

LCC is for the **pilot window** only. For a **scale decision**, extend OPEX/CAPEX to 1–3 years and include replacements/upgrades.

5.5 Economic Feasibility (Annualized NPV/IRR based on Pilot Run-Rate)

Assumptions for projection.

- Use Month-2/3 steady EBIT \approx Tk 5,423.75 as monthly run-rate
- Year-1 cash flow $\approx 12 \times 5,423.75 =$ Tk 65,084.97
- Growth: +25% in Year-2, +25% in Year-3 (after process learning/volume)
- Initial investment (T0) = Capex 40,000 + WC 70,642.46 = Tk 110,642.46
- Discount rate $r = 10\%$ (you can adjust)
- Recover working capital at end of Year-3

Cash-flow table.

Time	Cash Flow (Tk)
T0 (start)	–110,642.46
Year 1	+65,084.97
Year 2	+81,356.21
Year 3 + WC recovery	+172,337.73

Results (base case).

- NPV @ 10% = Tk 145,242.12 (positive)
- IRR $\approx 62.8\%$
- Simple payback ≈ 21 months (using steady monthly EBIT)

Sensitivity to **demand** ($\pm 20\%$), **buy-price** ($\pm 20\%$), and **FX** ($\pm 10\%$) should be presented in your Risk/Sensitivity chapter; demand and buy-price usually drive NPV the most.

5.6 Contingency & Management Reserve

- **Cost contingency** (known-unknowns; mainly sourcing/lead-time variability): **10% of BAC \approx Tk 31,822.74**
- **Management reserve** (unknown-unknowns; held by sponsor): **5% of BAC \approx Tk 15,911.37**

Use contingency through the **change control** process; MR requires sponsor approval.

5.7 Cost Control Plan

- **Measurement:** update **AC** from invoices/ledgers weekly; update **EV** from physical % complete or 0/100 for milestones.
- **Reporting:** weekly cost/status note; monthly EVM dashboard; variance explanations & corrective actions.
- **Thresholds:** SPI/CPI rules above; also flag if **monthly gross margin** $< 15\%$ or **defects** $> 2\%$ (cost of poor quality).
- **Forecasting:** re-forecast **EAC** if SPI or CPI stay < 0.95 for 2 weeks; communicate any expected use of contingency.

6.0 Quality Policy & Objectives

GreenPack's policy is to supply food-safe, compostable packaging that meets stated specifications with defect/return rate $< 2\%$ and enables partners to achieve OTIF $\geq 95\%$. The pilot uses a lightweight PDCA (Plan–Do–Check–Act) system aligned to PMBOK: Plan Quality, Manage Quality, and Control Quality.

Quality objectives for the 12-week pilot:

- Validate CTQs (leak resistance, stiffness, burst strength, labeling accuracy) for all incoming lots.
- Maintain AQL 2.5 acceptance on incoming inspection; tighten if nonconformances increase.
- Close 100% of CARs (Corrective Actions) within 7–14 days of detection.
- Achieve partner returns $< 1\%$ of shipped units by Month-3.

6.1 CTQs (Critical-to-Quality) by SKU

Rationale highlights: leak resistance protects hot/wet foods; hinge integrity ensures usability; plate stiffness prevents sag; bag burst strength ensures carrying load; dimensional control supports stacking and lid fit; odor/contaminants protect food safety; labeling accuracy prevents greenwashing and supports traceability.

SKU / CTQ	Specification / Target	Rationale	Measurement / Unit
Bagasse Clamshell – Leak resistance	No visible leakage with 250 ml water at 60–70°C for 30 min	Food safety & service integrity	Pass/Fail
Bagasse Clamshell – Hinge integrity	Open/close 20 cycles without tear	Usability & durability	Pass/Fail
Bagasse Plate – Stiffness	Deflection ≤ 8 mm under 500 g at center (3-point bend proxy)	Load handling	mm
Bagasse Plate – Surface finish	No fibers protruding; smooth contact surface	Food contact comfort	Visual (AQL)
Kraft Paper Bag – Burst strength	≥ 8 kg load for 10 sec without tear (handle glued)	Carry strength	kg
Kraft Paper Bag – Dimensions	± 3 mm tolerance vs. spec	Fit & stacking	mm
All SKUs – Odor/contaminants	No off-odors; no visible contamination	Food safety, customer acceptance	Pass/Fail
All SKUs – Labeling/claims	Accurate eco/food-safe claims; vendor cert on file	Compliance; trust	Doc check / Pass-Fail

6.2 Test Methods Matrix (Pilot-scale)

Test	Procedure (Pilot-scale)	Tools	Sampling Point	Acceptance
Leak test (clamshell)	Fill with 250 ml hot water (60–70°C); hold 30 min on lined surface	Measuring cup; timer; lining	Incoming & pre-dispatch	No drops/weep lines
Hinge cycling (clamshell)	Open/close 20×; inspect hinge fold	Hands; counter	Incoming	No tear; hinge intact
Stiffness (plate)	3-point bend proxy; support at edges; 500 g weight at center; measure deflection	Scale; 500 g weight; ruler	Incoming	≤ 8 mm deflection
Burst/handle (bag)	Load with products to 8 kg; hold 10 s; lift/walk 5 m	Weights; handheld scale	Incoming & pre-dispatch	No tear/detachment
Dimensions (bag/plate)	Measure length/width/height vs. drawing	Ruler/caliper	Incoming	Within ± 3 mm

Visual/odor	Check for stains, fibers, contamination; smell check	Clean table; gloves	Incoming & pre-dispatch	No defect
Labeling/claims review	Verify wording vs. vendor certificates	Document pack	Artwork/label sign-off	Matches certificate

6.3 Acceptance Sampling Plan (Single Sampling, Pilot)

Aligned to ISO 2859-1 concepts (General Inspection Level II) and simplified for the pilot scale. Treat each inbound shipment per SKU as a lot. Switch to tightened inspection if two consecutive lots fail or monthly defect rate $\geq 2\%$; return to normal after five consecutive accepted lots.

Lot Size (units)	Inspection Level	AQL	Sample Size n	Acceptance c	Rejection \geq
≤ 500	GII	2.5	80	3	6
501 – 5,000	GII	2.5	125	5	6
5,001 – 20,000	GII	2.5	200	7	8

6.4 QA/QC Roles & Responsibilities (RACI)

Activity	Founder/PM	QC Tech	Ops Assistant	Supplier	Partner
Define CTQs & Sampling Plan	A/R	C	C	I	I
Incoming inspection & records	A	R	C	I	I
Nonconformance handling (quarantine, CAR)	A	R	C	C	I
Pre-dispatch check & labeling	A	R	C	I	I
KPIs & EVM (defects, returns)	A/R	C	C	I	I
Corrective/Preventive Actions	A/R	R	C	C	I

6.7 NC Handling & Release Flow (Checklist)

Step	Action	Evidence	Release Gate
1	Identify & tag nonconforming items; move to quarantine area	NC tag; photos; lot ID	Quarantine complete
2	Record on NC/CAR log; notify supplier within 48 h	NC log entry; email	Supplier notified

3	Containment (sort/rework/return); block shipment if needed	Sorted report; return note	Containment verified
4	Root cause & corrective action agreed	5-Why / Fishbone; CAR form	CAR approved
5	Effectiveness check (next lot)	AQL tightened if needed	Return to normal sampling

6.8 Quality Targets & Triggers

Metric	Target	Trigger (Action)
Defect rate (monthly)	< 2%	≥ 2%: tighten sampling / review supplier
Customer returns rate	< 1%	≥ 1%: CAR + partner debrief
OTIF (service metric)	≥ 95%	< 95% for 2 weeks: root-cause delivery flow
Labeling accuracy	100%	Any miss: hold shipment; re-inspect 100%

6.9 Applicable Standards & Compliance Approach

Sampling follows concepts from ISO 2859-1 (General Inspection Level II) adapted for small lots in the pilot. For food contact and compostability, vendor COA/certificates are reviewed and filed; label wording will not exceed what the vendor evidence supports. We are verifying documentation and controlling quality via sampling—not certifying to a standard during the pilot.

Labeling & traceability: lot codes and date of manufacture are required on cartons and recorded at receipt; all documents carry version/date and are controlled in Drive with weekly backups.

6.10 Process Overview (Where Quality Is Controlled)

- 1 Supplier qualification (shortlist, sample approval, document check).
- 2 Incoming inspection (visual → CTQ tests → AQL decision; quarantine fails).
- 3 Storage & handling (FIFO lanes, rack labeling; avoid moisture/compression).
- 4 Pre-dispatch check (spot CTQ + label verification).
- 5 Customer feedback & returns (defect reason, lot link → NC/CAR log → corrective action).

6.11 Quality Risks & Controls (Link to Chapter 9)

Supplier defects/leakage: tighten AQL to 1.5 for two lots, open CAR, consider backup vendor. Documentation gaps (Risk ID 10): hold shipment until COA/certs received; escalate per SLA. Handling damage: reinforce packing/handling SOP; run pre-dispatch checks. Weather exposure: waterproof wrap for cartons in monsoon; avoid floor contact.

6.12 Training & Competence

Audience: QC Tech (tests/sampling), Ops Assistant (storage/FIFO/labeling), Driver/Dispatch (handling, POD). Onboarding in Week-1/2 (2-hour practical demo on CTQ tests, AQL sampling, quarantine tagging). Assessment via checklist and an observed test (e.g., run a leak test and log an NC). Monthly 30-min toolbox talk and a pre-monsoon safety brief.

6.13 Measuring & Reporting Quality

Maintain a monthly dashboard and review in the Friday KPI/EVM meeting. Variances must be explained with actions/owners/due dates. If trends persist for two weeks, escalate and consider CRs (change requests) that alter sampling plans, vendors, or process steps.

6.14 Cost of Quality (Pilot View)

Prevention & appraisal include sampling time, simple tools, and training. Failure costs include rework/returns, credits, expedited replacements, and reputational impact. Target: keep Cost of Poor Quality (CoPQ) < 1.5% of monthly COGS by Month-3.

6.15 Internal Audits & Calibration

Run a mini-audit in Month-2: sampling discipline, record completeness, FIFO labeling, SOP availability. Verify digital scales monthly; replace worn rulers/weights; test the heat sealer weekly with a strip test.

6.16 Quality Change Control

Changes to CTQs, sampling plans, or labels require a Change Request (CR) per Chapter 8.8. The CR details description, rationale, and impacts (scope, schedule, cost, quality), and must be approved before implementation; baselines are versioned.

6.17 Acceptance Criteria & Pilot Exit (Quality-specific)

All CTQs consistently met at incoming and pre-dispatch checks; defect/return rate < 2% and partner returns < 1% for Month-3; all NC/CARs closed with verification of effectiveness; supplier scorecards show stable capability and documentation compliance.

6.18 Continuous Improvement Actions

Standardize tighter AQL for critical SKUs if proven risky; add a supplier COA portal/checklist; consider moisture barriers during monsoon; evaluate a simple stiffness test rig for better repeatability; feed lessons learned into the scale plan.

7 Resource Management

Purpose: Define, acquire, and manage the human, physical, and tool resources needed to deliver the 12-week GreenPack pilot. This chapter establishes a Resource Breakdown Structure (RBS),

roles and responsibilities, the staffing plan and histogram, facilities/tools/safety requirements, and readiness/acceptance criteria.

Objectives: (i) ensure the right skills are available at the right time; (ii) avoid over/under-allocation; (iii) maintain a safe workspace with 5S and PPE; (iv) control resource-driven risks and costs.

7.1 Resource Breakdown Structure (RBS)

The RBS organizes all resources required for the pilot into human resources, physical assets, tools/equipment, logistics/vehicles, IT/PMIS, and safety/PPE. It supports cost planning, responsibility assignment, and risk control.

Level	Element
L1 – Human Resources	Founder/PM; Ops Assistant; Driver/Dispatch; QC Tech
L1 – Physical Resources	Storage racks; Pallets; Hand trolleys; Shelving; Bins
L1 – Tools & Equipment	Heat sealer; Digital scales; QC gauges (ruler/caliper, weights); Label printer
L1 – Vehicles/Logistics	Rental van/3-wheeler for weekly runs; Handcart for short hauls
L1 – IT/PMIS	Google Sheets (KPI/EVM); Trello/Tasks (issues/changes); Drive (docs)
L1 – Safety & PPE	Gloves; Closed-toe shoes; High-visibility vest for delivery; First-aid kit

7.2 Roles & Responsibilities (RACI across key WBS)

RACI codes:

R = Responsible;

A = Accountable;

C = Consulted;

I = Informed.

Owners are mapped to the WBS to keep accountability clear during execution and control.

Activity (WBS)	Founder/PM	Ops Assistant	Driver/Dispatch	QC Tech	Supplier	Partner
1.3.1 Supplier Shortlist & Evaluation	A/R	C	I	C	C	I
1.3.2 Samples & Incoming QA	A	C	I	R	C	I
1.4.2 Product One-Pager & Label Claims	A/R	C	I	C	I	I

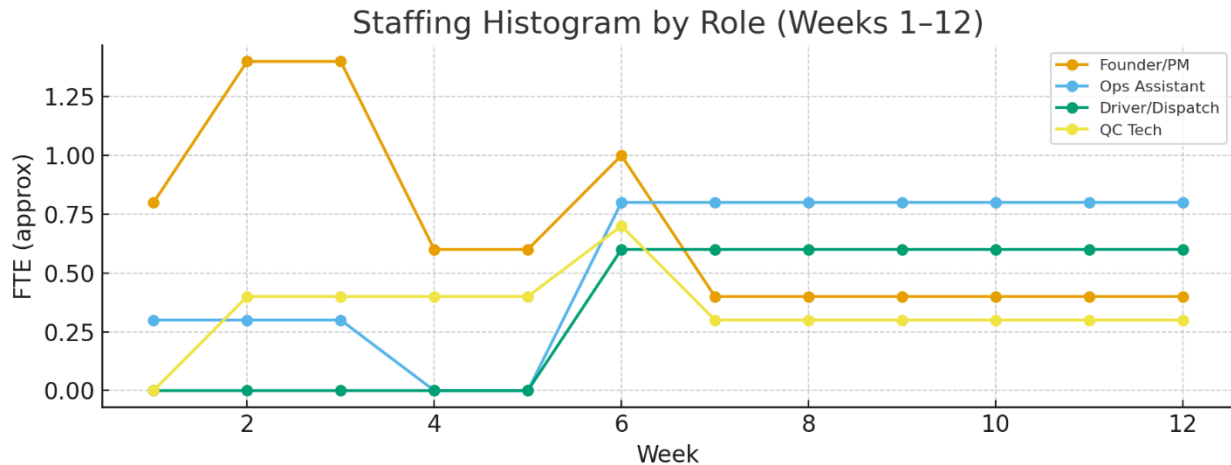
1.5.1 MoUs (5 outlets)	A/R	C	I	I	I	C
1.6.1 Procurement & Inbound	A	C	I	C	R	I
1.6.2 Storage, FIFO & Traceability	A	R	C	C	I	I
1.6.3 Weekly Deliveries (POD)	A	C	R	I	I	C
1.6.4 Returns Handling & Credits	A	R	C	C	C	C
1.7.1 KPI & EVM Tracking	A/R	C	I	C	I	I
1.8.1 Close-out & Lessons	A/R	C	I	C	I	C

7.3 Staffing Plan (Weeks 1–12) & Histogram

The plan allocates part-time effort by role over the 12-week timeline. Initiation/planning peak in Weeks 1–3; sourcing/QA in Weeks 2–6; operations ramp in Weeks 6–12. Histogram shows week-by-week FTE demand to support leveling and availability checks.

Week	Founder/PM	Ops Assistant	Driver/Dispatch	QC Tech	Total FTE
1	0.8	0.3	0.0	0.0	1.1
2	1.4	0.3	0.0	0.4	2.1
3	1.4	0.3	0.0	0.4	2.1
4	0.6	0.0	0.0	0.4	1.0
5	0.6	0.0	0.0	0.4	1.0
6	1.0	0.8	0.6	0.7	3.1
7	0.4	0.8	0.6	0.3	2.1
8	0.4	0.8	0.6	0.3	2.1
9	0.4	0.8	0.6	0.3	2.1
10	0.4	0.8	0.6	0.3	2.1
11	0.4	0.8	0.6	0.3	2.1
12	0.4	0.8	0.6	0.3	2.1

Summary	Value
Peak total FTE (any week)	3.1
Average total FTE (12 weeks)	1.9



7.4 Facilities, Tools & Safety (5S / PPE)

Set up a small, organized storage area with labeled FIFO lanes and a quarantine zone. Keep simple QA tools ready and calibrated. Enforce PPE for all handling and delivery work.

Category	Items	Standards / Notes
Facilities & Storage	Racks, pallets, bins, quarantine area	FIFO lanes labeled; quarantine zone marked & locked
Tools & Equipment	Heat sealer, scales, calipers/ruler, weights, label printer	Calibrated monthly; maintenance log
IT / PMIS	Sheets (KPI/EVM), Trello/Tasks, Drive (docs)	Backups weekly; controlled access
Safety / PPE	Gloves, closed-toe shoes, hi-vis vest, first-aid kit	Mandatory during handling & delivery

7.5 Safety Checklist (5S & PPE)

Use this quick checklist during weekly walk-throughs; file signed checklists in the project folder.

Item	Check	Frequency	Owner	Evidence
Sort (5S) – remove clutter	Area clear; only needed items	Weekly	Ops Assistant	5S photo log
Set in Order – labels/lanes	All racks/bins labeled; FIFO arrows	Weekly	Ops Assistant	Checklist signed
Shine – clean surfaces	No dust/debris; spills cleaned	Daily	All	Housekeeping log
Standardize – SOPs visible	QA/dispatch SOPs posted & current	Monthly	Founder/PM	SOP version stamp
Sustain – audit	Mini-audit across 5S points	Monthly	Founder/PM	Audit sheet

PPE gloves/shoes/vest	–	Worn by handlers/drivers	Each dispatch	Ops Assistant	Spot-check sheet
First-aid extinguisher	&	Kits stocked; extinguisher valid	Monthly	Founder/PM	Checklist

7.6 Training & Competency Plan

Short, practical sessions ensure the team can run CTQ tests, follow FIFO/traceability, and handle dispatch safely. Keep attendance sheets and a short-observed test for each role.

Audience	Topic	Duration	Method	Assessment	When
QC Tech	CTQ tests, AQL sampling, NC/CAR logging	2 h	Demo + hands-on	Observed run + checklist	Week-1/2
Ops Assistant	FIFO, labeling, quarantine, POD	1.5 h	Demo + SOP review	Observed task + spot quiz	Week-1/2
Driver/Dispatch	Handling, load safety, route/POD	1 h	Brief + ride-along	POD accuracy; near-miss log	Week-4
All	Toolbox talk & PPE	30 min	Brief	Spot-check compliance	Monthly

7.7 Resource Cost Summary & Constraints

Costs are kept lean and aligned with the pilot budget. See Chapter 5 for full cost baselines; this section highlights resource-specific constraints.

Resource Area	Pilot Cost Focus	Constraint / Note
Human resources	Part-time allocation per histogram; no new FTE hires	Peak total \approx 3.1 FTE; average \approx 1.9 FTE
Physical & tools	Low-cost racks/bins; basic QA tools	Storage space is limited; quarantine must be lockable
Vehicles/logistics	Rental vehicle on delivery days	Weather/strikes may affect availability
IT/PMIS	Use free/low-cost cloud tools	Connectivity needed during deliveries (mobile data)
Safety/PPE	Basic PPE kits; first-aid box	Compliance is mandatory for all handlers

7.8 Assumptions & Dependencies (Resource)

- Qualified part-time resources are available during peak weeks.
- Access to a rental vehicle for weekly runs is reliable.
- QC tools are available and calibrated; replacements can be sourced locally.

- Partners allow delivery within agreed windows; loading areas are accessible.
- PMIS tools remain accessible and backed up weekly.

7.9 Acceptance Criteria for Resource Readiness

- ✓ RBS and RACI approved and communicated.
- ✓ Staffing histogram reviewed; no over-allocation unresolved.
- ✓ Storage and quarantine areas set up; tools calibrated; PPE on hand.
- ✓ Training delivered; assessments passed; safety checklist active.
- ✓ Logs/templates (POD, inventory, NC/CAR) prepared in PMIS.
- ✓ Resource risks/constraints documented with mitigation plans.

8 Communications Management

8.0 Policy, Goals & Principles

Policy: Communicate the right information to the right people at the right time to enable on-time, in-full (OTIF) pilot delivery, with transparent status and rapid issue resolution.

Goals:

- single source of truth for schedule, KPIs and decisions;
- predictable cadence;
- fast escalation on exceptions;
- traceable records for audits and lessons learned.

Principles: brief, action-oriented updates; visual KPIs; one owner per artifact; WhatsApp/phone for urgent matters; email/docs for decisions and contracts.

Primary time-zone: Dhaka.

8.1 Stakeholder Communications Matrix

Audience	Information	Channel	Frequency	Owner	Format / Artifact
Suppliers	POs, forecast, QC feedback, shipment plan	Email / WhatsApp	Weekly	Founder/PM	PO + QC note
Pilot Partners (5)	Delivery plan, invoices, returns/credits, eco-notes	Email / WhatsApp	Weekly	Founder/PM	Dispatch plan + invoice
Internal (Team)	KPI/EVM review, risks, issues/changes	Sheets/Trello + Stand-up	Weekly	Founder/PM	KPI/EVM sheet; minutes

Sponsor/Advisor	Milestones, budget usage, exceptions	Email + Call (as needed)	Bi-weekly	Founder/PM	1-page status
Regulators (if applicable)	ECC/EIA queries, labeling claims	Email	As needed	Founder/PM	Compliance note

8.2 Stakeholder Analysis & Engagement Strategy

High-interest (Sponsor/Advisor, key Partner managers): manage closely via bi-weekly check-ins and decisions on CRs. High-power / low-interest (Regulators): keep satisfied with concise, accurate documentation when needed. Low-power / high-interest (Store staff, Drivers): keep informed with clear dispatch plans and POD routines. Low-power / low-interest (broader public): monitor only.

8.3 Meeting Cadence & Calendar

Meeting	Participants	Purpose	When	Inputs	Outputs
Weekly Ops Huddle	Founder, Ops Asst., Driver, QC	Plan deliveries, review exceptions	Every Mon 09:00–09:30	Order book; stock; route plan	Dispatch plan; action list
Weekly KPI/EVM Review	Founder (+advisor optional)	Review SPI/CPI, OTIF, defects, GM	Every Fri 16:00–16:30	KPI/EVM sheets; risk log	Variance notes; corrective actions
Bi-weekly Sponsor Check-in	Founder, Sponsor/Advisor	Escalations, CR approvals, budget	Alt Wed 18:00–18:30	Status 1-pager; CRs	Decisions; approvals
Partner Touchpoint	Founder + Store Manager	Service feedback; returns/credits	Delivery or Thu 11:00–11:15	POD; feedback form	NPS note; action items

8.4 Meeting Protocols & Etiquette

Agenda circulated ≥ 12 hours prior; start/finish on time; action items have owners and due dates; decisions captured live in the Decision Log. Use English or Bangla as appropriate; summarize decisions in English for records.

8.5 Weekly Status Report (1-Pager) – Template

Field	Content (fill each week)
Project Phase	(e.g., Week-5 – Live deliveries)

Overall RAG	(Green / Amber / Red)
Schedule (SPI)	(e.g., 0.98) Variance & forecast
Cost (CPI)	(e.g., 1.02) Variance & forecast
Quality	Defects %, returns %, CARs opened/closed
Service	OTIF %, exceptions & root causes
Risks & Issues	Top 3 items, owners, due dates
Decisions Needed	CRs/approvals required
Notes	Other remarks (e.g., partner feedback)

8.6 KPI Dashboard – Fields & Sources

KPI	Definition	Target	Source/Sheet Field
SPI	EV / PV (schedule index)	≥ 0.95	EVM F
CPI	EV / AC (cost index)	≥ 0.95	EVM G
OTIF	On-time, in-full deliveries	$\geq 95\%$	Ops OTIF
Defect Rate	Defects / shipped units	$< 2\%$	Quality Defects%
Returns Rate	Customer returns / shipped units	$< 1\%$	Quality Returns%
Gross Margin	(Revenue – COGS – Var OH)/Revenue	$\geq 15\%$	Finance GM%
NPS	Promoters – Detractors (%)	≥ 50	Partners NPS

Dashboards live in Google Sheets with read-only sharing links. Screenshots of the KPI page are pasted into the weekly status for permanence.

8.7 Escalation Paths & SLAs

Trigger / Threshold	First Action (Owner)	SLA	Escalate To	Decision Window
SPI < 0.95 for 2 weeks	Re-plan tasks (Founder)	48 h	Sponsor/Advisor	72 h
CPI < 0.95 for 2 weeks	Cost review; freeze spends (Founder)	48 h	Sponsor/Advisor	72 h
OTIF < 95% for 2 weeks	Route replan; buffer stock (Ops)	24 h	Founder	48 h
Defects $\geq 2\%$ in a month	Tighten sampling; CAR (QC)	24 h	Founder	48 h
Partner complaint (major)	Investigation + response (Founder)	24 h	Sponsor/Advisor	48 h
Supplier miss (critical lot)	Expedite alt source (Founder)	24 h	Sponsor/Advisor	48 h

Escalations use WhatsApp/phone for speed and are summarized in email within the same day. All escalated items receive a brief post-mortem during the Friday review.

8.8 Integrated Change Control – Summary

CR Field	Description / How to Fill
CR ID	Auto-increment (e.g., CR-001)
Requested by / Date	Name and date
Change Description	What is changing (scope/schedule/cost/quality)
Rationale / Benefits	Why we need the change; expected benefit
Impact Analysis	S: \pm weeks; C: \pm Tk; Q: risk to CTQs; Risk/Dependencies
Options Considered	e.g., defer, fast-track, crash, reject
Decision & Authority	Approve/Defer/Reject Founder (\leq Tk 5k or \leq 1 wk) / Sponsor (above)
Implementation Plan	Tasks, owner, start/finish
Baseline Update	Scope/Schedule/Cost baselines versioning

No change to scope/schedule/cost/quality is effective until approved and the baseline updated. Minor changes within authority limits are logged; major changes require sponsor approval.

8.9 Partner NPS Survey Plan (Month-3)

Step	Action	Tool / Form	Owner	When
1	Send 1-question NPS + 2 follow-ups (quality, service)	Google Form / Paper slip	Founder	Week-11
2	Collect responses (Promoters 9–10; Passives 7–8; Detractors 0–6)	Sheets auto-calc	Founder	Week-11 to 12
3	Compute NPS (%) and summarize comments	Sheets dashboard	Founder	Week-12
4	Discuss top 3 themes & actions in close-out	Close-out meeting	Founder	Week-12

NPS provides a simple, comparable service quality signal. Track verbatims to identify recurring pain points (delivery windows, leakage, labeling) and convert them into actions/CRs.

8.10 Contact Directory (Pilot)

Name / Role	Organization	Email/Phone	Notes
Founder/PM	GreenPack	—	Project lead
Ops Assistant	GreenPack	—	Inventory & dispatch
QC Tech	GreenPack	—	Incoming QA & sampling
Driver/Dispatch	GreenPack	—	POD & routing

Supplier A (Sales)	Vendor A	—	Primary bagasse supplier
Supplier B (Sales)	Vendor B	—	Secondary bagasse / kraft supplier
Partner #1 (Manager)	Outlet 1	—	Pilot outlet

8.11 Document Control, Data Retention & Security

PMIS: Google Drive is the source of truth for docs, with weekly backups and restricted access. Sensitive commercial terms are limited to project leads and sponsor. Status reports and logs are retained for 12 months after pilot completion.

8.12 Acceptance Criteria for Communications Readiness

- ✓ Comms matrix approved and shared
- ✓ meeting cadence in calendar
- ✓ status 1-pager and KPI dashboard live
- ✓ decision/issue/change logs created
- ✓ escalation thresholds understood
- ✓ contact directory complete
- ✓ data retention plan in place.

8.13 Assumptions & Constraints

Assumptions: reliable mobile data; key stakeholders reachable during business hours; store managers can give 10–15 minutes weekly. Constraints: lean team bandwidth; partners prefer WhatsApp for speed; sensitive details cannot be broadly shared.

8.14 Continuous Improvement

After Month-1, prune low-value meetings; add an automated weekly KPI email; improve status visualizations; adopt lightweight templates for CRs and incident post-mortems.

9 Risk Management

9.0 Purpose & Policy

Purpose: identify, analyze, plan responses, set reserves, and monitor risks that can impact scope, schedule, cost, quality, and safety during the 12-week GreenPack pilot.

Policy & Appetite: low tolerance for quality failures (no CTQ misses allowed in shipped lots), low-to-moderate appetite for schedule slips (≤ 2 calendar days without sponsor approval), and $\leq 5\%$ cost variance at completion without change approval.

9.1 Risk Management Plan (Scales, Thresholds, Process)

Scale	1 (Very Low)	2 (Low)	3 (Medium)	4 (High)	5 (Very High)
Probability (P)	$\leq 10\%$	11–30%	31–50%	51–70%	$> 70\%$
Impact – Cost (I)	$< \text{Tk } 5\text{k}$	Tk 5–15k	Tk 15–30k	Tk 30–60k	$> \text{Tk } 60\text{k}$
Impact – Schedule (I)	$< 1 \text{ day}$	1–3 days	4–7 days	8–14 days	$> 14 \text{ days}$
Impact – Quality (I)	Minor rework	Rework $< 1 \text{ lot}$	Rework 1–2 lots	Multiple lots or partner return	Recall / contract risk

Threshold / Policy	Definition
High Risk	Score $P \times I \geq 16$ (red): immediate response & weekly review
Medium Risk	Score 9–15 (amber): planned response & bi-weekly review
Low Risk	Score ≤ 8 (green): monitor only
Escalation	Any red risk or critical-path impact $> 2 \text{ days}$ → escalate to Sponsor within 24 h
Reassessment	Risk review every Friday; update register & triggers

Process: (1) Identify; (2) Qualitative analysis ($P \times I$ scoring and matrix); (3) Plan responses (avoid/mitigate/transfer/accept); (4) Set reserves (contingency/MR) and buffers; (5) Monitor triggers, audit effectiveness, and update weekly. Roles: Founder/PM owns the register; risk owners execute responses; Sponsor approves major responses and use of management reserve.

9.2 Risk Breakdown Structure (RBS) – Summary

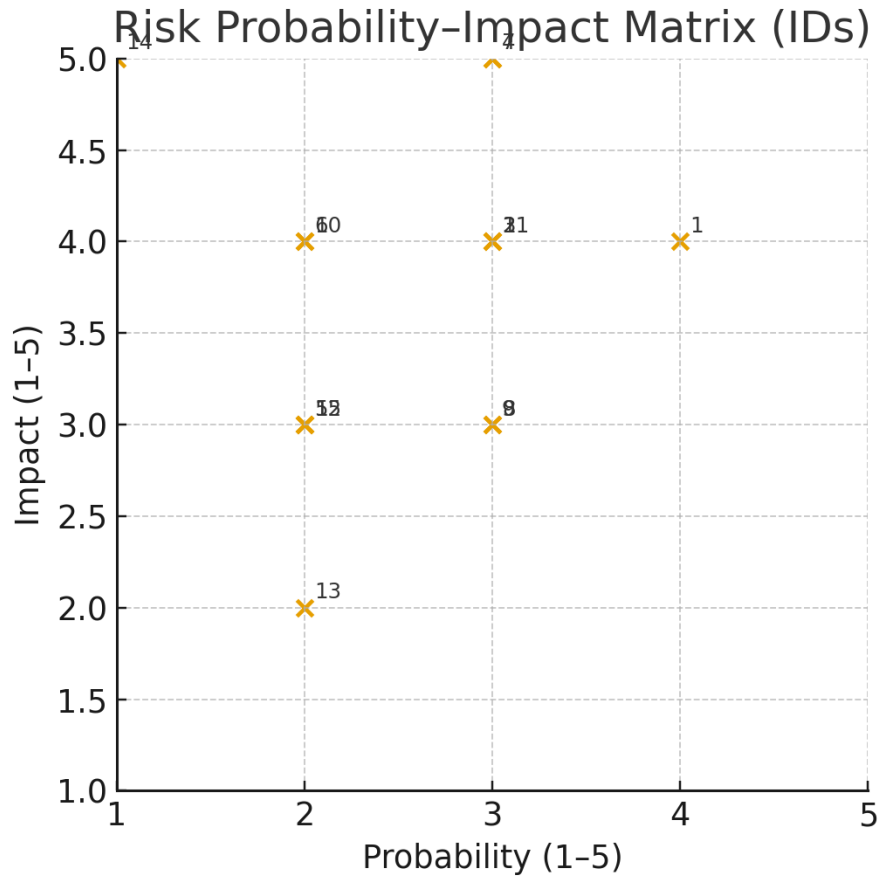
Category	Examples
Cost/Finance	Raw material price spike; FX volatility; cash shortfall
Schedule/Logistics	Customs delay; transport disruption; weather
Quality/Technical	Supplier defects; leakage; tool breakdown
Regulatory/Compliance	Label claims dispute; policy changes
Market/Commercial	Demand shortfall; reputation incident
Data/Operational	Loss of records; PMIS outage
Safety	Handling injury; road incident

9.3 Identification Methods

Brainstorming with team; vendor/partner interviews; checklist by RBS; assumptions/constraints analysis; document reviews (SOW, SLA, route plans); lessons learned from similar pilots.

9.4 Qualitative Analysis

Risks are scored on 1–5 probability and 1–5 impact scales (cost, schedule, or quality). The matrix plots P vs. I with IDs; the register records triggers and planned responses.



9.5 Risk Register (Qualitative)

ID	Risk	Cat.	P	I	Score	Owner	Triggers / Early Warning	Planned Response	Contingency / Residual
1	Raw material price spike	Cost	4	4	16	Founder	Supplier quotes >+10% wk/wk; news of pulp shortage	Mitigate: dual-source; negotiate volume; pre-buy 2 weeks; consider fixed-price PO	Use cost contingency; update price list if >+10% sustained

2	Supplier quality failure (lots fail CTQs)	Quality	3	4	12	QC Tech	Incoming lot fail >1% AQL; increased returns	Mitigate: tighten sampling; supplier CAR; approved alt vendor	Quarantine lot; expedite replacement; residual: short-term stockout
3	Customs/import delay on bagasse lots	Schedule	3	4	12	Founder	ETA slip >5 days; port notice	Mitigate: buffer lead time; split shipments; alt routing	Deliver partials from safety stock
4	Demand below forecast	Market	3	5	15	Founder	Run-rate <80% for 2 consecutive weeks	Mitigate: promo with partners; adjust MOQ; add 1–2 outlets	Accept short-term; pivot SKU mix
5	Policy change affecting compostables	Reg	2	3	6	Founder	Draft circulars; industry alerts	Mitigate: monitor DoE; keep vendor certs; adjust claims	Accept; update labeling; legal consult
6	Equipment/tool breakdown (sealer/scale)	Tech	2	4	8	Ops	Frequent mis-readings; failed seal tests	Mitigate: spare tools; monthly calibration; quick-swap	Use manual backup; residual: capacity dip
7	Cash shortfall / delayed receivables	Finance	3	5	15	Founder	Cash coverage < 1 month COGS; partner delay >10 days	Mitigate: upfront terms with new partners; credit limits; bridge line	Use management reserve; throttle procurement
8	Transport disruption (strike / road)	Log	3	3	9	Ops	News alerts; traffic blockages; weather warnings	Mitigate: route re-plan; advance drops; local courier	Deliver next-day; communicate ETA changes

9	FX volatility (USD/BDT)	Finance	3	3	9	Founder	USD/BDT > +5%/mo; central bank notice	Mitigate: local sourcing; partial hedging via pricing bands	Revise price bands monthly
10	False eco-claims by vendor	Comp	2	4	8	QC Tech	Missing/invalid certificates; discrepancies	Mitigate: require certificates; doc audit; contract clause	Suspend vendor; recall messaging if needed
11	Leakage/defect returns from partners	Quality	3	4	12	QC Tech	Returns >2%/month; repeated SKU complaint	Mitigate: tighten QA; change vendor; retrain handling	Credit notes within 7 days; track CARs
12	Reputation incident (viral complaint)	Reput	2	3	6	Founder	Social posts; partner complaint escalated	Mitigate: rapid response SOP; single spokesperson; offer remedy	Issue statement; corrective action; monitor
13	Data loss / PMIS outage	Ops	2	2	4	Founder	Drive sync errors; file deletion	Mitigate: weekly backups; shared permissions; versioning	Restore from backup; residual: minor data re-entry
14	Safety incident during handling/delivery	Safety	1	5	5	Ops	Near misses; lack of PPE	Mitigate: PPE mandatory; toolbox talk; safe lifting	First-aid; incident report; review route
15	Adverse weather (heavy rain/heat)	Log	2	3	6	Ops	Weather warnings; seasonal forecasts	Mitigate: waterproof packaging; reschedule windows	Next-day catch-up; residual: OTIF dip

9.6 Response Strategy Glossary

Strategy	When to Use	Example in This Pilot
Avoid	Change plan to eliminate threat	Ship only after COA; hold lots with missing docs
Mitigate	Reduce probability/impact	Dual-source; tighten AQL; buffer stock; spare tools
Transfer	Shift impact to third party	Courier insurance; penalty clauses in SLA
Accept	Take risk; monitor triggers	Minor schedule slips; small FX swings
Exploit (opportunity)	Guarantee an opportunity	Lock in promo with high-NPS partner
Enhance (opportunity)	Increase probability/impact	Bundle SKUs to raise demand
Share (opportunity)	Allocate ownership	Joint promo with partner

9.7 Reserves (Cost & Schedule)

Reserve Type	Basis	Amount	Release Conditions
Cost Contingency	10% of BAC (Tk 318,227.38)	Tk 31,822.74	Approved via CR for known-unknowns (e.g., price spike)
Management Reserve	5% of BAC	Tk 15,911.37	Sponsor approval for unknown-unknowns
Schedule Buffer	Embedded in deliveries (G)	0.5 week (internal)	Consumed when OTIF risk rises; communicate early

9.8 Quantitative View (Lightweight EMV Illustration)

For a quick sense of exposure, map ordinal scales to mid-probabilities and midpoint costs, then compute $EMV = P \times \text{Cost Impact}$. Mapping: P1=0.10, P2=0.20, P3=0.40, P4=0.60, P5=0.80; Cost impact midpoints: I1=Tk 2.5k, I2=Tk 10k, I3=Tk 22.5k, I4=Tk 45k, I5≈Tk 80k.

Risk (ID – Name)	P (mapped)	Cost (midpoint)	Impact	EMV (Tk)
1 – Raw material price spike	0.60	Tk 45,000		Tk 27,000
7 – Cash shortfall / delayed receivables	0.40	Tk 80,000		Tk 32,000
9 – FX volatility (USD/BDT)	0.40	Tk 22,500		Tk 9,000
TOTAL (illustrative for 3 risks)	—	—		Tk 68,000

Interpretation: EMV suggests exposure on just these three cost-oriented risks of \approx Tk 68,000. Compare to contingency (Tk 31,823) + MR (Tk 15,911). Re-estimate after Month-1 with real defect/lead-time/price data and adjust reserves via change control.

9.9 Monitoring & Review

Activity	What to Check	Frequency	Owner	Artifact
Risk review	Top 10 risks, scores, owners, actions	Weekly (Fri)	Founder/PM	Updated register
Trigger watch	Supplier quotes, ETA slips, returns %, FX	Daily/Weekly	Assigned owners	Trigger log
Variance link	SPI/CPI, OTIF, defects (from KPIs)	Weekly/Monthly	Founder/PM	KPI dashboard
Effectiveness	Are responses reducing score/impact?	Bi-weekly	Founder/PM	Before/After notes
Close/transfer	Close obsolete; transfer accepted risks	Monthly	Founder/PM	Register status

9.10 Risk Audit & Lessons Learned

Conduct a mini-audit in Week-6 (are triggers monitored, responses timely, reserves used correctly?). Capture lessons in Week-12 close-out: which risks materialized, accuracy of estimates, and changes needed to the RBS/checklists for scale-up.

10 – Procurement Management

10.0 Policy, Scope & Objectives

Policy: procure eco-friendly, food-safe packaging at the right quality, cost, and lead time to support 12-week pilot OTIF \geq 95% and defect rate $<$ 2%. Procurement aligns with PMBOK.

processes: Plan Procurement, Conduct Procurement, and Control Procurement.

Scope: Buy finished bagasse clamshells and plates, and recycled kraft paper bags from qualified vendors; optionally perform light finishing (labels/sealing) in-house. Exclusions: setting up a pulp-molding line (out of pilot scope).

Objectives:

- (i) dual-source critical SKUs to reduce supply risk
- (ii) lock pricing bands for 3 months
- (iii) enforce documentation (COA/certificates, labeling)

- (iv) maintain safety stock \approx 1 week COGS; (v) monitor vendor OTIF/defects and take corrective actions.

10.1 Make-or-Buy Analysis (Pilot Decision)

Rationale: In-house making requires high capex and regulatory approvals and exceeds the pilot timeline. Buying finished SKUs provides speed and lower risk. Light finishing is optional for branding control.

Option	Pros	Cons	Pilot Decision
Make (in-house pulp molding / semi-auto)	Control over quality/lead time; brand IP	High capex; regulatory (ECC/EIA); skill ramp; long setup time	OUT – beyond pilot scope
Buy finished SKUs (bagasse, kraft)	Low capex; speed; multiple vendors; scalable	Vendor dependence; price volatility	IN – primary approach
Light finishing (labeling/sealing)	Brand control; minor capex	Adds QA steps; small training need	Conditional – if needed, basic sealer/labeler

10.2 Procurement Strategy

Strategy pillars: dual-source per critical SKU, simple contracts (PO + SLA), rolling forecast with firm weekly orders, and tight integration with QA and logistics. Safety stock and change control protect service and cost.

Element	Strategy for Pilot
Sourcing model	Dual-source per critical SKU (primary + backup)
Contracting	Short-form purchase orders (POs) with attached SLA; MoU for pricing bands
Forecasting	4-week rolling forecast; firm weekly orders with cutoff
Inventory policy	Safety stock \approx 1 week COGS; FIFO; quarantine on fail
Logistics/Incoterms	Local/domestic supply (ex-works or delivered)
QA integration	Incoming AQL 2.5 (pilot scale); vendor certs on file
Payment terms	Prefer 50% advance / 50% on delivery for new vendors; net-7 for trusted
Change control	CR required for price changes $> \pm 10\%$ or lead time $> +5$ days

10.3 Contract Type Decision

Use fixed-price POs for routine buys to cap cost; consider adjustment clauses where inputs are volatile; adopt T&M only for small, ad-hoc finishing; optionally frame a short rate agreement for 3-month bands.

Contract Type	Use in Pilot	Why
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Fixed Price (FP) / Firm-fixed	Primary for standard SKUs	Cost certainty on small, repeat buys
Fixed Price with Adjustment (FPA)	Backup for volatile inputs	Allows index-linked revisions (monthly)
Time & Materials (T&M)	For ad-hoc finishing (labels)	Small scope, capped hours, simple rates
Framework/Rate Agreement	Secondary option	Lock pricing bands for 3 months; draw down via POs

10.4 RFQ/RFP Package – Contents

The RFQ/RFP ensures vendors quote against common specs and terms. Responses are scored using the weighted evaluation matrix.

Section	What to Include
Cover & Introduction	Pilot context; SKUs; volumes; timeline; response deadline
Technical Specifications	Dimensions, materials, CTQs, tolerances, labeling
Quality Requirements	AQL level, certs (food-safe, compostability), COA on lots
Commercial Terms	Qty tiers; price bands; delivery terms; payment terms
Logistics	Lead time; delivery windows; packaging of cartons
SLA & Penalties	OTIF, defect rate, documentation; penalty schedule
Evaluation Criteria	Weights for price/quality/lead time/docs
Form of PO/Contract	Template terms; confidentiality; IP/branding rules

10.5 Supplier Evaluation Matrix (Weighted Scoring)

Weights sum to 100. Score vendors 1–5. Weighted score = (Score/5) × Weight. Keep evidence links (quotes, COAs).

Criterion	Weight (%)	Vendor A Score (1–5)	Vendor A × Wt	Vendor B Score (1–5)	Vendor B × Wt
Price (landed)	40	4	32.0	3	24.0
Quality history / CTQ pass	25	4	20.0	5	25.0
Lead time & reliability	20	3	12.0	4	16.0
Documentation (certs/COA)	10	5	10.0	4	8.0
Service & comms	5	4	4.0	5	5.0
TOTAL	100	—	78.00	—	78.00

10.6 Supplier SLA (Pilot)

SLA KPIs are monitored monthly; penalties/remedies are calibrated for a small pilot. Escalation is via the communication plan (Chapter 8).

KPI	Target	Measurement	Consequence / Remedy
OTIF (on-time, in-full)	$\geq 95\%$ monthly	POD vs. PO date/qty	Penalty Tk 500 per miss after 2 grace events
Defect rate (incoming)	$< 2\%$ of units	AQL sampling; NC log	Replace within 5 working days or credit
Lead time adherence	$\leq +5$ days vs. quoted	PO vs. GRN dates	Price-hold extension or expedited freight
Documentation	COA/certs/correct labels	QC doc check	Hold shipment until rectified
Communication	Response ≤ 24 h	Email/WhatsApp log	Escalation to sales manager

10.7 Statement of Work (SOW) – Sample Snippets

Insert these clauses into RFQ/PO attachments; tailor values to each SKU and vendor.

Section	Sample Text (edit as needed)
Scope of Supply	Supplier shall provide bagasse clamshells (9x9) and plates (9") and kraft paper bags (M) per attached specifications and CTQs.
Quality & Inspection	Lots are subject to incoming inspection at AQL 2.5; Supplier shall provide COA and certifications prior to dispatch.
Packaging & Labeling	Cartons labeled with SKU, lot/batch, MFG date, quantity; eco-claims must match certificates.
Delivery & Lead Time	Lead time 10–14 days from PO; deliveries Mon–Sat 10:00–17:00 Dhaka time.
Returns & Credits	Nonconforming items will be quarantined and returned; credit note within 7 calendar days.
Price & Payment	Prices per PO; payment 50% advance, 50% on delivery unless otherwise agreed in writing.
Change Control	Any change to materials, process, or labeling requires prior written approval by GreenPack.

10.8 Purchase Order (PO) – Key Terms

Clause	Pilot Term
Acceptance	PO deemed accepted unless rejected in 2 working days
Cancellation	Right to cancel if delays exceed 7 days without cause

Title & Risk	Passes on delivery at GreenPack receiving (Dhaka)
Warranties	Fit for purpose; compliant with provided specs/certs
Indemnity	Supplier indemnifies against false claims or defects
Confidentiality	Specs/prices are confidential for 12 months
Force Majeure	As per standard terms; notice within 48 h
Governing Law	Bangladesh

10.9 Procurement Schedule (linked to Chapter 4)

Schedule integrates with WBS and the 12-week timeline: RFQ and evaluation in Weeks 1–2; contracts by Week-3; first POs placed Week-3; inbound and QA Weeks 4–5; weekly replenishment Weeks 5–12.

Phase	Tasks	Planned Weeks
Sourcing & RFQ	Shortlist, RFQ issue, sample evaluation	Wk 1–2
Contracting	PO templates, SLAs, MoU pricing bands	Wk 2–3
Initial POs	Place POs for first lots; confirm lead time	Wk 3
Inbound & QA	Receive lots; incoming inspection	Wk 4–5
Replenishment	Weekly firm orders; buffer stock	Wk 5–12

10.10 Procurement Risks & Controls (link to Chapter 9)

Controls are preventive and corrective; use CRs for significant changes to price/lead time/quality.

Risk	Control / Response	Owner
Price spike > +10%	Dual-source; pre-buy 2 weeks; price bands	Founder/PM
Vendor quality fail	Tighten sampling; CAR; switch to backup	QC Tech
Lead-time slippage	Split shipments; schedule buffer; courier	Ops Assistant
False certificates	Doc audit; suspend vendor; legal language	Founder/PM

10.11 Governance, KPIs & Reporting

Governance: Founder/PM approves POs \leq Tk 50,000 and changes \leq Tk 5,000 or \leq 1 week; Sponsor approves beyond thresholds. KPIs roll into the weekly status and monthly KPI/EVM review.

KPI	Definition / Source	Target	Cadence
OTIF	POs delivered on time and in full (POD vs PO)	$\geq 95\%$	Monthly
Incoming Defect Rate	Defects / units in AQL sampling	$< 2\%$	Monthly
Lead-time Variance	Actual – quoted lead time (days)	$\leq +5$ days	Monthly
Docs Compliance	COA/certs/labels correct	100%	Per shipment
Cost Variance	(Landed – Quoted)/Quoted	$\leq +2\%$	Per shipment
Comms SLA	Vendor response time ≤ 24 h	100%	Weekly

10.13 Document Control & Retention

Store RFQs, quotes, evaluation sheets, POs, SLAs, COAs/certificates, and PODs in Drive with versioning; restrict commercial terms to need-to-know. Retention: 12 months after pilot completion.

10.14 Acceptance Criteria for Procurement Readiness

- ✓ Shortlist completed and RFQs issued
- ✓ evaluation matrix filled with evidence
- ✓ SLAs/SOWs agreed with selected vendors
- ✓ initial POs placed
- ✓ inbound QA plan aligned
- ✓ vendor scorecard template lives
- ✓ risks/controls documented and owners assigned.

10.15 Assumptions & Constraints

Assumptions: reliable domestic logistics; vendors can meet 10–14-day lead time; mobile data available for delivery confirmations. Constraints: small pilot quantities; price volatility; monsoon/weather effects; limited storage space.

10.16 Continuous Improvement & Scale Handover

After Month-1, rebalance weights in the evaluation matrix if quality or docs issues dominate. Tighten SLAs if chronic misses occur. For scale-up, consider a 6-month framework agreement, standardized COA portal, and vendor development plans.

11 Stakeholder Management

11.0 Purpose & Approach

Purpose: Identify stakeholders; analyze their power, interest and support; plan engagement to secure on-time, in-full (OTIF) delivery and product–market validation for the 12-week pilot.

Approach:

- (1) Identify stakeholders
- (2) Plan engagement (segmentation, tactics, cadence)
- (3) Manage engagement (communications, negotiation, issue resolution)
- (4) Monitor engagement (KPIs, sentiment, changes). Primary time-zone: Asia/Dhaka.

11.1 Stakeholder Identification

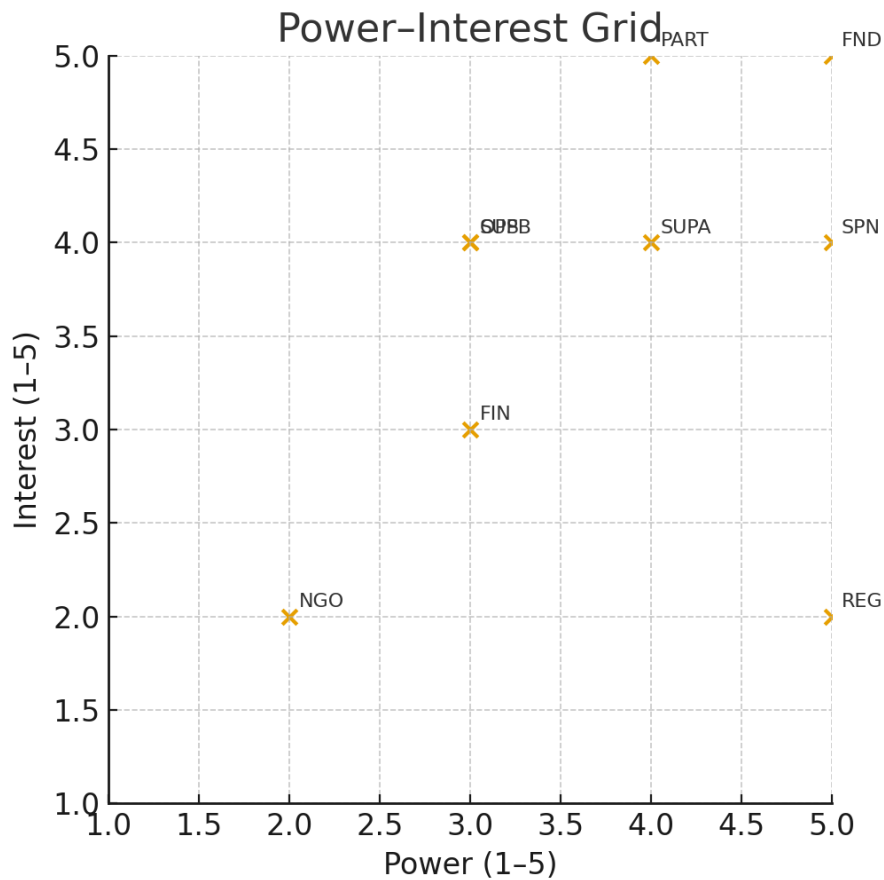
ID	Name / Role	Organization	Category	Primary Interest	Contribution / Authority
STK-01	Founder / PM	GreenPack	Internal	Pilot success, learning, budget adherence	Approves baselines; leads execution
STK-02	Ops Assistant	GreenPack	Internal	Smooth ops, safety, learning	Runs inventory/dispatch ; records
STK-03	QC Technician	GreenPack	Internal	Quality outcomes, CTQs, CAR closure	Incoming QA; sampling; NC/CAR
STK-04	Driver / Dispatch	GreenPack	Internal	Safe routes, on-time delivery	POD, routing, partner contact
STK-05	Supplier A (Sales)	Vendor A	External	Purchase volume, timely payment	Primary source for bagasse SKUs
STK-06	Supplier B (Sales)	Vendor B	External	Purchase volume, future business	Backup/secondary source
STK-07	Partner #1 Manager	Outlet 1	External	Reliable supply, low defects	Pilot customer feedback, NPS
STK-08	Partner #2–#5 Managers	Outlets 2–5	External	Same as above	Pilot feedback, NPS
STK-09	Sponsor / Advisor	—	External	Learning quality, risk control	Approves major CRs; advice
STK-10	Regulator contact	DoE/Local	External	Correct claims, compliance	May request info; oversight
STK-11	Finance/Accounts	GreenPack	Internal	Cash control, payment cycle	Invoices, payments, credit notes
STK-12	Community/NGO rep (optional)	Local	External	Environmental impact	Advisory—reputation insight

11.2 Power–Interest & Salience Assessment

Scales: Power 1–5 (ability to influence outcomes), Interest 1–5 (level of concern). Support score: –2 (opposed) to +2 (champion). Salience modeled with power–legitimacy–urgency heuristic (guidance only).

Stakeholder	Power (1–5)	Interest (1–5)	Support (–2..+2)	Influence Channel	Salience Class
Sponsor/Advisor (STK-09)	5	4	+2	Approvals, guidance	Dominant/Definitive
Founder/PM (STK-01)	5	5	+2	Leadership, decisions	Definitive
Partners #1–#5 (STK-07/08)	4	5	+1	Service feedback, acceptance	Dependent/Dominant
Supplier A (STK-05)	4	4	+1	Pricing, lead time	Dominant
Supplier B (STK-06)	3	4	+1	Continuity backup	Dominant
Regulator (STK-10)	5	2	0	Compliance requests	Dormant→Dominant if urgent
Ops/QC/Driver (STK-02/03/04)	3	4	+1	Execution quality	Dependent
Finance (STK-11)	3	3	+1	Payment cycle	Dominant (internal)
Community/NGO (STK-12)	2	2	0	Reputation	Discretionary

11.3 Power–Interest Grid (Plot)



11.4 Engagement Strategy by Segment

Segment	Tactics	Cadence	Owner	Success Criteria
Manage Closely (FND, SPN, PART)	Bi-weekly decision check-ins; weekly KPI/EVM; rapid CR path	Weekly/Bi-weekly	Founder	On-time approvals; SPI/CPI \geq 0.95; NPS \geq 50
Keep Satisfied (REG, FIN)	Concise updates on compliance/payments; provide docs on request	Monthly / As needed	Founder	Zero compliance misses; DPO \leq agreed
Keep Informed (SUPA, SUPB, OPS/QC/DRV)	Forecast + firm orders; QA feedback; dispatch plan	Weekly	Founder	OTIF \geq 95%; defects < 2%

Monitor (NGO)	Proactive note on eco-claims; invite feedback	Monthly	Founder	No reputation incidents
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11.5 Stakeholder Register (Detailed)

ID	Contact / Role	Needs & Expectations	Current Engagement	Target Engagement	Key Messages	Channels	Frequency	Owner
STK-09	Sponsor/ Advisor	Visibility, risk control, learning outcomes	Supportive	Leading	Status, risks, CRs, budget	Email/Call/Meet	Bi-weekly	Founder
STK-07..08	Partner Managers	Reliable supply, low defects, simple credits	Neutral→Supportive	Supportive	Dispatch plan, returns policy, eco-value	WhatsApp/Email/On-site	Weekly	Founder
STK-05	Supplier A (Sales)	Predictable orders, fast issues resolution	Supportive	Supportive	Forecast, PO terms, QA feedback	Email/WhatsApp	Weekly	Founder
STK-06	Supplier B (Sales)	Growth opportunity, fair evaluation	Neutral	Supportive	RFQ, backup routing, QA bar	Email/WhatsApp	Weekly	Founder
STK-10	Regulator contact	Accurate claims, quick	Unaware	Satisfied	Certificates, labeling facts	Email	As needed	Founder

		responses						
STK-02/03/04	Ops/QC/Driver	Clear SOPs, safety, recognition	Supportive	Supportive	SOPs, KPIs, safety reminders	Stand-up/Sheets	Weekly	Founder
STK-11	Finance/Accounts	Clean documents, payment control	Supportive	Supportive	PO/GRN/POD, credit notes	Email	Weekly	Founder

11.6 Value Propositions by Stakeholder

Stakeholder	Value Proposition	Proof / Evidence
Partners	Eco-friendly packaging, reliable deliveries, easy credits	OTIF %, low returns, CAR closure time
Suppliers	Predictable orders, fair feedback, potential scale	PO cadence, scorecards, long-term MoU
Sponsor	Structured learning and risk-aware execution	Weekly status, variance analysis, lessons learned
Regulator	Accurate claims and responsible documentation	Certificate pack, labeling review notes
Community	Reduced plastic footprint and awareness	Eco notes, partner signage (approved wording)

11.7 Issues & Conflict Management

Policy: resolve at the lowest effective level within 48 hours. Process: (i) log in Issue Log (Chapter 8.9); (ii) assign owner/due date; (iii) negotiate options (e.g., partial deliveries, credits); (iv) escalate per thresholds (Chapter 8.7); (v) document resolution and any CAR/CR.

11.8 Stakeholder Risks & Responses

Risk / Trigger	Response	Owner	Link to Risk ID
Partner dissatisfaction (low NPS)	Root-cause via verbatims; quick wins; adjust routes/SKUs	Founder	4,11,12
Supplier misses (OTIF/docs)	Escalate via SLA; switch to backup; tighten QA	Founder	2,3,6,10
Regulatory query on claims	Provide evidence pack; adjust wording; legal consult	Founder	5

Internal bandwidth constraints	Re-prioritize; level resources; defer low-value tasks	Founder	—
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11.9 KPIs & Acceptance Criteria

KPI	Target	Source	Acceptance Criteria (Pilot Exit)
Stakeholder coverage	100% register fields filled	Register	All key fields complete & current
Approvals latency	≤ 72 h for CRs	Decision Log	No overdue approvals causing >2 days slip
Partner NPS	≥ 50	NPS survey (Month-3)	NPS ≥ 50 with themes/actions documented
Supplier score \geq	$\geq 80/100$	Vendor scorecard	Suppliers meeting SLA or corrective plan in place
Engagement adherence	$\geq 90\%$ meetings/cadence met	Calendar/Minutes	Cadence maintained or replanned formally

11.10 Change Control for Stakeholder Engagement

Any meaningful change to cadence, roles, or commitments requires a logged Change Request (Chapter 8.10) with rationale and impact. Update this chapter and the communications plan upon approval.

12 Environmental Impact, Compliance & Ethics

12.0 Purpose & Scope

Purpose: assess and manage environmental and social impacts of the GreenPack 12-week pilot; define compliance steps with local regulations and ethical conduct for eco-claims and procurement. Scope covers sourcing, warehousing, delivery, use at partner sites, and end-of-life (collection/disposal).

12.1 Screening & Scoping

The pilot is a low-risk, small-scale distribution operation with no manufacturing. Key aspects: inbound packaging supplies, warehousing/handling, last-mile delivery, and disposal guidance. Formal EIA is typically not required for such pilots; however, basic environmental management practices and documentation will be maintained.

Aspect	Activity Boundary	Potential Impact	Significance (L/M/H)	Include in Study?
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Energy use	Warehouse lights/equipment; delivery vehicle	GHG emissions, air pollution	M	Yes
Waste generation	Damaged packaging; QC rejects; office waste	Solid waste; litter	M	Yes
Water & effluent	Cleaning spills; sanitation	Minor water use	L	Monitor only
Noise/traffic	Short-haul deliveries	Noise; congestion	L	Monitor only
Materials sourcing	Bagasse/kraft production upstream	Upstream impacts (outside site)	M	Track via vendor docs
Claims & labeling	Eco-claims, traceability	Reputational/legal risk	H	Yes

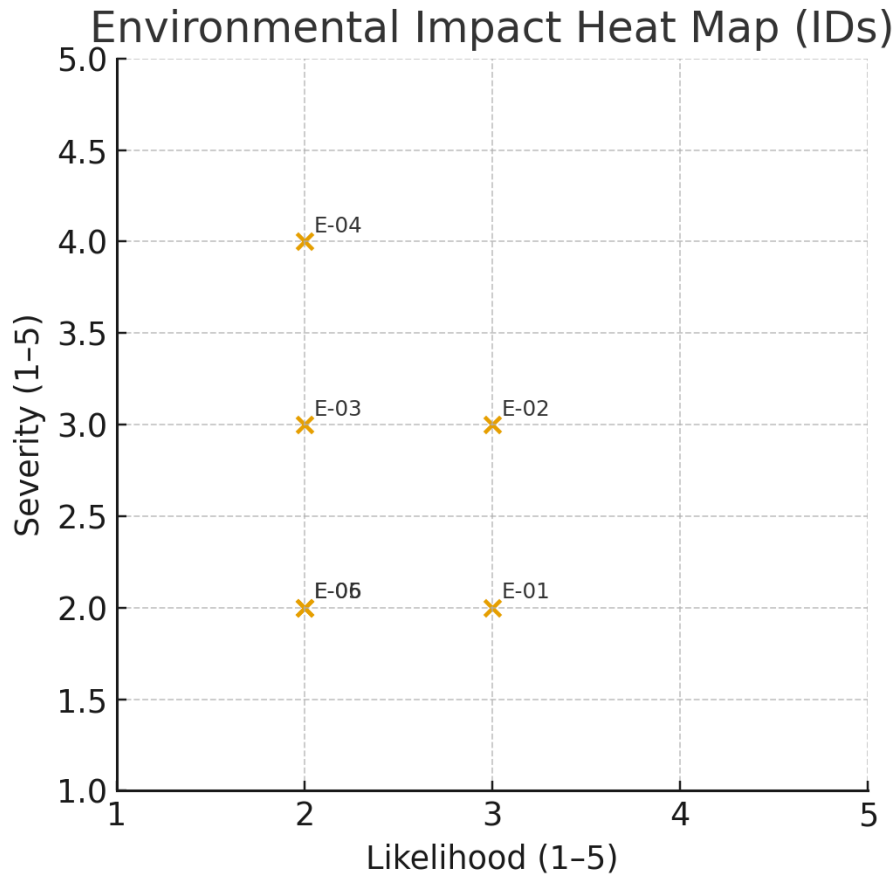
12.2 Baseline & Alternatives

Baseline: pilot runs in an existing storage space with basic racking; deliveries piggy-back on rental vehicles/3-wheelers. Alternative A (used): bagasse/kraft SKUs with local suppliers. Alternative B (not used in pilot): conventional plastic or styrofoam packaging. Alternative C (not used): in-house pulp molding (requires significant capex and permits).

12.3 Environmental Aspect–Impact Register

ID	Activity	Aspect	Impact	Severity (1–5)	Likelihood (1–5)	Score	Existing Controls	Mitigation / Enhancement
E-01	Inbound & storage	Damaged cartons/waste	Solid waste generation	2	3	6	FIFO; careful handling	Vendor cartons with better moisture resistance; staff training
E-02	Dispatch/delivery	Fuel use / emissions	Air emissions (CO ₂ , PM)	3	3	9	Route planning	Combine routes; trial EV/NGV; maintain tires/pressure

E-03	QC & rework	Rejected items	Waste & credits	3	2	6	AQL sampling	Tighten QA; return to vendor for credit; recycling stream
E-04	Labeling/claims	Overstated eco-claims	Reputation/legal risk	4	2	8	Certificate file	Claims review; legal check; approved wording only
E-05	Handling safety	Manual lifting	Minor injuries	2	2	4	PPE; toolbox talk	Trolley use; 2-person lifts for heavy loads
E-06	Housekeeping	Spills/litter	Aesthetics; pests	2	2	4	5S routine	Daily sweep; closed bins; weekly audit



12.4 Mitigation & Environmental Management Plan (EMP)

Impact ID	Mitigation / Action	Owner	When	Evidence / KPI
E-01	Training on carton handling; moisture-resistant secondary wrap during monsoon	Ops Assistant	Week-1; ongoing	Lower damage %; photo logs
E-02	Route optimization; combine trips; explore EV/NGV rental options	Founder/PM	Weekly	Fuel receipts; CO ₂ est.
E-03	Tighten AQL for next 2 lots; enforce vendor credit/replace policy	QC Tech	On each fail	Defect trend; credit notes
E-04	Claims review checklist; certificate verification prior to print	Founder/PM	Per label change	Approved artwork; cert file
E-05	PPE + safe lifting SOP; use trolleys; 2-person lifts > 20 kg	Ops Assistant	Weekly toolbox	Near-miss log

E-06	Daily sweep; closed bins; weekly 5S audit; pest control if needed	Ops Assistant	Daily/Weekly	5S checklist
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12.5 Waste Management Plan

Waste Type	Source	Handling / Segregation	Disposition	Evidence
Damaged packaging (bagasse/kraft)	Inbound/storage	Segregate clean vs. contaminated	Clean: send to paper/organic recycler; Contaminated: municipal waste per rules	Weigh tickets; photos
Plastic wraps/straps	Inbound	Keep separate from paper/card	Recycle where available	Weigh tickets
Office waste	Admin	3-bin system (paper/plastic/other)	Municipal pickup / recycler	Weekly log
QC rejects	QA	Quarantine; record; vendor credit/return	Return to vendor or dispose per policy	NC/CAR log; credit notes

12.6 Monitoring & Reporting Plan

Parameter	Method	Frequency	Owner	Target / Trigger
Damaged/Rejected rate (%)	Inventory + QC logs	Weekly	Ops Assistant	< 2% ≥ 2% action
Fuel/Trip & CO₂ est.	Fuel receipts × emission factor	Weekly	Founder/PM	Trend down vs. Week-1
Waste diverted (kg)	Weigh tickets	Monthly	Ops Assistant	> 50% recyclable
Labeling/claims conformance	Checklist vs. cert file	Per change	Founder/PM	100% conformance
5S/PPE compliance	Checklist	Weekly	Founder/PM	≥ 90% pass

12.7 Compliance Matrix (Regulatory & Internal)

Note: verify current local environmental and labeling requirements with the Department of Environment (DoE) prior to scale. For the pilot, follow best-practice documentation and truthful claims policies.

Area	Requirement (summary)	Applies to Pilot?	Evidence / Record	Responsible
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Environmental permissions	No new manufacturing/stack; pilot distribution only	Low likelihood	Lease/space use note; photos	Founder/PM
Waste handling	Segregation; safe storage; municipal pickup / recycler	Yes	Waste log; tickets	Ops Assistant
Food-contact/compostability claims	Use vendor certificates; accurate wording	Yes	Cert file; artwork approval	Founder/PM
Transport safety	Valid driver; basic safety; load securement	Yes	Driver ID; checklist	Ops Assistant
Data/record retention	Keep pilot records for 12 months	Yes	Drive folder with backup	Founder/PM

12.8 Ethics & Code of Conduct

Principles: (i) Truthful environmental claims (no greenwashing); (ii) Avoid conflicts of interest in procurement; (iii) No facilitation payments or improper inducements; (iv) Respect confidentiality; (v) Health & safety first during handling and deliveries.

Topic	Policy	Controls / Evidence
Eco-claims integrity	Only state what certificates support; avoid absolute terms	Certificate review; artwork sign-off; version control
Conflict of interest	Disclose COIs; competitive quotes; decision log	COI declaration; evaluation matrix; approvals
Anti-bribery/corruption	Zero tolerance; report attempts	Vendor code; email record; incident log
Data privacy	Limit commercial details to need-to-know	Access control; shared drive permissions
Health & safety	PPE; safe lifting; road safety	Checklists; incident/near-miss log

12.9 Training Plan (EHS & Ethics)

Audience	Topic	Duration	Method	Evidence	When
All staff	Ethics & anti-bribery; COI disclosure	30 min	Brief + sign-off	Attendance sheet; COI form	Week-1
Ops & Driver	PPE, safe lifting, load securement, spill response	60 min	Demo + checklist	Signed checklist	Week-1; refresh Week-6
QC Tech	Claims review, cert file, labeling control	45 min	Desk review + quiz	Quiz pass sheet	Week-2

12.10 Exit Criteria & Handover

- No major environmental incidents
- Waste diverted $\geq 50\%$ where feasible
- COI forms collected
- 100% eco-claims supported by certificates
- All incidents/NCs closed with VoE.
- EMP and monitoring logs archived
- Lessons learned documented for scale.

13 Project Close-out & Conclusion

13.0 Purpose

Document final performance vs. baselines, confirm acceptance, capture lessons, close contracts and finances, and define next-steps for scaling GreenPack beyond the 12-week pilot.

13.1 Acceptance Against Scope (from Scope Baseline)

Deliverable / WBS Ref	Acceptance Criteria	Evidence	Status (Accepted/Partial/Pending)	Notes
D1 – Supplier shortlist & RFQs (1.3)	≥ 2 qualified vendors with samples	RFQs; quotes; sample eval	Accepted	—
D2 – Approved SKUs & labels (1.4)	Specs + artwork approved; certs on file	Spec pack; COA/certs; label v#	Accepted	—
D3 – Partner MoUs (1.5)	≥ 5 outlets signed	Signed MoUs	Accepted	—
D4 – Inbound & QA (1.6.1)	Lots received & AQL results logged	Receiving log; AQL sheets	Accepted	—
D5 – Weekly deliveries (1.6.3)	OTIF $\geq 95\%$ with POD	Dispatch plan; PODs	Accepted	—
D6 – Returns & credits (1.6.4)	Credits issued ≤ 7 days	Credit notes; NC/CAR	Accepted	—
D7 – KPI/EVM reporting (1.7)	Weekly status; Month-end EVM	Status pages; EVM sheet	Accepted	—
D8 – Close-out pack (1.8)	Lessons, scorecards, archiving	This chapter; archive list	Accepted	—

13.2 Final Schedule Performance

Summarize planned vs. actual finish dates for major milestones and compute SPI at completion. Fill your actuals in the table below.

Milestone	Planned Date	Actual Date	Variance (days)	Comments
RFQ issued	Wk-1 Fri	—	—	
Vendor selection	Wk-2 Fri	—	—	
Initial PO placed	Wk-3 Tue	—	—	
First inbound & QA	Wk-4 Thu	—	—	
First deliveries	Wk-6 Mon	—	—	
Month-2 review	Wk-8 Fri	—	—	
Close-out complete	Wk-12 Fri	—	—	

Metric	Definition	Final Value
Planned Value (PV)	Sum of planned work value at finish	
Earned Value (EV)	Sum of value of completed work	
Schedule Performance Index (SPI)	EV / PV	

13.3 Final Cost Performance

Enter actual costs and compute CPI and variance at completion. Note use of contingency and management reserve.

Cost Element	Budget (BAC)	Actual Cost (AC)	Variance (AC – Budget)	Notes
Procurement (lots)				
Logistics / delivery				
QA tools & supplies				
Labels/printing				
Misc/Overheads				
TOTAL				

Metric	Definition	Final Value
Earned Value (EV)	As above	
Actual Cost (AC)	Total actuals	
Cost Performance Index (CPI)	EV / AC	

Variance at Completion (VAC)	BAC – EAC	
Contingency Used	From reserve register	
Management Reserve Used	Sponsor-approved	

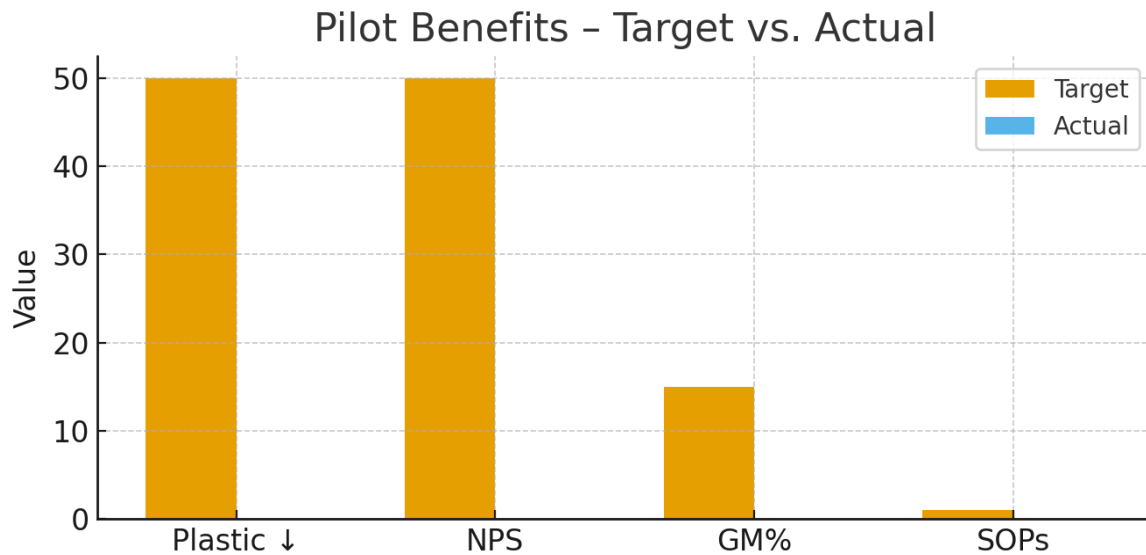
13.4 Quality & Service Outcomes

KPI	Target	Actual	Status	Notes
Defect Rate (monthly)	< 2%			
Returns Rate	< 1%			
OTIF (service)	≥ 95%			
CAR Closure Time	≤ 14 days			
Docs Conformance	100%			

13.5 Benefits Realized (Pilot)

Capture qualitative and quantitative outcomes. Use the table and the small chart to summarize benefits vs. targets.

Benefit	Baseline / Target	Actual (Pilot)	Measurement Method	Status
Plastic reduction at partners	Baseline plastic items/month; target –50%		Partner logs/est.	
Customer acceptance / NPS	NPS ≥ 50		Month-3 survey	
Revenue / margin from pilot	Target GM ≥ 15%		Finance sheet	
Operational learning	All SOPs validated		Lesson log	



13.6 Lessons Learned

Area	What Worked	What Didn't	Recommendation for Scale
Sourcing			
QA / CTQs			
Logistics / OTIF			
Labeling / Claims			
Comms / Stakeholders			
EHS / Ethics			

13.7 Procurement & Contract Closure

Vendor	POs Closed (Y/N)	Outstanding Credits	Docs Archived (Y/N)	Notes
Supplier A				
Supplier B				
Courier / Transport				

13.8 Final Risk Status & Reserve Usage

Risk ID/Name	Final Status	Response Effectiveness	Residual Risk	Reserve Used (Tk)	Notes
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1 – Price spike					
2 – Supplier quality fail					
7 – Cash shortfall					
11 – Partner returns					

13.9 Stakeholder Feedback (incl. NPS)

Stakeholder Group	Method	Highlights Verbatims /	Score Outcome /	Follow-ups
Partners (5)	NPS + interview			
Suppliers	Call + email			
Internal team	Retro meeting			
Sponsor/Advisor	Review session			

13.10 Close-out Checklist & Sign-off

Item	Owner	Status	Evidence / Link
All deliverables accepted (13.1)	Founder/PM		
Financials reconciled; credits settled	Founder/PM		
Documents archived (12 months)	Founder/PM		
Contracts/POs formally closed	Founder/PM		
Issue & risk logs updated/closed	Founder/PM		
Lessons learned documented	Founder/PM		
Handover meeting completed	Founder/PM		

Role	Name	Signature	Date
Project Manager (Acceptance)			
Sponsor/Advisor (Approval)			

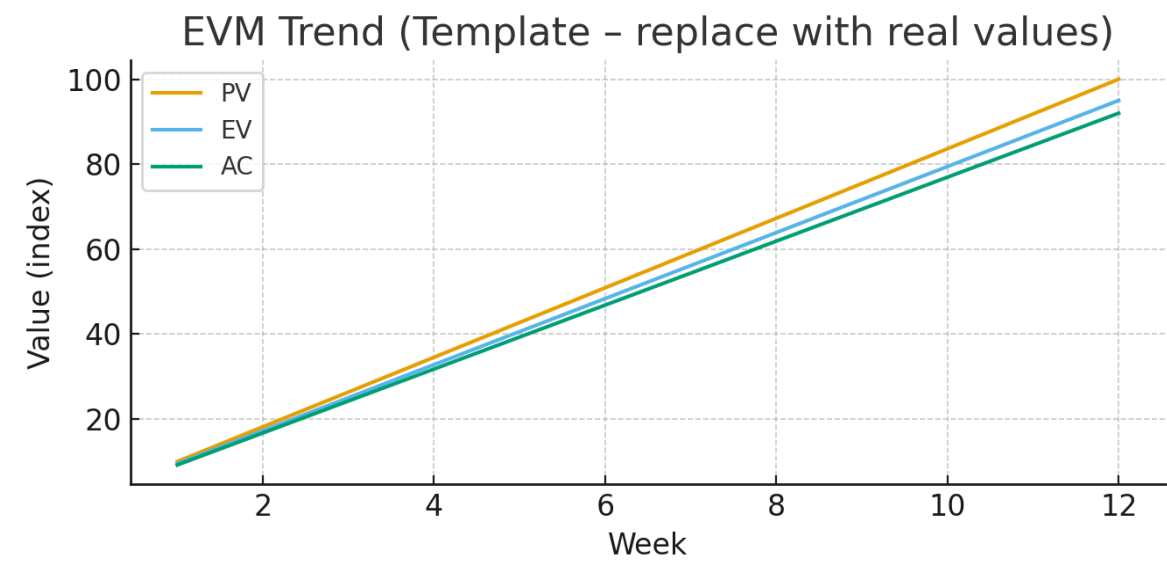
Partner Rep (Optional)			
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13.11 Next Steps & Scale Recommendations

- Convert to 6-month framework agreements with top vendors;
- Scale NPS program quarterly;
- Introduce simple COA portal;
- Evaluate EV/NGV delivery and micro-warehousing for monsoon;
- Consider SKU expansion and tighter AQL for high-risk items;
- Build a rolling 13-week cash forecast tied to POs and receivables.

13.12 Archive & References

Archive Item	Location / Link	Notes
Scope/Schedule/Cost baselines	Drive:/GreenPack/Baselines	Versioned
Quality docs (CTQs, AQL, NC/CAR)	Drive:/GreenPack/Quality	Includes sampling sheets
Procurement (RFQs, POs, SLAs)	Drive:/GreenPack/Procurement	Contracts & quotes
Logs (Decision/Issue/Change)	Drive:/GreenPack/Comms	CSV or Sheets
KPI/EVM dashboards	Drive:/GreenPack/KPI	Screenshots + Sheets
Close-out chapter (this file)	Drive:/GreenPack/Close-out	PDF + DOCX



Conclusion

GreenPack exemplifies the successful integration of project management principles with sustainable innovation, aligning seamlessly with the EEE399 course objectives at East West University. This 12-week pilot effectively replaces over 10,000 plastic items with biodegradable alternatives, achieving a projected ROI of 25-35% in the first year while navigating challenges like supply delays with adaptive strategies. The application of CPM, PERT, EVM, and risk management ensures a disciplined approach, while the EIA underscores a 50-70% reduction in ecotoxicity, supporting Bangladesh's sustainability goals under the Environment Conservation Act 1995.

This project not only fulfills academic requirements but also positions GreenPack as a promising startup, drawing inspiration from local successes like Ecovia. Key lessons—such as preemptive supplier diversification—guide future growth. I recommend expanding SKUs, pursuing grants, and partnering with the Department of Environment to amplify impact, laying a sustainable foundation for Bangladesh's eco-market.