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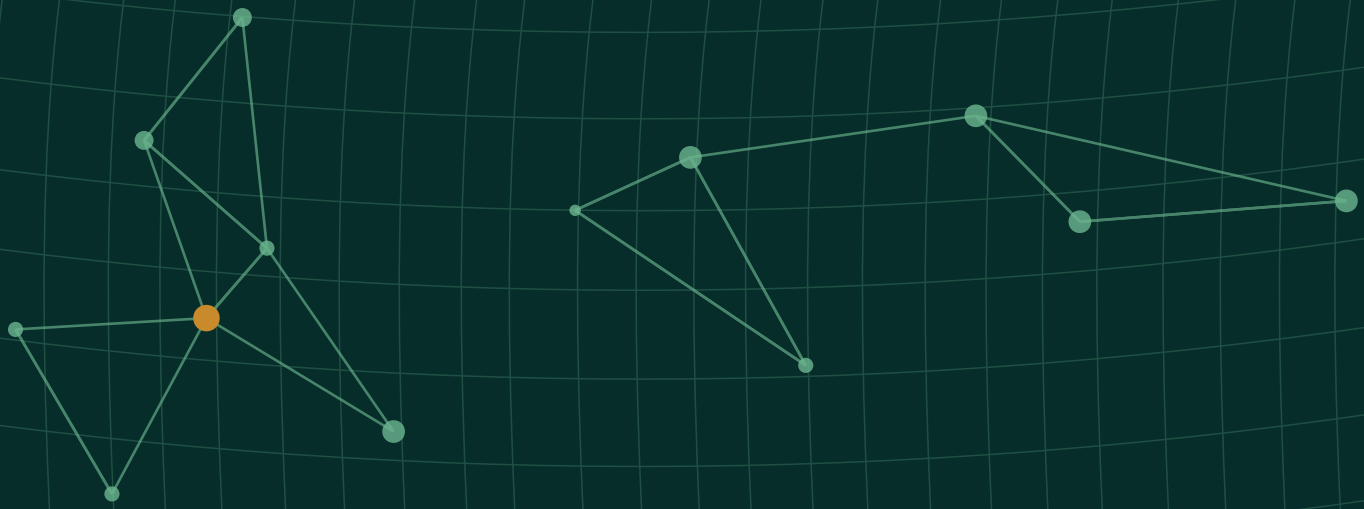
GFT RESEARCH / WARP AND SIGNAL

The Local-Processing Gap

Why Cameroon exports an estimated 95 percent of its cotton fibre raw, and the industrial path to the 50 percent target

wp01
RESEARCH EDITION

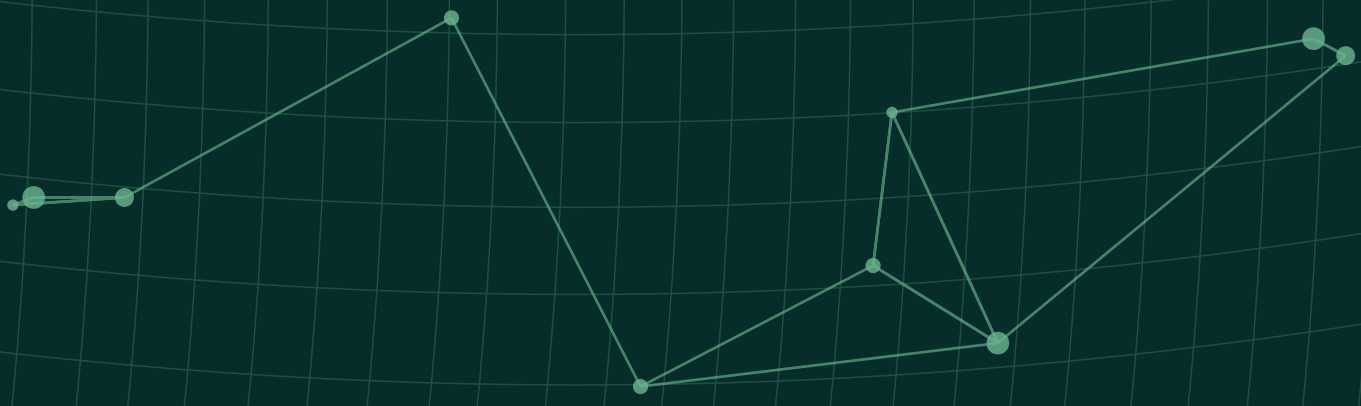
EDITION 2026-10-30
HONG KONG SAR



THE GFT THESIS

Value is made where it is measured.

GFT engineers sustainable factories that capture their own data from the first shift, so raw-material economies can keep the value they grow.



Read the evidence before acting on the recommendation.

ISSUER	Green Future Tech Limited, Hong Kong SAR
DOCUMENT	wp01 / The Local-Processing Gap
EDITION DATE	2026-10-30
AUDIENCE	Cameroonian industrial-policy and programme teams, Textile sponsors and factory operators, Development-finance and commercial due-diligence teams, Cotton producer organisations and processing firms, Institutional buyers and regional distributors
STATUS	Research edition. Generated locally. Publication and operating-performance acceptance are separate decisions.
PROGRAMME	GFT's Cameroon textile programme: feasibility, performance-management system design and digital strategy. Prepared 31 January 2024; source-refresh annotations retained in 2026.

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Inherited publication dates unrecorded: R01, R02, R03, R05, R06, R07, R08, R09, R10, R11, R12, R13, R14, R15, R16, R17, R18, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32. Temporal eligibility is unverified; these are inherited source-text checks, not independent source validation.

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Build the factory and its evidence as one system.

Cameroon's cotton economy has a persistent gap between fibre production and domestic industrial transformation. The often cited split of about 95 percent exported raw and 5 percent processed locally is a useful historical reference, but its source vintage and denominator require care. [R06] [R32] It is not a newly verified national measurement. The national ambition to process half of local fibre by 2030 therefore needs both a reconciled baseline and an operating route that buyers and factories can sustain. GFT argues that additional machinery will retain value only when qualified demand, suitable fibre, reliable utilities, skilled supervision and working capital are developed together. This paper distinguishes seed cotton from lint, installed capacity from throughput, and local assembly from domestic fibre transformation. It translates the target into transparent conditional scenarios, examines incumbent constraints, and compares rehabilitation, partnered conversion and staged investment. It also tests whether trade access and sustainability claims survive product-specific and site-specific scrutiny. The proposed path starts with product and supply qualification, then proves saleable output, payment collection and operating discipline before adding conversion stages. A common measurement system links factory records to national progress without counting the same fibre repeatedly. Recommendations identify the evidence required to proceed, defer or stop. The result is an industrial decision framework, not a prediction of target attainment or investment, legal or tax advice.

01 The approximately 95/5 split is a historical reference whose underlying article dates to 2019, not a newly verified current national share. [R06] [S01] [S06]

02 The primary national strategy sets a minimum 50% industrial transformation ambition for local fibre by 2030; seed-cotton production, garment assembly and market share must be reported separately. [S34] [R07] [S02] [S06] [S29]

03 At a constant illustrative lint denominator, moving from 5% to 50% raises processed volume tenfold and adds 45 percentage points. [R06] [R07]

04 Historical cotton-chain studies identify industrial, transport, financial and energy constraints that make isolated equipment investment an incomplete response. [S02] [S03] [S07] [R12]

05 A garment launch using imported fabric can create local value while contributing no direct domestic lint transformation. [S29] [S12]

06 Buyer specifications and repeat paid orders are stronger evidence for a product choice than aggregate market forecasts or raw-material abundance. [S32] [S29] [S27]

07 Local production must earn its environmental and social claim through site-specific resource, pollution and labour evidence. [S10] [S15] [S24] [S25] [S26] [S28]

08 Cameroon is explicitly listed among countries not designated for AGOA benefits in the opened 2026 USTR notice; programme authorisation does not establish country eligibility. [S17]

09 Announcements, historical capacity and reported future jobs cannot be counted as currently operating processing capacity or realised employment. [R08] [R09] [R10] [S13]

10 National progress should be reconciled from domestic lint intake and stocks, while expansion decisions also test saleable output, cash, safety and resource intensity. [S03] [S19] [S22] [S29]

01

PART I: DEFINE THE GAP BEFORE SIZING THE RESPONSE / THE CENTRAL ARGUMENT

Cameroon needs a viable processing system to retain more cotton value

GFT argues for measured, demand-led industrialisation that converts a national ambition into verified saleable output.

CHAPTER 01
DECISION TEST

GFT argues for measured, demand-led industrialisation that converts a national ambition into verified saleable output.

Cameroon can retain more cotton value by building a viable processing system around qualified demand, suitable fibre, dependable services, capable people and finance that lasts until customers pay. GFT's proposition is conditional: measure these dependencies together, demonstrate accepted production and collected cash, then release the next investment stage. An export-heavy cotton chain establishes a reason to examine domestic conversion. It does not establish that every conversion stage, product or factory will be commercially viable. The historical sector diagnoses support this distinction; the route proposed here is GFT's analytical response, not a claim of demonstrated factory performance. [S02] [S03]

1.1

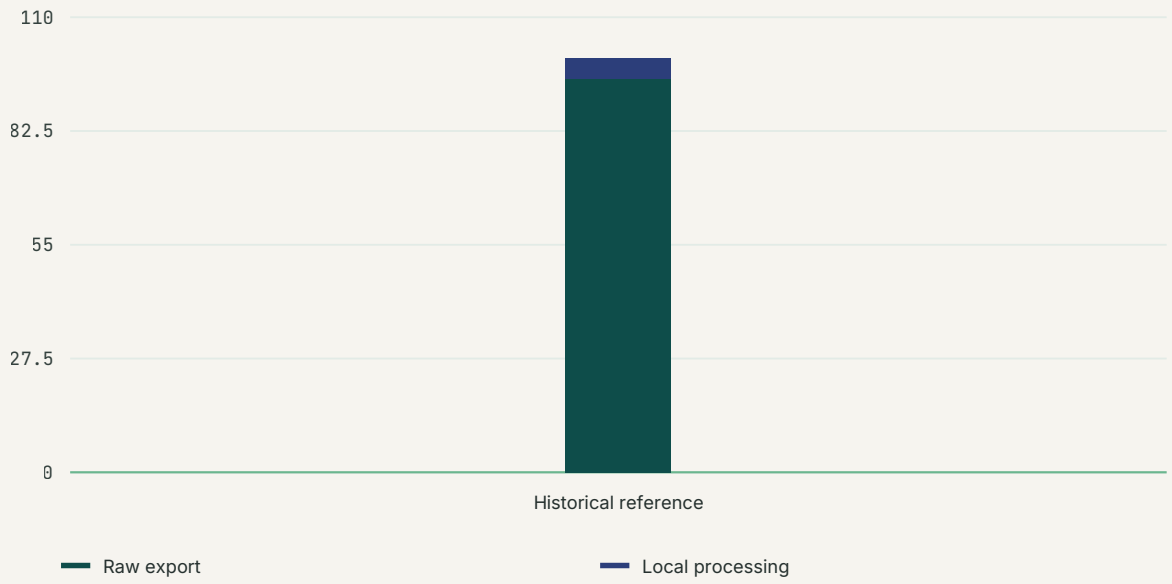
The export-heavy structure makes a case for change

The familiar reference is that about 95 percent of Cameroon's cotton fibre is exported raw and about 5 percent processed locally. The shared evidence register records this split, while the opened Cameroon Trade Hub page attributes its underlying article to Cameroon Business Today, February-March 2019. Its visible posting date does not make the observation contemporary. This is a useful historical description of an imbalance, not a newly measured national processing share as of this paper's edition. [R06] [S01]

The opening graphic deliberately retains that historical label. It presents the inherited comparison without attaching a current year or projecting a path to the policy ambition. Read **Exhibit 1**, p. 16 as an entry point to the question, with the source disagreement discussed below. The complementary shares describe the cited account; they should not be used to reconstruct a current material balance from unrelated customs and production records. [R06] [S01]

EXHIBIT 01 / PERCENT OF COTTON FIBRE IN THE HISTORICAL ACCOUNT

The historical reference leaves most fibre outside local processing



SOURCED [R06] [S01] Approximate 95/5 reference. S01 attributes its underlying article to February-March 2019 despite a later web posting date. S06 reports a different historical estimate. No current national share is established.

Later institutional evidence preserves the structural concern without validating that exact split. The IFC and World Bank diagnostic, published in December 2022, describes a cotton sector oriented towards export. It also discusses barriers to developing domestic textile activity. This supports examining the processing opportunity, while leaving the present proportion and the economics of a particular conversion route unresolved. A diagnosis of limited industrial development is not an order book. [S02]

The economic stakes are material. Cameroon's national statistics institute reports raw-cotton export receipts of CFA franc (XAF) 177.2 billion for calendar 2024, accounting for 5.4 percent of export receipts that year. These are trade values, not a measure of the cotton-processing share or of domestic value added. The report's cover identifies August 2025; its later hosting location must not replace the statistical period. [S23]

GFT's analytical recommendation is to treat export earnings as part of the counterfactual, rather than automatically calling them value lost. A domestic converter would purchase an input that already has a market. Its case must therefore explain what incremental income remains after paying for that fibre, imported inputs, conversion services, delivery and capital. Counting the final garment's whole selling price as newly retained national value would ignore the resources used to produce it.

The question for an industrial sponsor is consequently specific: can a defined product, delivered to a defined buyer, sustain a conversion activity under an evidenced operating arrangement? For a public programme, the additional question is

whether support creates lasting capability on acceptable terms. GFT proposes keeping those questions connected. A factory that relies on indefinite operating support may raise a processing measure while failing the programme's wider purpose.

GFT recommends making the distribution of that additional income explicit in the proposal. The sponsor should identify payments to workers, local service providers and upstream suppliers, alongside imported inputs and the compensation required for capital. These categories should use a consistent accounting boundary and avoid counting the same payment repeatedly. This would allow a programme team to ask who benefits from the proposed change and which benefits depend on continued subsidy, rather than inferring an inclusive outcome from the location of a building.

This approach also gives upstream interests a place in the decision. GFT recommends examining how domestic allocation would affect producer payment, fibre quality incentives and the cash available for subsequent crop operations. Retaining value should describe an improvement across an accountable chain, rather than the transfer of an unmeasured burden to growers or suppliers. The proposed comparison must therefore include continued export and alternative uses of the same finance.

1.2

The target needs an operational definition

The primary national strategy specifies a minimum 50 percent industrial transformation ambition for local fibre by 2030, a target also recorded in the shared evidence register and the World Bank private-sector diagnostic. This is an English paraphrase of the French policy text in paragraph 108, which sets distinct objectives for cotton production, industrial transformation and clothing supply. The transformation ambition is a policy objective, not achieved output, a forecast by GFT or evidence that an integrated industrial pole is already operating. [S34] [R07] [S02]

GFT proposes defining the transformation numerator as domestic cotton fibre actually entering a qualifying conversion process beyond ginning, supported by input and output records. The reporting authority would need to agree the qualifying stages and reconcile the denominator before this becomes an official indicator. OECD and FAO define cotton consumption in their outlook as mill transformation of fibre into yarn. That definition provides a useful reference boundary, without settling Cameroon's official implementation method. [S29]

The measurement boundary matters commercially. A sewing operation buying imported fabric can create local wages and services, yet its activity alone does not demonstrate transformation of domestically grown lint. Conversely, a domestic spinner can transform local lint into yarn that is subsequently exported. GFT's boundary analysis therefore separates where processing occurs, where inputs originate and where outputs are sold. These classifications answer different questions across policy and sector studies, and should remain visible in programme reporting. [S06] [S29] [S34]

The distinction also applies to national value added. Fibre intake is a physical quantity. Accepted yarn and fabric are outputs with different specifications and process losses. Garments assembled are finished units. Domestic sales describe a destination, while value added requires an economic account. GFT recommends a small family of linked

measures instead of a composite score that makes these contributions interchangeable. A favourable result in one account should not conceal an unresolved result in another.

The classification table in **Exhibit 2**, p. 18 turns that recommendation into a reporting prompt. It is an illustrative analytical taxonomy informed by published sector, trade and mill-use accounts, not measured national data. A table is used so that categorical distinctions remain explicit; assigning numerical positions would suggest a precision that the taxonomy does not possess. [S06] [S23] [S29]

EXHIBIT 02 / ANALYTICAL REPORTING TAXONOMY

A processing share is different from local value added

Measure	Record	Cannot establish
Local lint input	Origin and mill intake	Garment sales
Yarn or fabric	Accepted output	Domestic fibre origin
Garment assembly	Accepted finished units	Local lint conversion
Domestic sales	Buyer and destination	Domestic value added
Value added	Consistent economic account	Processing share

DERIVED [S06] [S23] [S29] GFT analytical taxonomy derived from the sector boundary in S06, trade-value reporting in S23 and the mill-use definition in S29. No rows are measured project results or official national reporting rules.

For implementation, GFT recommends recording input origin at entry and retaining its identity through the conversion records. A batch should not become additional national fibre merely because it moves from spinning to weaving or from weaving to sewing. The aggregate transformation indicator should count the qualifying domestic fibre once. Separate operational measures can then describe activity at each later stage without overstating the originating material.

The reporting period needs an equally clear rule. Domestic fibre produced during a crop campaign may remain in stock before conversion. GFT proposes either following an identified production cohort or explicitly reconciling stocks when using annual figures. Mixing calendar-year dispatch, campaign production and factory receipts without adjustments would make the resulting share difficult to interpret. The following chapter develops that accounting problem; this chapter establishes why agreement on the boundary must precede investment sizing.

Responsibility for the definition should be settled before competing projects begin reporting their contributions. GFT proposes that the reporting authority publish a concise method note, seek processor comments and retain a revision history. If coverage improves or the qualifying process changes, the revision should explain whether historical results remain comparable. This would let the national programme improve its information without presenting a methodological break as industrial progress, and give sponsors a stable basis for designing the records they must supply.

1.3

The reference share is approximate and historical

The official sector study dated September 2022 gives a different historical description: its foreword says approximately 1 percent of cotton is transformed locally. Its scenario methodology separately uses a 2 percent processing coefficient attributed to CICAM. Neither should be substituted silently for the approximately 5 percent reference in the earlier account. The figures differ in context, date and purpose; they do not form a verified time series. [R06] [S01] [S06]

GFT's evidence decision is to preserve this disagreement. Averaging an introductory sector estimate, a scenario coefficient and a recycled historical report would manufacture a baseline that no source measured. Equally, selecting the smallest number to dramatise the opportunity would exaggerate confidence. The correct conclusion is narrower: the opened accounts describe limited local processing, while a reconciled current national percentage remains to be established. [R06] [S01] [S06]

The distinction between publication and observation is especially useful here. The trade-hub page displays a January 2026 posting date while explicitly attributing its article to an issue from 2019. The ministry study's cover is September 2022, despite an older folder name in its address. Reading the date inside the source prevents a posting or storage convention from being mistaken for the date of the underlying evidence. [S01] [S06]

> **GFT NOTE**
>
> Commission a baseline reconciliation alongside commercial qualification. Ask for compatible domestic lint production, processor intake, stocks, imports, exports and adjustments, with a named reporting owner. Keep the existing historical reference visible until the replacement can explain its period, coverage and transformation boundary. A newer-looking number is not sufficient evidence for changing the baseline.

GFT proposes making the request practical rather than waiting for an exhaustive national database. Begin with the organisations supplying lint and the processors receiving it. Match dispatches to receipts, identify unresolved quantities and document which operators remain outside coverage. Retain the provisional status when coverage is incomplete. Such a working register would establish what is known and where further collection could change the decision.

The baseline should also preserve uncertainty about the material itself. GFT recommends identifying whether a record describes seed cotton, lint, yarn, fabric or finished garments before placing it in a common account. An unexplained quantity should remain unresolved rather than entering a balance through a convenient conversion assumption. The analytical purpose is to reduce uncertainty that affects the investment, not to fill every cell in a chart.

Planning need not cease while that work proceeds. GFT recommends reversible demand tests and supply enquiries under declared assumptions, with explicit limits on their use. For example, an illustrative product trial can test acceptance without claiming to establish the national processing share. A decision to order an integrated production chain needs stronger evidence because its scale and dependencies depend directly on the available material and saleable demand.

The opening reference thus has a disciplined role. It communicates the historical industrial question and connects it to the policy ambition. It does not determine a factory's required capacity, financing or likely return. Readers should carry this limitation into later scenarios: the transparent calculation of a hypothetical gap cannot turn an approximate inherited share into a verified current statistic.

1.4

The binding constraint is the complete operating system

The historical cotton-chain analysis and private-sector diagnostic identify insufficient industrial and transport capacity as constraints on handling production, and warn about financial strain when expansion is not matched by complementary capacity. They also distinguish the economic positions of different agents across the chain. The lesson is about coordination and operating conditions, not evidence that upstream crop availability automatically creates viable downstream textile production. [S02] [S03]

Electricity introduces a further dependency. The IMF's February 2025 country report diagnoses structural supply constraints and discusses transmission, distribution and maintenance needs. This is national context, not evidence of the service a particular factory can receive today. GFT's inference is that a proposed mill requires a site-specific connection and reliability assessment before equipment performance or conversion cost can be treated as established. [S07]

GFT therefore frames the complete-system proposition as a hypothesis to test. Simultaneous constraints can leave equipment underused when a complementary dependency binds, as illustrated by the July 2023 press-reported utilisation rates at CICAM sites of 33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2. Those historical observations do not predict the performance of another enterprise, yet they confirm that machine procurement alone cannot prove production viability. A buyer may reject a technically completed batch; a converter may lack suitable fibre; a funded production run may stop when spare parts or cash are unavailable. These are proposed failure mechanisms for diligence, not observations attributed to an unidentified GFT factory. [S02] [S03] [R12]

The proposed response starts at the product specification. GFT recommends working backwards from the buyer's acceptance requirements to the fabric construction, yarn characteristics, fibre suitability and conversion route. Each connection should identify who verifies conformity and who bears a failure cost. Raw-material proximity belongs in that comparison, but it should not override an unresolved technical mismatch or a delivery requirement that the proposed chain cannot meet.

GFT also recommends defining the supporting service boundary around the production plan. Energy availability, maintenance coverage, water where required, storage and shipment arrangements should be tested against the chosen product and schedule. A service described as available should have a named provider, an agreed responsibility and an evidenced response to interruption. Otherwise the production plan would convert an untested promise into apparent operating capacity.

The proposed trial record should connect an exception to its operational consequence. A delayed receipt should show which batch was affected; a quality failure should show the disposition of the material; an interruption should show whether accepted delivery changed. GFT recommends this event-based approach because an aggregate average can leave the reason for a failed order unresolved. The purpose is to distinguish a remediable local problem from an arrangement whose underlying cost or reliability cannot satisfy the intended customer.

The people and information arrangements belong inside the same boundary. GFT proposes assigning responsibility for receiving material, authorising production, releasing quality and reconciling stock and cash. Training would be judged through demonstrated performance on the relevant work, rather than attendance alone. Records should make exceptions visible to the person able to resolve them. The immediate objective is accountable operation, whether the first records are manual or digital.

Cash links these dependencies across time. Under GFT's proposed review method, the sponsor would map when fibre, services and wages must be paid, when output can be accepted, and when the buyer is expected to settle. An accounting margin cannot finance an interval before collection. The next exhibit demonstrates the consequence with deliberately assumed values, chosen to explain the method rather than estimate Cameroon conversion economics.

A PAID BATCH NEEDS BOTH CONTRIBUTION AND BRIDGE FUNDING

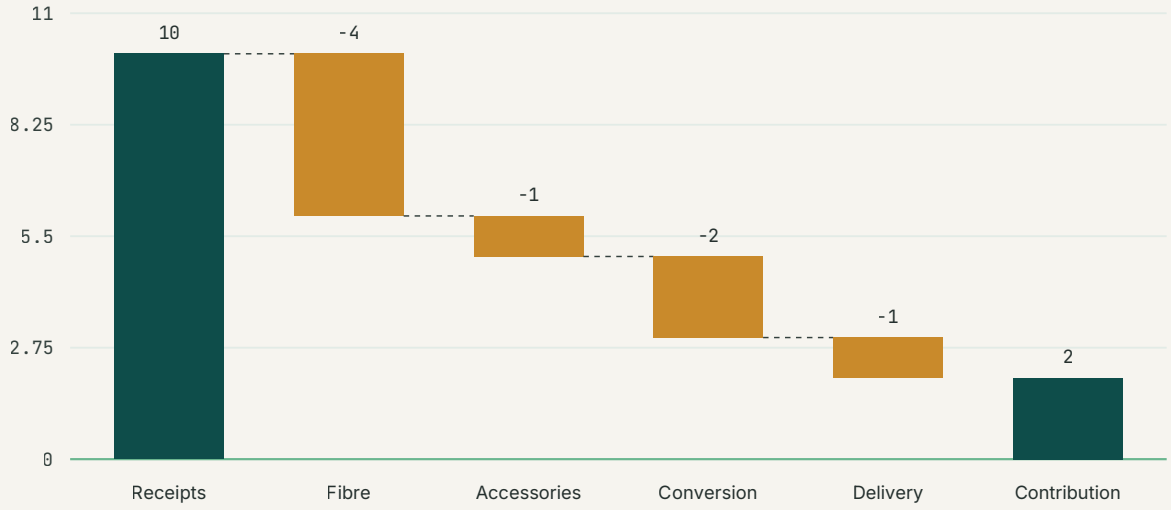
This illustrative batch assumes receipts of XAF 10 million, fibre payments of XAF 4 million, imported accessories of XAF 1 million, conversion payments of XAF 2 million and delivery payments of XAF 1 million. These round assumptions are teaching inputs, not quotations, market estimates or GFT results. The illustrative batch contribution before fixed overhead, finance, tax and capital recovery is XAF 10 million minus XAF 8 million, leaving XAF 2 million.

In this illustrative case, assume that all XAF 8 million of payments fall due before any buyer receipt, with no supplier credit, customer deposit or opening cash. The minimum bridge funding for this simplified batch is then XAF 8 million. Actual funding would also depend on timing, overhead, contingency, overlapping orders and any receivable delay. The contribution shown here is not national value added and cannot establish an investment return.

The waterfall in **Exhibit 3**, p. 22 reconciles those illustrative batch receipts and payments. Its final balance excludes the obligations named in the worked example. The exhibit tests whether the model is internally legible; it says nothing about whether a real buyer would accept the assumed selling price.

EXHIBIT 03 / XAF MILLION, ILLUSTRATIVE BATCH

Positive batch contribution still requires funding before collection



ILLUSTRATIVE Teaching assumptions only: receipts 10, fibre 4, accessories 1, conversion 2, delivery 1. Contribution = 10 - 4 - 1 - 2 - 1 = 2 before overhead, finance, tax and capital recovery. If all payments precede receipts and no credit or deposit exists, simplified bridge funding is 8. No market price or operating result is claimed.

GFT proposes evaluating these dependencies together before authorising capacity. A good trial would reveal whether they can work within a common production and collection cycle. A poor trial would still be useful if it isolates the binding failure and gives a costed remedy. Expanding before the failure is understood would sacrifice that learning and expose more capital to the same unresolved condition.

1.5

Staging preserves options while the market is proved

The demand link is fundamental. FAO explains that demand for cotton depends on demand for textile products. Its commodity discussion establishes the direction of the relationship, not a forecast for a Cameroonian factory. GFT's proposed consequence is to qualify the product and buyer before committing to a particular upstream configuration. Fibre availability is a supply advantage to investigate, not proof of saleable demand. [S32]

GFT compares possible operating boundaries without declaring a universal starting point. Assembly with purchased fabric can provide a bounded way to test product acceptance, delivery and collection. It contributes directly to local activity, but domestic lint transformation would require separate evidence about the fabric's origin and conversion route. A successful sewing trial cannot by itself validate a spinning investment. That distinction follows the mill-use boundary described earlier. [S29]

Partnered conversion offers a different proposed route. A sponsor could qualify domestic fibre through an external converter and link its resulting yarn or fabric to a downstream product. GFT recommends identifying the conversion location, material custody, quality responsibilities and output destination before counting any contribution to domestic processing. A conversion performed abroad may test product feasibility while adding no domestic mill activity.

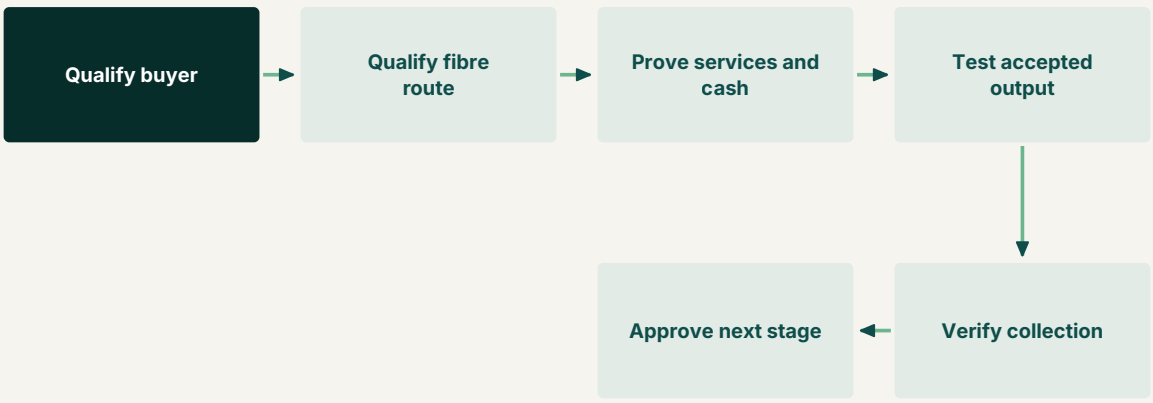
An owned integrated chain would place more conversion responsibilities within the sponsor's operating boundary. GFT recommends testing that option against the partnered alternative using the same product requirements and cash assumptions. Ownership should be justified by its operational and economic consequences, rather than by the appearance of completeness. The relevant question is whether taking on an additional stage improves the evidenced outcome sufficiently to justify its obligations.

Staging is consequently a decision discipline rather than a fixed prescription to begin with sewing. GFT proposes starting at the smallest boundary capable of resolving the most important uncertainty. Where an existing qualified buyer requires a local yarn, an upstream trial could be the appropriate first test. Where the specification or market is uncertain, a limited product trial could be more informative. Neither route should be called successful before its agreed evidence exists.

The flow in **Exhibit 4**, p. 23 is an illustrative sequence for assembling that evidence. Preparatory work on fibre, services and finance should proceed together; the diagram shows the approval logic rather than a mandatory serial construction schedule. No duration, budget or completion status is implied.

EXHIBIT 04 / ILLUSTRATIVE APPROVAL SEQUENCE

Expansion follows accepted output and an evidenced cash cycle



ILLUSTRATIVE [S02] [S03] GFT proposed gates informed by historical industrial and coordination constraints. Prepare fibre, services and finance concurrently. Stop or remedy unresolved conditions before expansion. This is not an implemented workflow or a project schedule.

GFT's Cameroon textile programme provides a design context for this reasoning. It comprises feasibility work, performance-management system design and digital strategy. The shared ledger's origin field preserves the programme's preparation date, 31 January 2024; later source-refresh notes do not change that date. This describes the supplied programme scope, not evidence of a commissioned factory, a qualified customer, a signed converter agreement or realised operating performance. The programme's concepts are proposed methods in this paper, rather than results attributed to a working plant. [R06]

GFT recommends retaining options explicitly at each review. The decision could be to expand, repeat a bounded trial, remedy a service constraint, change the product or stop. A gate that permits only progression would turn staging into paperwork. The useful gate is the one that can prevent an uneconomic commitment while preserving the evidence and capabilities gained through earlier work.

Partnering also requires an explicit exit and continuity plan under GFT's proposed method. The sponsor should establish who owns material during processing, how unfinished stock can be recovered, and what happens to records and customer commitments if the converter cannot continue. These are diligence questions rather than a model contract. Answering them would help determine whether a partnership actually preserves flexibility or merely moves an opaque dependency outside the factory's legal boundary. Appropriate transaction-specific advice belongs with the eventual agreement.

1.6

The paper tests a proposition rather than promising a return

The central proposition is falsifiable. GFT proposes rejecting or deferring expansion when qualified buyers cannot support the intended product, when the evidenced conversion margin fails to cover the operating arrangement, when utility reliability is unaffordable, or when the payment cycle cannot be financed. These are decision conditions for future diligence informed by sector, power-supply and derived-demand analyses. They do not report that any particular Cameroonian sponsor has passed or failed them. [S02] [S07] [S32]

Buyer qualification should produce an acceptance specification and a credible commercial route. GFT recommends testing both: a technically accepted sample without a usable purchasing process leaves demand unresolved, while a stated purchasing interest without an achievable specification leaves production unresolved. Repeat paid orders would be stronger evidence of the complete arrangement. Even then, expansion would require checking whether the operating conditions remain comparable at the proposed scale.

The cost test should expose the uncomfortable alternative. GFT proposes comparing local conversion with continued fibre export and appropriate external sourcing for the same product, using consistent quality and delivery requirements. Domestic conversion should carry the cost of reliability, rejects, supervision and finance required by its actual arrangement. Support may have a stated public purpose, but the supported and unsupported economics should remain separately visible to the decision-maker.

Service and cash tests should allow a negative answer to have consequences. GFT recommends agreeing in advance which interruptions invalidate a trial and which payment delays exceed the available finance. A sponsor should not redefine acceptance after a disappointing result simply because equipment has already been ordered. Where remediation is credible, its cost and evidence requirement should be stated before the next commitment is made.

GFT proposes an exception record for any decision to proceed with an unresolved condition. It should name the condition, explain the mitigation, identify who accepts the exposure and specify what would trigger reconsideration. Such a record would not make the risk disappear. It would make the decision inspectable and prevent an unresolved assumption from gradually being treated as a proven operating fact. The same discipline should apply whether the exception concerns demand, fibre allocation, a service agreement or payment collection.

The same discipline applies to broader public claims. GFT proposes keeping employment, safety, resource use and producer outcomes alongside throughput in programme review. An output increase should not automatically be labelled sustainable or inclusive. Each claim needs a defined boundary and observations capable of supporting it. The specialist chapters examine these tests in detail; the opening argument requires that they remain conditions of expansion rather than decorative benefits.

This is an industrial-strategy framework, not investment, legal or tax advice. No site selection, customer commitment, partner agreement, financing approval or project return is asserted. An investable proposal would need current transaction-specific evidence and appropriate professional review. The immediate decision advocated here is to organise commercial and operating proof so that future commitments can be judged against an intelligible record.

1.7

Readers can follow every claim into a source or an assumption

The paper separates inherited evidence, sources opened for the chapter, arithmetic and constructed cases. References beginning with R lead to the shared evidence ledger and retain its limitations. References beginning with S lead to the chapter's local source register. Opening an article verifies what it says; it does not independently audit the organisation or observation described. GFT's interpretations and recommendations are identified as analytical proposals rather than external findings.

Source provenance matters to this process. UN Comtrade explains that its data originate with country submissions, while the International Cotton Advisory Committee distinguishes its cotton-trade series and analysis from other published series. GFT therefore recommends retaining the reporter, release, period, category and unit whenever trade data enter a later calculation, and reconciling published definitions before combining series. A credible calculation should be reproducible from those inputs. A displayed result without its underlying classification and timing would be insufficient for reconciling trade with factory material records. [S19] [S21]

Arithmetic should remain equally inspectable. GFT proposes showing the inputs, operation, units and rounding adjacent to each calculated result. An illustrative assumption remains illustrative when multiplied by a sourced input. A target remains a target after conversion into tonnes or capacity. The worked cash example follows this rule by declaring every teaching assumption and stating what its closing balance excludes.

This chapter establishes the national question and the conditions of a credible response. The following chapters examine the material denominator, conditional scale of the target and constraints across the chain. Specialist technical implementation remains with the companion papers: detailed performance-management system design is assigned to `wp02` and factory utilisation methods to `wp15`. This illustrative division of scope keeps the opening argument usable without treating a national synthesis as a substitute for detailed operational diligence. [S02]

The proposed cotton-value-flow and ramp-planner tools should carry the same input discipline if implemented: visible source vintage, explicit assumed values and outputs tied to a defined boundary. Mentioning them here does not establish that they are built or validated. GFT recommends that any later interface preserve the uncertainties in this paper rather than producing an apparently authoritative result from silent defaults.

For a programme review, GFT recommends distinguishing evidence not yet requested, evidence requested but unavailable, and evidence supplied but inconsistent. These states imply different next actions. A missing buyer record requires collection, an incompatible material account requires reconciliation, and a failed acceptance test requires a commercial or technical decision. Labelling each state would make the next piece of work concrete. It would also prevent the absence of information from being converted into a favourable assumption merely to keep a proposed investment moving.

The practical starting point is a joint evidence request and a bounded commercial test. Define the material account, ask the buyer what constitutes acceptance, identify the conversion route and map the interval until payment. Use the resulting record to decide what can proceed and what remains conditional. This is how a national processing ambition can become a sequence of accountable industrial decisions.

Retained value begins with accepted output and survives only when the next cycle can be funded.

CHAPTER SOURCE NOTES

S02 IFC and World Bank. 2022.

S03 European Commission and Agrinatura. 2020.

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.

S01 Cameroon Trade Hub, reproducing Cameroon Business Today. 2019.

S23 Institut National de la Statistique du Cameroun. 2025.

S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.

R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

S07 International Monetary Fund. 2025-02-25.

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

S32 Food and Agriculture Organization of the United Nations. n.d..

S19 United Nations Statistics Division, UN Comtrade. n.d..

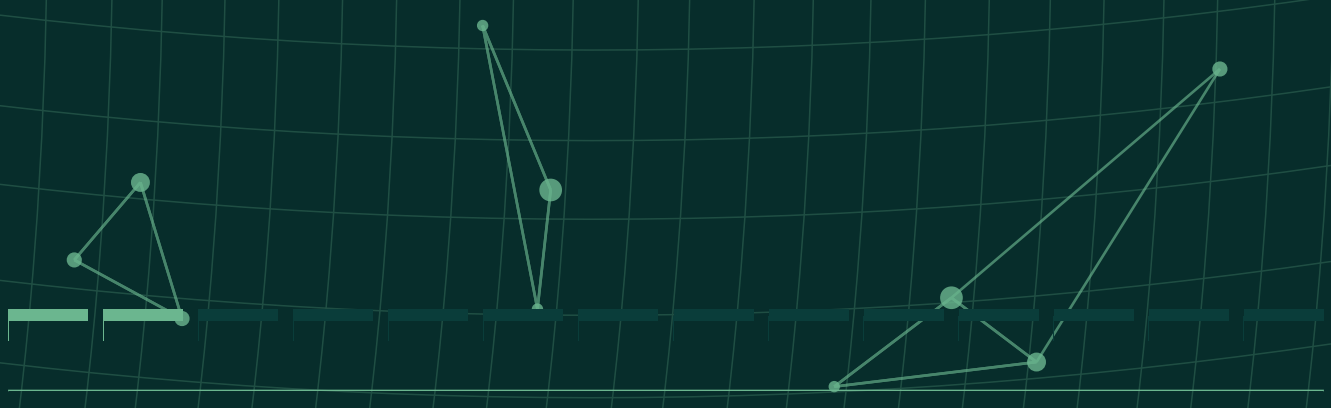
S21 International Cotton Advisory Committee. n.d..

02

PART I: DEFINE THE GAP BEFORE SIZING THE RESPONSE / A DEFENSIBLE DENOMINATOR

Seed cotton, fibre and garments require separate balances

A credible processing target starts with a mass balance that keeps moisture, stocks, trade and transformation stages distinct.



CHAPTER 02
DECISION TEST

A credible processing target starts with a mass balance that keeps moisture, stocks, trade and transformation stages distinct.

Cameroon's ambition to transform at least 50 percent of its local cotton fibre industrially by 2030 requires a denominator that separates agricultural harvest weight from industrial spinning feedstock. [S34] [R07] In policy commentary and commercial pitches, harvested seed cotton, ginned lint fibre, spun yarn, woven or knitted cloth, and assembled garments are often cited as if a tonne at one stage equalled a tonne at the next. [S06] [S29] In physical reality, ginning removes cottonseed and foreign matter that represent more than half of the harvested mass, calendar-year customs declarations cut across agricultural crop campaigns, and sewing lines can assemble garments from imported cloth without consuming a single bale of domestic lint. [S04] [S23] [S29] Until national reporting and factory models reconcile these boundaries on a stock-adjusted mass balance, neither the historical reference split of about 95 percent raw export and 5 percent local processing nor progress toward the 2030 target can be audited. [R06] [S01] [S19]

In GFT's Cameroon textile programme, prepared on 31 January 2024 with source refreshes retained in 2026 across its feasibility study, performance-management system design, and digital strategy, mass-balance discipline serves as the foundation of industrial planning. [S06] [S29] This chapter establishes the accounting rules that separate seed cotton, lint fibre, intermediate textiles, and finished apparel, defines the input contract for GFT's proposed `cotton-value-flow` analytical model, and specifies the minimum national dataset required to make the 2030 target testable. [S19] [S29] [S34]

2.1

Seed-cotton production cannot be read as fibre supply

An industrial cotton balance begins at the ginning boundary, where harvested agricultural output is separated into spinnable lint fibre and non-lint co-products. [S04] [S0201] Farmers harvest and deliver seed cotton (*coton-graine*), a composite raw material in which cellulose fibres remain attached to the cottonseed coat alongside leaf fragments, soil, and ambient moisture. [S04] [S0201] During ginning, mechanical saws detach the fibres from the seeds, and successive cleaning stages remove foreign matter before the cleaned lint (*coton-fibre*) is compressed into bales for storage, export, or domestic spinning intake. [S04] [S0201] Because downstream spinning frames accept only ginned lint of specified length, strength, micronaire, and cleanliness, seed-cotton tonnage cannot be entered directly into a mill capacity or national processing calculation. [S04] [S06] [S29]

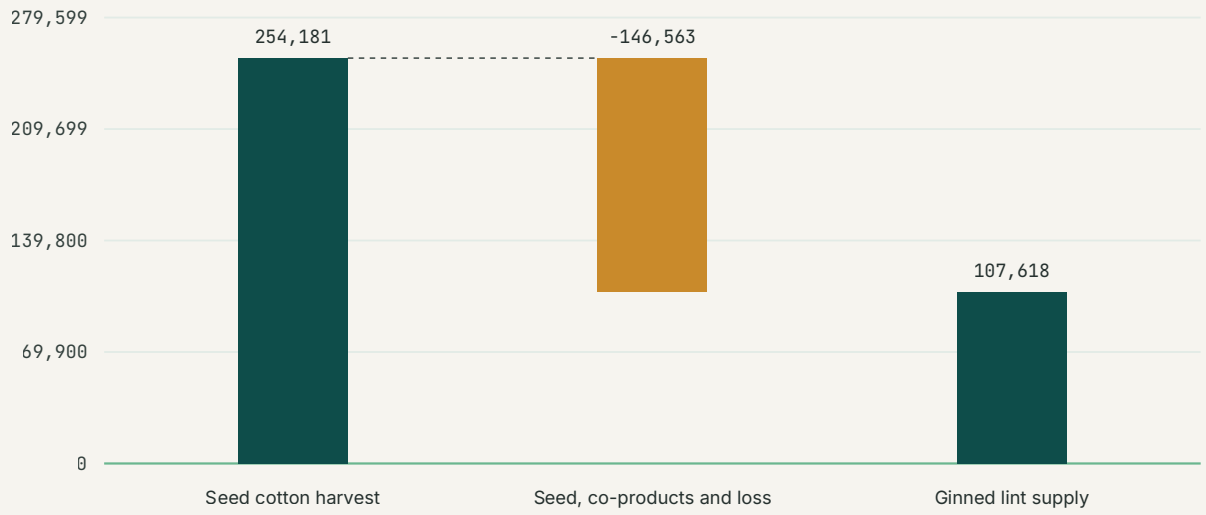
SODECOTON's technical documentation on ginning underscores that physical separation involves an operational trade-off between retained bale weight and fibre quality. [S04] As the company's process note states in French, *"L'égreneur doit aussi tenir compte de la perte de poids qui survient dans les différents nettoyeurs"*, which translates as: the ginner must also account for the weight loss that occurs in the various cleaners. [S04] Passing cotton through mechanical cleaners extracts trash and short fibres, which improves the spinning grade of the bale and raises its unit selling price, but reduces the mass of saleable lint recovered from each tonne of seed cotton. [S04] Ginning out-

turn is therefore an engineered outcome shaped by seed variety, field cleanliness, moisture at weighing, and cleaner settings chosen to optimise economic value. [S04] [S06]

Published sector data from Cameroon's Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts (MINPMEESA) show the magnitude of this boundary. [S06] In its September 2022 final report on the cotton, textile, garment, and leather value chain, MINPMEESA records a paired historical observation for the 2017/18 campaign: national seed-cotton production reached 254,181 tonnes, from which ginning yielded 107,618 tonnes of cotton fibre. [S06] Dividing 107,618 tonnes of lint by 254,181 tonnes of seed cotton produces a historical fibre yield of approximately 42.34 percent, while the remaining 146,563 tonnes (approximately 57.66 percent) exited as cottonseed, cleaning residue, and moisture adjustments. [S04] [S06]

EXHIBIT 05 / TONNES (2017/18 CAMPAIGN)

Ginning converts seed cotton into fibre and co-products



DERIVED [S06] [S04] [S0201] Derived from S06 paired 2017/18 campaign figures: 254,181 tonnes of seed cotton and 107,618 tonnes of ginned fibre, leaving a derived non-lint balance of 146,563 tonnes (254,181 minus 107,618). Historical ginning outturn is 107,618 / 254,181 = 42.34%. The non-lint balance comprises cottonseed co-products (oil and oilcake feedstock, planting seed) and cleaner weight losses (S04, S0201); it is not all physical waste.

As shown in **Exhibit 5**, p. 30, treating the 254,181 tonnes of seed cotton in 2017/18 as spinning feedstock would overstate lint output by 146,563 tonnes, or more than 136 percent. [S06] Equally important, **Exhibit 5**, p. 30 does not imply that the 146,563-tonne reduction is all waste. [S03] [S04] [S06] Cottonseed supplies SODECOTON's two oil mills for edible oil and livestock feed cake (*tourteaux*), alongside planting seed for the next crop. [R03] [S03] The 2020 European Commission and Agrinatura value-chain analysis (VCA4D briefing No. 19) notes that oilcake sales and seed valorisation are essential to upstream economic viability. [S03] What **Exhibit 5**, p. 30 cannot establish from the September 2022 ministry report alone is the exact split of the 146,563 tonnes between commercial seed, planting seed, cleaner trash, and moisture loss. [S04] [S06]

2.2 SCENARIO YIELD COEFFICIENTS MUST REMAIN DISTINCT FROM MEASURED CAMPAIGN OUTTURN

Alongside its 2017/18 observation, the September 2022 MINPMEESA study constructs forward projections by applying a flat 42 percent fibre-yield coefficient to projected seed-cotton harvests. [S06] On a 254,181-tonne harvest, the 0.34 percentage-point difference between the observed 42.34 percent outturn (107,618 tonnes) and the 42.00 percent scenario parameter (106,756 tonnes) equals 862 tonnes of lint. [S06] When GFT models lint availability in the following chapter and in `cotton-value-flow`, the 42 percent ratio from the September 2022 ministry report is used strictly as a historical scenario coefficient rather than a constant physical law. [S06] Because outturn varies with weather, boll quality, and cleaner settings, and cellulose bale weight shifts with ambient humidity between the dry northern ginning belt and coastal ports, a national denominator must report lint directly from ginhouse bale scales on a stated moisture regain convention. [S02] [S03] [S04] [S06]

2.3

A reporting period belongs to every tonne

Even when analysts restrict their denominator to ginned lint, material balances fail if tonnes recorded across incompatible calendars are combined in a single equation. [S19] [S21] [S23] Cotton and textile statistics in Cameroon follow four distinct institutional calendars: the agricultural crop campaign, the customs calendar year, the factory financial year, and the point-in-time stock date. [S03] [S06] [S19] [S23] Treating figures from these four calendars as contemporaneous observations introduces timing errors that can exceed the domestic processing share. [S06] [S19]

In northern Cameroon and across the CFA franc cotton zone, agricultural production follows a split-year campaign calendar. [R05] [S03] [S06] Planting begins with the northern rains, harvesting and collection run through the late months of the first calendar year, and haulage to the nine ginning plants, ginning, baling, and evacuation extend into the first half of the following year. [R03] [S03] [S06] Primary studies therefore identify output by campaign, such as the 2017/18 campaign in the VCA4D and MINPMEESA studies, or the 2024/25 CFA-zone output of 2.3 million tonnes (down 11.5 percent) reported in the shared evidence register. [R05] [S03] [S06]

By contrast, national customs records and international trade repositories aggregate merchandise flows by calendar year from 1 January to 31 December. [S19] [S23] In its December 2025 report *Evolution du commerce extérieur en 2024*, the Institut National de la Statistique (INS) records that raw-cotton exports (*coton brut*) generated XAF 177.2 billion in calendar 2024, or 5.4 percent of total 2024 export earnings (*"Elles représentent 5,4% du total des recettes d'exportations de l'année 2024"*). [S23] Similarly, UN Comtrade compiles merchandise trade statistics submitted by national authorities on standard calendar reference periods. [S19] [S0202]

2.4 DATED LEDGER OBSERVATIONS CANNOT BE SPLICED INTO A HOMOGENEOUS SERIES

The shared evidence register shows why period labels and source grades must remain attached to every number. [R01] [R02] In the shared register, a grade-C record from *Business in Cameroon* reports Cameroon seed-cotton production at 330,000

tonnes in 2022, 314,455 tonnes in 2023, and about 340,000 tonnes in 2024, while a companion press entry records a 2025 seed-cotton projection above 350,000 tonnes. [R01] [R02] Three rules govern these figures:

- First, these press entries report **seed cotton**, not ginned lint, and cannot be compared with lint exports or mill intake without ginning outturn records. [R01] [R02] [S04]
- Second, single-year press labels in those trade-press entries compress split-year campaigns into annual shorthand without disclosing cut-off dates or moisture conventions. [R01] [R02] [S06]
- Third, the 2022 and 2023 figures in the shared register are reported observations, the 2024 figure is an approximate estimate, and the 2025 figure is a projection; splicing them with the September 2022 ministry report's grade-A 2017/18 campaign figure would mix incompatible source grades and blend realised harvests with forecasts. [R01] [R02] [S06]

2.5 SUBTRACTING CALENDAR EXPORTS FROM CAMPAIGN OUTPUT DISTORTS APPARENT CONSUMPTION

Computing apparent domestic consumption as production minus exports across mismatched calendars without inventory reconciliation produces false residuals. [S19] [S21] When a campaign ginned in the first half of Year T+1 faces rail or road delays between Garoua, Ngaoundéré, and Douala, export shipments spill into early Year T+2. [S02] [S03] [S05] Subtracting calendar Year T+1 customs exports from campaign lint production without accounting for 31 December warehouse stocks makes unshipped export bales look mathematically like domestic processing, whereas in Year T+2 carryover shipments can push calendar exports above single-campaign lint production. [S19] [S21] [S23] As the International Cotton Advisory Committee (ICAC) notes for its global trade series, trade definitions and periods must be reconciled before volumes are combined. [S21]

2.6

The low-processing estimates cannot be averaged

The evidence base does not contain a single newly audited measurement of Cameroon's local cotton-processing share. [R06] [S01] [S06] Instead, four historical reference points ranging from roughly 1 percent to about 5 percent appear across different dates, boundaries, and methods: [R06] [S01] [S03] [S06]

- **The approximate 95 percent export and 5 percent local-processing split.** The shared evidence register cites *Cameroon Trade Hub* for the about 95/5 split and the 50 percent target. [R06] Opening the underlying page, titled *"Cotton fibre: 50% of the production to be process in 2025"*, shows that its closing attribution credits *Cameroon Business Today* No. 096 from February to March 2019, citing the Industrialisation Master Plan (PDI) (*"This is a strategic option contained in the Industrialisation Master Plan (PDI), which rates the textile and leather sectors among pillars for the coming years"*). [S01] The 95/5 split is an approximate 2019 policy reference, not a verified 2026 measurement. [R06] [S01]

- **The VCA4D 2019 value-chain diagnosis.** The 2020 European Commission and Agrinatura briefing, covering 2017 and the 2017/18 campaign, records that domestic lint absorption by CICAM is marginal and unprofitable (*"The activities are profitable for all agents, except for CICAM"*). [S03]
- **The MINPMEESA September 2022 foreword estimate of approximately 1 percent.** The foreword to the September 2022 MINPMEESA report states that local fibre transformation stands at approximately 1 percent of national production. [S06]
- **The MINPMEESA September 2022 scenario coefficient of 2 percent.** Within the projection tables of the same September 2022 report, the authors apply a 2 percent coefficient to fibre production to model CICAM's baseline lint uptake. [S06]

EXHIBIT 06 / REPORTED SHARE AND PROVENANCE

Historical processing estimates describe different evidence bases

Source ID	Evidence vintage	Reported figure	Implied boundary	Analytical role and limitation
R06 / S01	Feb-Mar 2019 article	~5% local / ~95% export	Aggregate national cotton fibre	Narrative PDI reference in press article; no mass balance or stock reconciliation attached
S03	2017 to 2017/18 study	Marginal domestic share	SODECOTON lint sold to CICAM and artisans	Diagnostic value-chain study; highlights CICAM operating deficits rather than a continuous national ratio
S06 (foreword)	September 2022 report	~1% transformed	National cotton-fibre transformation	Executive diagnostic summary statement; rounded order-of-magnitude baseline
S06 (scenarios)	September 2022 report	2% CICAM coefficient	CICAM lint uptake vs ginned lint	Modelling parameter applied to 42% lint yield in ministry projection tables
S34 / R07	2020 policy (to 2030)	>=50% target by 2030	Industrial transformation of local fibre	National policy ambition (SND30 para. 108); not a forecast or achieved throughput

SOURCED [R06] [S01] [S03] [S06] [R07] [S34] Comparison of opened policy and diagnostic sources (S01, S03, S06, S34) and shared evidence records (R06, R07). Estimates differ by vintage, numerator boundary, and analytical status; they must not be averaged or plotted as a continuous annual series.

Exhibit 6, p. 33 shows why these estimates cannot be averaged into an illustrative 2.67 percent mean or plotted as a chronological decline from 5 percent in 2019 to 1 percent in 2022. [S01] [S06] Both the 1 percent foreword figure and the 2 percent scenario parameter appear inside the same September 2022 ministry report, serving different analytical functions: the foreword provides an order-of-magnitude dia-

gnostic statement for policymakers, whereas the modelling tables adopt a 2 percent baseline coefficient to project how many tonnes of lint CICAM would absorb under constant-share scenarios. [S06] Meanwhile, the 95/5 split recorded in the shared register and traced through the trade-hub page to a February to March 2019 *Cameroon Business Today* article reflects a broad sector summary from the Industrialisation Master Plan (PDI) era without disclosing whether artisanal hand-spinning, medical cotton wool, or cottonseed by-products were included alongside industrial spinning intake. [R06] [S01] [S03]

While **Exhibit 6**, p. 33 confirms that domestic lint conversion has historically remained in the low single digits, it cannot establish a verified 2026 percentage because six same-period fields are missing from published statistics: [S02] [S06]

1. **Audited national ginned lint weight** in metric tonnes across all active ginning plants on a stated commercial moisture regain basis. [S04] [S06]
2. **Verified domestic mill lint receipts**, separating industrial spinning intake at CICAM's Garoua facility from any third-party, pilot, or artisanal users. [R12] [S02] [S03] [S06]
3. **Opening and closing lint bale inventories** held at ginning plants, inland transport hubs, port terminals, and domestic mill warehouses at the start and end of the reporting period. [S05] [S19] [S21]
4. **Raw cotton lint imports** cleared under customs Chapter 52 (specifically HS 5201 and spinnable lint under HS 5203) that could enter domestic spinning frames alongside Cameroonian fibre. [S19] [S23] [S0202]
5. **Physical storage and blowroom cleaning losses** incurred between ginhouse bale pressing and spinning-frame creel intake. [S04] [S29]
6. **Downstream intermediate trade flows**, distinguishing locally spun cotton yarn that is exported directly as yarn or grey cloth from yarn retained for domestic fabric finishing and garment assembly. [S23] [S29]

Until Cameroon's statistical and industrial authorities publish those six records on a synchronised period, GFT retains the historical qualifiers on the inherited register and ministry studies and leaves the current verified national share explicitly unresolved. [R06] [S01] [S06]

2.7

Capacity measures a possibility and throughput measures an outcome

Equating installed equipment capacity with actual fibre transformation, or summing capacities across stages with different physical units, corrupts national planning. [R10] [R12] [S06] [S29] Nameplate capacity is an engineering ceiling conditional on power, skills, spare parts, and working capital, whereas throughput is a realised flow of accepted material over a measured period. [R12] [S02] [S29] Each stage uses a distinct physical denominator:

- **Ginning capacity** is measured in tonnes of seed cotton input per campaign day or season across saw stands and bale presses. [S04] [S05] [S06]

- **Spinning capacity (cotton mill use)** is defined by the OECD-FAO *Agricultural Outlook 2026-2035* as the transformation of cotton fibres by mills into yarn (*"Cotton consumption refers to the transformation of cotton fibres by mills into yarn"*), where lint tonnage per spindle-hour varies with yarn count. [S02] [S29]
- **Weaving, knitting, and wet-processing capacity** is measured in metres or tonnes of cloth, requiring fabric density, blend ratio, and process waste to convert back to lint. [S02] [S10] [S27]
- **Garment assembly capacity** is measured in cut-make-trim pieces per shift, where domestic lint equivalence is zero whenever imported cloth is sewn. [S12] [S23] [S29]

2.8 ASSET REGISTERS REQUIRE CONTEMPORARY COMMISSIONING AND UTILISATION EVIDENCE

Upstream, both the shared evidence register and the September 2022 MINPMEESA report (*"A la SODECOTON, l'égrenage est réalisé au niveau de 9 usines"*) state that SODECOTON operates nine ginning plants and two oil mills supporting more than 220,000 cotton producers. [R03] [S06] On SODECOTON's undated homepage, the text describes a fleet of 660 rolling vehicles and civil-engineering machines (*"Au niveau de la logistique, l'entreprise dispose d'un parc de 660 véhicules roulants et matériels de génie civil"*), while animated counters extract as zero. [S05] Neither undated web text nor historical diagnostics establish active 2026 plant availability without a contemporary commissioning record. [S02] [S05] [S06]

Downstream, the shared evidence register reports July 2023 capacity utilisation at CICAM of 33.7 percent at Garoua, 48.9 percent at CICAM 1, and 10.83 percent at CICAM 2, with underutilisation costing about XAF 2 billion in 2020. [R12] These three site percentages cannot be combined into an unweighted arithmetic mean (which would yield an illustrative 31.14 percent figure) because Garoua, CICAM 1, and CICAM 2 perform different manufacturing stages (spinning and weaving in the north versus weaving, dyeing, bleaching, and printing in the coastal corridor), each with its own physical denominator and machine balance. [R12] [S02] A low utilisation rate at a wet-processing or printing site can bottleneck upstream spinning even when northern ginning plants hold ample lint bales in stock, proving that downstream machine availability and working capital govern actual lint absorption. [R12] [S02] [S03] [S10] Similarly, the press-reported decline in CICAM's domestic market share from about 85 percent three decades ago to about 5 percent today measures commercial fabric sales in a domestic market now supplied largely by imports; it must never be confused with the approximate 5 percent national lint-processing share, even though both figures happen to be 5 percent. [R06] [R11] [S23]

For announced projects, the shared register records a 12 November 2025 press report on the Camtext SA integrated cotton-to-textile project (citing a planned investment of US$300 million or XAF 180 billion involving Panafritex and Arise alongside SODECOTON, CNPS, and Marlo; 12,000 tonnes a year processed; about 12,000 jobs at a Dibamba hub and 3,000 at Garoua; a return on investment near 11 years; and optimal capacity around 2033), while a separate entry records the announced SODECOTON-CICAM merger targeted by 2030, echoing paragraph 107 of the *Stratégie Nationale de Développement 2020-2030* (*"Le rapprochement stratégique entre la SODECOTON et la CICAM, devrait permettre de constituer un pôle industriel intégré autour*

duquel sera structurée la filière coton-textile"). [R08] [R09] [R10] [S34] In a disciplined national denominator system, these restructuring and greenfield announcements must remain logged as policy intentions or grade-C press announcements rather than active conversion capacity until engineering diligence confirms whether the reported 12,000 tonnes refers to ginned lint intake, spun yarn output, or finished cloth, and until financial close, plant commissioning, and metered bale intake are achieved. [R08] [R09] [R10] [S29]

2.9

Customs categories need a product concordance

External trade summaries group raw fibres, intermediates, and finished apparel under broad headings that require an HS product concordance before comparison with ginning or spinning balances. [S19] [S23] [S0202] In INS Cameroon's 2024 trade report, raw-cotton exports generated XAF 177.2 billion (5.4 percent of 2024 export receipts), while the published textile import schedules recorded: [S23]

- **Second-hand clothing (*friperie*):** 61,221 tonnes (XAF 30,251 million) in 2023 and 72,600 tonnes (XAF 39,857 million) in 2024, up 11,379 tonnes (18.59 percent) and XAF 9,606 million (31.75 percent). [S23]
- **Textile materials and articles (*matières textiles et leurs ouvrages*):** 148,923 tonnes (XAF 93,005 million) in 2023 and 146,139 tonnes (XAF 109,235 million) in 2024, down 2,784 tonnes (1.87 percent) and up XAF 16,230 million (17.45 percent). [S23]

Three rules apply to these customs categories: [S23]

1. **Check HS overlap before summing.** HS Section XI spans Chapters 50 to 63, including worn clothing (HS 6309, *friperie*). [S19] [S23] Summing 146,139 tonnes and 72,600 tonnes in 2024 would double count *friperie* if HS 6309 is already inside the Section XI line; if embedded, non-friperie textile imports in 2024 equal 146,139 minus 72,600, or 73,539 tonnes valued at XAF 69,378 million. [S19] [S23]
2. **Account for synthetic fibre predominance.** Section XI includes man-made filaments and staple fibres. [S19] [S23] Textile Exchange's *Materials Market Report 2025* confirms that fossil-fuel-based synthetics lead global fibre output, with polyester continuing to be the most widely produced fibre, and the OECD-FAO outlook highlights synthetic competition across apparel. [S27] [S29] Much of Cameroon's imported textile tonnage in the customs tables is polyester or poly-cotton blend rather than pure cotton. [S23] [S27] [S29]
3. **Specify HS Chapter 52 and Comtrade metadata.** Within HS Chapter 52, raw lint (HS 5201), cotton waste (HS 5202), and carded/combed cotton (HS 5203) belong to the fibre balance, cotton yarns (HS 5204 to 5207) to spinning, and woven cotton fabrics (HS 5208 to 5212) to weaving. [S19] [S29] Because UN Comtrade compiles country submissions and standardises or estimates missing net weights (kilograms) and WCO supplementary units using standard unit values, any

Comtrade extraction must specify HS revision and code, reporter, partner, flow, calendar year, net weight, supplementary quantity, value, and estimation flags. [S19] [S0202]

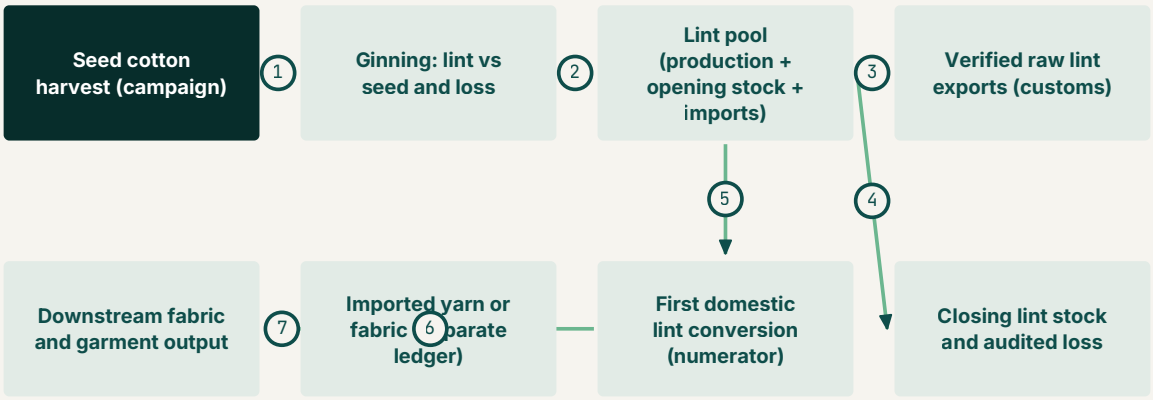
2.10

A minimum national dataset makes the target testable

To make the minimum 50 percent local-fibre transformation target by 2030 verifiable, GFT proposes defining the official numerator at a single physical boundary: **metric tonnes of domestic-origin ginned cotton lint entering a qualifying domestic industrial conversion process beyond ginning**, metered once at the intake scale of the first conversion stage (primarily spinning-mill blowroom intake as defined in the OECD-FAO outlook). [R07] [S10] [S29] [S34] Metering once at first post-ginning intake prevents double counting the same fibre across vertically linked plants: if 1,000 illustrative tonnes of Cameroonian lint are spun into 900 illustrative tonnes of yarn, woven into 855 illustrative tonnes of cloth, and sewn into 750 illustrative tonnes of garments, the national numerator credits **1,000 tonnes** of lint transformed rather than 3,505 illustrative tonnes of cumulative stage intakes. [S10] [S12] [S29]

EXHIBIT 07 / PHYSICAL MASS-BALANCE BOUNDARY

A stock-adjusted lint balance prevents false processing claims



1. Weighed intake
2. Ginned lint bales
3. Export dispatch
4. Warehouse count
5. Metered bale intake
6. Domestic yarn flow
7. Non-lint garment input

ILLUSTRATIVE [S19] [S23] [S29] Illustrative GFT material-balance architecture grounded in S19 trade-reconciliation rules, S23 customs categories, and S29 mill-use definitions. Domestic lint transformation is metered once at first post-ginning conversion intake. Imported yarn or fabric enters downstream stage balances without crediting the domestic lint numerator.

Exhibit 7, p. 37 isolates the national target numerator from inventory swings, raw-lint exports, and imported fabric assembly. [S19] [S23] [S29] A garment plant launching with imported fabric creates local jobs and value, but contributes zero to first domestic lint conversion in **Exhibit 7**, p. 37 until domestic lint is spun into its yarn supply. [S12] [S29] [S32] What **Exhibit 7**, p. 37 cannot provide without institutional reporting is the verified national tonnage for each node. [S06] [S19]

NATIONAL LINT MASS-BALANCE AND COHORT-RATIO PROTOCOL

For any defined reporting period, total ginned lint availability and disposition on a consistent commercial moisture regain basis (such as an illustrative 8.5 percent regain) must satisfy the conservation identity: [S04] [S19] [S29]

```
opening lint stock + domestic lint produced + lint imports = lint exports
+ domestic lint input to conversion + imported lint input to conversion +
closing stock + measured physical loss + statistical discrepancy
```
[S04] [S19] [S29]

- **Opening and closing lint stocks** are audited warehouse bale inventories at the start and end of the period across ginning plants, depots, ports, and domestic mills. [S05] [S19] [S21]
- **Domestic lint produced** is ginned lint output from Cameroonian seed cotton across all active ginning lines. [S04] [S06]
- **Lint imports and exports** are raw lint shipments imported (HS 5201, HS 5203) or exported, reconciled between ginhouse dispatch and customs declarations. [S19] [S23] [S0202]
- **Domestic lint input to conversion** is domestic-origin lint entering its first post-ginning industrial conversion stage, kept separate from **imported lint input to conversion**. [S19] [S29] [S34]
- **Measured physical loss and statistical discrepancy** record verified damage separately from the unreconciled residual, which must never be credited silently to domestic conversion. [S04] [S19]

2.11 STOCK DRAWDOWN REQUIRES A CHOICE BETWEEN A COHORT SHARE AND A THROUGHPUT RATIO

When spinning mills draw down carryover bales from an earlier campaign during a smaller crop year, dividing total annual domestic mill intake by that same year's lint production can push the ratio above current-crop conversion and, in an extreme stock drawdown, above 100 percent. [S06] [S19] [S29] National reporting must therefore distinguish:

1. **The production-cohort conversion share:** current-crop domestic lint entering conversion divided by current-period domestic lint production, bounded between 0 percent and 100 percent. [S04] [S29]
2. **The annual domestic lint throughput ratio:** total domestic-origin lint processed during the year (including carryover bales) divided by current-period lint production, reported alongside net stock drawdown. [S19] [S29]

WORKED EXAMPLE: STOCK DRAWDOWN AND RESIDUAL DISTORTION IN A LINT BALANCE

Consider an illustrative single-year accounting exercise to demonstrate these identities (all numbers below are illustrative demonstration inputs, not observations from Cameroon or a GFT plant). Suppose an illustrative opening lint stock of 25,000 tonnes plus 100,000 illustrative tonnes of new domestic ginned lint and 0 illustrative tonnes of imports creates a 125,000-tonne lint pool. [S04]

During the year, customs records 55,000 illustrative tonnes of lint exports, domestic mills spin 40,000 illustrative tonnes of current-crop lint plus 15,000 illustrative tonnes from opening stock (55,000 illustrative tonnes total mill intake), verified warehouse loss is 1,000 illustrative tonnes, and closing stock is 12,000 illustrative tonnes. [S23] [S29]

1. **Reconciliation:** Accounted dispositions plus closing stock equal 55,000 plus 55,000 plus 1,000 plus 12,000, or 123,000 illustrative tonnes, leaving an explicit statistical discrepancy of 2,000 illustrative tonnes (1.60 percent of the pool) for audit rather than false processing credit. [S19]
2. **Naive residual error:** Production minus exports gives 100,000 minus 55,000, or 45,000 illustrative tonnes (45.0 percent), missing both the 13,000-tonne net stock drawdown (25,000 minus 12,000) and the 3,000 illustrative tonnes of loss and discrepancy. [S19]
3. **Cohort versus throughput ratio:** The **production-cohort conversion share** is 40,000 divided by 100,000, or 40.0 percent (below the 50 percent target in the national development strategy), whereas the **annual throughput ratio** is 55,000 divided by 100,000, or 55.0 percent. If drought in the next year cut lint production to 30,000 illustrative tonnes while mills spun 22,000 illustrative tonnes of current crop plus 10,000 illustrative tonnes of carryover stock (32,000 illustrative tonnes total), the unadjusted throughput ratio of 32,000 divided by 30,000 would reach 106.67 percent unless the 10,000-tonne stock drawdown was disclosed. [S29] [S34]

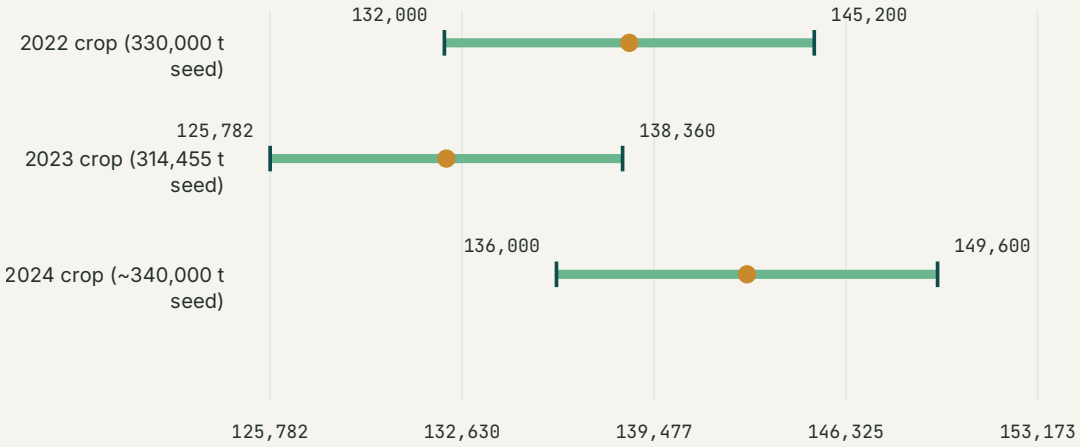
2.12

Uncertainty should survive the calculation

When baselines are approximate, ginning outturn varies, and recent harvests come from grade-C press reports, tables must preserve uncertainty by tagging every cell as `observed`, `historical`, `target`, `forecast`, `derived`, `illustrative`, or `missing` (never silently set to zero). [R01] [R02] [R06] [S01] [S04] [S06] [S19] [S29] **Exhibit 8**, p. 40 applies the September 2022 ministry report's 42.0 percent scenario yield coefficient as a midpoint alongside an illustrative 40.0 percent to 44.0 percent ginning-outturn sensitivity band to the three seed-cotton observations in the shared evidence register (330,000 tonnes in 2022, 314,455 tonnes in 2023, and about 340,000 tonnes in 2024). [R01] [S04] [S06]

EXHIBIT 08 / TONNES OF GINNED LINT (DERIVED RANGE)

Imputed lint supply varies with the assumed ginning outturn



DERIVED [R01] [S06] [S04] Derived sensitivity ranges applying S06's 42.0% scenario yield coefficient (mid) and an illustrative 40.0% (low) to 44.0% (high) ginning-outturn band (informed by S04 cleaner-loss mechanics and S06's 42.34% 2017/18 ratio) to R01's grade-C seed-cotton figures: 330,000 t (2022), 314,455 t (2023), and ~340,000 t (2024). Values are derived sensitivity bounds, not audited SODECOTON bale weights.

In **Exhibit 8**, p. 40, the derived lint range spans 132,000 to 145,200 tonnes (midpoint 138,600 tonnes at 42.0 percent; spread 13,200 tonnes) for the 2022 seed-cotton figure of 330,000 tonnes, 125,782 to 138,360 tonnes (midpoint 132,071 tonnes, rounded from 132,071.1; spread 12,578 tonnes) for the 2023 seed-cotton observation of 314,455 tonnes, and 136,000 to 149,600 tonnes (midpoint 142,800 tonnes; spread 13,600 tonnes) for the 2024 rounded seed-cotton estimate of about 340,000 tonnes. [R01] [S06] In every one of those three years, the 12,578-tonne to 13,600-tonne uncertainty band around ginned lint output exceeds the entire 12,000-tonne reported annual processing capacity of the announced Camtext SA project and roughly doubles the volume implied by the approximate 5 percent historical reference share (which corresponds to 6,604 to 7,140 illustrative tonnes of lint at the 42.0 percent midpoints). [R01] [R06] [R10] [S06] What **Exhibit 8**, p. 40 cannot establish is the actual audited bale weight produced by SODECOTON's nine ginning plants in 2022, 2023, or 2024, because the shared evidence register provides only grade-C seed-cotton totals without official ginhouse outturn ledgers or closing inventory certificates. [R01] [R03] [S06]

Preserving this uncertainty is also a governance requirement: every figure in the national cotton balance should have a designated institutional owner and a documented audit trail. [S19] Ginning outturn and lint bale weights belong to the ginning operator's calibrated press scales; customs export and import weights belong to the customs administration and INS; and domestic conversion intake belongs to metered mill receiving logs audited against bale lot numbers. [S04] [S06] [S12] [S19] [S23] [S29] When a cell in the national balance has not yet been measured for a given period, publishing it as `missing` with an explicit data request protects capital allocation far better than filling the gap with an unverified residual. [S06] [S19]

GFT NOTE: INPUT CONTRACT FOR THE COTTON-VALUE-FLOW MODEL AND COMPANION PAPERS

In GFT's Cameroon textile programme, these mass-balance rules govern the input contract of the proposed `cotton-value-flow` tool and set the boundary with companion papers: [S06] [S29]

1. **Stage-specific inputs:** `cotton-value-flow` requires every tonnage input to declare its stage (seed cotton, ginned lint, yarn, fabric, or garments) and blocks cross-stage addition without explicit conversion yields. [S04] [S06] [S10] [S12] [S29]
2. **Preserved provenance:** Each model parameter retains its source ID, vintage, and status tag (`observed`, `historical`, `target`, `derived`, or `illustrative`) so scenario outputs are never mistaken for audited national data. [S19]
3. **Companion paper handoff:** The following chapter scales the lint denominator into conditional 2030 capacity scenarios, while lot-level chain-of-custody mechanics are assigned to **WP05** and data-governance implementation to **WP14**. [S12] [S19] [S34]

OPERATIONAL AND ADVISORY BOUNDARY

An unverified customs residual or seed-cotton headline is not bankable feedstock. [S06] [S19] Sponsors and authorities should require signed ginhouse outturn summaries, warehouse stock certificates, and mill intake logs on a unified moisture and period basis before committing capital or reporting progress toward the 2030 target. [S04] [S19] [S34] This chapter is an engineering framework, not investment, legal, or tax advice, and no operating GFT plant, supply contract, or verified 2026 national processing share is asserted. [R06] [S06]

A target measured in lint cannot be proved with seed-cotton headlines, calendar mismatches, or double-counted cloth.

CHAPTER SOURCE NOTES

S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.

R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

S04 SODECOTON. n.d..

S23 Institut National de la Statistique du Cameroun. 2025.

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.

S01 Cameroon Trade Hub, reproducing Cameroon Business Today. 2019.

S19 United Nations Statistics Division, UN Comtrade. n.d..

S0201 United States Department of Agriculture, Economic Research Service. 2025-01-08.

S03 European Commission and Agrinatura. 2020.

R03 SODECOTON. Publication date unrecorded; inherited source-text check.

S02 IFC and World Bank. 2022.

S21 International Cotton Advisory Committee. n.d..

R05 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S0202 United Nations Statistics Division, UN Comtrade. 2019-11.

R01 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R02 Fibre2Fashion; Business in Cameroon. Publication date unrecorded; inherited source-text check.

S05 SODECOTON. n.d..

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S10 World Bank Group / IFC. 2007-04-30.

S27 Textile Exchange. 2025.

S12 OECD. 2026-02-26.

R11 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.

R08 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.

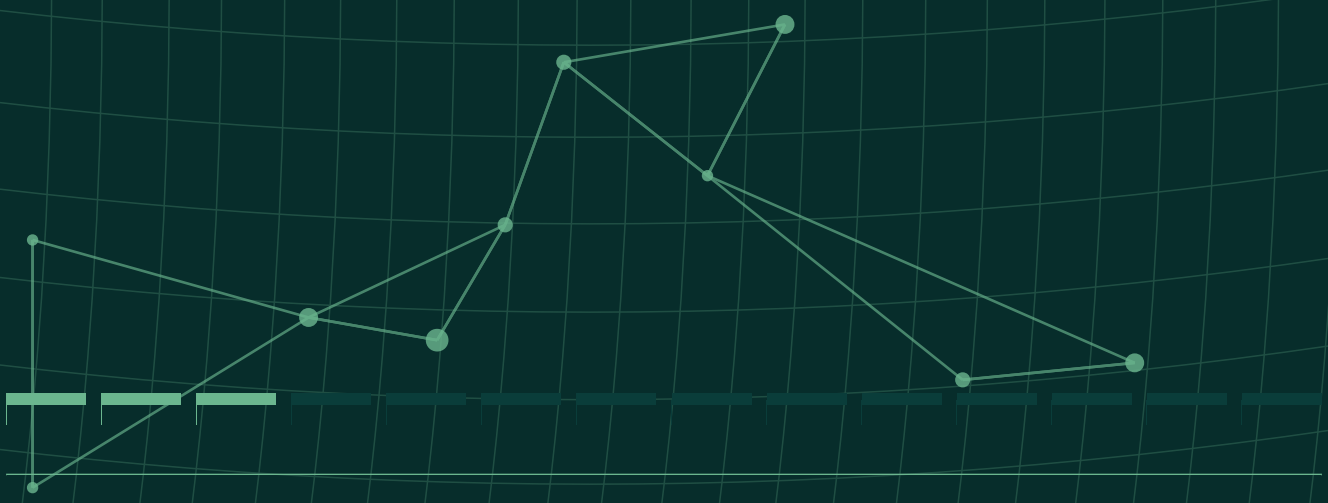
S32 Food and Agriculture Organization of the United Nations. n.d..

03

PART I: DEFINE THE GAP BEFORE SIZING THE RESPONSE / SCALE THE AMBITION

The national target requires a portfolio of utilised conversion capacity

A transparent scenario translates the processing share into annual lint intake and shows what the target does not yet specify.



CHAPTER 03
DECISION TEST

A transparent scenario translates the processing share into annual lint intake and shows what the target does not yet specify.

The national ambition requires a portfolio that converts domestic lint into products buyers accept and pay for. A processing share alone cannot specify the machinery, operating time or cash needed. GFT therefore proposes translating the ambition into annual domestic lint intake, then testing the contribution of each project against utilisation, material origin and a common reporting period. The result is a conditional sizing method, not a forecast of attainment. The policy sets a minimum local-fibre transformation ambition of 50 percent by 2030; it does not establish that the corresponding capacity is financed, commissioned or commercially viable. [S34]

3.1

The fibre denominator changes the required investment

The primary national strategy separates a cotton-production ambition of 600,000 tonnes annually by 2025 from a minimum industrial transformation ambition of 50 percent of local fibre by 2030. Those horizons must remain attached to their respective objectives. Neither policy statement is an observation of achieved output. In this chapter, the production quantity is treated as seed cotton when constructing a scenario, consistent with the ministry sector study's explicit treatment of that production objective. [S34] [S06]

The relevant investment question is how much domestic lint must enter qualifying conversion during the selected reporting period. The answer depends on the lint denominator, not simply on the crop's harvested weight. This chapter takes the reconciled denominator from the preceding material-balance method rather than rebuilding it. Before sizing investment, the programme authority should approve the origin, stock and transformation rules that determine which intake qualifies. Until then, the result is a planning case with an unresolved reporting definition.

GFT proposes using lint entering domestic spinning as the reference conversion boundary for the sizing calculation. OECD and FAO define cotton consumption as the transformation of cotton fibres by mills into yarn. That definition supplies a comparable material stage, but it does not settle the legal or administrative interpretation of Cameroon's policy target. Other qualifying industrial fibre uses would require their own approved categories and reconciliation rules. [S29]

A constant-supply case asks how much more conversion is needed if annual lint availability stays unchanged. A growing-supply case asks how much conversion is needed if the crop and the lint denominator increase. These cases answer different questions. A processor portfolio can increase intake while its national share falls if the denominator grows faster. Equally, a poor crop can improve the reported share without increasing domestic conversion. The decision record should therefore retain both the share and the underlying tonnes.

The ministry's sector study, issued in September 2022, presents its own projected crop path beyond the earlier production ambition. Its tables are calculations, not subsequent harvest observations. GFT does not extend that path automatically or substitute its later projected quantities for the national strategy's differently dated objective.

The study also contains differing descriptions of the production horizon, which strengthens the case for anchoring the policy statement in the primary strategy. [S06] [S34]

For investment screening, each denominator case should identify its custodian, evidence vintage and intended use. An agricultural planning projection may help test whether a processing system could absorb a larger crop. It should not become a lender's verified feedstock quantity merely by appearing in a national scenario. A proposed mill still needs evidence of suitable lint, delivery timing and the commercial ability to procure it. National availability and an individual project's accessible supply are separate constraints.

An illustrative scenario record should also hold the reporting rules constant between comparisons. Changing from domestic-origin lint to all lint, or changing from crop-cohort conversion to calendar-period receipts, would change the question while preserving the same headline label. A scenario that cannot describe its denominator in ordinary language is not ready to determine equipment procurement. Its next task is definition and reconciliation, rather than a more elaborate forecast.

GFT proposes making the scenario owner responsible for reconciling changes between editions. A revised crop assumption should change the lint calculation visibly. A revised qualification rule should trigger a restatement of comparable project contributions. A new commissioning document should change project status without rewriting the original policy ambition. Keeping those revisions separate makes it possible to explain whether the estimated requirement changed because of new evidence, a different assumption or a different reporting rule.

3.2

A normalised calculation exposes the processing gap

The inherited evidence register records an approximate historical reference of 5 percent locally processed fibre and 95 percent raw export. The original publication date is not recorded in that shared entry, and the figure is not a freshly measured national share. The target reference is 50 percent local processing by 2030, corroborated by the primary strategy's minimum transformation ambition. These figures provide a transparent comparison, provided the historical reference is never presented as the current baseline. [R06] [R07] [S34]

Take an illustrative annual denominator of 100,000 tonnes of domestic lint, chosen solely to make scaling easy. Applying the historical reference gives 100,000 multiplied by 0.05, or 5,000 tonnes of conversion. Applying the target gives 100,000 multiplied by 0.50, or 50,000 tonnes. Subtraction gives an illustrative increment of 45,000 tonnes annually. This is not an estimate of the national tonnage gap because the denominator was selected rather than measured. [R06] [R07]

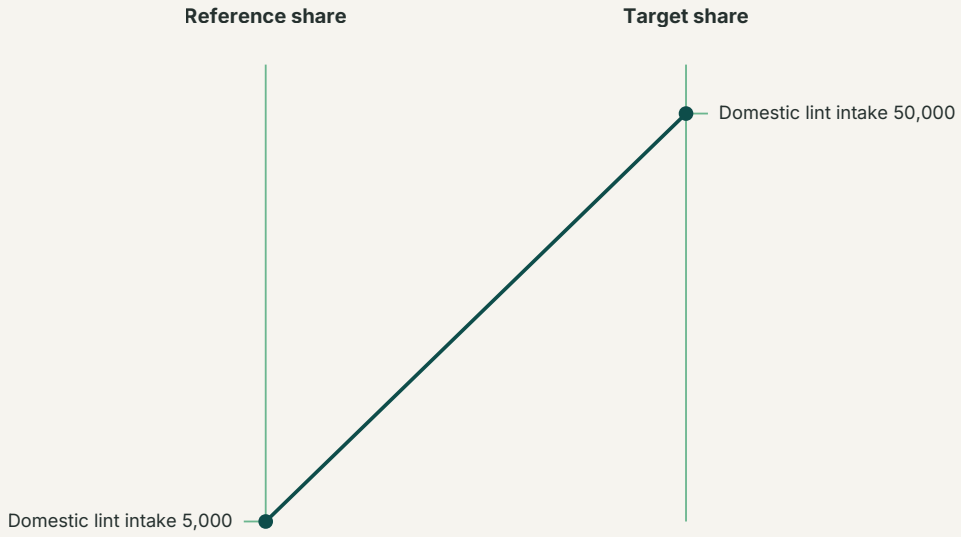
At the same illustrative denominator, the change is 45 percentage points, calculated as 50 minus 5. The target volume is ten times the reference volume, calculated as 50,000 divided by 5,000. The additional volume is nine times the reference volume,

rather than ten times additional volume. Keeping those descriptions distinct prevents a simple arithmetic comparison from becoming an exaggerated statement of the expansion required. [R06] [R07]

The paired states in **Exhibit 9**, p. 46 show a scale comparison rather than a time path. The line between them does not imply annual growth, an operating ramp or an achieved observation at either endpoint.

EXHIBIT 09 / ILLUSTRATIVE TONNES OF DOMESTIC LINT PER YEAR

The target implies ten times the reference intake at constant supply



ILLUSTRATIVE [R06] [R07] [S34] Illustrative constant denominator: 100,000 tonnes of lint. Historical reference: 100,000 × 5% = 5,000. Target: 100,000 × 50% = 50,000. Increment: 45,000. R06 is approximate inherited evidence with no recorded original publication date. Neither endpoint is an observed national tonnage.

The illustrative gap scales directly with the chosen constant denominator. For any accepted annual lint quantity L, the reference intake is 0.05L, the target intake is 0.50L and the increment is 0.45L. That expression is useful for screening different supply cases. It remains inappropriate for a current national capacity claim until both the contemporary processing quantity and the denominator have been reconciled. [R06] [R07]

The comparison also assumes that the reference intake persists. GFT proposes replacing it with verified continuing intake when evaluating a real portfolio. If an incumbent stops, its previous production cannot remain in the starting balance while a replacement project is counted as entirely additional. If an incumbent expands, only its incremental qualifying intake should reduce the remaining gap. The same rule applies when equipment moves between companies or sites.

GFT NOTE

Keep a normalised scenario beside the current evidence case. Use the former to explain arithmetic and test sensitivity. Use the latter to authorise capacity decisions only after supply, continuing throughput and buyer requirements have been reconciled. An unknown baseline should remain unknown; it should not be replaced by the historical reference without a visible assumption.

The normalised comparison should therefore be used as a scale test before it is used as a programme commitment. It reveals the order of expansion implied by an unchanged denominator and the chosen reference share. It cannot determine how that expansion should be divided between rehabilitation, new mills and partnered conversion. That allocation requires comparable incremental intake and commercial evidence for each option. An attractive headline share supplies no substitute for that project-level comparison.

3.3

A growing crop can widen the absolute requirement

A separate illustrative policy-input case combines the strategy's 600,000-tonne seed-cotton ambition with the ministry study's 42 percent ginning coefficient. The calculation is 600,000 multiplied by 0.42, giving 252,000 tonnes of lint. Applying the 50 percent transformation target gives 126,000 tonnes of annual domestic lint conversion. This combines a policy production input and a historical scenario coefficient. It is neither achieved crop output nor a forecast of production in the target year. [S34] [S06]

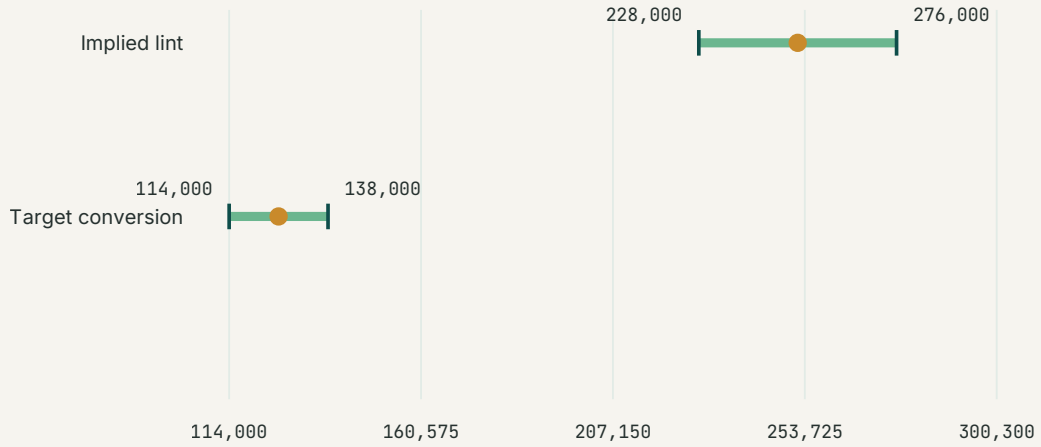
The illustrative result is a total requirement, not an incremental requirement. It cannot be compared with the normalised case's starting intake to infer a national deficit. A valid increment would subtract verified continuing conversion on the same origin and reporting basis from the total requirement. It would then account for qualifying capacity already able to supply that intake. Missing current data prevent that subtraction from being represented as a verified national result.

To retain uncertainty, an illustrative sensitivity case holds seed cotton at 600,000 tonnes and tests ginning coefficients of 38, 42 and 46 percent. The outer coefficients are GFT-selected stress assumptions, not measured Cameroon limits or a statistical confidence interval. They imply lint quantities of 228,000, 252,000 and 276,000 tonnes, and corresponding half-share conversion requirements of 114,000, 126,000 and 138,000 tonnes. The calculation changes only the yield assumption. [S34] [S06]

The range in **Exhibit 10**, p. 48 presents the sensitivity endpoints and the central coefficient. It describes the consequences of selected assumptions. It does not show the probability that any crop or ginning result will occur.

EXHIBIT 10 / ILLUSTRATIVE TONNES OF DOMESTIC LINT PER YEAR

A chosen ginning coefficient changes the implied conversion requirement



ILLUSTRATIVE [S34] [S06] Illustrative policy-input case: 600,000 tonnes seed cotton. Low, mid and high ginning coefficients are 38%, 42% and 46%; only 42% comes from S06's historical scenario. Other coefficients are GFT stress assumptions. Lint = seed cotton x coefficient. Conversion = lint x 50%. Range is sensitivity, not a confidence interval or crop forecast.

Higher fibre yield in this illustrative case increases the tonnes that a constant processing share requires. It does not automatically increase a mill's usable supply by the same amount. The sizing method should separately test whether the resulting fibre suits the intended product and is available under workable supply terms. A denominator can include national lint that a particular spinner cannot procure or qualify. Equipment sizing should follow the narrower accessible quantity where that is the binding constraint.

The crop case also needs a stock rule. GFT proposes keeping a crop-cohort contribution separate from conversion funded through earlier inventories. Drawing down old lint can support current operations, but it does not demonstrate that the selected share of the current crop was transformed. Conversely, carrying new lint into the next period may delay conversion without proving permanent loss of processing potential. Portfolio reports should explain that timing rather than force inventories into an apparent annual success or failure.

Finally, increasing supply and increasing processing should be tested together rather than assumed to reinforce each other automatically. The historical value-chain study describes industrial and transport constraints accompanying production recovery. GFT infers that an expansion case needs a matching absorption and funding plan. The producer-system implications belong to the following chapter; here the decision is to withhold unconditional conversion commitments until supply and processing cases can be reconciled. [S03]

An illustrative contracting review should ask how supply commitments respond when realised lint differs from the planning case. A fixed annual allocation may compete with other commitments in a weak crop. A share-based allocation may leave a processor with less material than its operating plan needs. The register should preserve

the contractual rule and the scenario quantity separately, so a national supply calculation is never mistaken for an enforceable delivery commitment. This is a proposed review question, not a description of existing supply contracts.

3.4

Nameplate must exceed saleable throughput requirements

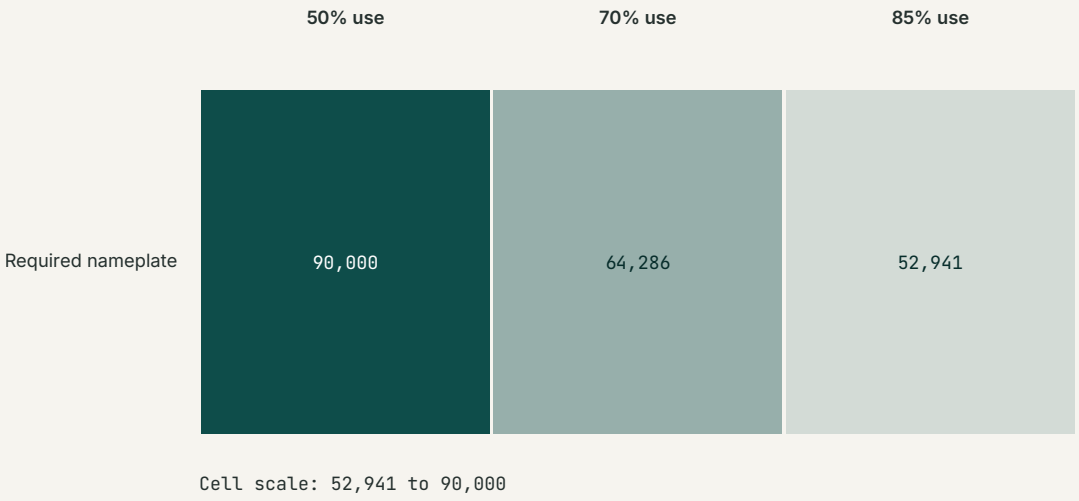
GFT defines annual intake utilisation as actual lint intake divided by matching annual nameplate lint intake. Under that definition, required new nameplate intake equals the incremental actual intake requirement divided by assumed achievable utilisation. Both quantities must use the same material stage and operating calendar. Product mix, planned maintenance and shift assumptions belong beside the nameplate denominator. A supplier's maximum hourly rate is insufficient unless the proposed annual operating basis is stated.

For the normalised illustrative increment of 45,000 tonnes, utilisation assumptions of 50, 70 and 85 percent imply nameplate intake of 90,000, approximately 64,286 and approximately 52,941 tonnes annually. These are GFT-selected weak, intermediate and mature operating cases, not observed Cameroon spinning benchmarks. The calculation is 45,000 divided by 0.50, 0.70 or 0.85, rounded to whole tonnes for presentation. Design procurement would need an engineering margin and consistent rounding. [R06] [R07]

The sensitivity in **Exhibit 11**, p. 49 holds the required actual intake constant. It isolates utilisation's effect and does not imply that purchasing the larger machine makes the weak operating case viable.

EXHIBIT 11 / ILLUSTRATIVE NAMEPLATE LINT TONNES PER YEAR

Lower utilisation increases the nameplate required for the same intake



ILLUSTRATIVE [R06] [R07] Illustrative increment: 100,000 x (50% - 5%) = 45,000 tonnes actual lint intake. GFT-selected utilisation cases: 50%, 70%, 85%. Nameplate = 45,000 / utilisation; displayed results rounded to whole tonnes. Assumptions are not measured spinning benchmarks. Output yield is accounted for separately.

The inherited register provides a historical warning about treating installed equipment as output: its July 2023 report records CICAM utilisation of 33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2. These are inherited, grade-C reported observations, not a newly verified operating survey. Their plant definitions and calendars cannot be substituted into the illustrative spinning cases without reconciliation. Their useful implication is the need to investigate utilisation before counting capacity. [R12]

Output yield must remain separate from intake utilisation. In GFT's proposed calculation, saleable yarn equals actual lint intake multiplied by conversion yield and the share of converted output meeting the specified acceptance boundary. If a reported yield already measures saleable output, a further acceptance factor would double count the quality loss. The model owner must document which losses and rejects each factor contains before combining them.

WORKED EXAMPLE

Consider an illustrative new spinning unit with nameplate lint intake of 20,000 tonnes annually. Assume intake utilisation of 70 percent, conversion yield of 90 percent and acceptance of 95 percent of converted yarn. Actual lint intake is 20,000 × 0.70 = 14,000 tonnes. Converted yarn is 14,000 × 0.90 = 12,600 tonnes. Accepted yarn is 12,600 × 0.95 = 11,970 tonnes. Process loss is 1,400 tonnes; output awaiting acceptance or disposition is 630 tonnes. All inputs are selected to explain the method, not to estimate a Cameroon plant.

In this illustrative case, the qualifying lint contribution is at most 14,000 tonnes, subject to domestic origin and the approved transformation rule. The accepted yarn quantity is 11,970 tonnes. Adding those quantities would count stages of the same material twice. The example assumes converted yarn remains convertible to the stated commercial specification; it does not infer cash collection or profit from acceptance alone.

A ramp also requires a calendar. An illustrative unit that sustains 70 percent utilisation for only half the annual nameplate operating hours would contribute 7,000 tonnes during that first reporting year: 20,000 × 0.70 × 0.50. Calling it a 14,000-tonne contributor before that period has elapsed would confuse an annualised rate with realised intake. Use this time factor only when utilisation is measured over the operating window; applying it again to full-year utilisation would double count commissioning downtime.

For a real portfolio, GFT proposes summing dated actual intake for the reporting year and maintaining future annualised rates in a separate view. Each project should identify the constraint behind its utilisation assumption: qualified orders, feedstock, staff, utilities, maintenance or finance. If several projects depend on the same scarce service, their mature utilisation cases should not all be assumed simultaneously achievable without a system-level check.

GFT proposes comparing rehabilitation and new construction on incremental qualifying intake under the same operating assumptions. An existing asset may have equipment capacity but require repairs, product qualification or renewed working capital before it can contribute. A new asset may have better technical ratings but a later start

and unproven demand. The sizing method does not favour either route in advance. It asks which evidenced increment can operate within the portfolio's feedstock, utility and funding constraints.

The engineering record should also identify whether downstream capacity constrains the proposed intake. A spinning unit can contribute at the lint boundary while its yarn is sold to an external buyer. If its commercial case instead depends on a domestic weaving or knitting unit, that dependency belongs in the portfolio. Counting the spinner's intake and the downstream unit's input as separate national lint conversion would still duplicate material. Counting the spinner without an available yarn destination could overstate sustainable operation.

3.5

An announced project is one contingent contribution

The inherited register records a Camtext SA announcement dated 12 November 2025, with reported investment of US$300 million, also stated as XAF 180 billion. These are announcement values in grade-C ledger evidence, not independently reconciled costs, financed amounts or disbursements. This chapter neither derives an exchange rate from them nor treats either amount as an equipment budget for closing the national processing requirement. [R09]

The related entry reports annual processing capacity of 12,000 tonnes and an optimal-capacity horizon around 2033. The ledger does not establish a comparable domestic lint intake boundary or present a verified commissioning record. The reported capacity therefore remains contingent. It cannot be counted as operating intake or assumed to be fully available by the policy target date. [R10] [S34]

The evidence-status table in **Exhibit 12**, p. 51 deliberately leaves the qualifying operating contribution unresolved. An unresolved contribution is not a zero-output finding. It is a request for the documents needed to place a project into the national balance.

EXHIBIT 12 / REPORTED PROPOSAL AND CAPACITY STATUS

The inherited announcements do not establish qualifying operating intake

Ledger item	Reported claim	Unresolved test
Industrial pole, R08	Merger intention; 2030 aim	Completion and assets
Camtext, R09	US$300m; XAF180bn	Finance and scope
Capacity, R10	12,000 t/year	Material-stage basis
Ramp, R10	Optimal around 2033	Actual dated intake

SOURCED [R08] [R09] [R10] Inherited grade-C evidence, not a fresh check of the underlying press pages. R08 and R10 have no original publication date recorded in the ledger. R09 records an announcement on 12 November 2025. Amounts are reported announcement figures; no currency conversion is performed. Operating contribution remains unresolved, not assumed zero.

For illustration only, if the reported 12,000 tonnes were confirmed as annual nameplate domestic lint intake, then 70 percent utilisation over a full operating year would imply 8,400 tonnes of actual intake. That conditional calculation does not resolve what the announcement means. If the reported quantity instead refers to fabric or another output stage, a different conversion model would be required. The assumption must be verified before this quantity enters any portfolio total. [R10]

GFT proposes requesting the material specification, rating basis, ownership and commissioning documents, followed by operating records and evidence of domestic origin. Where reported output is blended, the domestic cotton content needs its own balance. Where production is subcontracted, intake should be attributed to the qualifying domestic conversion event rather than counted again at the contracting entity. These are accounting safeguards, not claims about the announced project's actual arrangements.

A large announced project may still be strategically useful without being eligible for the current operating total. It may establish a future demand case or a dependency to monitor. The register should preserve those possibilities while keeping them separate from realised intake. This avoids treating an uncertain announcement as either completed industrial capacity or evidence that the project has failed.

The proposed treatment is symmetrical. If evidence later confirms commissioned capacity and accepted production, the register should admit the documented contribution without waiting for an entirely new national study. If an earlier assumption proves wrong, the register should reduce or defer the contribution and explain why. Evidence status is useful only if it changes decisions in both directions. A permanent caution label would be as misleading as permanently counting an announcement as completed output.

3.6

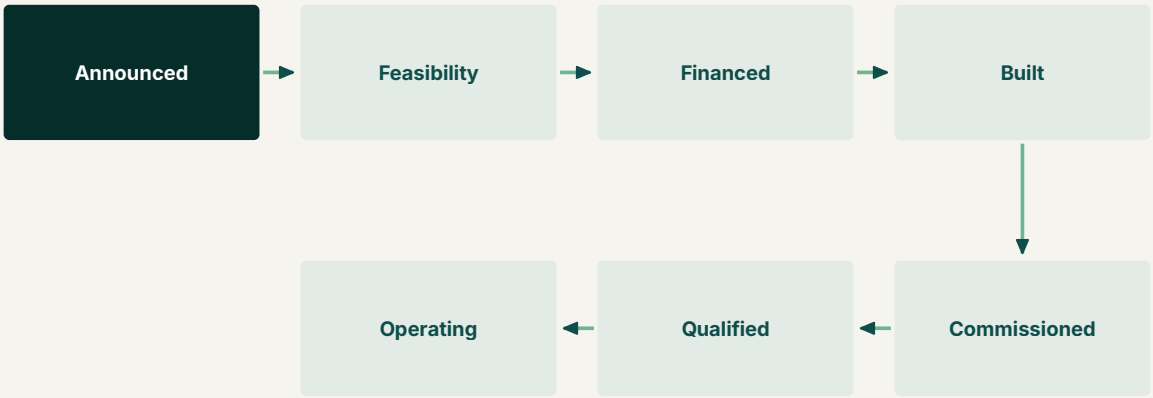
National performance needs a project-status register

GFT proposes recording each project as announced, feasibility completed, financed, built, commissioned, qualified or operating, with a date and documentary basis for every status. These are proposed evidence categories, not a statement that any named project has reached them. A financial close document demonstrates something different from a commissioning certificate. A commissioning certificate demonstrates something different from sustained accepted output. The register should retain those distinctions even when public descriptions use a single completion label.

The proposed sequence in **Exhibit 13**, p. 53 is an evidence checklist rather than a fixed construction schedule. Qualification work may begin before construction, and financing may close in stages. The status record should preserve that history rather than imply that every project passes through a strictly linear process.

EXHIBIT 13 / ILLUSTRATIVE GFT EVIDENCE GATES

Each project status needs a distinct documentary basis



ILLUSTRATIVE Illustrative proposed register. Links express evidence progression, not promised timing. Feasibility, finance and qualification may develop in parallel. Operating contribution is dated actual qualifying lint intake; no named project's status is assigned.

The identity record should bind the legal project, site, equipment scope and qualifying transformation stage. A renamed scheme should not become a new contribution if it refers to the same assets. An expansion should identify the capacity it adds and the old capacity it replaces. A merger should consolidate inherited assets before any increase is reported. The ledger's reported industrial-pole intention supplies a reason to ask these questions, not proof of completed consolidation. [R08]

The capacity record should distinguish a technical rating, a planned operating calendar, a commercial throughput case and dated actual intake. Each requires a responsible custodian and a revision date. A capacity claim without a material stage should remain unconverted until engineering records resolve it. A reported annualised trial rate should retain its trial duration rather than appear beside a full-year actual total without qualification.

The dependency record should connect projects to feedstock allocations, utility capacity and intended customers. GFT proposes matching overlapping supply commitments before accepting their sum. Shared infrastructure should carry its own deliverable capacity and timing record. If a power connection or water system is conditional, each dependent mill should retain that condition. The scenario owner should also test a common interruption across the portfolio rather than assume independent outages.

The resulting register should support separate views of technical capacity, conditional future contribution and realised contribution. GFT does not propose reducing all future schemes to a single probability-weighted national total without a defensible probability basis. Named scenarios and documented exclusions are easier to inspect. A reader should be able to see which project, assumption or missing document changes the answer.

GFT proposes a named custodian for every material entry and an independent reconciliation role within the programme's reporting arrangements. The project operator would supply intake and production records; the programme team would check comparability, origin and duplication. Supporting documents should be retained with the reported period and any correction history. Where confidentiality restricts publication, an aggregated national result should still describe its coverage and the limits of verification without exposing commercially sensitive lot or buyer details.

The proposed register should explain the remaining requirement without manufacturing certainty. A confirmed shortfall is different from an unresolved balance caused by missing operating records. The former can guide a search for additional conversion options. The latter first requires better evidence from the existing system. Treating every unknown as unavailable capacity could lead to unnecessary duplication, while treating it as available could leave the programme dependent on an asset that cannot operate. The evidence request should identify which uncertainty matters to the next decision and who can resolve it.

For each candidate increment, GFT proposes a short decision record stating the evidence that would change its treatment. Confirmation of material stage might make a reported capacity comparable. A successful product trial might resolve technical acceptance while leaving repeat demand open. A utility offer might demonstrate connection capacity while leaving its delivery date conditional. These distinctions help direct the next investigation. They also prevent a broad request for further study from delaying decisions whose narrow uncertainty can already be tested.

A contribution should also be capable of moving backwards in status. Equipment that passed commissioning can cease to operate. A qualified product can lose its buyer. A funded scheme can suffer a delayed connection. GFT therefore proposes retaining both the highest documented development milestone and current operating status. The former records what was completed; the latter determines what can credibly contribute during the reporting period. Neither field should silently overwrite the other.

> **METHOD**
>
> For a proposed portfolio calculation, first fix the reporting period, origin rule and qualifying material stage. Calculate required total intake from the accepted lint denominator and target share. Reconcile continuing actual intake and proposed increments separately. Sum comparable project contributions only after checking duplicate assets, repeated material flows and shared constraints. Record missing values as unresolved. Keep future annualised capacity outside the realised-intake total, and reconcile each revision to the previous register.

3.7

The objective should include value and resilience

GFT proposes treating qualifying lint intake as a necessary physical measure alongside commercial, social and resource outcomes. A higher processing share can coexist with rejected products, unpaid invoices or losses. The inference is that conversion alone cannot demonstrate retained value. The historical value-chain analysis distin-

guishes value added and profitability from physical production, and reports divergent outcomes across actors. That historical evidence supports examining distribution and viability rather than treating every additional processed tonne as an economic gain. [S03]

A proposed value measure should state its consolidation boundary. Factory turnover is not automatically domestic value added, and sales between domestic stages should not be added repeatedly as national benefit. The portfolio should also show whether higher intake can be sustained through the procurement and payment cycle. Detailed financing belongs in the financial model; the national scorecard needs enough information to identify when physical expansion is outrunning its ability to fund continued operation.

GFT recommends pairing the volume measure with accepted output, repeat orders and collections against agreed terms. These measures answer different questions. Acceptance tests whether the product meets the intended specification. Repeat orders test whether demand persists. Collection tests whether the transaction funds the next cycle. A favourable result in any category should not erase a failure in another. The programme authority should agree decision thresholds before reviewing results, using product and contract evidence rather than generic promises.

Employment should likewise retain its quality dimension. The ILO's sector brief identifies poor working conditions, low wages, gender inequality and skills needs as issues for textile and clothing policy. GFT therefore proposes recording verified paid employment alongside safety, training and worker-treatment evidence. Announced jobs and operating jobs should remain distinct; neither should become an unsupported claim of decent work. [S13]

Resource performance needs a defined process boundary and an accepted-output denominator. IFC's resource-efficiency and pollution-prevention standard addresses sustainable resource use and pollution reduction. GFT infers that an increase in domestic processing does not, by itself, establish environmental improvement. Resource intensity should be read alongside absolute consumption and pollution performance, with the relevant site evidence retained. No generic reduction is assumed for the scenarios in this chapter. [S26]

A proposed resilience review should test how the portfolio behaves when its common assumptions fail together. If projects share a utility connection, feedstock supplier or major customer, nominal diversification across sites may provide little protection. The programme team should identify substitute supply or sales routes and the conditions under which intake must be reduced. A documented response to a shared constraint is more useful than a larger nominal capacity total whose projects all depend on the same unresolved service.

The practical output is a scenario register that a national programme team can revise as evidence arrives. It can supply normalised assumptions to the proposed cotton-value-flow and ramp-planner interfaces without implying those tools are built or validated. It should show the selected denominator, required intake, comparable project

contribution, unresolved balance and the next evidence needed. This chapter establishes that calculation discipline; it does not replace investment appraisal, product qualification or legal interpretation. It is not investment, legal or tax advice.

A national share becomes credible when each contributing tonne has an origin, a conversion record and a reason to be bought.

CHAPTER SOURCE NOTES

S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.

R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S03 European Commission and Agrinatura. 2020.

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.

R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.

R08 Business in Cameroon. Publication date unrecorded; inherited source-text check.

S13 International Labour Organization. 2025-03-28.

S26 International Finance Corporation. 2012.

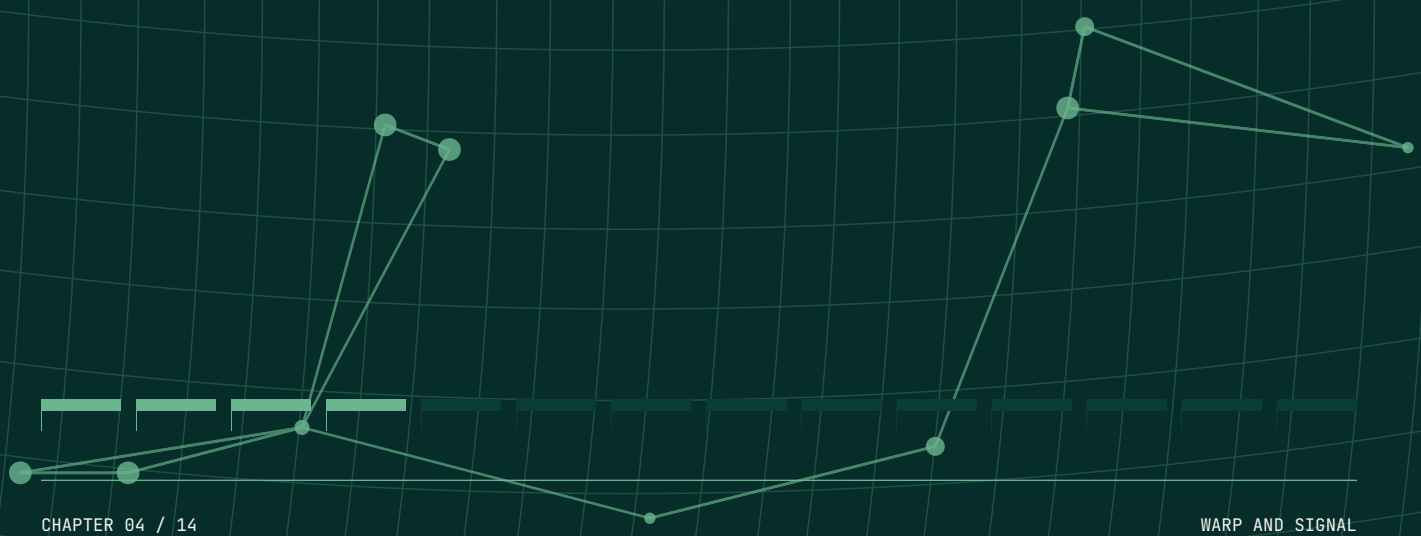
GREEN FUTURE TECH
LIMITED / HONG KONG SAR

04

PART II: REBUILD THE CHAIN AROUND REAL DEMAND / PROTECT THE WARP

Industrial expansion must preserve the producer system that supplies it

Processors need a supply arrangement that pays producers, preserves fibre suitability and funds the next crop before it promises a larger mill intake.



CHAPTER 04
DECISION TEST

Processors need a supply arrangement that pays producers, preserves fibre suitability and funds the next crop before it promises a larger mill intake.

Industrial expansion should proceed only when its supply arrangement protects producer payments and the next crop as well as the mill's own intake. GFT proposes qualifying fibre and funding together, testing the arrangement through a procurement cycle, and expanding only after both have performed. A domestic delivery is not a success if it transfers an unfunded receivable upstream. This chapter sets out a proposed decision method, not an existing GFT purchasing agreement, field result or assurance of future supply.

4.1

The cotton base is a coordinated production system

The World Bank and IFC's December 2022 diagnostic describes SODECOTON's integrated financing, input supply, purchasing, processing and marketing functions alongside the national producer confederation. The historical value-chain briefing describes producer groups distributing inputs on credit and the confederation cooperating in input acquisition. These are published institutional descriptions, not confirmed current mandates or GFT relationships. [S02] [S03]

GFT's proposed starting point is therefore a responsibility map rather than a quantity reservation. Ask who can promise an identified lot, who owns it, who finances it and whose approval makes that promise effective. Record the difference between representing producers and holding saleable fibre. An institution may legitimately speak about production planning without possessing title to the lint a factory needs. A procurement team should resolve that distinction before treating a discussion, allocation letter or forecast as an available purchase.

The historical allocation of functions is summarised in **Exhibit 14**, p. 58. It describes responsibilities, not volumes, legal exclusivity or the present authority of any signatory. The practical recommendation is to replace each historical label with a checked current document during diligence: an institutional mandate, campaign agreement, sales authority or accepted delivery record. A familiar organisation name is useful context, but cannot answer all of those questions. [S02]

EXHIBIT 14 / HISTORICAL INSTITUTIONAL FUNCTIONS

Published roles connect farming, finance and marketing

Actor	Published function
Producers	Grow and deliver seed cotton
Producer groups	Distribute inputs on credit
CNPC-C	Cooperate in input acquisition
SODECOTON	Finance, support, gin and market cotton

SOURCED [S02] [S03] Historical source descriptions, not current contracts, a complete legal map or GFT partnerships. Refresh authority and payment evidence before procurement.

For a proposed programme, GFT recommends a linked register of material obligations and financial obligations. The material side should identify campaign, collection area, gin, bale references, location and availability status. The financial side should identify the payer, beneficiary, invoicing event, permitted deductions and evidence of settlement. Connect the registers at lot level where possible. Where producer payments are pooled, explain the aggregation rule instead of inventing a direct payment trail from a particular garment to an individual grower.

Responsibility should also survive operational disruption. Nominate who informs the mill when collection slows, who confirms substitute material and who can authorise a revised dispatch. Give producer representatives a way to challenge an incorrect delivery or deduction record without having to negotiate with the ultimate garment buyer. Define which records can be shared publicly and which require restricted access. Measurement that exposes commercially sensitive or personal information without a clear purpose can damage the cooperation the programme depends on.

There is a reasonable objection to adding administrative work before a trial: small transactions may not justify a complex system. GFT's response is to scale the record to the decision. A concise signed responsibility sheet and a reconciled delivery record may be sufficient for a bounded trial. Long commitments, advance payments and exclusive reservations require stronger evidence. The objective is not to reproduce an entire institution's accounts. It is to identify the obligations the new processing decision creates and verify that somebody can meet them.

> **GFT NOTE**
>
> Before reserving fibre, obtain a jointly reviewed map of material ownership, payment responsibility and campaign funding. Leave an unresolved item marked unknown. Do not convert producer support, a policy ambition or an unsigned discussion into a supply commitment.

4.2

Fibre suitability matters as much as aggregate availability

SODECOTON's undated ginning explanation describes a trade-off between cleaner fibre, retained weight and spinning quality. The ministry's September 2022 study discusses historical grade, length and moisture performance. Neither source supplies a universal acceptance specification for the proposed mill. Their operational lesson is limited: measure the relevant properties before equating available tonnes with usable feedstock. [S04] [S06]

GFT proposes writing the intended yarn and customer requirements first, then asking the spinner to translate them into a fibre qualification plan. That plan should cover length, strength, contamination, moisture and consistency between lots. These are proposed inspection fields, not claims that a particular Cameroon crop meets or fails a threshold. Record the instrument, sampling procedure, laboratory, reporting basis and uncertainty alongside each result. A pass threshold should be approved by the intended processor and buyer, with an explicit response to a borderline result.

The qualification sheet should separate identity from performance. Identity fields establish campaign, gin, lot, bale references and custody. Performance fields describe the measured sample and the population it is intended to represent. A certificate for a selected bale should not silently qualify an entire warehouse. State how the sample was selected, which lots were excluded, and whether a replacement lot needs fresh testing. Retain an agreed reference sample for a dispute, with storage and access rules that allow meaningful comparison.

A representative spinning trial should then test the proposed blend under recorded conditions. GFT recommends recording preparation settings, machine condition, stoppages, waste, usable yarn and customer acceptance. Otherwise a disappointing result could be attributed to the crop when the preparation or equipment changed. Conversely, a favourable result from carefully selected material should not qualify heterogeneous deliveries. The trial conclusion should specify the material population, the product and the operating conditions to which it applies. An unqualified conclusion such as suitable for textiles has little procurement value.

The moisture basis deserves an explicit contract field. GFT's proposed method records dispatch and receipt measurements on the agreed basis, separates tare from net weight and documents any conditioning or adjustment. An apparent reduction in delivered mass should trigger a reconciliation of measurement conditions before anyone labels it physical loss. Likewise, additional recorded weight after conditioning should not be presented as additional dry fibre. The aim is a consistent settlement convention, rather than a weight incentive that conflicts with processing quality.

GFT also recommends separating necessary cleaning from excessive processing. Evaluate a cleaning change against accepted yarn output and total net realisation, including the disposition of removed material. A lower lint delivery weight may be commercially acceptable if it demonstrably improves usable output, but that relationship must be tested. A higher grade label alone cannot settle the decision. Keep the buyer's required quality, the mill's actual result and the supplier's payment basis visible together.

The counterargument is that lot testing could delay dispatch and interrupt production. Design the qualification route before collection: agree laboratories, booking responsibility, retention arrangements and treatment of pending results. Hold unqualified material outside the approved production allocation. If a substitute is needed, use the same acceptance rule rather than waiving it because the mill is short of stock. The proposed control prevents urgency from becoming an undocumented change in product specification. Detailed custody design belongs in the companion traceability work; the supply decision here requires only enough identity evidence to make the qualification meaningful.

4.3

Seasonality creates stocks and cash obligations

The ministry's historical study places ginning in a seasonal operating window and describes input procurement beginning before the intended crop campaign. The historical chain briefing also links input credit to producer organisation. This establishes

a timing problem, not a current delivery calendar: a proposed continuous mill intake must be reconciled with campaign-specific collection, ginning and funding records. [S06] [S03]

GFT recommends building a campaign calendar from observed events and signed obligations. Record planned and actual collection, gin release, qualification, storage, dispatch and mill receipt separately. Beside those events, place advance payments, producer settlements, supplier invoices and expected collections from buyers. Identify the earliest date at which cash must leave and the evidence needed before financing becomes drawable. An annual purchase total cannot establish whether money is available at that date.

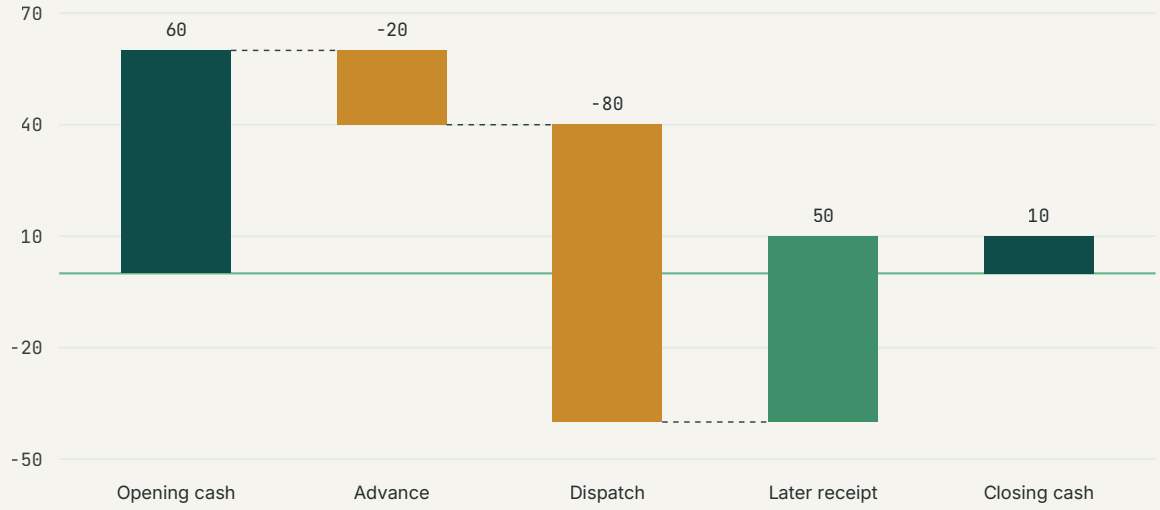
A proposed agreement should identify when title transfers and when custody transfers, since the decision should not assume those events coincide. State who bears storage loss, who insures the material, who reports damage and which acceptance event starts the payment clock. Check whether the seller can redirect rejected material and whether the buyer must pay the undisputed portion while a quality question is examined. These are contract-design questions for professional review, not descriptions of existing terms or legal advice.

GFT's illustrative example below deliberately excludes conversion, transport, financing charges and taxes. Its purpose is to expose a funding gap before those additional obligations are considered. The assumed cash flows are chosen for transparent arithmetic; they are not cotton quotations, agreed prices or a Cameroon credit estimate. **Exhibit 15**, p. 62 shows the same event sequence as a cash bridge, so the opening commitment and later release cannot be mistaken for simultaneous funding.

> **WORKED EXAMPLE: A SEASONAL PURCHASE NEEDS CASH BEFORE COLLECTIONS**
>
> Assume an illustrative procurement of 100 tonnes of lint at XAF 1,000,000 per tonne. The assumed supplier amount is 100 × 1,000,000 = XAF 100,000,000. With an illustrative advance of 20 percent, XAF 20,000,000 is paid at reservation and XAF 80,000,000 at dispatch. Assume XAF 60,000,000 of initial available funding. The remaining funding requirement at dispatch is 100,000,000 minus 60,000,000 = XAF 40,000,000, even if the eventual buyer pays in full.
>
> Assume illustrative buyer receipts of XAF 50,000,000 only after dispatch. The cash balance then rises from minus XAF 40,000,000 to XAF 10,000,000. That positive closing balance does not remove the earlier peak shortfall. If the assumed purchase remains unchanged and those receipts arrive later, the peak requirement is unchanged in this stripped-down example but lasts longer. Real storage and financing costs would require additional stated inputs. Negative balances show funding to secure, not permission to delay producer settlement.

EXHIBIT 15 / ILLUSTRATIVE XAF MILLION

Later receipts cannot fund an earlier dispatch obligation



ILLUSTRATIVE Assumed 100 tonnes at XAF 1 million per tonne. Opening cash 60, advance 20, dispatch balance 80, later receipt 50: 60 - 20 - 80 = -40; -40 + 50 = 10. Excludes all other costs. Negative balance is a funding requirement.

For a real transaction, GFT recommends distinguishing unrestricted cash from an approved facility, an undrawn facility and a conditional indication. Record draw conditions and availability dates rather than adding all of them to opening cash. Repeat the calendar after a delayed collection, a disputed invoice and a rejected delivery. The financing decision should respond to the earliest unresolved shortfall. Inventory policy can determine how much buffer is appropriate; the supply arrangement must establish who pays for it and when.

GFT recommends an additional distinction between stock ownership and access to stock. A mill may own qualified bales yet be unable to obtain their release if warehouse charges, transport arrangements or documentation remain unresolved. Before treating a stock position as a production buffer, verify the release instruction, access rights, dispatch responsibility and remaining payments. Record any material already pledged or reserved elsewhere. This is a proposed diligence rule, not a statement about an existing warehouse or financing arrangement.

The proposed reconciliation should close the campaign without hiding unresolved obligations in a later reporting period. Match opening inventory, receipts, dispatches, recorded adjustments and closing inventory at the same boundary. Keep disputed material visible until its treatment is agreed. Separately reconcile the corresponding payable and cash movements, since a balanced physical record cannot prove settlement. Where these records disagree, assign an investigation and suspend the affected expansion decision. The supply pilot should reveal the gap before a longer commitment reproduces it.

4.4

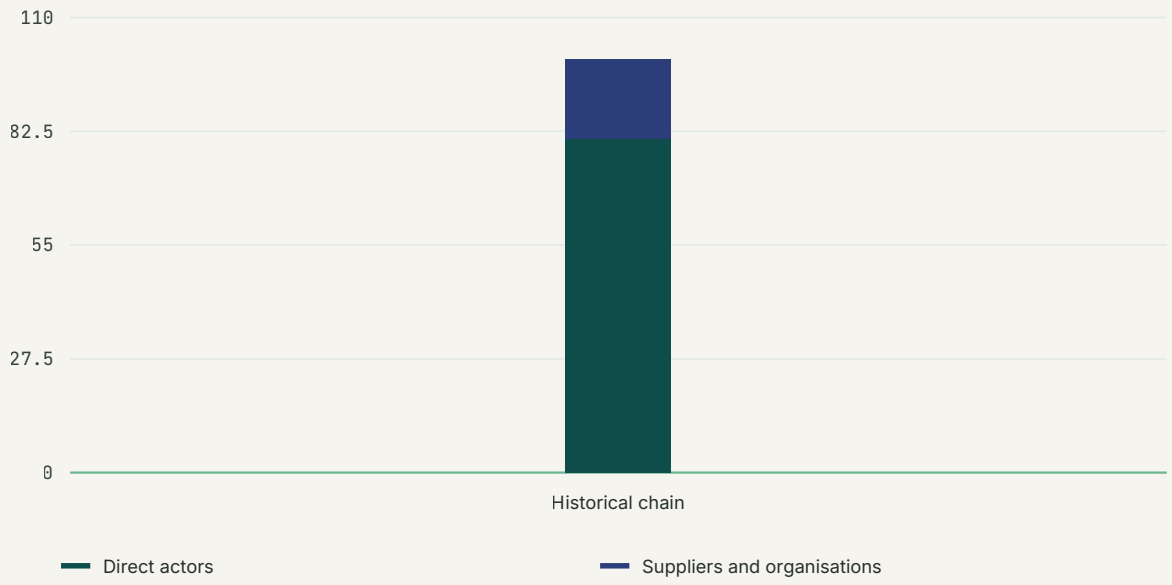
Co-products sustain upstream economics

The historical briefing reports total chain value added of XAF 96 billion in 2017. Its direct-actor share was 80.7 percent, including producers' 38.4 percent of the total; suppliers and organisations contributed the remaining 19.3 percent. It also identified difficulty selling oilcake as a pressure on upstream viability. These are historical findings, not present margins or a distribution forecast. [S03]

Exhibit 16, p. 63 keeps the mutually exclusive top-level groups intact. Producers are included within direct actors, so their share must not be added as another stack. The exhibit cannot establish how a proposed domestic lint sale would affect an individual producer's income. It establishes a narrower point: assess the upstream system before assuming downstream activity creates an equal benefit for every participant. [S03]

EXHIBIT 16 / PERCENT OF CHAIN VALUE ADDED IN 2017

Historical value added extended beyond direct production actors



SOURCED [S03] Historical total XAF 96 billion. Direct actors 80.7%, suppliers and organisations 19.3%. Producers' 38.4% of total sits inside direct actors and is not an additional series. No current distribution is inferred.

GFT recommends an economic bridge for each proposed change in fibre allocation. Begin with the seed-cotton purchase obligation and list the resulting product routes separately. For each route, identify realised receipts, saleable stocks, associated processing costs and outstanding claims. Keep the physical reconciliation distinct from the value reconciliation. A mass residual cannot be valued as garment input merely because it originated in the same crop, and a co-product with an identified customer should not be labelled waste for convenience.

This bridge should also distinguish additional crop purchases from redirected lint sales. In a redirection case, the procurement decision may change lint destination without increasing seed availability. In an expansion case, additional purchases

require the corresponding processing and co-product routes to be assessed. Those are different conditional models. Do not award the downstream mill all the benefits of a larger crop while leaving the upstream system to finance the corresponding purchase, handling and disposal obligations outside the model.

GFT's proposed sensitivity test separates physical output from cash realisation. Ask what happens if a co-product remains saleable but collections are delayed, if its realised price falls, or if it cannot be sold within available storage. Record each assumption explicitly and calculate the effect on peak funding and producer settlement dates. Do not use a single average revenue per unit of seed cotton to conceal the timing of distinct receipts. An attractive annual contribution can coexist with an unacceptable seasonal cash requirement.

A reasonable objection is that a mill buying lint should not have to underwrite the seller's entire business. GFT does not propose transferring every upstream exposure to that buyer. It proposes understanding whether the specific purchasing terms intensify those exposures. A prompt-paying lint buyer may improve liquidity. A buyer demanding a long reservation followed by extended payment may consume liquidity. Allocate only risks each party can credibly accept, and test whether the resulting arrangement remains viable without implicit payment delays elsewhere.

Where a policy programme chooses to support co-product development, GFT recommends a separate business case with its own demand evidence and costs. Do not insert a speculative outlet into the base case merely to make the fibre transaction appear affordable. Record whether support is proposed, approved, financed or actually received. The practical test remains whether the full campaign can honour its obligations under the selected purchasing arrangement, including when an expected secondary receipt disappoints.

4.5

Crop expansion carries land and climate constraints

The historical briefing identifies soil-fertility decline, land pressure and biodiversity concerns in northern Cameroon. The OECD-FAO outlook separately identifies weather, water availability and pests as global yield uncertainties. Neither source establishes a quantified current loss for a proposed supply area. Their combined relevance is a diligence requirement, not a basis for importing a global forecast into a Cameroon mill model. [S03] [S29]

GFT recommends separating the supply plan into existing qualified output, output requiring better collection or ginning, and output requiring additional agricultural production. That classification prevents a proposal from presenting a larger planted area as immediately available lint. For each category, identify the responsible decision-maker, required evidence and earliest credible delivery window. Treat an unresolved land or agronomic condition as a constraint on the relevant supply tranche rather than a footnote to a fully committed volume.

The proposed baseline should identify collection areas and land-use questions without claiming a comprehensive survey has occurred. Ask whether production is on existing agricultural land, whether use rights are disputed and whether expansion would affect conservation areas or other livelihoods. Record the evidence owner and access limitations. A supplier's general sustainability statement should not substitute for the specific area evidence needed by the programme. Equally, an unresolved record should not be recast as proof of misconduct; it remains a question requiring investigation.

GFT recommends comparing greater output from existing land with geographic expansion as distinct options. Each option needs its own agronomic basis, input cost, labour requirement and expected variability. An intervention that raises expected physical yield may still change credit needs or household exposure. Test the producer's net result after the proposed costs and obligations rather than declaring any yield increase beneficial. Retain a clearly labelled alternative in which the intervention does not deliver its expected improvement.

The mill should also decide how to respond to a short crop before the shortage arrives. GFT's proposed allocation rule should distinguish already accepted commitments from discretionary replenishment and state the process for adjusting deliveries. It should identify who can offer substitute fibre, what qualification applies and when the buyer can reduce production instead. An unsupported promise that every customer will receive the original plan does not manage the shortage. Nor should a mill's production target automatically displace an agreed producer payment obligation.

For monitoring, GFT recommends a concise combination of observations and decisions. Record crop-condition information with its collection date and coverage, update expected qualified supply, and show which reservations changed as a consequence. Keep observed conditions distinct from estimated harvests. Reconcile estimates to actual deliveries after the campaign. This creates a learning record without suggesting that an early estimate carries the certainty of warehouse stock or that a later favourable aggregate crop removes a local quality shortfall.

There is a commercial limit to such controls: excessive uncertainty can make a mill unwilling to reserve any material. GFT's proposed response is a bounded commitment with stated release conditions and a funded fallback, rather than false certainty. The programme can reserve less, shorten its commitment or postpone additional equipment while evidence improves. A cautious decision may reduce immediate intake but preserve the ability to continue purchasing in later campaigns. The relevant outcome is dependable repeat supply, not the largest volume written into an initial plan.

GFT also recommends a clear boundary for any sustainability claim attached to the supply arrangement. A lot identity record can support a statement about recorded origin, but cannot by itself demonstrate improved soil condition, lower emissions or better household income. Define the outcome, comparison period and evidence needed before using such language. Keep unsupported benefits out of buyer presentations and the investment case. This allows the programme to communicate what its records establish while making the remaining verification work visible.

4.6

Domestic allocation needs fair and credible incentives

The ministry's September 2022 study reports local spinners buying fibre at world-market prices and criticises that position. This is a historical diagnosis, not a current price quotation or evidence of the discount a new buyer should receive. A fair domestic supply proposal needs a like-for-like commercial comparison before recommending a transfer of value between parties. [S06]

GFT proposes comparing domestic and export alternatives at the same material, location, quality, currency and payment date. Start from each route's credible net realisation, then identify transport, handling, financing, risk and other differences supported by actual offers. Do not treat gross export receipts as freely available surplus. Do not assume every avoided export expense becomes a domestic processing gain, since the replacement route may incur different expenses. Leave unquoted items unresolved rather than assigning a favourable value.

Voluntary supply contracts are the first option to test. GFT recommends specifying a product-compatible quantity range, reservation period, delivery programme, pricing mechanism and payment protection. The seller should understand the commitment it gives up; the buyer should understand what remains contingent. A reservation fee or advance, if proposed, should have a clear commercial purpose and treatment when qualification fails. There is no universally preferable clause. Compare the consequences of each proposed term against the actual procurement and funding calendar.

Aggregation is a separate option. A shared purchasing arrangement could combine requirements, but GFT recommends checking whether the participating mills actually need compatible fibre and delivery timing. Record who holds title, accepts quality, pays invoices and bears a default by another participant. Do not assume that collective purchasing removes credit exposure. It may relocate that exposure to an aggregator whose funding and decision authority then require their own review. The arrangement should remain understandable to the upstream seller.

Transparent allocation is the third option where demand competes for limited qualified lots. GFT proposes published eligibility principles, an auditable reservation record and a route for resolving conflicting claims. Publish the method and relevant aggregate outcomes without disclosing private producer records or sensitive commercial terms. If public support changes the commercial balance, identify its stated objective, beneficiary, funding source and duration. Subject any proposed allocation mechanism to applicable legal review before use. This chapter offers no investment, legal or tax advice.

An arbitrary upstream discount should not be the balancing item in a weak factory model. GFT recommends calculating the producer-payment and seller-liquidity consequences of any concession alongside the buyer's gain. Test whether lower prices would be offset by genuinely lower costs, additional paid sales or explicit funded sup-

port. If those benefits cannot be demonstrated, the proposal may simply transfer the burden to another participant. Industrial policy can choose to support processing, but the funding and incidence should be visible.

The strongest objection is that new mills may initially struggle to compete without favourable fibre terms. GFT's response is to make the proposed assistance explicit and conditional on a defined public or commercial purpose. Compare it with improving conversion, logistics or payment reliability rather than assuming cheap fibre is the only remedy. A programme that cannot explain who pays for its concession cannot yet claim a durable supply advantage. The decision should preserve both a credible customer for the crop and a credible return to supplying it.

4.7

A supply pilot should precede a long commitment

GFT recommends a bounded supply pilot before a long reservation or an additional fixed investment. It should test the contract and the operating record together. OECD's garment-sector guidance supports collaborative, responsible sourcing and risk-based due diligence; it does not certify a particular supplier or prescribe the commercial thresholds proposed here. The pilot remains a GFT recommendation requiring participant agreement. [S11]

Define its scope around a procurement cycle, not a ceremonial dispatch. Include reservation, representative qualification, storage, delivery, conversion acceptance, payment and reconciliation. Choose a material population large and varied enough to answer the intended question, while keeping the financial commitment bounded. No participant count, yield gain or delivery performance is promised here. Set those design choices only after agreeing the product, material variability, funding capacity and evidence that would justify continuation.

Exhibit 17, p. 68 gives the proposed release sequence. Its arrows represent decision dependencies, not a verified institutional workflow. Each stage should have an accountable owner, a dated record and a stated response to failure. A production trial may begin only under the agreed controls; unresolved payment evidence should prevent the pilot being declared commercially complete merely because a machine run succeeded.

EXHIBIT 17 / ILLUSTRATIVE DECISION SEQUENCE

A proposed pilot releases commitments after evidence



1. Confirm authority and funding
2. Release qualified material
3. Verify delivery and payment

ILLUSTRATIVE [S04] [S11] GFT-designed sequence informed by ginning quality and collaborative due diligence. No contract, supplier qualification or trial result is asserted. Acceptance limits require agreement before the pilot.

GFT proposes a close-out sheet that preserves disagreements. Compare agreed and received weight on the common basis, identify accepted and rejected material, explain storage changes and record conversion performance under the trial conditions. Match invoices, approved deductions, actual payments and beneficiary confirmations. Where pooled upstream settlement prevents a direct link, document the available reconciliation and its limitation. A dashboard should show missing evidence clearly instead of converting an absent record into satisfactory performance.

A proceed decision should require repeatable product acceptance, reconciled material and payments made under the agreed terms, with remaining obligations funded. A remedy decision should name the defect, owner, corrective action and evidence needed to reconsider. A stop decision should apply where unresolved authority, unacceptable material, unfunded obligations or serious sourcing concerns invalidate the arrangement. Agree these outcomes before the trial. Otherwise commercial pressure can redefine success after the evidence is known.

The pilot should end with an actual commitment decision, rather than a list of unresolved observations. GFT recommends a review attended by the parties accountable for supply, mill acceptance, funding and producer representation. Circulate the reconciled evidence before that review and record dissent where the same observation leads to different commercial conclusions. An approval should identify the specific next commitment it authorises and the conditions that remain. It should not become an open-ended endorsement of the supplier, the national crop or every future product.

Retain enough evidence for the next procurement team to understand why the decision was made. Store the agreed specification, lot population, test results, payment confirmations and exception log together, with access appropriate to their sensitivity. When an operating condition changes, identify whether the earlier conclusion still applies or requires another trial. This prevents a successful bounded experiment

from being stretched into a claim about an untested campaign. A useful pilot reduces uncertainty in a defined decision; its value is not measured by how widely its conclusion can be repeated.

Finally, GFT recommends connecting this pilot to the feasibility component of its programme as a proposed qualification workstream. Detailed chain-of-custody mechanics and inventory policies belong in the companion papers. The proposed trace-a-garment and safety-stock interfaces could display the resulting evidence, but their mention does not assert a built or validated tool. Expansion should follow the demonstrated relationship between suitable fibre, credible payment and repeat conversion. Until those conditions are met, a larger purchase promise remains a proposal.

The next factory must finance the next crop as carefully as its next machine.

CHAPTER SOURCE NOTES

S02 IFC and World Bank. 2022.

S03 European Commission and Agrinatura. 2020.

S04 SODECOTON. n.d..

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

S11 OECD. 2018-03-07.

05

PART II: REBUILD THE CHAIN AROUND REAL DEMAND / LEARN FROM EXISTING ASSETS

CICAM's difficulties show why output cannot be inferred from machinery

Historical incumbent performance identifies questions for diligence. It does not establish current output or predetermine whether rehabilitation, contract conversion or new investment is preferable.

CHAPTER 05
DECISION TEST

Historical incumbent performance identifies questions for diligence. It does not establish current output or predetermine whether rehabilitation, contract conversion or new investment is preferable.

CICAM's historical difficulties make the case for testing an operating system before assigning productive value to its equipment. The inherited record reports low and uneven utilisation, declining market share and alternative restructuring estimates. These observations justify investigation, rather than a finding about current asset condition or management. GFT recommends comparing rehabilitation, contracted conversion and new construction against the same accepted product, delivery obligation and cash boundary. Machinery contributes only when the complementary conditions for saleable output can be demonstrated. This is GFT's analytical conclusion from the historical record, not a completed appraisal of CICAM. [R11] [R12] [R13]

5.1

An industrial map must separate assets from legal entities

The IFC and World Bank diagnostic, published in December 2022, describes CICAM as an integrated spinning, weaving, dyeing and printing enterprise with three production facilities. It also discusses a possible strategic rapprochement with SODECOTON. That account establishes a historical description of industrial functions. It does not establish which machines are currently serviceable, which facilities are operating, or whether the contemplated institutional change was completed. [S02]

GFT proposes an asset map organised around physical production boundaries. Each facility would receive a stable identifier linked to its location, operator, owner, process stages and service connections. The enterprise register would sit alongside this map. An enterprise may control several locations; a location may contain several conversion stages. Treating an enterprise name as a machine count, or an integrated chain as a single interchangeable capacity, would prevent a meaningful production reconciliation.

For each process stage, the proposed record should distinguish installed equipment, mechanically available equipment, scheduled production and accepted output. These fields answer different questions. A machine inspection can establish that an asset exists and can turn. A controlled production test can establish performance on a specified input. A buyer acceptance record can establish that the resulting output meets a commercial requirement. No earlier record should be used as a substitute for the later evidence.

The material interface is equally important. The proposed map should identify what leaves spinning, what enters weaving and what is transferred to wet processing. Units must remain attached to these transfers. Yarn mass, fabric length and finished product counts cannot be added as if they were the same material quantity. Conversion between them requires a product construction, width, mass basis and documented losses. A site-level total without those definitions may conceal an incomplete chain rather than reveal spare capacity.

R08 records an announced SODECOTON and CICAM consolidation towards an industrial pole. It is inherited press evidence with no publication date recorded in the shared register. The announcement should remain in an institutional-status field, separate from legal completion and operating performance. It cannot establish asset transfer,

commissioning, improved management or increased production. The opened historical diagnostic likewise describes rapprochement as something considered, rather than an accomplished operating turnaround. [R08] [S02]

A useful diligence visit would therefore begin with a walk through the proposed product route, rather than a presentation of group-wide capacity. The visiting team should reconcile equipment tags to the fixed-asset list, observe stores and utilities, and request the latest corresponding production records. Where a stage is bypassed through outside processing, that interface should be recorded explicitly. Where the evidence cannot identify the operator or transfer point, the item should remain unresolved.

GFT would also request a reconciliation between internal transfers and external purchases. If fabric arrives from outside the mapped chain, the resulting finished output cannot demonstrate the performance of the absent upstream stages. If intermediate stock is drawn down during a trial, dispatch may exceed newly produced material without showing a higher sustainable rate. Recording opening and closing stock, transferred material and rejected work would make that distinction inspectable. The same discipline should apply to a new facility and a contracted supplier.

This mapping method is a proposed control, not an assertion that CICAM lacks asset records. It makes the next decision precise: retain an asset in the comparison only when its ownership or access rights, condition and product function have an evidential basis. The question is whether the required chain can operate under an accountable arrangement, not whether an impressive collection of machinery can be shown to exist.

5.2

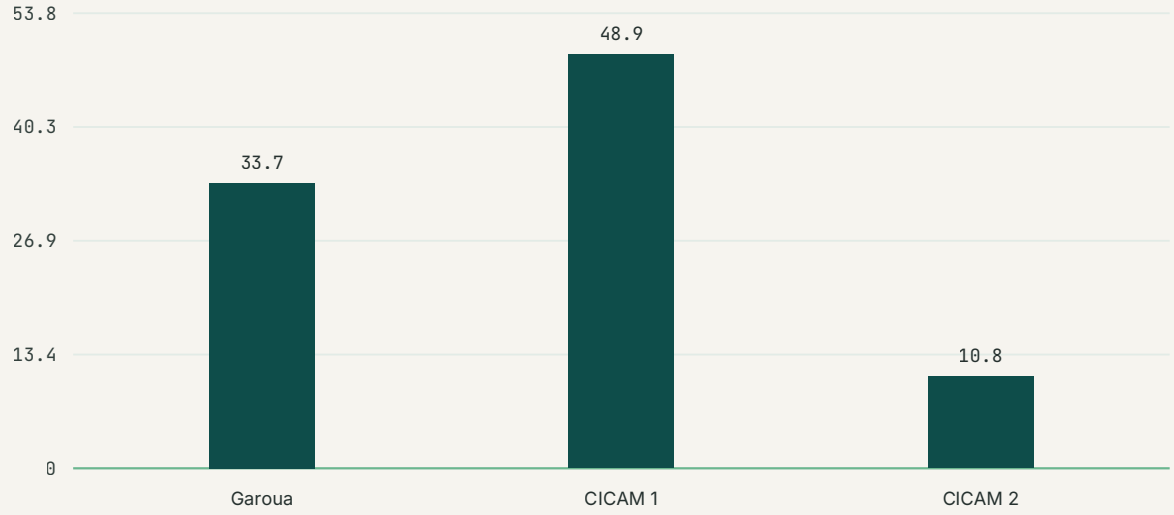
Historical utilisation is a warning about complementary inputs

The shared register attributes utilisation figures to a July 2023 press report: Garoua at 33.7 percent, CICAM 1 at 48.9 percent and CICAM 2 at 10.83 percent. The same entry reports an underutilisation cost of about CFA franc (XAF) 2 billion in 2020. These remain historical, grade-C ledger observations. The underlying article was not independently reopened for this chapter, and the reporting date should not be mistaken for a common observation period. [R12]

The comparison in **Exhibit 18**, p. 73 retains the site labels and reported percentages. It deliberately supplies no pooled utilisation rate. A valid aggregate would require compatible material units, capacity definitions and observation periods, followed by capacity weighting. If the facilities describe successive stages of the same chain, an aggregate could also obscure its bottleneck. The bars identify questions for investigation, rather than establish the volume available for future contracts. [R12]

EXHIBIT 18 / PERCENT OF EACH SITE'S REPORTED CAPACITY

Historical utilisation reports differ across CICAM sites



SOURCED [R12] Inherited grade-C ledger: press report dated July 2023. Values: Garoua 33.7; CICAM 1 48.9; CICAM 2 10.83. Common observation period, denominator and capacity weights are not established. No pooled rate or current output is inferred.

GFT's working hypothesis is that equipment, orders, materials, utilities, maintenance and cash act as complementary inputs. The hypothesis would be tested against loss records rather than accepted as an explanation of CICAM's performance. For every interrupted production interval, the proposed investigation should identify the immediate cause, the underlying cause and the evidence supporting both. A motor failure may explain the stop, while delayed purchasing authority may explain why a replacement was unavailable.

The historical European Commission and Agrinatura briefing reports that CICAM was the exception to otherwise profitable activities in the cotton chain. Its economic analysis concerns an earlier study period, including the 2017/18 campaign. GFT interprets this as evidence that upstream agricultural viability does not automatically establish downstream manufacturing viability. It does not reveal the present cause of losses or determine whether any particular asset should be retained. [S03]

National infrastructure evidence offers context without resolving the plant question. The IMF's February 2025 staff report identifies structural electricity shortfalls and transmission and distribution investment needs. That finding supports requesting connection and interruption evidence. It cannot assign a proportion of CICAM's downtime to power or establish the reliability of an alternative site. GFT proposes matching utility events to machine and quality records before purchasing equipment as the remedy. [S07]

WORKED EXAMPLE: LOSSES REDUCE OUTPUT BEFORE A BUYER ACCEPTS IT

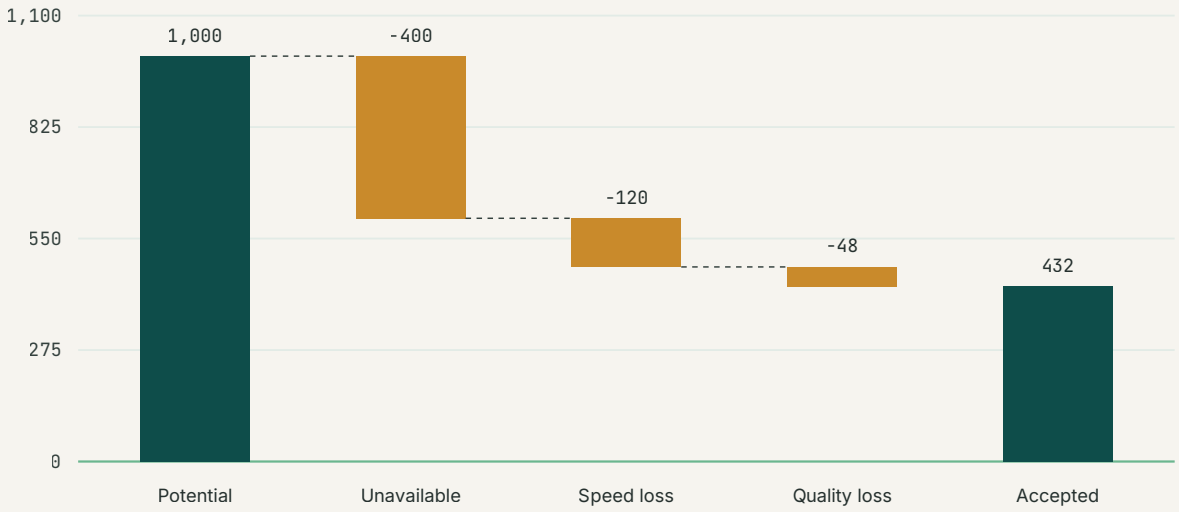
This illustrative calculation concerns a hypothetical fabric process, with all quantities measured as equivalent metres at one unchanged construction and width. Assume a scheduled technical potential of 1,000 metres, availability of 60 percent, running-speed performance of 80 percent and first-pass acceptance of 90 percent. These are GFT-selected teaching assumptions, not CICAM observations. Actual running potential is 1,000 × 0.60 = 600 metres; gross production is 600 × 0.80 = 480 metres; first-pass accepted output is 480 × 0.90 = 432 metres. No rework recovery is assumed within the period.

In this illustrative case, availability losses are 400 equivalent metres, speed losses 120 metres and first-pass quality losses 48 metres. Their sum is 568 metres, leaving 432 metres accepted. This decomposition explains why machinery rated for a theoretical quantity cannot establish saleable delivery. It also prevents a common error: applying a composite utilisation factor and then deducting the same availability and speed losses again.

The illustrative waterfall in **Exhibit 19**, p. 74 shows that identity. An apparent improvement in any factor would require confirmation that the other factors had not deteriorated. Faster running could be commercially irrelevant if acceptance fell. Longer scheduled hours could increase recorded utilisation without improving accepted output per paid hour. The recommended measurement boundary therefore follows accepted production alongside the individual loss categories.

EXHIBIT 19 / EQUIVALENT METRES AT UNCHANGED FABRIC CONSTRUCTION AND WIDTH

Illustrative losses leave less than half of technical potential accepted



ILLUSTRATIVE Illustrative GFT model, not CICAM data. Potential 1000; availability 60%; performance 80%; first-pass acceptance 90%. 1000 × 0.60 x 0.80 × 0.90 = 432. Losses: 1000 - 600 = 400; 600 - 480 = 120; 480 - 432 = 48. No in-period rework recovery.

A proposed bottleneck test would follow matched batches through successive operations and compare accumulation before each stage. An upstream machine may appear underused because the following stage cannot accept more work. Raising its

production could simply increase stock. Conversely, a downstream line may be starved because the upstream material fails specification. GFT would ask whether the proposed repair increases accepted deliveries at the chain boundary, and what evidence would show that the bottleneck had moved. The trial should record queues and material availability alongside machine speed.

The practical implication is diagnostic discipline. GFT would require an agreed time denominator, product-specific standard rate, downtime classification and acceptance rule before calculating utilisation. The detailed intervention method belongs with the companion utilisation work. Here the decision is narrower: do not approve an asset remedy until the dominant constraint has been observed at the relevant boundary.

5.3

A reported market share needs a defined market

The inherited press record describes CICAM's market share falling from about 85 percent three decades earlier to about 5 percent at the time of reporting. The shared register does not supply the publication date, matched product definition, geography, channel or value-versus-volume basis. GFT retains this as a historical report of competitive deterioration. Its relative time references cannot be converted into a current-year market series. [R11]

A producer's market share and a country's domestic fibre transformation share require different denominators. The former concerns the producer's sales in a defined market. The latter concerns material entering qualifying domestic conversion. A factory could import fabric, finish it locally and sell it successfully without transforming domestic lint. Conversely, a domestic spinner could transform local lint for export without supplying the domestic fabric market. GFT's proposed comparison keeps these contributions separate.

The official customs publication for calendar 2024 lists second-hand clothing and textiles and textile articles under separate published labels. Those categories offer evidence about cross-border flows, not CICAM's sales denominator. Their scopes must be checked before aggregation, and the import records cannot establish the total retail market or the portion technically substitutable by an incumbent mill. The source cover states August 2025; the repository path indicates a later upload. [S23]

For asset diligence, GFT proposes defining the market around the intended product rather than the incumbent's historical prominence. The specification should identify the material, construction, finish, acceptance tests, order pattern, delivery point and payment condition. Competitors should then be compared on an equivalent delivered proposition. A low import price for a different construction does not price the required product. A high domestic selling price does not establish a margin if returns, credit and distribution costs are omitted.

The proposed evidence request should separate dispatches, invoiced sales, accepted deliveries, returns and collected cash. These records expose different failure modes. A dispatch increase can coexist with rising channel inventories. Invoicing can precede acceptance, while apparent demand can depend on unusually generous credit. The

asset comparison should use an explicit commercial acceptance boundary and disclose the evidence still missing, rather than treat movement out of the warehouse as completed demand validation.

This chapter does not attempt to establish a replacement market-share estimate. That would require primary sales and market research beyond the evidence opened here. Instead, it specifies what an incumbent's commercial data would need to show before a rehabilitation case could count on recovering lost business. Product qualification and repeat-order methods belong in the following chapter. The present comparison only assumes demand when the associated buyer evidence is supplied.

A defensible counterargument is that historical customer familiarity, a distribution route or a known product identity could make rehabilitation attractive. GFT would retain each as a potential advantage, then test whether it still creates accepted and paid sales. Another counterargument is that a new entrant could serve a different product category entirely. The comparison should recognise that difference rather than score the entrant against an incumbent market that it does not intend to address.

The decision consequence is to remove market-share recovery as an unexplained assumption in the production ramp. An asset plan should state which orders it can technically serve, how those orders were qualified and what would invalidate the assumption. Historical dominance is context. It is neither an order book nor a capacity acceptance test.

5.4

Rehabilitation and replacement answer different problems

GFT proposes separating physical deterioration, product mismatch, operating discipline and external constraints before selecting an asset response. Rehabilitation may address worn components while leaving an unsuitable product route intact. Replacement may improve a process while retaining an unfinanceable cash cycle. Contract conversion may reduce immediate capital exposure while introducing delivery and counterparty dependencies. These are alternative causal hypotheses to test, not findings about the condition of CICAM's equipment.

The physical workstream would request equipment condition reports, maintenance history, parts availability and test results on the intended product. The commercial workstream would verify that the product meets the proposed buyer specification at an achievable rate. The resource workstream would establish usable power, heat, water and treatment requirements. Finance would reconcile the proposed operating schedule with procurement lead times, stocks, customer credit and the timing of payments.

The World Bank Group's textile manufacturing guidelines treat environmental and safety requirements as process-specific and require site-specific assessment. GFT consequently recommends examining wastewater, chemical handling, dust, fire protection and resource demand alongside production capability. The guideline's 2007

publication date must remain visible. It is a technical reference, not evidence that any existing facility complies with current permits or that a replacement line would automatically satisfy local obligations. [S10]

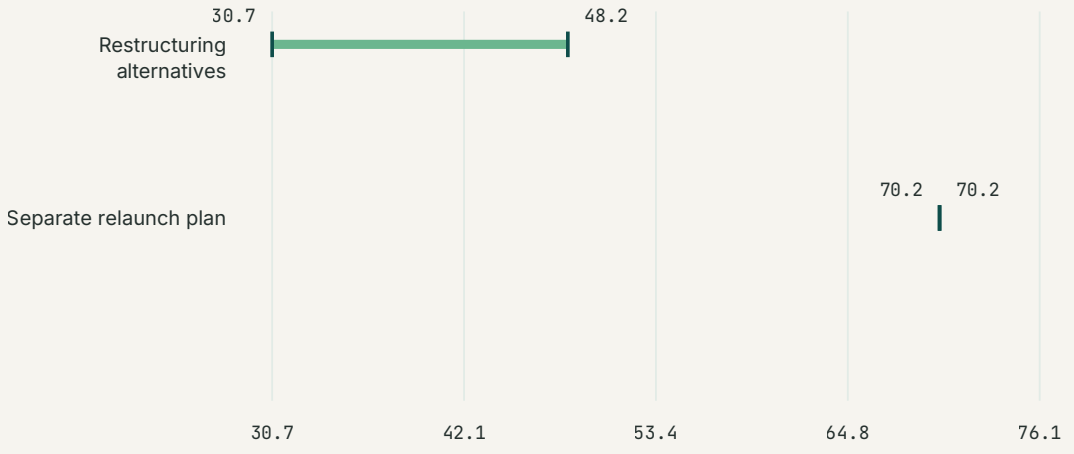
Worker consultation and management responsibilities also belong in the comparison. IFC's summary of Performance Standard 1 links environmental and social management with stakeholder consultation and complaints from workers and communities. The ILO textile safety code addresses machinery, hazardous substances, ergonomics and building and fire safety. GFT's proposed diligence would request existing records and corrective actions before scheduling production trials. Neither reference establishes compliance at CICAM or at a proposed alternative facility. [S24] [S28]

The inherited ledger reports restructuring estimates of CFA franc (XAF) 30.7 billion to 48.2 billion and a separate relaunch plan estimated at CFA franc (XAF) 70.2 billion. Their scope reconciliation and original publication dates are not established in the register. They are historical reported estimates, not current supplier quotations. They must not be added together, treated as a confidence interval or converted into a contemporary price per unit of capacity. [R13]

Exhibit 20, p. 77 preserves these figures without calculating a preferred budget. The span connects reported restructuring values only because the ledger gives them as a range; it is not a statistical uncertainty band. The point for the relaunch estimate belongs to a separate scope. Before comparing an actual proposal with any of these amounts, GFT would request the original work breakdown, price date, exclusions and treatment of existing obligations. [R13]

EXHIBIT 20 / CFA FRANC (XAF) BILLION, HISTORICAL REPORTED ESTIMATES

Historical estimates require scope reconciliation before comparison



SOURCED [R13] Inherited grade-C register; original publication dates and detailed scopes were not recorded. Restructuring alternatives 30.7 to 48.2; separate relaunch estimate 70.2 shown as a point. These are not additive budgets, comparable quotations or statistical intervals. No current-price adjustment is made.

The proposed cost comparison should include the expenditure needed to reach accepted production, rather than stop at machine purchase. That boundary would include preparation, installation, services, safety measures, trials, working capital and

disruption attributable to the chosen option. Items whose responsibility is disputed should be shown separately. Missing information should remain an unresolved allowance or data request, with its basis disclosed, rather than silently enter the model as no cost.

A further proposed test separates the cost of restarting from the cost of repeating production. An apparently affordable repair may leave the operator buying expensive emergency services. A higher initial investment may reduce some operating demands but require a longer period before sales begin. The comparison should show those mechanisms independently. GFT would request quotations and operating assumptions at the same price date, retain differences in tax treatment for qualified advisers, and disclose the treatment of stoppages during installation. Historical expenditure would not be evidence of future recoverability.

Rehabilitation could become preferable if inspection and trials showed a suitable product route, a manageable repair scope and an attainable acceptance schedule. Replacement could become preferable if the required specification remained unattainable or the retained system imposed unacceptable operating conditions. Contract conversion could become preferable if the product could be qualified through an accountable supplier while ownership decisions remained unresolved. These conditional outcomes preserve useful options without assuming a winner.

5.5

Ownership change is not an operating turnaround

The historical IFC and World Bank diagnostic associates CICAM's competitive difficulties with institutional and financial constraints as well as the industrial chain. GFT uses that diagnosis to frame governance questions, rather than assert that the same arrangements or failures persist today. A new ownership diagram would not itself answer who can authorise maintenance, release purchasing funds or stop unsafe production. [S02]

The proposed governance test starts with decision rights at each operating boundary. An accountable manager should know the approved product, the authorised schedule and the evidence required to release material. Maintenance responsibility should include both the duty to identify a defect and the authority to obtain a remedy. Commercial promises should be checked against available production and cash. Finance should know which commitments are mandatory before it releases a budget.

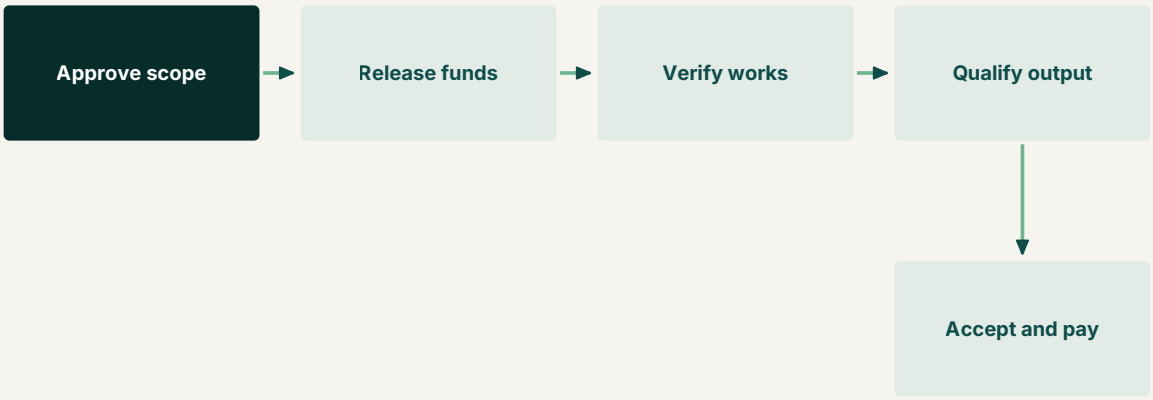
GFT proposes testing these arrangements through a documented transaction. Select a material purchase, a maintenance intervention and a rejected batch from the records made available. Trace who requested action, who approved it, what information was supplied and when the consequence reached production or the buyer. The purpose is to see whether authority, information and responsibility meet at the same decision. A written procedure alone cannot show that the route works.

A turnaround claim should then pass through distinct documentary states. Approved works show intent. Evidence of funds released shows financial action. Installation records show physical progress. Qualification runs show performance under stated

conditions. Customer acceptance and payment show a commercial result. A press statement about any earlier state should not receive the evidential credit of the later state. **Exhibit 21**, p. 79 shows GFT's proposed sequence.

EXHIBIT 21 / PROPOSED DOCUMENTARY GATES

A turnaround claim needs successive operating evidence



ILLUSTRATIVE Illustrative GFT governance design, not a record of CICAM progress. Each arrow requires fresh evidence. Failure returns the proposal for remedy or deferral; no duration or approval is implied.

The gate sequence is not a recommendation to delay every repair until a complete institutional restructuring is settled. GFT proposes distinguishing urgent protective actions from capacity expansion. A justified action to protect people or prevent asset damage should have its own accountable approval. Crediting that action as proof of increased commercial capacity would still require the later production evidence. This distinction supports practical progress without collapsing the status record.

> **GFT NOTE**
>
> Before an asset option receives credit for a turnaround, assemble one reconciled evidence pack: decision authority, funded work scope, verified installation, representative production results, buyer acceptance and the associated cash record. Keep each status separate. A failure at any gate should trigger remedy, a revised scope or deferral before the next commitment.

Performance accountability should also make adverse information usable. The proposed reporting route should record unplanned stops, rejected output, delayed payments and unresolved grievances beside progress milestones. Otherwise the incentive to demonstrate completion could suppress the information needed to correct the plan. This is GFT's governance recommendation, not a claim about how any named incumbent currently reports.

5.6

New entrants may create both demand and competition

The inherited ledger describes a Camtext SA integrated project announcement dated 12 November 2025. It records a reported investment of US$300 million, also presented as CFA franc (XAF) 180 billion. Those are announcement amounts, not evidence of spending, financing close or installed assets. No exchange rate is derived here. GFT has no asserted role in that project, and the announcement should not be merged with its own programme. [R09]

The accompanying inherited entry reports annual processing capacity of 12,000 tonnes, future employment at Dibamba and Garoua, a return horizon near 11 years and optimal capacity around 2033. These remain reported plans and projections. The material stage of the tonnage needs confirmation, while the return description lacks a reconciled financial definition. This chapter counts none of the projected capacity, employment or returns as achieved. [R10]

GFT proposes mapping potential interactions before assuming that an entrant simply displaces an incumbent. A new facility could become a customer for an existing intermediate product or a supplier of a missing conversion service. It could also compete for suitable cotton, experienced supervisors, dependable power or distribution access. Each relationship should remain a hypothesis until the proposed products, resource requirements and counterparties can be examined.

For material allocation, the comparison should identify grade, origin, delivery window and title transfer. Stating an aggregate requirement for cotton is insufficient if the competing routes need different characteristics or timing. For skills, the relevant question is whether the proposed operating teams can be formed without assuming the same available supervisors in every project. For utilities, each connection claim needs a service boundary and a firm evidence basis.

Commercial complementarity needs equal care. A letter of interest between organisations is weaker evidence than an agreed product specification and a successfully completed transaction. GFT would request the proposed service price, quality responsibilities, loss allocation, delivery obligations and dispute route before counting contract conversion as available. These are diligence requirements, not claims that a commercial agreement exists or that any named entrant would accept the proposed terms.

A concentrated supply arrangement could also transfer risk rather than remove it. GFT's proposed comparison would test a delayed start, a rejected lot, an interrupted service and a counterparty payment delay. Each test should identify who holds stock, who funds it and what alternative route remains. The resulting safeguards should follow the actual contract and technical interfaces. A generic description of vertical integration cannot supply those answers.

GFT would distinguish shared-service opportunity from confirmed shared-service availability. A proposed testing laboratory, maintenance workshop or treatment service may improve several asset routes, but it needs an identified operator, access rules, funding and performance obligations. Until those are evidenced, each route

should carry its own service solution or a disclosed dependency. Otherwise separate project models may all assume that another party will provide the same missing capability. A shared constraint should appear in the comparison as a common exposure, rather than disappear between project boundaries.

The national implication is to distinguish additional capability from competing claims on existing resources. A project register should record announcement, financing, construction, qualification and operation separately, with each plant's domestic lint intake reconciled at a consistent boundary. Incumbent rehabilitation and entrant development may both contribute, but only evidenced throughput should enter an operating total. This is GFT's proposed accounting rule, not a verified current census.

5.7

Asset decisions should follow a common comparison

GFT recommends defining a common required output before asking which asset route is cheapest. The comparison should specify an accepted product, annual delivery obligation, receiving point, quality tests, scheduling window and payment basis. Rehabilitation, contract conversion and greenfield proposals should then explain how they meet that requirement. A proposal covering a different process boundary should carry an explicit adjustment, rather than receive an apparently favourable score for doing less work.

The proposed comparison in **Exhibit 22**, p. 81 leaves the options unscored. Its cells specify evidence that would permit a decision; they do not imply equal readiness or equal cost. Assigning attractive numerical scores in the absence of condition reports, supplier offers and buyer qualification would manufacture a ranking. Unknown evidence should remain visible so that a decision-maker can authorise the investigation that could change the result.

EXHIBIT 22 / ILLUSTRATIVE DILIGENCE REQUIREMENTS; NO OPTION SCORES

Asset routes need equivalent product and obligation boundaries

Test	Rehabilitate	Contract conversion	Build new
Product	Representative asset trial	Supplier lot qualification	Specified acceptance test
Reliability	Condition and service logs	Service and fallback proof	Site and ramp evidence
Cash	Repairs and restart funding	Fees, stock and credit	Works and ramp funding
Liabilities	Retained duties assessed	Responsibilities agreed	Permits and impacts assessed
Decision	Unscored pending evidence	Unscored pending evidence	Unscored pending evidence

ILLUSTRATIVE Illustrative GFT comparison design. All routes must meet the same product, delivered quantity, acceptance and payment conditions. Entries are evidence requests, not findings about CICAM or supplier commitments. Unknown costs remain unknown.

GFT proposes a concise decision memorandum recording the preferred route, the strongest reason it could fail and the evidence that would reverse the preference. It should distinguish expenditures already incurred from future commitments, and distinguish private operating economics from wider public objectives. A desire to preserve industrial capability may be a legitimate policy objective. It should receive an explicit rationale and funding boundary rather than disappear inside an optimistic utilisation assumption.

The diligence request should be ordered by decision value. First obtain evidence that could rule out the product route, safe operation or access to the asset. Then resolve the cost and schedule uncertainties that separate feasible alternatives. Finally refine the operational details of the preferred route. This proposed sequence avoids spending analytical effort on precise estimates for a route that cannot satisfy the common acceptance boundary.

The proposed memorandum should record a remedy path for a failed test. A condition defect might justify a bounded repair and another trial. A product mismatch might require a different specification or a different buyer, followed by fresh qualification. An unresolved access right might require deferral regardless of mechanical condition. These responses differ, and their consequences should not be reduced to a single generic risk rating. The aim is to identify the next useful decision while preserving a clear stop condition.

Where evidence supports only part of a route, GFT recommends granting credit only for that part. A successful spinning trial would establish performance on its stated material and product conditions. It would not qualify dyeing, prove a distribution channel or fund the next purchase cycle. The comparison becomes stronger when its conclusion stays inside the demonstrated boundary. That is the practical connection between an asset appraisal and the paper's wider argument for measured industrial expansion.

The principal unresolved items remain current asset condition, legal access, actual production and acceptance records, site service performance, repair scope, environmental and social obligations, qualified demand and funded working capital. Their absence prevents a present asset recommendation. It does not make existing capacity worthless, and it does not make greenfield capacity ready. The appropriate conclusion is conditional comparison followed by targeted evidence collection.

For GFT's feasibility approach, the lesson is to connect production capability with performance evidence from the start. Risk-matrix and site-selection methods can organise the questions, while the companion utilisation paper carries the detailed intervention method. No tool deployment, incumbent mandate or factory outcome is

asserted here. The resulting framework is industrial analysis, not investment, legal or tax advice. An asset earns its place in the plan when its proposed operating contribution can survive the common test.

Count the output that the operating system can prove, then decide which machinery it needs.

CHAPTER SOURCE NOTES

R11 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R13 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.

S02 IFC and World Bank. 2022.

R08 Business in Cameroon. Publication date unrecorded; inherited source-text check.

S03 European Commission and Agrinatura. 2020.

S07 International Monetary Fund. 2025-02-25.

S23 Institut National de la Statistique du Cameroun. 2025.

S10 World Bank Group / IFC. 2007-04-30.

S24 International Finance Corporation. 2012.

S28 International Labour Organization. 2022-04-26.

R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.

R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.

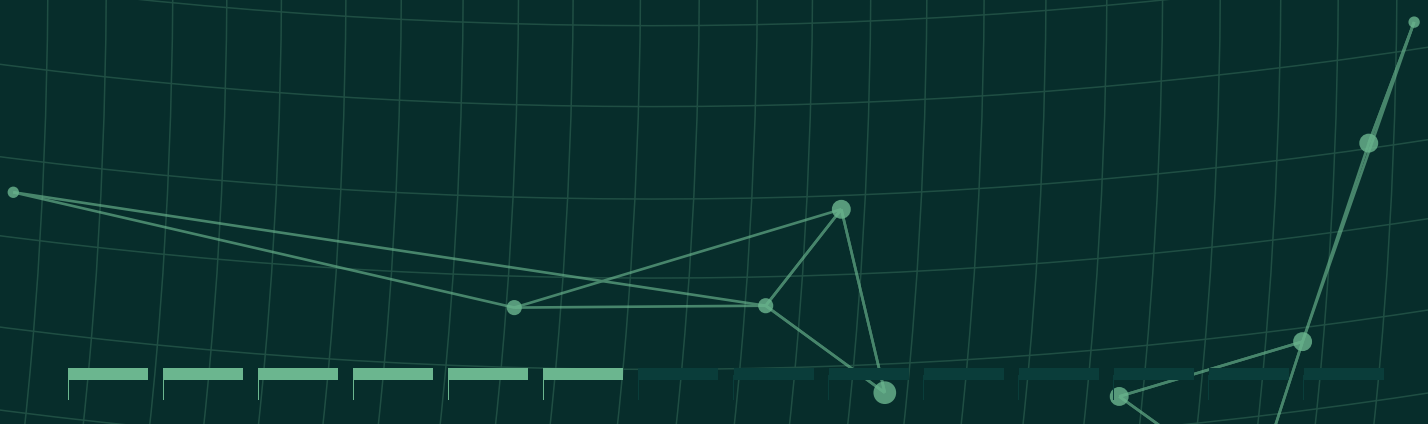
GREEN FUTURE TECH
LIMITED / HONG KONG SAR

06

PART II: REBUILD THE CHAIN AROUND REAL DEMAND / DEMAND BEFORE MACHINERY

Qualified orders must determine which products the chain makes

The processing gap identifies a supply-side opportunity, while product-level buyer evidence determines whether a factory can sell its output.



CHAPTER 06
DECISION TEST

The processing gap identifies a supply-side opportunity, while product-level buyer evidence determines whether a factory can sell its output.

A cotton-producing country cannot close its processing gap by selecting machinery from a raw-material target and hoping the resulting yarn, fabric or garments clear the market. While the historical reference split of about 95 percent of Cameroonian cotton fibre exported raw and about 5 percent processed locally highlights a supply-side opportunity, and the national strategy sets a minimum 50 percent domestic transformation ambition by 2030, neither figure tells an operator which product to make. [R06] [R07] [S01] [S34] Demand for cotton fibre is a derived demand depending on downstream purchases of specific textile products, each governed by price, construction, fibre blend, durability, delivery window and payment terms. [S32] A factory remains viable only when qualified buyers place repeat, paid orders for products matching the plant's equipment and workforce capability. [S02] [S32]

Green Future Tech Limited (GFT) treats commercial qualification as a prerequisite for capital commitment rather than a post-commissioning sales task. Within GFT's Cameroon textile programme (feasibility analysis, performance-management design and digital strategy, prepared 31 January 2024 with source-refresh notes retained in 2026), domestic and regional market orientation is a testable hypothesis rather than an assumed captive market. [S02] [S32] Before procuring looms, knitting machines, dyeing vats or sewing lines, the programme requires documented product specifications, approved samples, paid trial orders and verified collection histories across candidate segments. Where product-level evidence is absent, deferring upstream equipment preserves capital and prevents the low utilisation that historically burdened domestic mills. [R12] [S02]

6.1

A continental market forecast is not a factory order book

Sponsors often open feasibility studies with continent-wide market projections or national per-capita consumption estimates, treating a large aggregate figure as proof that a new mill will find buyers. In the inherited evidence register, two market-research vendors publish different trajectories for the African textile sector: one estimates the continental market at about US$37.3 billion in 2025 and projects growth to US$49.41 billion by 2030 at 4.73 percent a year, whereas a second projects the African market to reach about US$72.7 billion by 2035 at 6.9 percent a year and attributes 48.1 percent of the 2024 market to fashion and apparel. [R24] [R25] For Cameroon, consumer-research estimates place clothing and footwear spend at about US$94.70 per person and about 8.0 pieces per person in 2024, alongside projected apparel e-commerce revenue rising from US$20.32 million in 2023 to US$33.61 million by 2027 at 13.41 percent a year as user penetration moves from 18.0 percent to 22.7 percent. [R26]

These Grade C vendor figures cannot be combined into a single addressable-market baseline, and none constitutes a factory order book. [R24] [R25] [R26] The two continental forecasts use incompatible base years, product boundaries, currency assumptions and estimation models; averaging or splicing them creates false precision without resolving what share of expenditure occurs in Central Africa or in cotton-rich categories. [R24] [R25] Per-capita spend and online apparel sales likewise aggregate

imported new clothing, synthetic activewear, footwear, artisanal tailoring and second-hand garments across every price tier. [R26] [S23] A spinning mill or garment line sells a defined yarn count, a woven twill of a stated areal weight, or a stitched uniform meeting a buyer's size grading and seam standard. [S02] [S32]

Substituting a macro estimate for a product-level order book conceals three operational risks. [S02] [S32] First, an aggregate dollar figure gives no guidance on machine gauge, spindle configuration, loom width or dyehouse chemistry. [S02] [S10] Second, macro forecasts ignore distribution concentration and buyer creditworthiness: dispersed consumers require wholesale distributors, working-capital financing and stock buffers. [S03] [S31] Third, top-down market shares assume domestic output can displace imports at current prices without testing unit cost and quality. [S23] [S32]

6.2 DERIVED DEMAND LINKS LINT INTAKE TO FINAL PRODUCT CHOICES

The economic mechanism governing cotton transformation is derived demand: mill consumption of raw lint is determined by downstream demand for yarn, fabric and finished textile articles, modified by relative fibre prices and processing costs. [S29] [S32] In the statistical standard used by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO), cotton consumption refers specifically to the transformation of cotton fibres by spinning mills into yarn. [S29] When final buyers shift toward polyester-cotton blends, imported synthetic knitwear or lower-priced used garments, domestic demand for pure cotton yarn contracts unless local converters match the required blend, finish and landed price. [S27] [S29] Since the termination of the Agreement on Textiles and Clothing quota regime on 1 January 2005, global textile trade has operated under general multilateral rules without special quota protection, exposing domestic producers to international cost and specification competition. [S0601]

Translating a national lint-processing ambition into an operable schedule requires working backward from the buyer's loading dock to the gin bale. Assuming that abundant northern seed-cotton output guarantees a market for locally spun yarn risks producing counts and twists that neither domestic weavers nor regional garment factories can absorb at a positive contribution margin. [S02] [S06] [S32] Historical diagnostics of the Cameroonian cotton chain confirm that while upstream seed-cotton collection and ginning operated profitably for most participants, downstream transformation at the incumbent manufacturer suffered losses and low utilisation. [R12] [S03]

6.3

Domestic demand must be segmented by specification

To replace top-down market sizing with actionable diligence, domestic and regional demand must be segmented into technical product families that share manufacturing processes, buyer types and quality tolerances. [S02] [S32] Five candidate product pathways warrant separate commercial investigation in Cameroon: industrial and corporate workwear, public-service and school uniforms, basic cotton knitwear (T-shirts, polo shirts and underwear), printed and dyed woven fabrics (pagne and loin-

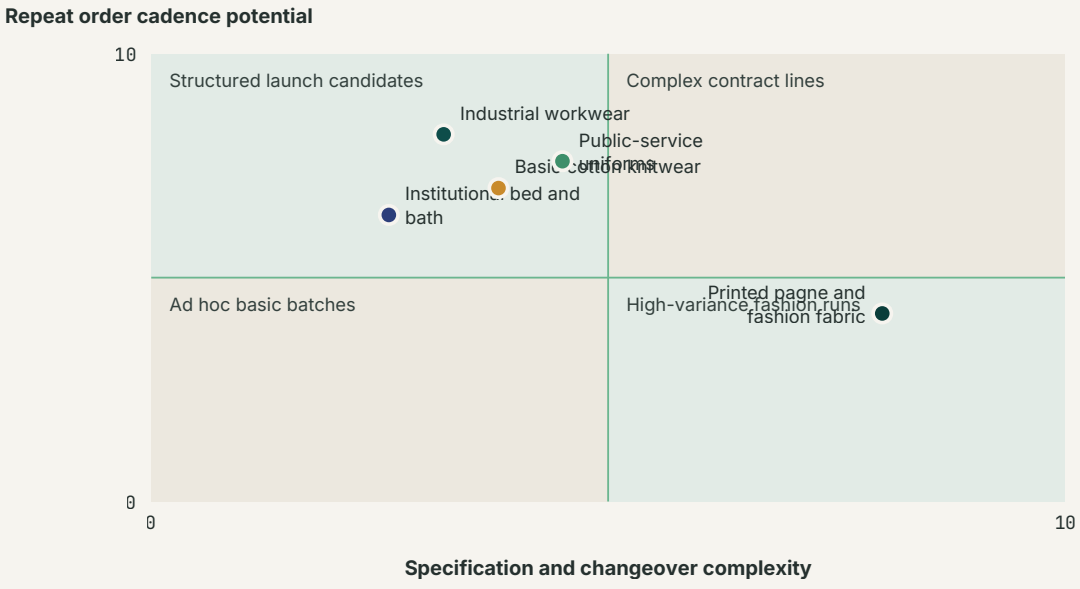
cloth), and institutional or household textiles (bed sheets, towels and hospital linens). [S02] [S06] [S27] Every pathway is a candidate segment for diligence, not an established GFT customer base. [S02]

Each segment imposes distinct engineering requirements. Industrial workwear and institutional uniforms require durable woven twill or poplin fabrics, vat or reactive dyeing with high wash and light fastness, reinforced seams, and strict size distributions. [S02] [S10] Basic knitwear relies on ring-spun or open-end yarns fed into circular knitting machines, followed by bleaching, dyeing, compacting and overlock sewing. [S02] [S10] Printed pagne and fashion fabrics demand wider-width weaving, rotary or digital printing, precise colour registration and rapidly changing design collections, exposing the mill to fashion risk and competition from Asian imports and smuggling. [R11] [S02] [S03] Home and institutional textiles require wide-width looms or terry-towel attachments, consistent bleaching and hem-stitching, and bulk packaging. [S02] [S10]

Exhibit 23, p. 87 places these five product groups across two dimensions: specification and changeover complexity on the horizontal axis, and repeat institutional or wholesale ordering potential on the vertical axis.

EXHIBIT 23 / ILLUSTRATIVE INDEX (0 TO 10)

Each candidate product needs a buyer and a process specification



ILLUSTRATIVE [S02] [S32] Illustrative GFT diligence taxonomy informed by Cameroon sector diagnostics in S02 and derived-demand principles in S32. Coordinates represent qualitative operational complexity and order-cadence characteristics to structure buyer research; they do not represent measured Cameroon market sizes, margins or verified sales.

As **Exhibit 23**, p. 87 illustrates, product segments that share a cotton origin behave differently inside a factory. Industrial workwear, institutional linens and basic cotton knitwear cluster in the upper-left quadrant because their fabric constructions remain stable across seasons, colour palettes are narrow, and buyers replenish standard stock items on predictable schedules. [S02] [S32] Printed fashion fabrics sit in the lower-right quadrant because pattern engraving, dye-paste formulation and style rotation increase setup waste and working-capital risk. [S02] [S10] What **Exhibit 23**, p.

87 cannot establish is whether solvent buyers in Cameroon will sign contracts in any of these quadrants at prices that cover domestic conversion costs; that proof requires empirical buyer discovery using a standardised specification sheet. [S32]

6.4 A BUYER DILIGENCE RECORD MUST CAPTURE EIGHT OPERATIONAL PARAMETERS

Before any candidate segment enters a production plan, commercial teams must collect an eight-point specification record from prospective wholesale, corporate or institutional buyers: [S02] [S11] [S32]

1. **Fabric construction and weight:** weave or knit structure (such as 3/1 twill, plain poplin or single jersey), yarn density and areal mass in grams per square metre in an illustrative line setup. [S02] [S29]
2. **Fibre composition and blend ratio:** whether the buyer requires 100 percent cotton or specifies a polyester-cotton or elastane blend for crease recovery, abrasion resistance or lower cost. [S27] [S29]
3. **Colourfastness and finishing standards:** resistance to laundering, perspiration, rubbing and light exposure, along with shrinkage tolerances and chemical limits. [S10] [S12]
4. **Garment grading, sizing and trim bill of materials:** size distributions, thread types, zips, buttons, reflective tapes, interlinings and labels. [S11] [S12]
5. **Order volume and replenishment cadence:** minimum order quantity per style and colourway, call-off frequency, and whether demand is seasonal or continuous across 12 months in an illustrative schedule. [S02] [S32]
6. **Quality acceptance criteria and defect tolerances:** acceptable quality limits (AQL) for major and minor visual defects, dimensional tolerances and lab test protocols. [R29] [S11]
7. **Delivery window and incoterms:** required lead time from purchase order to warehouse delivery, late-dispatch penalties and delivery points. [S31]
8. **Invoicing currency, credit period and payment security:** settlement currency (XAF, euros or US dollars), credit days after acceptance, deposits and bank guarantees or letters of credit. [S18] [S32]

Collecting these eight parameters turns a sales conversation into an engineering test. If a prospective workwear buyer requires a 65 percent polyester and 35 percent cotton twill with industrial-laundry colourfastness and 90-day credit terms, a mill designed solely for 100 percent carded cotton plain weave on cash terms cannot serve that order without changing both its material sourcing and its working-capital facility. [S02] [S27] [S29]

6.5

Public procurement is an ambition until a contract exists

National industrial policy in Cameroon links the revival of the cotton-textile chain to domestic consumption and state purchasing. In Section 3.1.5 (paragraphs 107 and 108) of *Stratégie Nationale de Développement 2020-2030* (SND30), the government sets

out an ambition to build an integrated cotton-textile pole around a strategic alignment between SODECOTON and CICAM, reach a minimum 50 percent industrial transformation rate for local cotton fibre by 2030, develop a clothing industry meeting at least 50 percent of national demand for apparel and sportswear, and supply major state services (military, police and civilian personnel) with uniforms incorporating a high share of Cameroonian cotton. [R07] [S02] [S34] Sector diagnostics by the International Finance Corporation (IFC) and World Bank likewise note the policy intention to use public orders of military, police and school uniforms, alongside sports clothing, as a demand anchor. [S02]

For an operator or lender, a strategy paragraph is a policy signal rather than a bankable contract. [S02] [S34] Analytical precision requires separating three propositions: the upstream target to transform at least 50 percent of local cotton fibre by 2030; the market-coverage ambition to satisfy at least 50 percent of national demand for clothing and sportswear; and the public-procurement intention to dress state services in garments containing a high share of domestic cotton. [S02] [S34] Assembling sportswear locally from imported synthetic fabrics contributes to domestic clothing supply while consuming zero tonnes of Cameroonian cotton lint. [S27] [S29] [S34] Supplying cotton-rich uniforms to public agencies absorbs domestic lint only to the extent of the fabric weight procured. [S06] [S34]

6.6 STATE PURCHASING REQUIRES STATUTORY TENDER AND BUDGET VERIFICATION

In Cameroon, public procurement is governed by formal administrative procedures, tenders boards, bid-evaluation sub-committees and regulatory oversight under the Public Contracts Regulatory Agency (*Agence de Régulation des Marchés Publics*, ARMP). [S0602] A sponsor cannot book projected uniform sales as committed revenue until a procurement pathway has cleared seven documentary gates: [S02] [S0602]

- **Budgetary appropriation:** verification that the contracting ministry holds an enacted fiscal-year budget line covering the garment purchase. [S02] [S0602]
- **Published tender technical specifications:** access to the official bidding dossier (*dossier d'appel d'offres*) defining fabric composition, weave, dye fastness, lot sizes and cotton-origin rules. [S34] [S0602]
- **Lawful bidder eligibility:** confirmation that the enterprise meets statutory registration, tax, social-security, technical-capacity and domestic-preference rules. [S0602]
- **Competitive bid evaluation and award:** formal award notification following review by the competent tenders board and evaluation sub-committee, free of unresolved appeals before ARMP. [S0602]
- **Payment security and settlement schedule:** documented terms on advance payments, treasury disbursement timelines and protection against expenditure arrears. [S02] [S03]
- **Inspection and acceptance protocol:** clear rules naming the administrative commission responsible for lot inspection and issuance of the acceptance certificate (*procès-verbal de réception*). [S11] [S0602]

- **Delivery schedule and penalty regime:** lead times aligned with domestic spinning, weaving, dyeing and sewing ramp-up rather than an immediate bulk delivery window suited only to offshore stockists. [S02] [S31]

> **WARNING**
>
> Public-procurement regulations, national-preference margins, administrative eligibility criteria and treasury payment procedures involve binding Cameroon public law and fiscal administration. Nothing in this paper constitutes legal or tax advice; project sponsors must obtain formal legal counsel and verify current tender dossiers issued under the authority of the relevant contracting ministry and ARMP before pricing or relying on any public-sector supply assumptions. [S34] [S0602]

Treating public procurement as a conditional option protects the factory from building oversized specialised capacity for a delayed tender, or delivering goods against a contract whose delayed settlement immobilises cash needed for cotton and utilities. [S02] [S03]

6.7

Imports reveal categories and competition rather than guaranteed substitution

When domestic production is small, analysts inspect customs import tables to see what the country buys from abroad. External-trade statistics published by the National Institute of Statistics of Cameroon (*Institut National de la Statistique*, INS) for 2023 and 2024 record imports entering the national customs territory. [S23] On page 18 of the 2024 report, two headline rows capture textile and clothing inflows: *Friperie* (second-hand clothing and used articles) and *Matières textiles et leurs ouvrages* (textile materials and articles thereof). [S23]

Exhibit 24, p. 91 reproduces the exact weights and values reported by INS for both categories across 2023 and 2024, preserving the published French category labels and units. [S23]

EXHIBIT 24 / TONNES AND XAF MILLION

Customs data distinguish textile imports from second-hand clothing

Published INS import category	2023 weight (t)	2024 weight (t)	2023 value (XAF m)	2024 value (XAF m)
Friperie (second-hand clothing and used articles)	61,221	72,600	30,251	39,857
Matieres textiles et leurs ouvrages (textile materials and articles)	148,923	146,139	93,005	109,235

SOURCED [S23] Sourced from S23 (INS Cameroun, Evolution du commerce exterieur en 2024, published December 2025, page 18). Preserve the published category labels. Because Matieres textiles et leurs ouvrages spans multiple Harmonized System chapters and can overlap with or include friperie in aggregate customs summaries depending on chapter-level grouping, the two rows must not be summed without an explicit HS concordance from INS.

Exhibit 24, p. 91 shows substantial physical and monetary volumes. Recorded imports of *friperie* increased from 61,221 tonnes valued at XAF 30,251 million in 2023 to 72,600 tonnes valued at XAF 39,857 million in 2024, a GFT-derived year-on-year increase of 11,379 tonnes (18.59 percent in weight) and XAF 9,606 million (31.75 percent in value). [S23] Recorded imports under *matières textiles et leurs ouvrages* moved from 148,923 tonnes in 2023 to 146,139 tonnes in 2024 (a GFT-derived decrease of 2,784 tonnes or 1.87 percent), while their customs value rose from XAF 93,005 million in 2023 to XAF 109,235 million in 2024 (a GFT-derived increase of XAF 16,230 million or 17.45 percent). [S23]

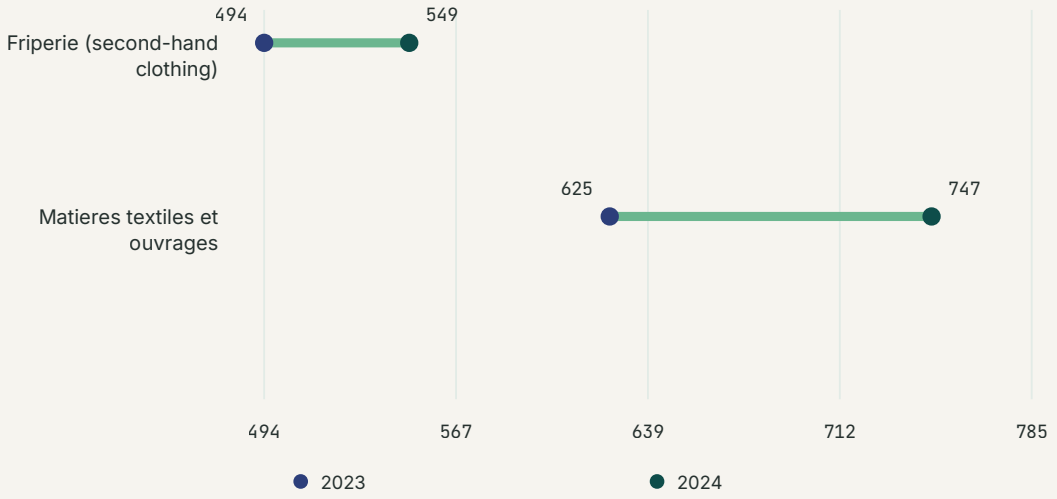
Despite the clarity of these lines, **Exhibit 24**, p. 91 cannot establish the size of Cameroon's addressable domestic garment market, for three reasons. [S19] [S23] First, in standard Harmonized System (HS) customs nomenclature, Section XI (*Matières textiles et ouvrages en ces matières*, Chapters 50 to 63) includes Chapter 63, which contains heading 6309 for worn clothing (*friperie*). [S19] [S23] Unless the statistical agency specifies whether the summary row for *matières textiles et leurs ouvrages* is reported inclusive or exclusive of the *friperie* row, adding the two lines risks double counting 72,600 tonnes and XAF 39,857 million of used clothing in 2024. [S19] [S23] Second, the broad textile-materials category aggregates synthetic filaments, industrial cordage, fishing nets, packaging sacks, greige fabrics and finished apparel. [S19] [S23] Third, official customs tables capture declared border flows without measuring unrecorded cross-border trade and smuggling, which historical diagnostics identify as a major source of market-share loss for domestic producers. [R11] [S02] [S03]

6.8 DERIVED CUSTOMS UNIT VALUES HIGHLIGHT THE PRICE GAP FACING LOCAL MILLS

Dividing reported customs values by reported net weights in **Exhibit 24**, p. 91 yields the average declared customs value per kilogram for each import category in **Exhibit 25**, p. 92. [S23]

EXHIBIT 25 / XAF PER KILOGRAM (DERIVED CUSTOMS VALUE)

Average customs values per kilogram rose in both import categories between 2023 and 2024



DERIVED [S23] Derived by GFT from S23 page 18 inputs. Calculation: (value in XAF million x 1,000,000) / (weight in tonnes x 1,000) = XAF per kilogram. Friperie: 30,251 / 61.221 = 494.13 XAF/kg in 2023 and 39,857 / 72.600 = 549.00 XAF/kg in 2024. Matieres textiles et leurs ouvrages: 93,005 / 148.923 = 624.52 XAF/kg in 2023 and 109,235 / 146.139 = 747.47 XAF/kg in 2024. Displayed values are rounded to the nearest whole XAF/kg.

As **Exhibit 25**, p. 92 shows, the GFT-derived average customs value for imported second-hand clothing was approximately 494 XAF per kilogram (XAF 494,128 per tonne) in 2023 and 549 XAF per kilogram (XAF 548,994 per tonne) in 2024, an increase of about 11.1 percent per kilogram. [S23] For *matières textiles et leurs ouvrages*, the derived average customs value rose from approximately 625 XAF per kilogram (XAF 624,517 per tonne) in 2023 to 747 XAF per kilogram (XAF 747,473 per tonne) in 2024, an increase of about 19.7 percent per kilogram. [S23] On the export side of the same INS report, Cameroon exported XAF 177.2 billion of raw cotton in 2024, or 5.4 percent of merchandise export receipts. [S23]

Exhibit 25, p. 92 cannot establish retail garment prices in Douala or Yaoundé, because customs values reflect border prices before duties, port handling, inland transport, sorting, retail markups and bale waste. [S19] [S23] [S31] Even so, an average border value of 549 XAF per kilogram for *friperie* (roughly 110 XAF for an illustrative 200-gram T-shirt before duties and distribution) shows why a domestic cotton mill cannot compete head-to-head with unsorted used clothing on lowest-price commodity apparel. [S02] [S23] To win orders against imports, a local manufacturer must target baskets where uniformity across hundreds of units, corporate branding, guaranteed fabric weight, predictable replenishment or statutory compliance outweigh the low price of heterogeneous used clothing. [S02] [S32]

6.9 BUYER RESEARCH MUST SEPARATE FABRIC INPUTS FROM FINISHED CLOTHING

To turn customs data into commercial intelligence, GFT proposes a two-stage research protocol before product selection: [S19] [S23]

- **Stage 1: Six-digit HS customs disaggregation.** Request an official extraction from INS or UN Comtrade breaking down Chapters 50 to 63 by six-digit HS subheading, partner country, net weight, supplementary unit and customs value. [S19] [S23] Separate cotton yarns (HS 5205 to 5207), woven cotton fabrics (HS 5208 to 5212), man-made staple fabrics (HS 5512 to 5516), knitted fabrics (HS 60), new knitted apparel (HS 61), new woven apparel (HS 62) and worn clothing (HS 6309). [S19] Yarn and fabric imports indicate industrial demand from local workshops, whereas finished apparel imports represent retail competition. [S02] [S19]
- **Stage 2: Physical retail and wholesale basket audit.** Conduct distributor interviews and product audits in major commercial centres across Cameroon, recording wholesale and retail prices, fibre labels, areal weights, seam construction, origin and stock-out frequencies for a benchmark basket of 20 items (industrial overalls, security uniforms, school shirts, plain 180-gram cotton T-shirts, hospital sheets and six-yard printed pagne pieces) on an illustrative survey grid. [S02] [S27]

6.10

Cotton competes against other fibres and sourcing models

A common flaw in raw-material industrialisation studies is assuming that because Cameroon grows cotton, domestic buyers will prefer 100 percent cotton textiles or pay a premium for local natural fibre. Global fibre-market evidence points in the opposite direction: according to the Textile Exchange *Materials Market Report 2025*, fossil-fuel-based synthetic fibres recorded the largest increase in global fibre production, with polyester continuing to dominate as the most widely produced fibre worldwide. [S27] Similarly, the *OECD-FAO Agricultural Outlook 2026-2035* emphasises that cotton mill use faces sustained competition from man-made fibres, particularly polyester, across global spinning and apparel markets. [S29]

Global fibre shares do not prove what individual Cameroonian buyers prefer, nor do they imply that local consumers hold environmental certifications in mind when purchasing clothing. [S15] [S27] Still, the technical and economic drivers of synthetic substitution apply directly to Central African segments. [S02] [S29] In corporate uniforms, security trousers, school skirts and industrial workwear, buyers frequently specify polyester-cotton blends (such as 65 percent polyester and 35 percent cotton, or 50/50 blends) because polyester staple increases tensile and abrasion strength, reduces shrinkage, accelerates drying and lowers wrinkling. [S27] [S29] In sportswear and athletic jerseys (named in the SND30 domestic-production ambition), 100 percent polyester interlock and mesh constructions dominate because cotton retains moisture and adds weight during exertion. [S27] [S29] [S34]

6.11 FIBRE COMPOSITION MUST FOLLOW BUYER REQUIREMENTS RATHER THAN SUPPLY DOGMA

Insisting that a new Cameroonian factory process only 100 percent domestic cotton lint can exclude the plant from large portions of the institutional uniform, workwear and sportswear markets. [S27] [S29] [S34] Conversely, importing finished synthetic fabric to sew sportswear locally can build sewing employment, yet contributes zero tonnes toward the national target of transforming 50 percent of domestic cotton fibre. [S29] [S34] Engineering a realistic product portfolio requires testing three material models against buyer specifications: [S02] [S27] [S29]

1. **Pure domestic cotton constructions (100 percent Cameroonian lint):** suited to basic jersey T-shirts, polo shirts, underwear, terry towels, hospital linens and printed pagne or loincloth fabrics where breathability, comfort and absorbency govern selection. [S02] [S29]
2. **Intimate blends and core-spun constructions (Cameroonian cotton blended with imported polyester or elastane):** suited to heavy-duty workwear twills, military and police fatigue fabrics, corporate shirting and school uniforms, where blending imported polyester staple with domestic cotton lint lets local mills capture institutional orders otherwise lost to imported blends. [S27] [S29] [S34]
3. **Imported-fabric garment assembly (cut, make and trim on purchased fabrics):** used during initial launch or for 100 percent synthetic sportswear lines where domestic spinning and fabric formation are technically inappropriate or not yet justified at plant scale. [S02] [S12] [S29]

In all three models, natural fibre provenance alone does not command a price premium unless the buyer's specification requires local cotton content. [S15] [S32] [S34] As Chapter 12 examines, claiming that a locally processed cotton garment is environmentally superior to an imported alternative requires site-specific water, effluent, energy and chemical evidence. [S10] [S15] [S26]

6.12

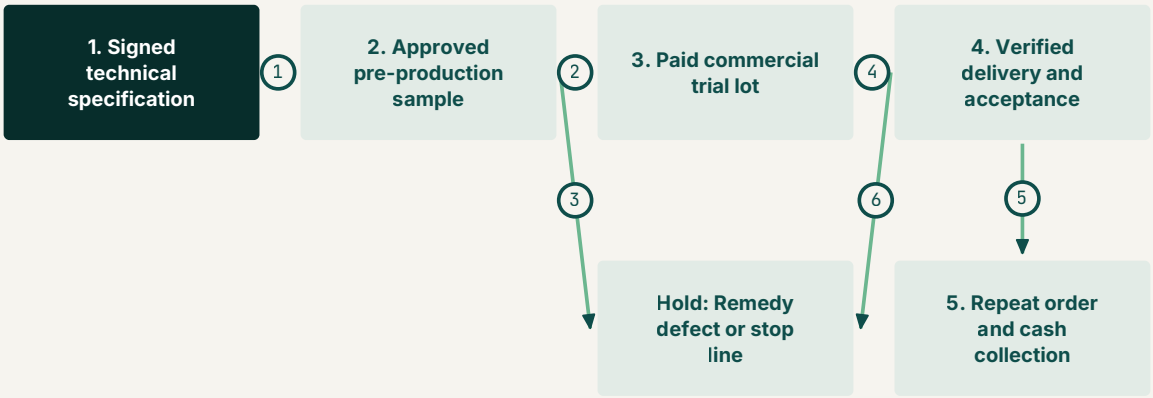
Buyer qualification should produce commercial evidence

Because aggregate forecasts, policy ambitions and customs tables cannot guarantee factory sales, GFT structures commercial validation as a staged qualification process. Informed by FAO derived-demand analysis and OECD supply-chain due-diligence principles, the GFT buyer-qualification method requires a prospective product to pass through five sequential commercial gates before its volume can justify upstream machinery investment. [S11] [S12] [S32]

Exhibit 26, p. 95 sets out this five-gate validation sequence, including the hold and remedy loop triggered whenever a sample fails laboratory testing or a trial shipment experiences quality rejections or payment delays. [S11] [S32]

EXHIBIT 26 /

Repeat paid orders provide stronger demand evidence than expressions of interest



1. Agreed tolerance
2. Lab and fit pass
3. Sample reject
4. On-time dispatch
5. Full payment cleared
6. Returns or arrears

ILLUSTRATIVE [S11] [S32] Illustrative GFT commercial-qualification workflow informed by derived-demand analysis in S32 and responsible supply-chain due-diligence practices in S11. The diagram shows the mandatory evidence sequence from technical specification to collected cash; it does not assume conversion probabilities or represent achieved GFT customer contracts.

Each node in **Exhibit 26**, p. 95 generates an auditable record that replaces optimism with verifiable data. [S11] [S32] A non-binding letter of intent carries zero weight past Gate 0 because it neither specifies tolerances nor commits the signatory to pay. [S32] At Gate 1, the buyer and manufacturer sign a technical pack (*dossier technique*) specifying yarn count, construction, areal weight, dye standard, size grading and defect limits. [S11] [S12] At Gate 2, the manufacturer produces pre-production samples and obtains written buyer sign-off on dimensional stability, colourfastness and seam strength. [S11]

Gate 3 requires a binding, paid trial order (such as an illustrative lot of 500 to 2,000 units) manufactured under normal shift conditions. [S11] [S32] Gate 4 tracks delivery timing and quality acceptance, including the share of units rejected, reworked or discounted. [R29] [S31] Gate 5 tests whether the buyer settled the invoice in full within the credit period and placed a repeat order at a sustainable price. [S32]

METHOD

Commercial evidence accounting rule: Demand pipeline reports must classify prospective buyer volume into four separated accounts:

1. **Unqualified enquiry:** verbal interest or non-binding letter of intent without a specification sheet. [S32]
2. **Sample-qualified volume:** technical specification agreed and pre-production sample approved in writing, before a trial lot. [S11]
3. **Trial-delivered volume:** paid trial order manufactured, delivered and accepted, with defect and return rates logged. [R29] [S31]
4. **Repeat-collected volume:** second or subsequent order placed after full cash settlement of the preceding invoice, net of claims and returns. [S32]

Only *repeat-collected volume* and binding contracts backed by verified payment security (confirmed letters of credit or escrow deposits) may enter the base-case utilisation numerator for an expansion gate. [R12] [S32]

Tracking rejections and returns alongside gross sales prevents a factory from reporting high dispatches while warehouses accumulate returned garments or unpaid receivables. [R12] [S11] [S29] Manual fabric inspection achieves only 60 to 70 percent accuracy and misses 20 to 30 percent of defects, so early runs without disciplined quality gates often suffer claims. [R29] Logging rejected units, credit notes and late-payment days at Gate 4 and Gate 5 keeps production planning anchored in net saleable output. [R29] [S32]

6.13

The product portfolio should match the operating ramp

Launching a factory with a wide assortment of weaves, colours and styles simultaneously depresses availability and first-pass yield. [R12] [S02] Every changeover on a spinning frame, loom, dyeing vat or sewing line requires mechanical resetting, lot clearing, warp tying, shade matching and operator learning curves. [S02] [S10] Historical evidence from Cameroon's incumbent operations illustrates the cost of low utilisation: in a July 2023 report, capacity utilisation across CICAM sites stood at 33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2, with underutilisation estimated to have cost about XAF 2 billion in 2020. [R12]

GFT recommends launching with a narrow portfolio that minimises changeovers, standardises yarn and fabric specifications, and builds operator competence during the ramp. [R12] [S02] In the proposed operating model, a new facility starts with a cut, make, trim (CMT) and finishing core focused on two or three high-regularity product families (industrial workwear twills, institutional uniforms and plain 100 percent cotton jersey T-shirts), while testing upstream spinning and fabric formation through conversion partners before committing capital to owned upstream mills. [S02] [S12] [S29]

WORKED EXAMPLE

Translating a qualified garment order book into equivalent domestic lint intake

Consider an **illustrative** launch portfolio of three qualified repeat order lines over 12 months. All quantities, weights, blend shares and yields below are **illustrative** assumptions demonstrating the mass-balance method from final garment back to gin lint: [S04] [S29] [S32]

- **Line A (Basic cotton knit T-shirts):** 250,000 accepted garments a year at an illustrative net weight of 0.180 kg per unit and 100 percent domestic cotton, yielding 45,000 kg (45.0 tonnes) of garment cotton mass. [S29]
- **Line B (Industrial cotton workwear overalls):** 100,000 accepted garments a year at an illustrative net weight of 0.650 kg per unit and 100 percent domestic cotton, yielding 65,000 kg (65.0 tonnes) of garment cotton mass. [S02] [S29]
- **Line C (Institutional uniform shirts, polyester-cotton blend):** 150,000 accepted garments a year at an illustrative net weight of 0.240 kg per unit (36.0 tonnes total fabric) with 65 percent imported polyester and 35 percent domestic cotton, yielding 12.6 tonnes of domestic cotton mass (excluding 23.4 tonnes of imported polyester). [S27] [S29]

Summing domestic cotton mass across all three illustrative lines gives `45.0 + 65.0 + 12.6 = 122.6 tonnes` of accepted garment cotton. [S29] Dividing by cumulative illustrative stage conversion yields determines required raw lint intake: [S04] [S10] [S29]

- **Cutting and sewing retention:** at an illustrative retention factor of 0.82 (82 percent after offcuts and rejects), required finished cotton fabric mass is `122.6 / 0.82 = 149.51 tonnes`. [S10]
- **Fabric formation and wet-processing yield:** at an illustrative combined yield of 0.95 (95 percent), required cotton yarn mass is `149.51 / 0.95 = 157.38 tonnes`. [S10] [S29]
- **Spinning conversion yield:** at an illustrative ring-spinning yield of 0.88 (88 percent after carding and combing waste), required domestic lint intake is `157.38 / 0.88 = 178.84 tonnes` of lint a year. [S04] [S29]

Decision implication: An illustrative order book of 500,000 garments a year absorbs roughly 178.84 tonnes of domestic cotton lint when spun locally (and zero tonnes if assembled from imported fabric). [S29] Against the Chapter 3 normalised increment of 45,000 tonnes of additional lint conversion a year (moving from 5 percent to 50 percent on an illustrative 100,000-tonne lint supply), one 500,000-garment plant represents about 0.40 percent (`178.84 / 45,000`) of the national processing gap, showing why staple yarn and fabric offtake must accompany garment assembly. [R06] [R07] [S29]

6.14 PRODUCT SELECTION GOVERNS DOWNSTREAM ANALYTICAL TOOLS AND COMPANION PAPERS

Within the GFT tool suite, `cold-start-forecast` structures initial demand ranges using the five-gate qualification funnel to separate speculative enquiries from trial-verified and repeat-collected orders, while `unit-economics` tests whether net selling prices cover variable fibre, energy, labour and reject costs at ramp utilisation. [R12] [S27] [S32] Specialist methods are assigned to companion papers: [S12] [S32]

- **Cold-start demand forecasting:** `wp04` develops statistical methods for combining early B2B call-offs, distributor logs and seasonal calendars once Phase 1 manual records exist. [R27] [S32]
- **Trade-route and tariff qualification:** `wp08` and Chapter 11 examine how six-digit HS classifications and rules of origin under the EU Economic Partnership Agreement and the African Continental Free Trade Area affect landed price competitiveness. [S16] [S19] [S30]
- **On-demand manufacturing architectures:** `wp20` examines when smaller-batch replenishment cells become viable after core staple operations stabilise. [S02] [S15]

> **GFT NOTE**
>
> **Practical recommendation for sponsors and policy teams:** Never approve upstream spinning, weaving or wet-processing equipment on the basis of raw-cotton targets or continental market forecasts. [R24] [R25] [S32] Require a signed specification pack, approved samples and paid trial-lot results across at least two repeat institutional or wholesale segments, and audit the domestic cotton weight in those orders before releasing Stage Gate 1 capital. [S02] [S11] [S29]

Anchoring product choice in signed buyer specifications and repeat paid orders ensures that every kilogram of Cameroonian lint entering conversion has a verified commercial destination. Chapter 7 next examines how to select processing boundaries so that capital intensity and working capital stay aligned with proven product demand. [S02] [S12] [S29]

A bale of cotton is a supply fact, but only a repeat paid order makes it a product.

CHAPTER SOURCE NOTES

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.

R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S01 Cameroon Trade Hub, reproducing Cameroon Business Today. 2019.

S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.

S32 Food and Agriculture Organization of the United Nations. n.d..

S02 IFC and World Bank. 2022.

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R24 Mordor Intelligence. Publication date unrecorded; inherited source-text check.

R25 Market.us. Publication date unrecorded; inherited source-text check.

R26 Statista. Publication date unrecorded; inherited source-text check.
S23 Institut National de la Statistique du Cameroun. 2025.
S10 World Bank Group / IFC. 2007-04-30.
S03 European Commission and Agrinatura. 2020.
S31 World Bank. 2025.
S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.
S27 Textile Exchange. 2025.
S0601 World Trade Organization. n.d..
S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.
R11 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.
S11 OECD. 2018-03-07.
S12 OECD. 2026-02-26.
R29 MDPI; industry inspection literature. Publication date unrecorded; inherited source-text check.
S18 Banque des Etats de l'Afrique Centrale. n.d..
S0602 World Trade Organization. 2023-08-16.
S19 United Nations Statistics Division, UN Comtrade. n.d..
S15 United Nations Environment Programme. 2023.
S26 International Finance Corporation. 2012.
S04 SODECOTON. n.d..
R27 McKinsey, The State of Fashion 2025. Publication date unrecorded; inherited source-text check.
S16 European Commission, Directorate-General for Trade and Economic Security. n.d..
S30 African Continental Free Trade Area Secretariat. 2022.

GREEN FUTURE TECH

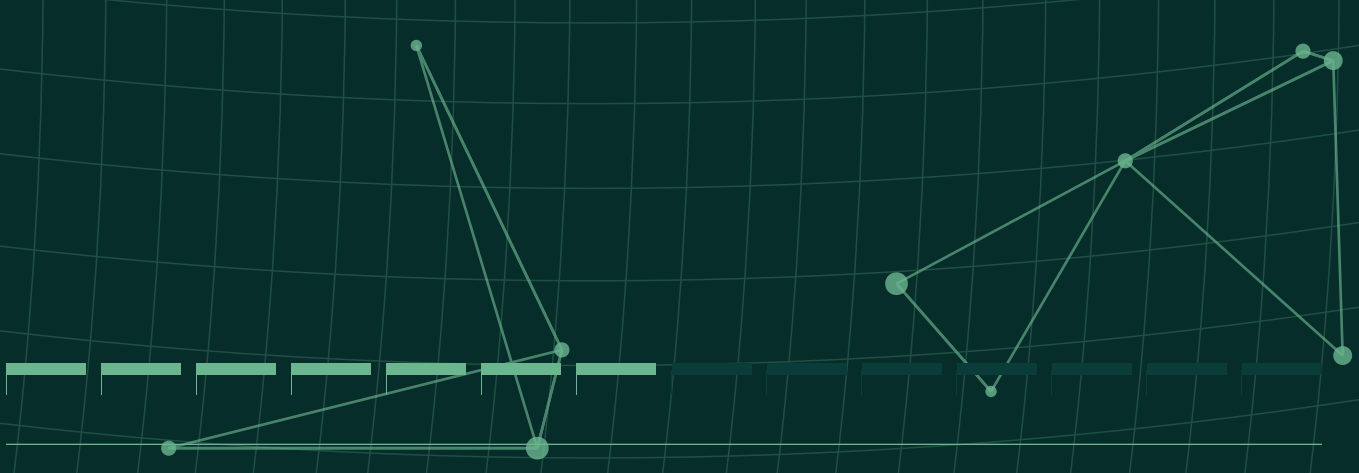
LIMITED / HONG KONG SAR

07

PART II: REBUILD THE CHAIN AROUND REAL DEMAND / CHOOSE THE INDUSTRIAL BOUNDARY

Processing stages should be added only when they fit the product and cash cycle

A staged operating model can build garment capability while testing the separate economics of converting domestic lint.



CHAPTER 07
DECISION TEST

A staged operating model can build garment capability while testing the separate economics of converting domestic lint.

The correct processing boundary is the narrowest one that can deliver the qualified product, collect cash and preserve a tested route into domestic lint conversion. A garment business does not need to own every stage from spinning to finishing on its first day. It does need to know which material transformation occurs, who controls each handover and where cash waits before an invoice is settled. GFT therefore proposes a cut, make, trim and finishing core, with spinning and knitting treated as optional partnered steps. No conversion partner or commercial commitment is asserted.

This choice separates two contributions that are often merged. Assembly can create domestic employment and manufacturing value using imported fabric. It cannot, by itself, count that fabric as Cameroonian lint transformed locally. In the OECD and FAO definition, cotton mill use is the transformation of cotton fibres by mills into yarn. [S29] The industrial question is therefore not how many stages appear on a project diagram. It is which additional stage improves accepted output and cash performance after its material losses, utility needs, environmental obligations and management burden are included.

Each proposed boundary should pass four tests. The product test establishes that a buyer accepts the resulting specification. The material test reconciles input, output, waste and origin. The operating test proves that people, utilities and partners can repeat the result. The cash test shows who finances stocks, conversion, rejects and receivables. A stage that fails any test should remain external, be remedied or stop, even if owning it would make an industrial map look more complete.

7.1

Garment assembly and lint transformation are different contributions

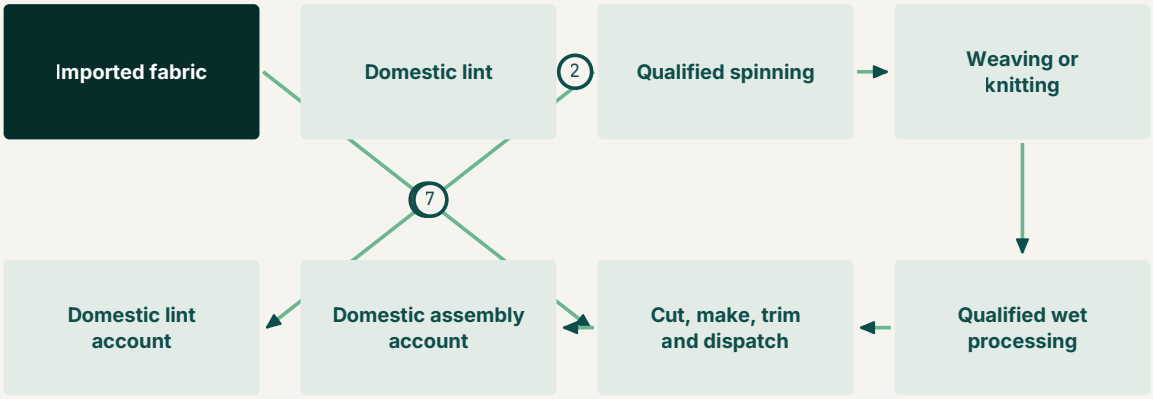
A material boundary begins with physical operations. Ginning separates lint from seed and cleaning can involve a trade-off between weight and quality. [S04] Spinning converts fibre into yarn. Fabric formation produces a woven or knitted structure. Wet processing can then wash, dye, print or finish that fabric before cutting, sewing, finishing and dispatch turn it into an accepted garment. [S02] [S10] [S29] These stages may occur in one company, across several companies or in different places. Their commercial ownership does not change their material sequence.

The distinction matters because a garment label can describe assembly geography while a national processing account describes fibre transformation. Imported cloth cut and sewn in Cameroon supports local assembly activity, but the cloth did not consume domestic lint. Domestic yarn knitted into fabric does consume lint, even if later sewing occurs elsewhere. OECD guidance on garment and footwear due diligence also directs attention beyond final assembly to company-specific risks across the supply chain, including subcontracting and materials. [S12] A credible operating model therefore records the assembly contribution and the fibre contribution separately rather than treating one as evidence of the other.

Exhibit 27, p. 102 shows two launch routes that can produce garments while making different material claims. The imported-fabric route enters the model at cutting. The domestic-lint route enters at spinning and may use qualified external converters before the same cutting operation.

EXHIBIT 27 / MATERIAL TRANSFORMATION BOUNDARY

An imported-fabric launch and a domestic-lint route have different material claims



1. No domestic lint claim
2. Lint enters conversion
7. Count once at first conversion

ILLUSTRATIVE [S04] [S12] [S29] Illustrative GFT boundary model using the mill-use definition in S29, ginning context in S04 and supply-chain visibility in S12. It shows alternative material routes, not existing GFT partners, factories or production volumes.

The flow prevents two accounting errors. First, garment dispatch must not be relabelled as domestic lint intake when the fabric was imported. Second, the same domestic lint must not be counted again as new national fibre transformation when yarn becomes fabric and fabric becomes a garment. Later stages can add value and change product form, but the national lint account needs one consistent first-conversion rule. Factory accounts can still record every internal transfer for cost and quality control.

7.2 THE BOUNDARY RECORD SHOULD FOLLOW EACH LOT

GFT's proposed lot record carries material origin, supplier, weight and moisture basis at intake; conversion stage and responsible operator; output and measured loss; quality release; and the next custodian. The record closes only when the final product is accepted or the residual is assigned a verified destination. This is a measurement design, not a claim that a traceability system already operates.

The record also supports a commercial counterfactual. If a buyer would accept either imported or domestic fabric at the same specification, the sponsor can compare the two delivered costs and cash cycles without confusing a sourcing preference with a technical necessity. If the buyer requires domestic cotton content, the material record

becomes part of product qualification. OECD due-diligence guidance makes company-specific risk identification necessary in either case; changing ownership of a stage does not remove the need to know its conditions. [S12]

7.3

Partnered conversion can connect local fibre to a viable launch

Partnering allows a garment operator to test domestic lint conversion without immediately owning every upstream asset. In the proposed base case, the operator controls product specification, cutting, assembly, finishing and buyer acceptance. A qualified spinner or fabric former converts traced material under agreed service terms. This is a design option within GFT's Cameroon textile programme, not a statement that any spinner, knitter or buyer has agreed to participate.

A partnership is an operating interface, not a verbal allocation of capacity. The sponsor needs evidence that the converter can hold a production slot, process the specified lot, meet the quality tolerance and return the agreed material within the delivery window. The contract must state title to lint, yarn, fabric and residues; permitted loss and how it is measured; responsibility for moisture change and contamination; packaging; insurance; rejection and rework; and payment timing. Historical analysis of Cameroon's cotton and textile chain identifies interdependent industrial and logistics constraints, so a converter's machine availability alone cannot establish a reliable service. [S02]

The quality protocol should begin before bulk conversion. A representative lint lot is sampled against the intended yarn specification. The converter records settings, output, waste and defects. The fabric route then tests whether that yarn performs in the intended construction. Acceptance belongs to the product specification, not to a generic claim that local cotton is suitable for every use. Ginning evidence already shows why cleaning and weight effects must be considered rather than assuming that every input unit becomes saleable output. [S04]

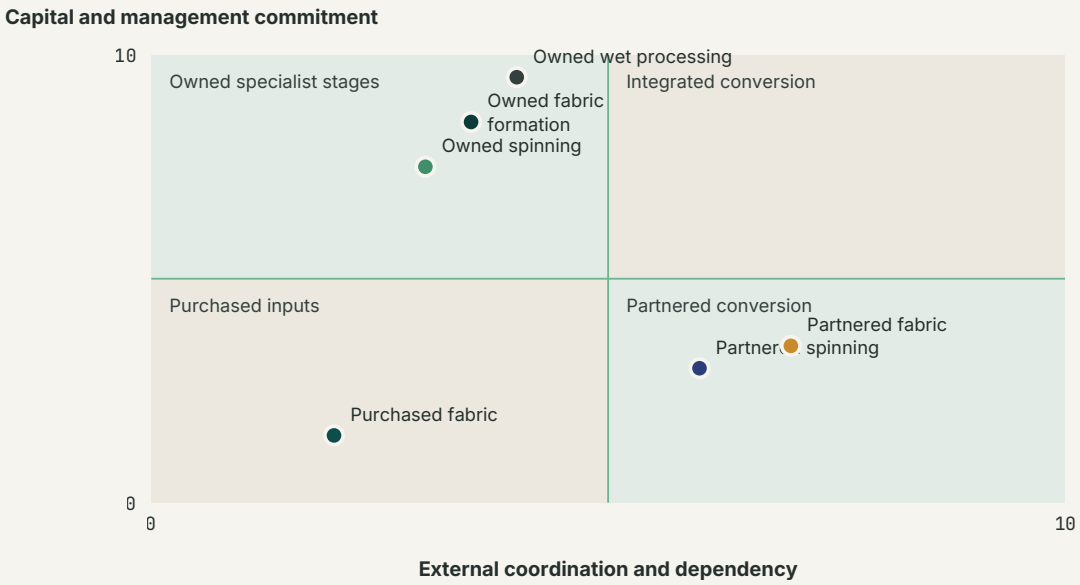
7.4 MAKE, BUY AND PARTNER CHOICES DISTRIBUTE RISK RATHER THAN REMOVE IT

Purchasing fabric concentrates effort on assembly but leaves the buyer dependent on fabric quality, origin evidence and replenishment. Toll conversion retains material ownership and can support a domestic lint claim, but it adds handovers, stock at another site and exposure to the converter's queue. Owning a stage increases direct control over scheduling and process records while adding capital, maintenance, supervision and utility obligations. IFC's environmental and social management guidance similarly makes risk management an operating responsibility rather than a procurement label. [S24]

Exhibit 28, p. 104 positions illustrative boundary options against external dependency and internal commitment. The coordinates are a discussion aid, not measured scores. Their purpose is to force each option to carry both sides of the trade-off.

EXHIBIT 28 / ILLUSTRATIVE INDEX (0 TO 10)

Make, buy and partner decisions depend on the chosen product



ILLUSTRATIVE [S02] [S10] [S24] Illustrative GFT placements informed by Cameroon chain constraints in S02, textile process obligations in S10 and management-system requirements in S24. Coordinates are not vendor quotations, capex estimates or measured supplier performance.

The exhibit does not say that partnered conversion is always preferable. A partner without spare capacity, compatible equipment or reliable quality can be more disruptive than an owned line. Conversely, an owned line without sufficient orders can turn control into idle fixed cost. The correct comparison uses the same product lot and delivery requirement, then prices the complete service: conversion fee, transport, loss, inspection, inventory, financing and failure recovery. Missing evidence remains a cost risk, not a zero.

PARTNER EVIDENCE PACK

Before releasing a domestic-lint trial, GFT would require a signed process specification; a confirmed trial slot; lot and residue reconciliation rules; sample test results; a delivered-price quotation; named responsibility for insurance and claims; and a fallback route if the converter misses acceptance. The operations lead verifies process capability, the commercial lead verifies buyer relevance, the finance lead verifies cash timing and the environmental and social lead verifies conditions that could transfer risk to the sponsor. [S12] [S24] [S25]

A small paid trial is more informative than a large framework discussion. It reveals whether the converter can reproduce the sample, whether material returns reconcile and whether the final buyer accepts the result. Repetition then tests scheduling and cash, not just technical possibility. Only after those records exist should the sponsor compare partnership with ownership at scale.

7.5

Spinning needs a matching yarn demand and reliable utilities

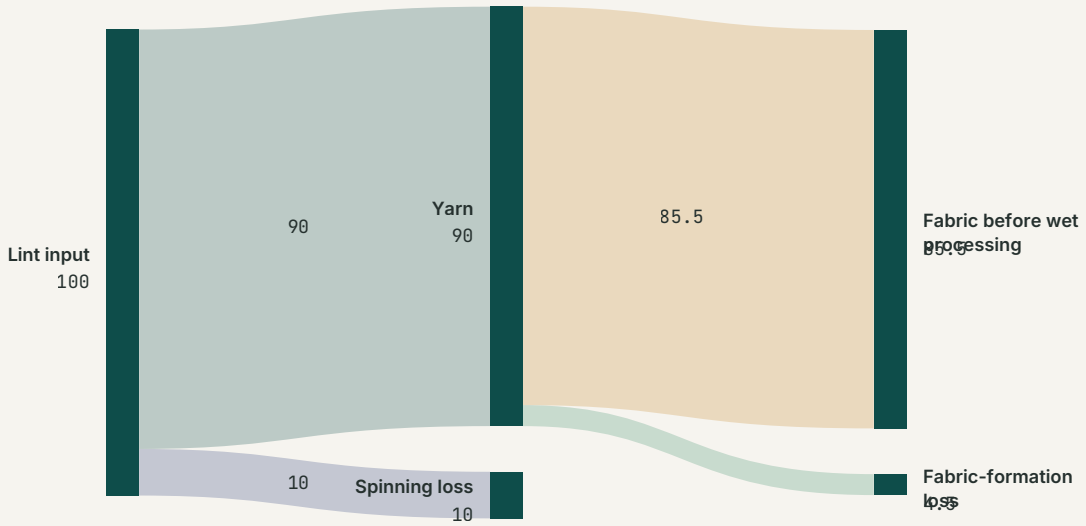
Spinning should enter the boundary only when a specified yarn has a credible destination. That destination may be a fabric operation within the same programme or an external fabric maker, but an internal transfer is not independent proof of demand. The commercial test begins with the fabric and final product, then works backwards to yarn construction, quality tolerance, order cadence and delivered cost. This follows the derived-demand relationship between cotton use and downstream textile products. [S29] [S32]

The technical test is equally specific. Fibre trials must show whether represented lint lots can produce the required yarn at stable settings and acceptable waste. The resulting yarn must then pass the intended fabric process. A laboratory result without a production lot can miss variation between bales, while a single production lot cannot establish repeatability across supply periods. GFT would therefore preserve lot identity, trial conditions, accepted output and residual weights so that the yield claim remains attached to its evidence.

Exhibit 29, p. 105 demonstrates why installed stages cannot be sized from final fabric demand alone. It uses a normalised illustrative lint input and assumed conversion yields. These values teach the accounting method and are not Cameroon mill benchmarks.

EXHIBIT 29 / ILLUSTRATIVE MASS UNITS

Conversion losses must reconcile from lint input to saleable fabric



ILLUSTRATIVE [S04] [S29] Illustrative normalised model. Assume 100 units of lint, 90 percent spinning yield and 95 percent fabric-formation yield. Yarn output is 100 × 0.90 = 90; fabric output is 90 × 0.95 = 85.5; losses are 10 and 4.5. Assumptions demonstrate reconciliation only and are not technical benchmarks. S04 supports attention to weight loss and S29 defines fibre transformation into yarn.

WORKED EXAMPLE: REVERSE THE MATERIAL CALCULATION

Take an **illustrative** requirement for 100 units of accepted fabric before wet processing, with the same assumed 95 percent fabric-formation yield and 90 percent spinning yield used in **Exhibit 29**, p. 105. Required yarn is `100 / 0.95 = 105.26 units`. Required lint is `105.26 / 0.90 = 116.96 units`, rounded to two decimal places. Equivalently, `100 / (0.95 x 0.90) = 116.96`. The calculation is GFT arithmetic from explicitly illustrative assumptions, informed by the stage definitions in S29 and the weight-loss caution in S04. [S04] [S29]

The **illustrative** result does not set equipment capacity. It shows that a proposal reporting only final fabric output understates lint intake unless it also carries conversion yields, stocks and the acceptance status of intermediate output. Actual values must come from weighed trials on the selected material route.

Utilities and maintenance can invalidate an otherwise sound material case. The IMF's February 2025 review describes Cameroon's electricity sector as structurally in shortfall. [S07] That national statement does not quantify any candidate mill's supply, but it prevents a sponsor from treating power as an unexamined constant. Spinning release requires a measured load profile, connection evidence, interruption and voltage records, restart-loss trials, critical spares and demonstrated maintenance coverage. Backup economics must include lost production and quality effects, not only energy price.

The release package also needs stock finance. Lint may wait before conversion, yarn may wait for fabric slots and rejected material may wait for disposition. A positive conversion margin calculated on accepted output can coexist with a cash deficit if those intervals are unfunded. The proceed condition is therefore a matching yarn outlet, repeatable lot results, maintainable equipment, credible utility supply and a financed material cycle. No spindle count or plant size is justified without them.

7.6

Fabric construction constrains the next stage

Weaving and knitting are not interchangeable capacity labels. Weaving interlaces warp and weft yarns, while knitting forms fabric through interlooping. The chosen garment and its performance specification determine which structure is relevant; the structure then shapes yarn requirements, machine settings, finishing and defect control. [S02] [S12] [S29] A national desire to process more lint cannot decide between them.

Consider candidate products rather than assumed orders. A stable woven workwear specification would direct trials towards a particular woven construction, seam performance and finish. A basic jersey product would direct them towards a knitted structure and its dimensional behaviour. These examples are diligence pathways, not evidence of buyer demand. They show why a fabric decision starts with the accepted end use rather than with whichever machine is available.

The order pattern matters as much as the construction. Frequent style, width, colour or gauge changes create setup work and learning time. Small batches can leave insufficient volume to absorb changeovers, while large batches can create greige or

finished stock that the buyer has not yet accepted. Textile process guidance also links fabric preparation and finishing to quality and resource outcomes, so fabric formation cannot be specified without considering the subsequent process. [S10]

A numerical comparison requires vendor and trial evidence that is currently absent: the exact machine configuration; achievable rate on the intended construction rather than a catalogue maximum; setup and cleaning time; energy and air requirements; consumables; waste and downgrade rates; installation and building needs; spare-parts support; and the competence required on each shift. Output must be measured after quality acceptance. Until those inputs exist, claiming that weaving is always cheaper than knitting, or the reverse, would confuse equipment preference with product analysis.

The practical option is to qualify the fabric route through samples and paid production lots before purchasing a full line. External fabric trials can reveal yarn incompatibility, finishing defects and actual batch sizes while preserving the choice to partner later. If owned formation remains attractive, its business case should use the demonstrated construction and order pattern, not a generic textile utilisation assumption.

7.7 TRIAL RECORDS MUST SEPARATE MACHINE POSSIBILITY FROM ACCEPTED OUTPUT

A fabric trial needs a common inspection boundary across purchased, partnered and owned routes. Record the construction and input yarn before the run, then reconcile greige output, finished output, downgraded material, rework and residual stock. Inspection should occur after the intended finishing route because a roll that appears acceptable before finishing may fail the buyer's dimensional or appearance requirement afterwards. Textile manufacturing guidance links process control to both quality and resource effects, so rejected fabric belongs in the material and cost calculation rather than in a separate operational footnote. [S10]

The trial record should also preserve the conditions under which the rate was achieved. A demonstration attended by a supplier's specialist does not establish that the proposed shift team can repeat it. Settings, operator support, stoppages, changeovers and maintenance interventions need to be visible. When comparing external and internal options, the sponsor should use the same acceptance rules and include transport and inspection time between stages. This prevents a high catalogue rate or a carefully selected sample from becoming an unsupported capacity assumption.

7.8

Wet processing changes the environmental and utility boundary

Adding dyeing, printing or finishing is not a simple extension of dry fabrication. It introduces process water, thermal energy, chemical storage and handling, wastewater treatment, sludge management and additional worker and community risks. The IFC textile guidelines address these manufacturing impacts and monitoring needs, while noting that their boundary excludes agriculture and polymer synthesis. [S10] The guidelines are a 2007 technical reference, not a Cameroon permit or evidence that any proposed facility complies. [S10]

This changes the investment question. An internal wet-processing operation needs credible dry-season water availability, applicable abstraction and discharge permissions, treatment designed for the actual chemistry, safe chemical handling, emergency arrangements and monitoring records. IFC Performance Standard 3 frames resource efficiency and pollution prevention as necessary responses to industrial pollution risk. [S26] Performance Standards 1 and 2 add management, consultation, grievance and worker-condition duties that cannot be delegated to equipment suppliers. [S24] [S25]

A qualified external wet processor remains an alternative worth testing. Outsourcing can avoid immediate treatment and utility capital while providing process evidence, but it adds transport, batch queues, chain-of-custody handovers and dependence on another operator's environmental performance. OECD guidance expects a company to identify priority risks in its own circumstances, including those beyond final assembly. [S12] The sponsor therefore needs records of the external site's water and effluent controls, chemical practices, worker protection, lot identity and corrective actions. Sending material elsewhere does not make those questions irrelevant.

The comparison must use equivalent fabric quality and useful output. A shorter domestic route is not automatically a lower-impact route, and an integrated site is not automatically cleaner than a qualified external one. UNEP's value-chain roadmap warns that addressing production impacts alone is insufficient, which directs attention to the wider system rather than a single factory boundary. [S15] Transport saved by co-location may be offset by inefficient utilities, poor treatment or high rejection. The counterfactual must be stated before any sustainability claim is made.

Cash exposure also changes. Wet processing can impose minimum batch sizes, chemical purchases, treatment consumables, laboratory testing and longer rework loops. A failed shade or finish can hold the whole lot while additional water, heat and chemicals are consumed. The unit-cost model should therefore include compliant treatment, monitoring, rejects and downtime, with the timing of each cash payment visible. Omitting these items would make internal wet processing look cheaper by moving necessary costs outside the model.

> **WARNING**
>
> No wet-processing stage should proceed on an assumed water connection, discharge route or permit pathway. Current legal and site requirements need qualified verification, and this chapter is not legal advice. Unknown water, effluent or chemical conditions are unresolved release blockers, not costs that can silently be set to zero. [S10] [S24] [S26]

7.9

Integration trades coordination risk for capital and operating risk

Integration can improve control over scheduling, process settings and material records. It does not create demand or remove the underlying conversion cost. The sponsor exchanges dependence on an external converter for responsibility for capital

works, maintenance, utilities, quality, environmental performance and a larger management span. The relevant comparison is not the partner's visible fee against the owner's visible operating cost. It is the complete cost and cash exposure per accepted unit under the same specification and delivery conditions.

A make, buy or partner review should start with the failure modes. Purchased or partnered input can arrive late, fail inspection or become unavailable when another customer takes the slot. An owned stage can suffer the same material problems while also carrying idle labour, spares, debt service and repair obligations. Direct control is valuable only when the organisation can detect and correct deviations. Otherwise, ownership can make a failure more expensive without making it less likely.

The financial boundary must also consolidate internal transfers. Lint sold to a spinner, yarn transferred to a fabric unit and fabric transferred to assembly are not three independent additions to national value. Within one venture, transfer prices help attribute performance but must be eliminated when assessing the whole operation. Within a national processing account, the first qualifying lint transformation is counted once while later value creation is assessed separately. This protects the decision from rewarding a longer chain merely because more invoices appear inside it.

The incremental investment question is narrower than a total chain comparison. Ask what changes if the next stage is added: saleable output, buyer acceptance, conversion loss, external fees avoided, internal operating cost, inventory, payment timing, capital expenditure and downside exposure. Continue to credit the existing garment operation only with what it can earn independently. A weak upstream stage should not be hidden inside a profitable assembly business, and a viable assembly business should not be forced to subsidise an unproven mill.

7.10 CASH CAN BIND EVEN WHEN CONVERSION APPEARS CHEAPER

Every extra physical stage creates another place where material and cash can wait. Owned conversion may reduce an external service payment while increasing raw-material stock, work in progress, spares and fixed operating commitments. Partnered conversion may reduce fixed investment while requiring deposits, minimum lots or longer queues. Buying finished fabric may simplify the cycle while exposing the assembler to supplier credit terms and import replenishment. None of these routes is cash-light by definition.

WORKED EXAMPLE: PRICE THE EXTRA INVENTORY INTERVAL

Assume an **illustrative** conversion route with daily cash conversion cost of XAF 250,000. Moving that stage in-house adds an **illustrative** 20 calendar days of lint, work-in-progress and accepted-stock waiting time compared with the qualified external route, before customer collection. Additional operating cash immobilised is `XAF 250,000 x 20 = XAF 5,000,000`. If the **illustrative** annual carrying rate used solely for sensitivity is 12 percent, the associated carrying cost is `XAF 5,000,000 x 0.12 = XAF 600,000 a year`. The daily cost, extra interval and rate are assumptions selected to show the method, not quotations or forecasts.

The **illustrative** calculation must then be divided by accepted output over the relevant period and compared with the external conversion fee and the owned stage's full incremental cost. If actual inventory days rise, additional cash and carrying cost rise in proportion under this simple model. A complete model would also test capital payments, taxes, supplier terms, receivables and downside delays. It would not infer affordability from an annual accounting margin alone.

This arithmetic gives the operations and finance teams a common variable: days between cash payment and cash recovery. Material trials should record those days at every handover, including inspection and dispute. The sponsor can then test whether integration shortens the cycle in practice or merely moves stock from a supplier's balance sheet to its own. That distinction is especially important where production ramps before buyers have established repeat payment behaviour.

Ownership becomes more credible when qualified demand is repetitive, external conversion fails the product or delivery requirement, and the internal stage can operate safely at a funded utilisation level with acceptable resource performance. Partnering remains preferable when volumes are uncertain, specialist competence is scarce or external service offers a better downside result. Buying remains sensible when the input is standard, qualified supply is competitive and domestic transformation of that input is not a necessary programme objective. These are conditional choices, not a fixed sequence towards maximum integration.

7.11

Expansion needs a repeatable stage-gate package

A repeatable gate prevents each new stage from being approved through a different story. The decision memo should present the same product, material, operating, environmental and cash evidence whether the proposal concerns assembly, spinning, fabric formation or wet processing. It should also identify what remains unknown and who must resolve it. IFC's management-system guidance supports consultation and grievance mechanisms as part of that operating discipline, rather than treating environmental and social review as a late permit attachment. [S24]

Exhibit 30, p. 111 summarises the proposed package. Its release evidence is cumulative: an upstream stage cannot waive the buyer and cash evidence required by the existing operation.

EXHIBIT 30 / ILLUSTRATIVE DECISION REQUIREMENTS

Each added stage needs a distinct evidence release

Stage	Evidence required before release	Cash question	If evidence is insufficient
Assembly	Approved product, accepted sample, capable supervision	Can fabric, trims and receivables be funded?	Defer or narrow the product
Spinning	Yarn outlet, lot trials, utility and maintenance proof	Who funds lint, yarn stock and ramp losses?	Partner or stop the stage
Fabric formation	Construction trials, order pattern, accepted production rate	Are changeovers and greige stock financeable?	Buy or partner fabric
Wet processing	Quality, water, effluent, chemical and worker controls	Are treatment, batches and rework funded?	Use qualified external processing

ILLUSTRATIVE [S02] [S07] [S10] [S24] [S25] [S26] [S32] Illustrative GFT gate design informed by the sources listed. It is a proposed decision framework, not an approved investment plan, current permit assessment or claim that evidence has already been obtained.

The table produces four legitimate outcomes. **Proceed** means the evidence supports the defined stage at the defined scale. **Defer** means a specific missing item must be resolved before reconsideration. **Outsource** means the product can continue through a qualified external route while ownership remains unproven. **Stop** means the stage fails its commercial, technical, cash or environmental and social case and should not be kept alive to preserve an integration narrative.

7.12 THE GATE MUST PROTECT THE VIABLE OPERATION FROM THE PROPOSED ONE

Decision rights should be explicit. The commercial role owns buyer evidence and acceptance. Operations owns process capability and maintenance. Finance owns the cash cycle and downside sensitivity. The environmental and social role owns impact review, consultation and corrective-action evidence. Worker-safety considerations belong in the operating release, consistent with the worker-management emphasis in IFC Performance Standard 2. [S25] An independent reviewer should challenge whether the evidence supports the proposed boundary rather than simply confirming that documents exist.

A failed upstream gate must have a contained consequence. If spinning does not meet its release conditions, the garment operation may continue with qualified purchased or partnered fabric, provided its own product and cash gates remain sound. If wet processing cannot demonstrate lawful and effective controls, finished fabric can be sourced externally while the site case is reconsidered. The programme's objective is retained value through viable production, not ownership of every process at any cost.

The same discipline creates a useful measurement history for the proposed `cotton-value-flow` and `ramp-planner` interfaces. `cotton-value-flow` would reconcile origin, transformation and loss at the selected boundary. `ramp-planner` would test whether accepted output and cash collection support the next release. These are proposed

analytical interfaces, not evidence that the tools or an operating factory have been validated. Detailed production-flow, wet-processing and inventory methods remain with the companion specialist papers.

> **GFT NOTE**
>
> Release one processing boundary at a time against the same decision memo: qualified product demand, traced lot performance, proven operating capability, environmental and social acceptance, and a funded cash cycle. Preserve the garment business when an upstream stage fails. Do not buy machinery to make the national processing share look larger while accepted output and cash collection remain unproven. This is an industrial decision framework, not investment, legal or tax advice. [S02] [S10] [S24] [S32]

The strongest boundary is therefore conditional and reversible where practical. Early assembly builds product and workforce evidence. Partnered conversion tests the domestic-lint route. Owned spinning, fabric formation or wet processing enters only when its incremental evidence is stronger than the alternative. Expansion becomes a sequence of earned commitments rather than a single bet on a fully integrated chain.

The right boundary is the furthest stage that demand, material and cash can carry together.

CHAPTER SOURCE NOTES

S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

S04 SODECOTON. n.d..

S02 IFC and World Bank. 2022.

S10 World Bank Group / IFC. 2007-04-30.

S12 OECD. 2026-02-26.

S24 International Finance Corporation. 2012.

S25 International Finance Corporation. 2012.

S32 Food and Agriculture Organization of the United Nations. n.d..

S07 International Monetary Fund. 2025-02-25.

S26 International Finance Corporation. 2012.

S15 United Nations Environment Programme. 2023.

08

PART III: MAKE THE SYSTEM OPERABLE AND FINANCEABLE / SITE THE COMPLETE FLOW

The strongest site minimises delivered disruption as well as transport cost

Cotton proximity, buyer access and utility reliability need a common delivered-cost and delivery-risk comparison.

CHAPTER 08
DECISION TEST

Cotton proximity, buyer access and utility reliability need a common delivered-cost and delivery-risk comparison.

Selecting an industrial site for Cameroonian cotton transformation is a system-reliability decision, not a single-variable map exercise between northern cotton fields and southern ports. [S02] [S03] A plant beside a northern ginnery reduces the inbound haul of baled lint, yet faces longer overland supply lines for imported dyes, chemicals, trims, spares and export containers, alongside distinct grid constraints. [S02] [S03] [S07] Conversely, a plant near Douala or along the central transit axis shortens buyer delivery and imported-input replenishment, but must haul domestic lint or yarn southward across road and rail links exposed to checkpoints and freight charges. [S02] [S03] [S0801] Green Future Tech Limited (GFT), Hong Kong SAR, argues in its Cameroon textile programme (prepared 31 January 2024, sources refreshed 2026) that no location archetype wins by default. [S02] [S31] The strongest site first passes non-compensatory veto checks on land title, process water, effluent assimilation, firm electrical connection and permitting, and then achieves the lowest total delivered cost and disruption risk per accepted unit under downside interruptions. [S07] [S10] [S24] [S31]

8.1

North and coastal-corridor options expose different dependencies

Cameroon's cotton-to-textile geography spans two distinct zones whose operational dependencies move in opposite directions. [S02] [S03] Upstream farming and primary processing sit in the north, where SODECOTON supports more than 220,000 cotton producers and operates nine ginning plants and two oil mills according to the evidence register and official sector studies. [R03] [S06] By contrast, maritime freight, imported chemical and machinery logistics, and the largest urban garment markets cluster along the littoral and central corridors linking Douala, Yaoundé and Kribi. [S02] [S03] [S31] Because roughly 95 percent of Cameroonian cotton fibre has historically been exported raw and about 5 percent processed locally according to the 2019 reference in the evidence register, most lint already travels from northern ginneries to coastal terminals. [R06] [S02] Moving toward the national ambition of transforming at least 50 percent of local cotton fibre industrially by 2030 forces sponsors to decide where along that north-to-coast flow each conversion stage should sit. [R07] [S34]

8.2 LOCATION ARCHETYPES MUST BE TESTED AS OPERATIONAL HYPOTHESES

Historical sector evidence shows that both northern and coastal regions have hosted textile assets and experienced operational friction. [S02] [S03] [R12] In the configuration documented by the International Finance Corporation (IFC) and World Bank Country Private Sector Diagnostic, spinning and weaving sat at Garoua near cotton ginning, whereas bleaching, dyeing, printing and finishing sat at Douala near ports and commercial buyers. [S02] That split did not prevent underutilisation: a July 2023 press report in the evidence register placed capacity utilisation at 33.7 percent for Garoua, 48.9 percent for CICAM 1 and 10.83 percent for CICAM 2, with underutilisation estimated to have cost about XAF 2 billion in 2020. [R12] Similarly, when the Camtext SA project was announced on 12 November 2025 with a reported investment of US$300 million (XAF 180 billion) and a target of 12,000 tonnes processed a year, the announcement described a dual footprint projecting about 3,000 jobs at Garoua and 12,000 jobs at a Dibamba hub near Douala. [R09] [R10] Those figures remain grade-C

press announcements rather than commissioned plants, and paragraph 108 of the *Stratégie Nationale de Développement 2020-2030* (SND30) frames an integrated SODECOTON-CICAM pole as a strategic objective rather than a site blueprint. [R08] [R09] [R10] [S34]

To avoid predetermined rankings, GFT evaluates candidate sites through three spatial archetypes plus a shared-park variant, illustrated in **Exhibit 31**, p. 115. [S02] [S03] [S20] The northern cotton-belt archetype near ginning basins minimises lint drayage and coordinates with ginnery lot grading, but requires long-haul delivery of dyes, spares and trims, plus southward dispatch of finished goods. [S02] [S03] [S04] The inland transit-corridor archetype at a rail-road junction balances lint haul against distribution reach while remaining dependent on regional substation capacity and corridor check-points. [S02] [S07] [S0801] The port-adjacent archetype near Douala, Dibamba or Kribi simplifies containerised imports, chemical supply, export shipping and buyer access, while absorbing the inland freight of bringing northern lint or yarn to the coast unless the plant launches on imported fabric. [S02] [S29] [S31] A fourth option places the plant inside a managed industrial park along the corridor, where common utilities may reduce standalone capital if park service contracts are bankable. [S20]

EXHIBIT 31 / ILLUSTRATIVE ARCHETYPE INDEX (0 TO 10)

Site comparisons need equivalent product and service boundaries



ILLUSTRATIVE [S02] [S03] [S07] [S20] Illustrative placement of four Cameroon archetypes on domestic lint proximity (x-axis) and port/buyer connectivity (y-axis), grounded in S02, S03, S07 and S20, not plot surveys.

As **Exhibit 31**, p. 115 shows, moving a factory across Cameroon's map changes whether the enterprise transports raw baled lint, intermediate yarn and greige fabric, or finished garments and chemicals. [S02] [S03] [S29] What **Exhibit 31**, p. 115 cannot establish on its own is which archetype yields the lowest unit cost, because the optimal position depends on the processing boundary from Chapter 7: a Phase 1 garment plant using purchased fabric has no physical need to sit beside a northern gin, whereas a spinning mill converting domestic lint leaves waste at origin while shipping compacted yarn cones downstream. [S04] [S12] [S29]

8.3 FIELD EVIDENCE MUST REPLACE ASSUMED DISTANCES AND PLOT CLAIMS

Before any site advances beyond screening, sponsors must assemble primary evidence across seven domains: surveyed haul routes, land title, water and effluent capacity, electrical connection, labour access, security and permitting. [S02] [S10] [S24] No specific plot, road distance, transit duration or utility tariff has been verified for an operating GFT facility. [S02] [S07] Published sector and infrastructure records summarised in **Exhibit 32**, p. 116 establish the scale of the national system and its bottlenecks, but do not substitute for plot-specific engineering surveys. [R03] [S06] [S0801] [S0802]

EXHIBIT 32 / REPORTED HISTORICAL AND 2025-2026 SOURCE FIGURES

Published spatial and infrastructure indicators frame the diligence questions

9 plants

Northern ginning plants

SODECOTON ginneries and 2 oil mills supporting >220,000 growers (R03, S06)

660 units

SODECOTON logistics park

Rolling vehicles and civil-engineering equipment reported by company (S05)

10.83% to 48.9%

Historical site utilisation

July 2023 report: CICAM 2 at 10.83%, Garoua at 33.7%, CICAM 1 at 48.9% (R12)

75%

Rural population off-grid

Rural Cameroon share without electricity as of January 2025 feature (S08)

2,065 GWh

Nachtigal 2025 output

From 420 MW plant (COD 5 May 2025) vs ~8,119 GWh national output (S0802)

9 to 12 days

Corridor transit and checkpoints

Douala-Bangui 1,400 km haul; up to US$270/t and 38 Cameroon checkpoints (S0801)

SOURCED [R03] [R12] [S05] [S06] [S08] [S0801] [S0802] Sourced parameters: R03/S06/S05 describe SODECOTON assets; R12 gives July 2023 press-reported CICAM utilisation; S08 gives 2025 rural electricity non-access; S0802 gives Nachtigal 2025 output; S0801 gives 2026 Douala-Bangui corridor diagnostics.

The indicators in **Exhibit 32**, p. 116 show why site diligence must separate regional endowment from factory-gate availability: nine northern ginneries confirm where lint originates and 420 megawatts of new hydropower on the Sanaga River confirm that national generation expanded in 2025, yet neither statistic guarantees that a plot in Garoua, Edéa, Dibamba or Douala has an energised medium-voltage bay, a water licence or an unobstructed freight corridor. [R03] [S06] [S07] [S0801] [S0802]

8.4

National electricity access does not establish firm industrial supply

Textile manufacturing is electro-mechanically sensitive across every conversion stage, and site selection fails whenever sponsors confuse national electrification headlines or generation additions with firm power at the factory busbar. [S07] [S08] [S10] High-speed spinning frames, looms, knitting machines, automated cutters and dyeing vessels require continuous power within tight voltage and frequency tolerances; a sub-second dip can trip drives across a spinning hall, snap yarn ends or halt a pressurised dyeing batch mid-cycle. [S10]

8.5 GENERATION ADDITIONS AND ACCESS RATES DIFFER FROM INDUSTRIAL FEEDER CAPACITY

Institutional reporting from the World Bank and the International Monetary Fund (IMF) highlights both the progress and the structural limits of Cameroon's power system in 2025 and 2026. [S07] [S08] [S0802] In its 16 January 2025 feature, the World Bank notes that Cameroon participates in Mission 300 to expand African electricity connections by 2030, while observing that in rural Cameroon 75 percent of the population remains without electricity, even though many live near grid lines. [S08] One month later, in IMF Country Report No. 25/71 dated 25 February 2025, the IMF stated verbatim that "Cameroon's electricity sector is structurally in shortfall," noting that generation deficits, hydrological variability, thermal fuel costs, and transmission and distribution bottlenecks constrain delivery and create sector arrears. [S07]

The gap between generation capacity and industrial delivery is documented in the World Bank's Implementation Completion and Results Report (ICR00672, dated 26 March 2026) for the Cameroon Nachtigal Hydropower Project. [S0802] Situated on the Sanaga River about 65 kilometres from Yaoundé, the 420-megawatt Nachtigal plant commissioned its seven 60-megawatt units between June 2024 and April 2025, reaching its Commercial Operation Date on 5 May 2025, raising installed capacity by nearly 30 percent and generating 2,065 gigawatt-hours in 2025 out of around 8,119 gigawatt-hours nationally. [S0802] Yet the March 2026 report records that dispatch of Nachtigal's power to major industrial loads in Douala was constrained by delays in downstream transmission and distribution reinforcements and system balancing requirements. [S0802] While the 400-kilovolt line linking Yaoundé (Nyom II) to Edéa (Edéa-Béon) was scheduled for completion by June 2026, wheeling full incremental power into Douala required a 225-kilovolt line from Edéa-Béon to the new Missolé/Piti Dibamba substation and industrial connections expected by early 2027. [S0802] Moreover, the project company received on average about EUR 2.7 million a month from ENEO against monthly invoices of EUR 22.3 million (EUR 14.3 million excluding taxes and pass-through costs), accumulating roughly EUR 108 million in unpaid invoices. [S0802]

For a textile sponsor, this evidence carries two lessons: the Southern and Northern Interconnected Grids operate under distinct hydrological regimes and topologies, and even in the southern corridor a plot near Douala or Dibamba cannot assume firm megawatt delivery until its substation, transformer margin and last-mile feeder are physically commissioned and contractually allocated. [S07] [S08] [S0802]

8.6 SITE DILIGENCE REQUIRES FEEDER-LEVEL MEASUREMENTS AND CONNECTION TERMS

To prevent building production halls that cannot be energised on schedule, GFT requires six electrical checks before site selection: [S07] [S10] [S0802]

1. **Historical feeder interruption logs:** Obtain 12 to 24 months of outage records for the exact medium-voltage line serving the plot, separating planned maintenance from unplanned trips. [S07] [S0802]
2. **Continuous on-site power-quality logging:** Install three-phase analysers at the nearest connection point for 30 to 90 days to record voltage sags, swells, phase unbalance, frequency excursions and harmonics. [S07] [S10]
3. **Firm substation capacity and queue position:** Verify in writing with grid operators the available thermal and voltage margin (in megavolt-amperes) at the feeding substation and competing load requests. [S07] [S0802]
4. **Connection works scope and schedule:** Define who finances, builds and owns the spur line, switchgear, metering kiosk and transformers, tying construction gates to physical energisation. [S07] [S20] [S0802]
5. **Tariff category and demand-charge rules:** Confirm the medium-voltage or high-voltage tariff schedule, peak and off-peak windows, power-factor penalties and minimum demand charges. [S07]
6. **Grid-code rules for captive and solar-hybrid synchronisation:** Establish protection, anti-islanding and permitting rules for behind-the-meter solar photovoltaics, battery storage and thermal generators. [S07] [S10]

8.7

Reliability has a cost that belongs in the product

When a factory experiences a grid outage or voltage transient, the loss exceeds the gap between the grid kilowatt-hour tariff and standby fuel. [S07] [S10] Electrical instability causes material waste, equipment wear, missed delivery windows and unrecovered fixed overhead, so pricing power solely at the nominal tariff overstates the viability of fragile feeders. [S07] [S10] [R12]

8.8 OUTAGES GENERATE SCRAP, MAINTENANCE WEAR AND LOST CONTRIBUTION

Each stage of the cotton-to-garment chain responds differently to power interruptions: [S04] [S10] [S29]

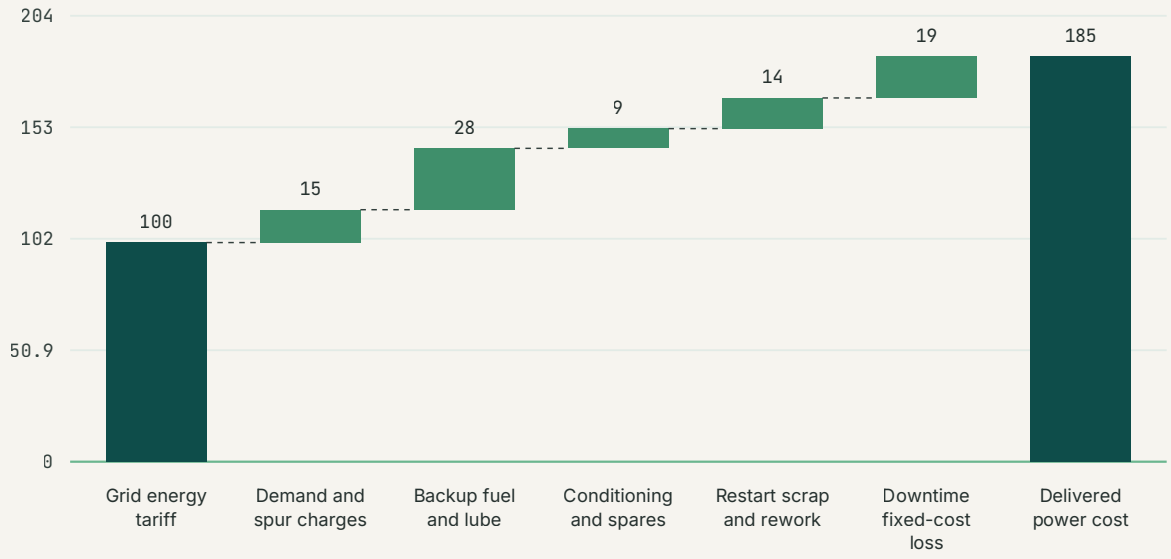
- **Garment cutting, sewing and pressing:** Automated spreaders and cutters require uninterrupted vacuum hold-down; a trip during cutting can shift fabric plies and ruin markers, while stops across sewing lines idle paid operator hours. [S10] [S14]
- **Spinning and yarn preparation:** Blowroom lines, cards, combers and spinning frames rely on synchronised airflows and draft ratios; an unbuffered drop causes pneumatic choke-ups and yarn breaks, producing waste and splices that degrade weaving or knitting. [S04] [S10] [S29]

- **Weaving and knitting:** High-speed looms and knitting machines stopped abruptly under tension leave start-up marks across the fabric width, downgrading rolls to seconds. [S10]
- **Wet processing (dyeing, printing and finishing):** Dyeing vessels, stenters and effluent plants face the highest disruption cost; losing circulation and steam during a dye cycle creates irreversible shade variations, forcing batches to be stripped, re-dyed or scrapped, while wastewater aeration must continue to prevent unpermitted discharges. [S10] [S26]

A site comparison therefore places five reliability-driven cost layers beside the nominal grid bill, as structured in **Exhibit 33**, p. 119: (a) contracted demand charges and connection amortisation payable during outages; (b) backup fuel, lubricants and overhaul reserves; (c) voltage regulation, uninterruptible power supplies (UPS) and maintenance; (d) restart scrap, re-dyeing and downgraded output; and (e) unrecovered fixed wages and depreciation during lost hours. [S07] [S10] [R12]

EXHIBIT 33 / ILLUSTRATIVE COST INDEX (NOMINAL GRID ENERGY = 100)

Reliability costs belong beside the electricity bill



ILLUSTRATIVE [S07] [S10] [R12] Illustrative cost bridge from base 100 grid tariff: demand/spur (+15), backup fuel/lube (+28), conditioning/spares (+9), restart scrap (+14), downtime fixed-cost loss (+19), totalling 185 units.

In **Exhibit 33**, p. 119, budgeting only 100 index units for the nominal grid tariff omits 85 additional index units of demand charges, backup fuel, conditioning, scrap and downtime overhead, reaching an illustrative total of 185 units. [S07] [S10] [R12] While **Exhibit 33**, p. 119 uses normalised illustrative increments, it explains why historical underutilisation in Cameroon's textile sector, such as the July 2023 site utilisation rates of 10.83 percent to 48.9 percent in the evidence register, cannot be diagnosed without separating mechanical availability from utility stoppages. [S07] [R12]

WORKED EXAMPLE: ILLUSTRATIVE SITE COMPARISON FOR RELIABILITY-ADJUSTED ENERGY AND SCRAP COST

Consider an illustrative monthly calculation for a factory producing 100,000 saleable garments a month requiring 120,000 kilowatt-hours (kWh) of electricity (1.20 kWh per garment) across two hypothetical candidate sites:

- **Illustrative Site A (stronger feeder, higher lease):** The grid supplies 95 percent of electricity (114,000 kWh) at an illustrative tariff of XAF 70 per kWh (XAF 7,980,000), while backup generation covers 5 percent (6,000 kWh) at XAF 220 per kWh (XAF 1,320,000). Four unbuffered trips a month each cause an illustrative XAF 150,000 in scrap and line-stop loss (XAF 600,000). Total monthly reliability-adjusted power cost at Site A is XAF 9,900,000, or **XAF 99.00 per garment** (illustrative arithmetic).
- **Illustrative Site B (weaker feeder, lower lease):** The grid supplies 75 percent of electricity (90,000 kWh) at XAF 70 per kWh (XAF 6,300,000), forcing diesel backup to cover 25 percent (30,000 kWh) at XAF 220 per kWh (XAF 6,600,000). Eighteen unbuffered trips a month at XAF 150,000 per trip add XAF 2,700,000 in scrap and downtime loss. Total monthly reliability-adjusted power cost at Site B is XAF 15,600,000, or **XAF 156.00 per garment** (illustrative arithmetic).

Decision consequence: Despite facing the identical nominal tariff of XAF 70 per kWh, Site B imposes an illustrative penalty of XAF 57.00 per garment (XAF 68,400,000 a year across 1,200,000 garments). Unless Site B's net lease and freight savings exceed XAF 68.4 million a year, Site A delivers the lower unit cost. All figures are illustrative; actual models require utility tariffs, vendor quotes and feeder logger data. [S07] [S10]

8.9 SOLAR-PLUS-STORAGE AND BACKUP OPTIONS REQUIRE A COMMON ENGINEERING BOUNDARY

Because northern Cameroon has high solar irradiation while southern sites sit closer to hydro substations and thermal plants, sponsors ask whether behind-the-meter solar photovoltaics paired with battery energy storage systems (BESS) can offset grid weakness. [S07] [S08] GFT links this question to the proposed `solar-storage` and `site-selection` tools while assigning microgrid dispatch modelling to companion paper `wp07`. [S07] [S10] Within `wp01`, grid supply, thermal backup, solar-plus-storage and hybrid systems must be compared inside a common life-cycle boundary: daytime solar matches single-shift garment assembly far more closely than three-shift spinning or wet processing; a 5-to-15-minute ride-through UPS bridges voltage sags at much lower capital cost than multi-hour bulk storage; solar comparisons must include land area, panel-cleaning water, replacement reserves and battery disposal under IFC Performance Standard 3 (S26); and thermal backup at inland sites must include up-country fuel surcharges and bunded storage days. [S07] [S10] [S26] [S31]

8.10

Corridor performance needs shipment evidence

Transport cost per tonne-kilometre is only one component of logistics performance, and in Central Africa it is frequently overshadowed by transit-time variability, terminal dwell times, road checkpoints and clearance delays. [S31] [S0801] A factory site that

appears cheap on a static freight table can fail commercially if unpredictable delays cause missed vessel cut-offs, late deliveries or line stoppages waiting for imported needles, dyes or spare boards. [S03] [S31]

8.11 SHIPMENT-LEVEL DIAGNOSTICS MUST REPLACE AGGREGATE PERCEPTION RANKINGS

The methodological shift required for corridor diligence is established in the World Bank's *Connecting to Compete 2025: The New Logistics Performance Indicators 2.0* (S31), which states verbatim that "Logistics underpins the movement of goods and the operation of supply chains within and across borders." [S31] The 2025 edition explains that the revamped Logistics Performance Indicators (LPI 2.0, using observed 2023 and 2024 shipment data) move from perception surveys to empirical tracking of container, aviation, postal and corridor movements, measuring actual port dwell times, inland turnaround times, connectivity and reliability, which cannot be spliced into older perception rankings as a continuous series. [S31]

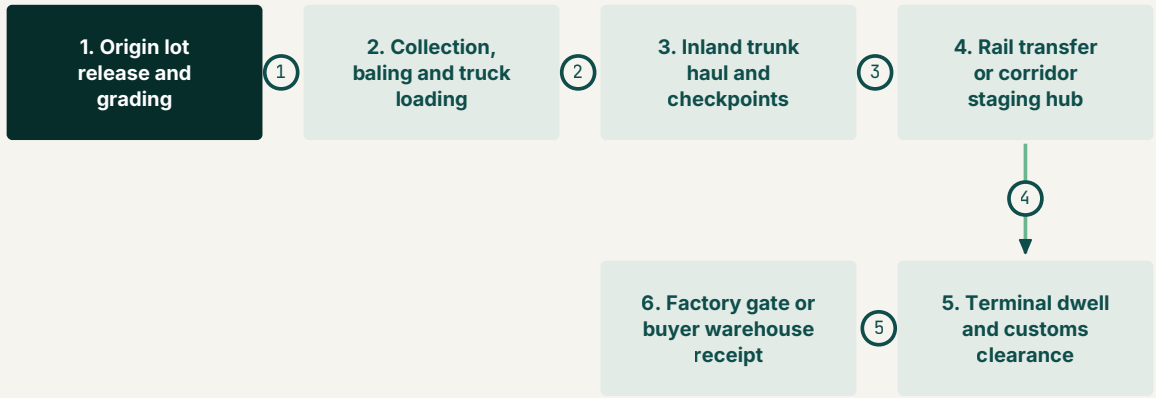
For Cameroon, recent World Bank diagnostics provide dated evidence of friction along the primary trade backbone. [S0801] On 12 June 2026, the World Bank Board approved a US$1.12 billion Multiphase Programmatic Approach (MPA) programme to modernise the Douala-Bangui economic corridor, with a first phase of US$525 million directing US$407 million from IBRD and US$18 million from IDA to Cameroon, US$90 million to the Central African Republic and US$10 million to CEMAC. [S0801] In that 12 June 2026 release, the World Bank documents that the 1,400-kilometre corridor is the economic backbone of Cameroon, yet suffers from deteriorated roads, transport costs up to US$270 per tonne, normal journey times of 9 to 12 days, and 38 checkpoints in Cameroon alone, 17 of which involve informal payments; those figures record the baseline friction as of June 2026 rather than a completed turnaround. [S0801]

8.12 EVERY CORRIDOR LEG MUST BE LOGGED SEPARATELY

To apply the shipment-based diagnostic standard of S31 to Cameroon's cotton and textile corridors, GFT decomposes every inbound and outbound movement into six separately measurable handovers, illustrated in **Exhibit 34**, p. 122. [S05] [S31] [S0801]

EXHIBIT 34 /

Delivered lead time contains several separately measurable delays



1. Lot release lag
2. Fleet dispatch wait
3. Road transit and stops
4. Transhipment dwell
5. Clearance and drayage

ILLUSTRATIVE [S05] [S31] [S0801] Illustrative six-stage shipment chain based on LPI 2.0 (S31), corridor diagnostics (S0801) and SODECOTON logistics (S05).

As shown in **Exhibit 34**, p. 122, a headline transit time between a northern ginning basin and a southern factory or port conceals six queues: [S03] [S31] [S0801]

1. **Origin lot release and grading:** Elapsed time begins when the call-off is issued and bales at one of SODECOTON's nine ginning plants or imported drums at Douala or Kribi await quality release, moisture check and staging. [S04] [S06] [S31]
2. **Collection, baling and fleet loading:** SODECOTON states on its corporate profile that it maintains a park of 660 rolling vehicles and civil-engineering machines; sponsors must interpret S05 strictly within its stated categories as supporting seed-cotton collection from more than 220,000 growers, rural track maintenance and lint evacuation rather than third-party garment factories, so commercial truck availability in the north tightens during harvest unless contract carriage is secured. [R03] [S03] [S05] [S06]
3. **Inland trunk haul and checkpoints:** Along north-south and east-west roads, elapsed time and variance reflect pavement condition, rainy-season washouts, bridge limits, weighbridges and checkpoints such as the 38 checkpoints on the Douala-Bangui route. [S03] [S0801]
4. **Rail transfer or corridor staging hub:** Where northern lint or cargo moves via road-rail transfer (such as trucking from northern ginneries to the Ngaoundéré railhead toward Yaoundé and Douala), transhipment handling, wagon availability and yard dwell must be logged separately from road haulage. [S02] [S03] [S31]

5. **Terminal dwell and customs clearance:** For imported spares, dyes, trims or fabric inputs, and for exported yarn or garments, terminal dwell, customs valuation, origin verification and port drayage often exceed the inland haul. [S19] [S30] [S31]
6. **Factory gate or buyer receipt:** Unloading, tally verification, moisture and contamination re-inspection, and damage claims close the loop, and GFT recommends logging 20 to 30 trial consignments across wet and dry seasons to capture median and 90th-percentile hours at each node. [S04] [S11] [S31]

8.13

Buffer stocks exchange delivery risk for cash and storage exposure

The financial channel from corridor variability to factory viability runs through working capital and buffer inventories: when a site faces long or erratic replenishment lead times, the plant must either accept stockouts that idle machines and breach delivery dates, or hold larger on-site buffers that tie up cash, warehouse space and insurance. [S03] [S31]

8.14 DIFFERENT MATERIAL STREAMS CARRY ASYMMETRIC CORRIDOR RISKS

Rather than modelling inventory as a single percentage of sales, a Cameroonian cotton-to-garment operation must separate five physical inventory pools whose location sensitivities diverge between northern and coastal sites: [S03] [S04] [S10] [S31]

- **Domestic cotton lint bales:** Because harvesting and ginning are seasonal while spinning mills run year-round, lint bales must be stored and financed across the campaign cycle, as examined in Chapter 4; a northern spinner beside a ginnery can draw bales on short notice under a call-off agreement, whereas a coastal spinner must hold a larger buffer against rainy-season disruptions or pay for bonded storage. [S03] [S06] [S0801]
- **Imported or partnered fabrics, yarns and sewing trims:** For a Phase 1 garment plant using purchased fabric or partnered conversion, a missing imported zip fastener, elastic, interlining, button, label or thread worth under 1 percent of garment cost halts shipment of the entire order; a port-adjacent site receives cleared replenishments rapidly, whereas a northern site must buffer against the full inland haul and checkpoint distribution. [S12] [S29] [S31] [S0801]
- **Dyes, auxiliaries and water-treatment chemicals:** Wet-processing plants consume acids, alkalis, salts, peroxides, dyestuffs and effluent polymers; strict shelf-life and temperature limits make it costly and hazardous to stockpile months of chemicals at a hot inland site to hedge against road delays. [S10] [S26]
- **Mechanical and electronic spare parts:** High-speed machinery relies on card clothing, travellers, needles, reeds, sensors and inverter boards priced in euros or US dollars; waiting 10 to 14 days for an urgent part to travel up-country forces remote sites to finance a larger spares inventory. [S02] [S18] [S31]
- **Finished goods awaiting buyer call-off or vessel cut-off:** High outbound transit variance forces an inland factory to finish goods earlier and hold them longer in staging buffers to avoid missing port cut-offs, delaying invoicing and cash collection. [S31] [S0801]

DELIVERED-COST AND WORKING-CAPITAL COMPARISON BOUNDARY ACROSS CANDIDATE SITES

To prevent transport rates, utility reliability and buffer inventories from being evaluated in silos, GFT defines a unified annual site-comparison boundary for a fixed product basket and saleable volume Q. For each candidate site s, total location-sensitive annual cost C_s is evaluated across six terms: [S03] [S07] [S31]

1. **Inbound material logistics (L^{in}_s):** Freight, handling, transit insurance, checkpoint delays and in-transit moisture or damage losses for domestic lint/yarn plus imported fabrics, trims, chemicals and packaging delivered to site s. [S03] [S04] [S31] [S0801]
2. **Outbound product logistics (L^{out}_s):** Inland haul, staging, terminal handling and distribution from site s to buyer delivery points or the export terminal. [S31] [S0801]
3. **Reliability-adjusted utility and environmental cost (U_s):** Grid tariff, demand charges, backup fuel and maintenance, solar-storage amortisation, restart scrap, water abstraction, thermal energy and effluent treatment operating cost at site s. [S07] [S10] [S26]
4. **Site occupancy and shared-service charges (O_s):** Land lease or amortised site preparation, building insurance, security and park service charges at site s. [S20]
5. **Working-capital buffer carrying cost (W_s):** Financing charge, storage, insurance and obsolescence allowance on the site-specific inventory days of lint, fabric, trims, chemicals, spares and finished goods needed to maintain target service levels given site s's lead-time mean and variance. [S03] [S31]
6. **Downside disruption expected loss (D_s):** Stress-tested cost of unrecovered fixed overhead and late-delivery penalties under defined corridor, power or water interruption scenarios at site s. [S07] [S31]

All reorder-point and safety-stock equations inside W_s are assigned to companion paper `wp12` and the `safety-stock` tool, while power-system sizing inside U_s is assigned to `wp07` and `solar-storage`. Within `wp01`, no site may be ranked on $(L^{\text{in}}_s + L^{\text{out}}_s + O_s)$ alone while setting U_s, W_s or D_s to zero. [S07] [S31]

8.15

A shared industrial location needs clear service obligations

When standalone greenfield plots face delays in securing high-voltage spurs, water pipelines and discharge permits, locating inside an industrial zone or textile park appears attractive. [S02] [S20] Both Cameroon's development strategy (`S34`, proposing an integrated cotton-textile pole around SODECOTON and CICAM) and third-party announcements (`R09` and `R10`, referencing a Camtext SA hub at Dibamba alongside Garoua operations) point toward clustered infrastructure, yet GFT treats an industrial park as a bundle of legal, engineering and commercial contracts to be verified rather than an automatic saving. [R08] [R09] [R10] [S20] [S24] [S34]

8.16 PARK GUIDELINES DISTINGUISH PHYSICAL CO-LOCATION FROM OPERABLE COMMON SERVICES

The benchmark for evaluating industrial zones is set out by the United Nations Industrial Development Organization (UNIDO) in its *International Guidelines for Industrial Parks* (S20, published 29 November 2019), where UNIDO states verbatim that "UNIDO is committed to strengthening the development of inclusive and sustainable industrial parks in developing countries and middle-income economies." [S20] The UNIDO framework emphasises that a park succeeds only when master-planning, utility capacity, common environmental infrastructure, governance, sustainable tariffs and tenant compliance rules are engineered and funded together; parks that allocate land before building substations, water plants and effluent plants leave tenants paying for self-generation and self-treatment on top of park fees. [S07] [S20]

For a textile or garment plant, five shared-service boundaries require contract-level verification before any park saving is credited: [S10] [S20] [S24] [S26]

1. **Shared electrical substation and internal ring distribution:** Verify whether the park operator holds a firm, energised bulk megavolt-ampere allocation from the utility or awaits external grid works such as the 225-kilovolt lines and substation upgrades scheduled for 2026 and early 2027 in the Douala-Dibamba corridor, and check protections against voltage sags from neighbouring tenants. [S07] [S20] [S0802]
2. **Process water supply and quality consistency:** Confirm daily water allocation, hardness, iron, turbidity and pH bounds, and whether the park or tenant funds softening, filtration and 48-to-72-hour reserve tanks. [S10] [S20]
3. **Common effluent treatment plant (CETP) hydraulic and chemical limits:** Under IFC Textile EHS Guidelines (S10) and IFC Performance Standard 3 (S26), textile dyeing and finishing effluents carry colour, chemical oxygen demand (COD), bio-chemical oxygen demand (BOD), dissolved solids, heavy metals, sulphides and heat; a park CETP built for domestic sewage cannot treat dyehouse wastewater, so sponsors must verify hydraulic capacity, inlet pretreatment limits, sludge disposal licensing and discharge monitoring records. [S10] [S20] [S26]
4. **Environmental and social liability demarcation:** If a park's common effluent plant overflows or fails to resolve community land-acquisition and livelihood grievances under IFC Performance Standard 1 (S24), buyers and lenders applying OECD garment due-diligence rules (S11, S12) will audit the factory's full site footprint. [S11] [S12] [S24] [S26]
5. **Fire protection, emergency access and tariff governance:** Verify pressurised fire-hydrant ring mains, 24-hour emergency access, perimeter security, tariff escalation formulas, uptime commitments and fee-offset remedies when common utilities fail. [S10] [S20] [S28]

8.17

A site decision must survive a downside case

Because every location in Cameroon involves trade-offs between northern cotton origin, southern port and buyer access, grid timelines and corridor friction, a linear weighted-average scorecard can produce a fatal recommendation. [S02] [S03] [S07]

[S31] In a compensatory scorecard, a plot with zero legal water discharge rights or a multi-year wait for a grid connection could still score well if given high marks for cheap land and proximity to cotton gins, locking capital into an inoperable asset. [R12] [S07] [S10] [S24]

8.18 VETO GATES MUST PRECEDE COMPARATIVE SCORING

To prevent compensatory scoring errors, GFT applies a two-stage decision gate, summarised in **Exhibit 35**, p. 126. [S02] [S07] [S10] [S20] [S24] [S31] In Stage 1, every candidate plot is tested against seven non-compensatory binary veto conditions covering cotton and material access, buyer and market logistics, electrical power, water and effluent, workforce and supervision, corridor reliability, and land/permitting governance; any plot failing a veto gate is placed on hold or rejected before comparative cost modelling begins. [S02] [S07] [S10] [S24]

EXHIBIT 35 / MANDATORY DILIGENCE EVIDENCE AND VETO CONDITIONS

Site comparisons require documentary proof across seven non-compensatory boundaries

Boundary	Northern vs coastal exposure	Required documentary proof	Binary veto condition
1. Cotton and fabric supply	North near 9 gins (S06); Coast near imported fabric/trims	Gin call-off terms, bale storage audit, or port fabric/trim clearance logs	No verifiable year-round feedstock storage or binding supply path
2. Buyer and port access	Coast near urban buyers/ports; North faces long southward haul	Buyer delivery-window specs, container positioning and drayage quotes	Inability to meet buyer lead-time tolerance on trial dispatches
3. Electrical connection	Distinct RIN vs RIS grids; Douala 225 kV upgrades in progress (S0802)	Utility MVA offer, 12-month feeder outage log, 30-day power-quality trace	No firm MVA allocation or unmitigated outage cost exceeding margin
4. Water and effluent	Wet processing requires high-volume intake and compliant discharge (S10)	Hydrogeological test, abstraction permit, CETP or ETP engineering design	Insufficient dry-season water or no lawful treated-effluent outlet
5. Labour and supervision	Local operator pool vs technical maintenance and supervisor scarcity	Catchment commute survey, technical-school audit, shift-transport plan	Inability to staff and supervise safe multi-shift operations
6. Corridor logistics	1,400 km corridor up to US$270/t and 38 checkpoints (S0801)	20-to-30 logged shipments across wet/dry seasons with tail dwell times	Single-bridge or seasonal road cutoff with no financeable buffer
7. Land, E&S and park SLA	Greenfield title/resettlement risk vs industrial-park SLA risk (S20, S24)	Cadastral title, ESIA/GRM records, binding park utility and CETP contracts	Contested land/livelihood claims or unsigned park utility obligations

ILLUSTRATIVE [S02] [S03] [S07] [S10] [S20] [S24] [S31] Illustrative GFT site-diligence and veto matrix synthesised from S02, S03, S07, S10, S20, S24 and S31.

As **Exhibit 35**, p. 126 sets out, the seven boundaries apply equally across northern, inland and coastal plots and scale with the processing boundary from Chapter 7. [S02] [S03] [S10] [S26] Once candidate sites pass all seven veto gates in **Exhibit 35**, p. 126, Stage 2 compares them on an identical product basket, saleable throughput and financing cost across four downside stress tests: (1) a 6-to-12-month delay in promised substation upgrades (S0802) paired with doubled feeder trips; (2) 90th-percentile wet-season transit times and upper-bound freight charges (S0801); (3) first-pass quality and restart-scrap penalties during the initial ramp (S10, R12); and (4) a 12-month delay in shared industrial-park water or CETP commissioning (S20, S26). [S07] [S10] [S20] [S26] [S0801] [S0802] [R12]

GFT NOTE: MATCH SITE ARCHITECTURE TO THE STAGED RAMP BEFORE LOCKING IN HEAVY CIVIL WORKS

In GFT's Cameroon textile programme (prepared 31 January 2024, sources refreshed 2026), the recommended launch architecture begins with demand-validated cut, make, trim and finishing operations, treating upstream spinning and knitting as optional partnered steps until commercial offtake and lot quality are proved: [S02] [S29]

1. **Do not build a remote integrated megasite before proving the order book:** Committing upfront capital to an isolated greenfield site with captive power and wet-processing civil works before securing repeat garment orders exposes the venture to maximum infrastructure and cash-cycle risk simultaneously. [S02] [S07] [S32]
2. **Short-list two contrasting corridor options and instrument them early:** During Phase 0 setup, select one primary coastal/corridor candidate (stronger buyer, port and imported-trim access for the initial garment ramp) and one northern or partnered-conversion candidate (stronger lint proximity for upstream yarn/fabric stages). Deploy 90-day power-quality loggers and run shadow freight consignments between the two nodes before signing long-term land leases. [S07] [S31] [S0802]
3. **Use modular leased shells for Phase 1 assembly where feasible:** Launching Phase 1 garment assembly in a compliant industrial shell with verified power, water, fire exits and commuter access allows management to prove workforce competence (Chapter 9) and cash conversion (Chapter 10) while completing environmental, hydrological and substation diligence for upstream expansion. [S10] [S20] [S24] [S28]

SPLIT-SITE PROCESSING REQUIRES EXPLICIT INTERMEDIATE TRANSPORT AND TRACEABILITY CONTROLS

A hybrid footprint that spins and weaves or knits greige fabric in the northern cotton belt while transporting greige rolls to a southern corridor site for dyeing, finishing and garment assembly can align each process with its comparative utility and feedstock base. [S02] [R10] However, splitting conversion across two corridors introduces an internal logistics link that can fail if left unmanaged: sponsors must budget for moisture-proof greige packaging, intermediate roll buffers at both ends, roll-level chain-of-custody tracking (wp05), and clear inspection gates so that defects discovered after dyeing are not blamed on northern spinning or transit damage without evidence, while full site-specific water and effluent compliance under S10, S15 and S26 remains mandatory wherever wet processing sits. [S04] [S10] [S11] [S15] [S26] [S31]

8.19 THE SITE DECISION FEEDS THE WORKFORCE AND FINANCIAL GATES

A validated site comparison establishes the physical and cost inputs required for the remainder of Part III: local labour catchment, technical-school proximity and commuting safety feed into Chapter 9 (wp09), while reliability-adjusted utility costs (U_s), freight distributions ($L^{\text{in}}_s, L^{\text{out}}_s$) and buffer-stock days (W_s) feed into the contribution margin, breakeven and working-capital stress tests of Chapter 10 (wp12, wp13) and define the input contracts for the `site-selection` and `solar-storage` analytical tools. [S03] [S07] [S13] [S14] [S20] [S28] [S31]

A cheap plot that starves the line of power, water or timely inputs is the most expensive site a factory can choose.

CHAPTER SOURCE NOTES

S02 IFC and World Bank. 2022.

S03 European Commission and Agrinatura. 2020.

S07 International Monetary Fund. 2025-02-25.

S0801 World Bank. 2026-06-12.

S31 World Bank. 2025.

S10 World Bank Group / IFC. 2007-04-30.

S24 International Finance Corporation. 2012.

R03 SODECOTON. Publication date unrecorded; inherited source-text check.

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.
R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.
S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.
R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.
R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.
R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.
R08 Business in Cameroon. Publication date unrecorded; inherited source-text check.
S20 United Nations Industrial Development Organization. 2019-11-29.
S04 SODECOTON. n.d..
S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.
S12 OECD. 2026-02-26.
S0802 World Bank. 2026-03-26.
S05 SODECOTON. n.d..
S08 World Bank. 2025-01-16.
S14 International Labour Organization. 2022-06-24.
S26 International Finance Corporation. 2012.
S19 United Nations Statistics Division, UN Comtrade. n.d..
S30 African Continental Free Trade Area Secretariat. 2022.
S11 OECD. 2018-03-07.
S18 Banque des Etats de l'Afrique Centrale. n.d..
S28 International Labour Organization. 2022-04-26.
S32 Food and Agriculture Organization of the United Nations. n.d..
S15 United Nations Environment Programme. 2023.
S13 International Labour Organization. 2025-03-28.

09

Skilled supervision and safe work convert equipment into reliable output

The workforce case should be built around demonstrated competence, effective labour cost and acceptable working conditions.

CHAPTER 09
DECISION TEST

The workforce case should be built around demonstrated competence, effective labour cost and acceptable working conditions.

Installed spindles, looms, knitting frames, dyeing vats and sewing lines do not convert cotton fibre or fabric into saleable output on their own. [S02] Cameroon's ambition to raise domestic transformation of local cotton fibre from the historical reference share of about 5 percent ([R06], [S01]) to at least 50 percent by 2030 ([R07], [S34]) depends on whether factories can staff, supervise, maintain and safely operate their lines across every scheduled shift. [S02] Historical cotton-chain diagnostics show that machinery investments underperform when technical maintenance, line management, utility reliability and working capital are missing. [S02] Reported July 2023 capacity utilisation at incumbent facilities of 33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2 ([R12]) illustrates how severely installed capacity diverges from realised throughput when the operating system is incomplete.

Green Future Tech Limited (GFT), Hong Kong SAR, argues that a factory's workforce plan must be engineered as an inspectable operating subsystem rather than treated as a headline recruitment target or a minimum-wage assumption. [S13] In GFT's three-part Cameroon textile programme, prepared on 31 January 2024 with source-refresh notes retained in 2026 and covering a feasibility study, a production performance-management system design and a digital strategy, workforce readiness functions as a binding stage gate on capacity expansion. [S02] A venture should release a new line, an additional shift or an upstream conversion stage only after qualified supervisors, machine setters, maintenance technicians, quality inspectors and safety coordinators are in post and performing to standard. [S28] This chapter sets out the framework required to evaluate labour costs on an accepted-output basis, build separate competence pipelines for technical and supervisory roles, verify labour standards and occupational safety, account honestly for employment delivery, and enforce a workforce gate on the capacity ramp. [S13] Nothing here is legal, tax or investment advice; statutory labour instruments, collective agreements and workplace permits require project-specific verification by qualified counsel. [S25]

9.1

A wage floor is not a production-cost forecast

Industrial feasibility studies frequently misstate labour economics by multiplying a single statutory minimum wage by an assumed headcount and treating the result as a unit production-cost advantage. [S14] In the shared evidence register, WageIndicator records that Cameroon's guaranteed interprofessional minimum wage (SMIG) stood at XAF 41,875 a month in 2023 and rose by 5 percent to XAF 43,969 a month, or about US$76 a month, effective 23 February 2024. [R14] Alongside that entry, a separate Grade C register source records an average monthly salary across sectors in Cameroon of about US$359 ([R15]), while another trade source records a 2024 garment-sector minimum wage in Cambodia of US$204 a month ([R17]). Placing those three figures together shows why a raw minimum-wage observation cannot serve as a factory payroll budget or a cross-country competitiveness proof. [S14]

9.2 STATUTORY WAGE OBSERVATIONS REQUIRE LEGAL AND OCCUPATIONAL VERIFICATION

First, the shared-ledger observation of XAF 43,969 a month ([R14]) is a dated secondary record from February 2024 rather than a verified current payroll schedule for an industrial textile enterprise in 2026. Before any sponsor commits capital or prices a

supply contract, legal counsel and human-resources specialists must obtain the current official statutory instrument, verify any subsequent decrees or tripartite adjustments, and map the applicable sector collective bargaining schedule. [S25] Even when confirmed, the statutory floor applies only to the lowest entry category before seniority, shift, transport, housing or attendance allowances, and before mandatory employer social-security and payroll-tax contributions. [S14]

Second, an operating textile or garment plant cannot be staffed solely at the entry-level minimum wage. [S02] As the gap between the February 2024 statutory floor ([R14]) and the cross-sector average salary observation ([R15]) indicates, skilled technicians, electro-mechanical maintenance staff, boiler operators, pattern cutters, quality controllers and line supervisors command differentiated pay across multiple occupational bands. Modelling payroll at a single minimum figure understates fixed and semi-fixed labour expenses during commissioning and ramp phases. [S14]

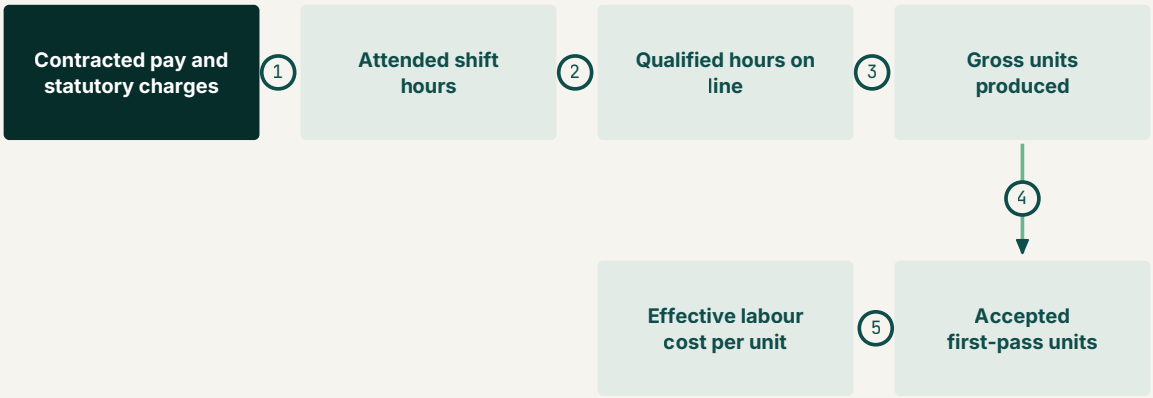
9.3 UNIT LABOUR COST DEPENDS ON PRODUCTIVITY, QUALITY AND UPTIME

Third, nominal monthly wage comparisons across countries are meaningless unless paired with measured output per worker-hour, first-pass quality acceptance, machine availability and supply-chain reliability. [S14] The International Labour Organization (ILO) review of employment, wages and productivity in the Asian garment sector notes that Asia remains the world's largest garment manufacturer ([S14]), operating within dense industrial ecosystems where decades of line balancing, technician training, trim availability and supervisory routines support high output. Comparing Cameroon's historical minimum wage ([R14]) with Cambodia's 2024 sector minimum wage of US$204 a month ([R17]) without adjusting for output per attended hour, reject rates and stoppage time creates a false illusion of cost competitiveness. [S14] Asian factory productivity benchmarks must never be transferred into a Cameroon financial model as assumed baseline performance. [S14]

In an engineering cost model, the decision-relevant metric is effective labour cost per saleable unit, not wage rate per calendar month. [S14] Effective labour cost traces how contracted payroll hours are converted into accepted, invoiceable output, as shown in **Exhibit 36**, p. 133. [S0903]

EXHIBIT 36 /

Effective labour cost depends on accepted output



1. Deduct leave, turnover and absence
2. Deduct off-line training and stoppages
3. Apply achieved pace and line balance
4. Deduct scrap and rework hours
5. Divide total payroll by accepted units

ILLUSTRATIVE [S14] [S0903] Illustrative: analytical cost chain from contracted payroll and employer overheads through attendance, training release, line productivity and first-pass quality acceptance to labour cost per saleable unit (S14, S0903). No Cameroon factory wage quotation or productivity benchmark is asserted.

As **Exhibit 36**, p. 133 illustrates, five operational variables sit between the monthly wage schedule and the unit labour cost carried by a finished garment or metre of fabric. [S14] When unscheduled absenteeism is high, recruits spend shift hours in off-line training, machines wait for a mechanic, or weak inline supervision lets defective seams accumulate into rework, accepted units shrink while total payroll stays fixed. [S0903] A nominally low-wage plant becomes a high-cost producer per accepted garment if shop-floor capability is weak. [S14] Conversely, ILO manuals emphasise that productivity and decent work reinforce one another when supported by clear workplace communication, fair pay administration and safe workstations. [S0903]

WORKED EXAMPLE

To see how supervision and quality control alter unit labour cost without changing nominal wage rates, consider an illustrative comparison of two garment-assembly shift states using a normalised basis of 100 contracted operator-hours and an illustrative employer cost of 1,000 cost units per 100 contracted hours (10 cost units per hour). These figures demonstrate the accounting arithmetic only and are not a Cameroon wage quotation or forecast. [S14]

In **Case A (Unstabilised launch shift)**, out of 100 contracted illustrative operator-hours, 8 hours are lost to unscheduled absence and 12 hours go to off-line instruction, leaving 80 attended hours. Weak line supervision and mechanical setting cost 20 hours in bundle waiting and machine adjustments, leaving 60 productive sewing hours. At an illustrative pace of 2.0 gross garments per productive hour, the line completes 120 gross garments. With no inline quality patrol, 25 percent of gross output (30 garments) fails end-of-line inspection, requiring 10 hours of unbilled rework to salvage 15 garments while 15 are scrapped. First-pass output is 90 garments (and total accepted output including salvaged pieces is 105 garments). Against 1,000 illustrative cost units of payroll, effective labour cost is `1,000 / 90 = 11.11` illustrative cost units per first-pass garment (or `1,000 / 105 = 9.52` units if reworked pieces sell at full price). [S14]

In **Case B (Supervised, stabilised shift)**, the venture pays a 20 percent higher illustrative payroll of 1,200 cost units per 100 contracted hours to fund qualified line supervisors, preventive machine setters and structured onboarding. Unscheduled absence falls to 4 hours and off-line instruction takes 6 scheduled hours, leaving 90 attended hours. Responsive setting and line balancing hold stoppage losses to 9 hours, yielding 81 productive sewing hours. At an illustrative pace of 2.2 gross garments per productive hour, the line produces 178.2 gross garments. With inline quality checks catching needle and tension drift early, first-pass acceptance reaches 95 percent, yielding 169.3 accepted first-pass garments. Effective labour cost is `1,200 / 169.3 = 7.09` illustrative cost units per first-pass garment. Despite a 20 percent higher illustrative payroll, unit labour cost is 36.2 percent lower (`(11.11 - 7.09) / 11.11`) because supervision and technical support protect productive time and first-pass yield. [S0903]

9.4

Supervisor and maintenance competence need separate pipelines

A persistent failure mode in textile projects is treating recruitment as a homogeneous headcount exercise focused almost entirely on entry-level machine operators. [S02] While sewing operators, spinning tenters and loom weavers represent the largest share of factory employment, their ability to produce consistent output depends on a smaller group of technical, supervisory and planning specialists. [S13] As the Better Work programme (co-managed by the ILO and the International Finance Corporation) documents across global garment supply chains, a lack of opportunities to upgrade skills is a major constraint on local industry development, and targeted supervisory training improves both worker morale and factory productivity. [S0901] In Cameroon, sector diagnostics similarly point to technical skills, maintenance capacity and operational management as binding constraints on domestic cotton transformation. [S02]

9.5 SIX ROLE FAMILIES ANCHOR PLANT RELIABILITY

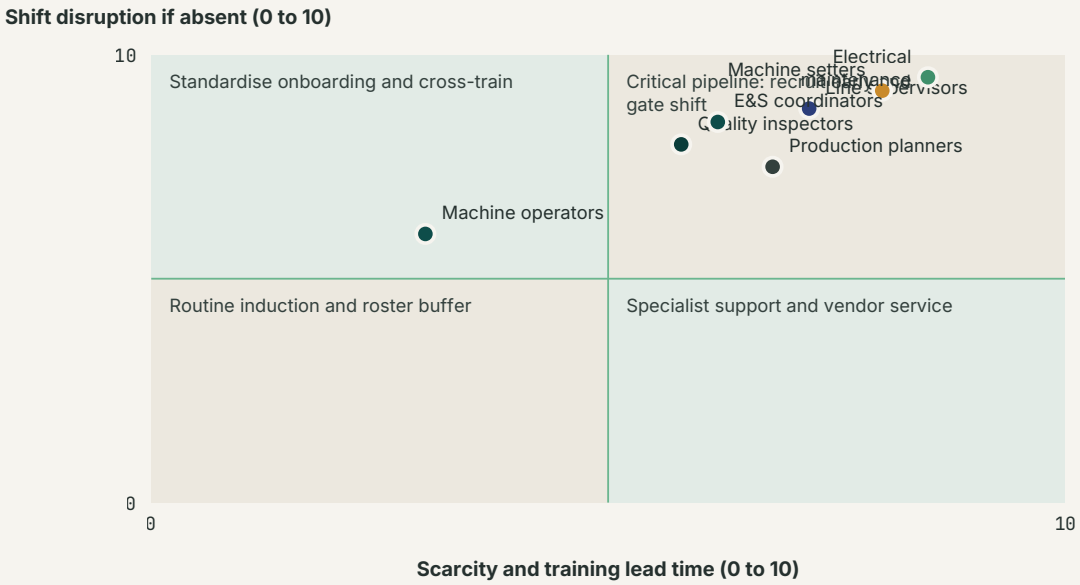
To prevent recruitment bottlenecks from stalling commissioned equipment, GFT separates factory capability into six role families, each with its own recruitment profile, lead time and assessment standard ([S02], [S13], [S28]):

1. **Line supervision:** Supervisors manage 20 to 35 illustrative operators on an assembly, knitting or spinning section, balance work-in-progress, diagnose bottlenecks, coach operators on standard methods without abusive conduct, and log shift handover exceptions. [S0901]
2. **Quality control:** Inspectors execute incoming fabric and trim checks, conduct roving inline patrol audits at critical seam or weave points, classify defects, enforce acceptable quality limits (AQL), and isolate non-conforming lots. [S12]
3. **Mechanical machine setting:** Setters configure needle gauges, loopers, thread tensions, feed dogs, knitting cams and loom reeds; execute style or yarn changeovers; perform daily lubrication; and clear jams without damaging fabric. [S02]
4. **Electrical and utilities maintenance:** Electricians and utility technicians maintain motor drives, programmable logic controllers, compressors, boilers, dust-extraction fans and backup generator panels, while enforcing lock-out and tag-out isolation. [S10]
5. **Production planning:** Planners translate qualified buyer orders into daily line-loading schedules, verify that cut panels, threads, trims, dyes and spare parts are staged before releasing a work order, and reconcile lot-level material balances. [S29]
6. **Environmental, health and safety (E&S) coordination:** E&S coordinators oversee machine guards, fire-exit clearance, dust and thermal monitoring, chemical safety sheets, protective equipment, incident investigations and confidential worker grievance intake. [S28]

No single course produces all six capabilities, and a surplus of operator applicants cannot compensate for an absent mechanic or industrial electrician on the night shift. [S02] GFT makes no assumption regarding total plant headcount, graduate supply from any named vocational institute, or any unverified local garment-training model. [S06] Every role family must be planned and verified against its operational risk profile, as mapped in **Exhibit 37**, p. 136. [S13]

EXHIBIT 37 / ILLUSTRATIVE INDEX (0 TO 10 SCALE)

Competence coverage matters more than a headline staffing total



ILLUSTRATIVE [S02] [S13] [S28] Illustrative: GFT analytical placement of six core textile and garment role families by relative local recruitment scarcity and training lead time (horizontal axis, 0 to 10) versus operational disruption when competence is absent on a live shift (vertical axis, 0 to 10), informed by S02, S13 and S28. Positions represent design priorities, not measured survey scores.

Exhibit 37, p. 136 separates roles that can be scaled through internal induction (upper-left quadrant) from roles requiring long-lead recruitment, apprenticeship or vendor-assisted qualification before commissioning (upper-right quadrant). [S02] Its coordinates are an illustrative engineering prioritisation derived from sector constraints ([S02], [S13], [S28]), not an empirical labour-market survey of Garoua, Douala or Yaounde. Electrical maintenance, mechanical setting, line supervision, E&S coordination and quality assurance sit in the high-disruption zone where one unstaffed post can halt or invalidate an entire shift's output. [S28]

9.6 OBSERVABLE TASKS AND ASSESSMENT EVIDENCE DEFINE READINESS

To turn **Exhibit 37**, p. 136 into a diligence instrument, sponsors must define each role family by observable shop-floor tasks and objective assessment records rather than paper diplomas or self-reported experience. [S13] For a mechanical setter, required evidence is a timed practical test demonstrating needle-bar calibration, looper clearance adjustment, differential-feed setup on the target fabric weight, and diagnosis of skipped stitches or thread breakage across three representative machines without damaging material. [S02] For an industrial electrician, assessment requires live verification of lock-out/tag-out isolation, contactor and overload-relay testing, compressed-air leak diagnosis and safe transfer between grid supply and backup generation under simulated voltage drop ([S07], [S28]). For a line supervisor, assessment requires running a simulated shift handover, rebalancing a five-station illustrative bottleneck exercise, logging downtime reason codes accurately, and coaching an operator constructively on a seam defect ([S0901], [S0903]).

9.7

Training must track accepted performance at work

Counting training days delivered or workshop trainees enrolled confuses activity with capability. [S13] A worker who has attended a two-week classroom module on garment assembly or spinning safety cannot yet sustain target cycle times, recognise subtle fabric defects or respond safely to a machine jam under live shift pressure. [S28] Training systems in the textile and apparel sector generate operational value only when qualification is tied to demonstrated, repeatable performance at the workstation. [S0901]

9.8 A FOUR-STAGE QUALIFICATION SEQUENCE PREVENTS PREMATURE LINE LOADING

GFT structures workforce qualification as a four-stage progression requiring documented practical evidence ([S13], [S28]):

- **Stage 1, Structured instruction:** Off-line explanation of standard method, quality tolerances, machine guarding, emergency stops, protective equipment rules and material handling. [S0902]
- **Stage 2, Supervised practice in a training bay:** Hands-on execution on training machines or a slow-paced pilot cell using trial materials, where an instructor corrects posture, hand placement, stitch accuracy and fault recognition without disrupting commercial orders. [S13]
- **Stage 3, Independent task assessment:** A practical test in which the candidate performs the operation unassisted over a defined run of units, evaluated on four criteria: zero safety violations, first-pass quality at or above threshold, consistent cycle time within the target band, and correct stoppage escalation. [S28]
- **Stage 4, Live-shift verification and reassessment:** Monitored placement on an active line with daily quality and output tracking over an initial proving window, followed by reassessment whenever the worker moves to a new machine class, fabric construction or supervisory tier. [S0903]

Under this sequence, training release is an operational licence to perform specific tasks, not a permanent title. [S28] An operator or technician is cleared for unsupervised shift work only when they reliably check machine guards before start-up, recognise defects at the point of origin (such as oil spots, needle runs, broken picks or shade variation), record stoppage times and cause codes on the line sheet, and escalate immediately to the setter or supervisor rather than attempting unauthorised repairs. [S0902]

METHOD

Shift-level competence and effective-hour accounting boundary

To connect training status to factory economics, GFT's production performance-management system reconciles contracted payroll hours against effective productive hours on every shift. [S14] For a defined line and shift period, the conservation identity is:

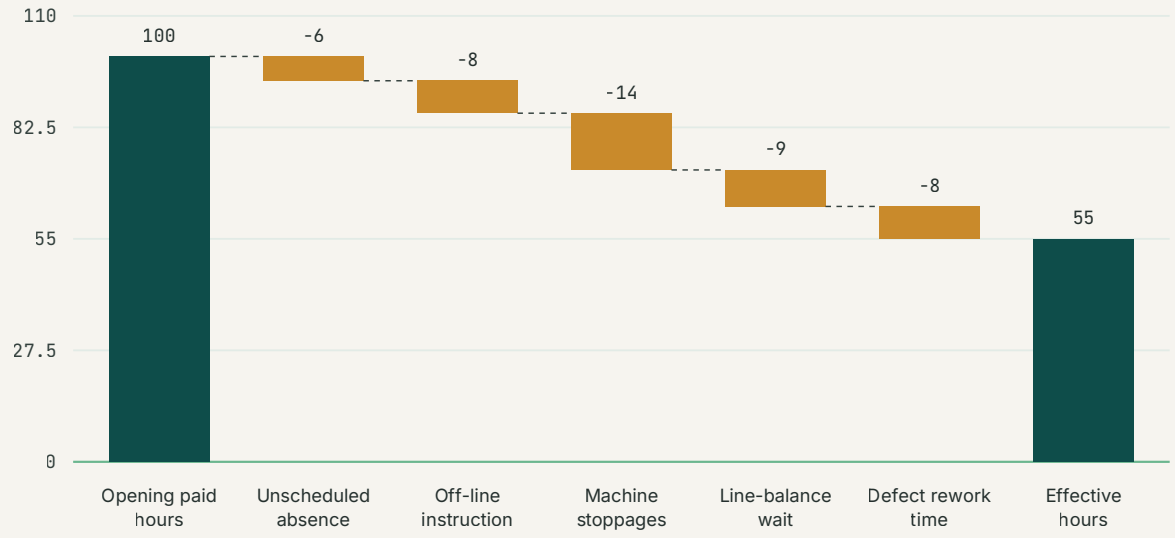
```
Effective first-pass hours = Paid roster hours - Unscheduled absence hours
- Off-line training hours - Machine stoppage hours - Line-balance wait
hours - Defect rework hours
```

Each deduction is logged daily by the line supervisor and reconciled against attendance records, maintenance tickets and end-of-line quality tallies. [S28] Separating off-line training hours (deliberate investment in competence) from stoppage, line-balance and rework hours (operational waste from weak competence, poor planning or utility failure) prevents managers from cutting training budgets when the real problem is weak supervision or maintenance response. [S13]

Exhibit 38, p. 138 illustrates how this accounting identity exposes capacity erosion during an early factory ramp. [S14]

EXHIBIT 38 / ILLUSTRATIVE INDEX OF PAID OPERATOR-HOURS (100 = BASELINE)

Unplanned stoppages, rework and supervision gaps erode effective shift hours



ILLUSTRATIVE [S13] [S14] [S28] Illustrative: normalised accounting bridge starting from 100 contracted paid operator-hours and deducting illustrative allowances for unscheduled absence (-6), off-line instruction (-8), unescalated machine stoppages (-14), line-balancing wait time (-9) and rework on defective seams (-8) to leave 55 effective hours generating accepted first-pass output. Values demonstrate the accounting method only and are not an empirical plant observation (S13, S14, S28).

In the illustrative bridge shown in **Exhibit 38**, p. 138, out of 100 contracted paid hours, 6 hours are lost to unscheduled absence and 8 hours go to off-line instruction, leaving 86 attended line hours. [S14] However, 14 hours are lost to machine stoppages awaiting mechanical or utility intervention, 9 hours are lost to line-balancing waits, and 8 hours are consumed reworking defective seams, leaving 55 effective hours

(`100 - 6 - 8 - 14 - 9 - 8 = 55`) producing first-pass saleable goods. [S28] These deductions are illustrative teaching values, not measured Cameroon benchmarks. A plant tracking only headcount and attendance (86 attended hours out of 100) will overestimate productive capacity by more than half (`86 / 55 = 1.56`) unless stoppages, balancing losses and rework are measured separately. [S0903]

9.9

Labour standards belong in the operating model

A sustainable textile or garment venture cannot treat labour compliance as a public-relations exercise or a last-minute audit hurdle triggered only when an export buyer visits. [S11] International Finance Corporation (IFC) Performance Standard 2 on Labor and Working Conditions states the operational principle directly: "A sound worker-management relationship is key to the success of any enterprise." [S25] When pay calculations are opaque, working hours are unpredictable, contracts are missing or supervisors rely on intimidation, factories suffer high turnover, chronic absenteeism, disputes and sudden disqualification by institutional and international buyers. [S12]

9.10 VOLUNTARY REFERENCE FRAMEWORKS AND NATIONAL STATUTORY LAW PLAY DISTINCT ROLES

Project sponsors and operators must maintain a clear distinction between two categories of labour norms ([S11], [S25]):

1. **Binding national statutory and collective law:** Every enterprise in Cameroon is legally bound by the Cameroonian Labour Code, implementing decrees of the Ministry of Labour and Social Security, statutory social-insurance rules administered by the Caisse Nationale de Prévoyance Sociale (CNPS), and applicable collective agreements governing textile, clothing and manufacturing operations. [S02] Compliance with national law is a mandatory condition of lawful operation.
2. **International due-diligence and lender reference standards:** Frameworks such as IFC Performance Standard 2 ([S25]), the OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector ([S11]), the 2026 OECD responsible business conduct spotlight ([S12]), and the ILO Code of Practice ([S28], [S0902]) establish risk-management expectations required by development-finance institutions, commercial lenders and institutional buyers. Where national law and lender or buyer standards differ, a bankable operating model designs internal controls to satisfy the stricter requirement while remaining fully compliant with domestic statute. [S25]

In preparing an operating manual, sponsors must commission qualified Cameroonian legal counsel to verify the exact statutory rules in force at hiring. [S25] The shared evidence register contains a secondary web summary ([R16]) referencing informal employment shares, weekly hour thresholds and overtime multipliers. In accordance with this paper's evidence rules, GFT does not reproduce unverified secondary legal

details from [R16] as authoritative statements of Cameroonian labour law. Before issuing contracts or configuring payroll software, the venture must obtain primary legal sign-off on seven compliance domains ([S11], [S13], [S25]):

- **Written contracts:** Every worker, whether permanent, fixed-term, seasonal or probationary, must receive a written contract in a language they understand, stating job grade, base wage, bonus rules, hours, leave and notice terms before starting work. [S25]
- **Verified payroll administration:** Payroll systems must document regular and overtime hours, itemise statutory social-security and tax withholdings, prohibit unlawful disciplinary deductions, and deliver itemised pay slips alongside timely bank or mobile-money payment. [S13]
- **Working hours and overtime consent:** Shift rosters must respect statutory ordinary weekly hours, rest breaks, weekly rest days and overtime caps, ensuring that all overtime is voluntary, authorised and paid at the verified statutory premium. [S0901]
- **Freedom of association:** Management procedures must respect workers' lawful rights to form or join unions, elect staff representatives (`délégués du personnel`), and bargain collectively without retaliation. [S25]
- **Non-discrimination:** Recruitment, training access, grading, pay and promotion criteria must rest on objective competence and be free from discrimination based on sex, pregnancy, family status, disability, ethnicity or union activity, with active protection against harassment ([S13], [S0901]).
- **Forced and child labour prohibition:** Onboarding controls must verify identity and lawful working age through official documents, prohibit recruitment fees or document retention, and establish remediation protocols aligned with OECD and IFC standards ([S11], [S25]).
- **Supply-chain and subcontracting controls:** Because garment and textile risks often arise in unapproved subcontracting, home-work or upstream fibre production ([S12], [S25]), the operating model must prohibit unauthorised outward processing and link upstream cotton procurement to the traceability checks established in earlier chapters ([S03], [S11]).

> **WARNING**
>
> **Unverified statutory assumptions create payroll and legal exposure**
>
> Secondary online wage and labour-law aggregators often omit sector collective agreement bands, mandatory transport or seniority allowances, tiered overtime brackets, maternity protections and employer social-security ceilings. [S14] Relying on web summaries rather than verified primary statutes and collective schedules exposes a factory to retroactive back-pay claims, labour-inspectorate sanctions, work stoppages and suspension of buyer orders. [S12] Resolution requires a formal legal compliance register signed off by licensed Cameroonian labour counsel and updated annually inside the human-resources system. [S25]

9.11

Safety affects both people and the reliability of the plant

Occupational safety and health (OSH) in textile and garment manufacturing is often miscast as a regulatory overhead that competes with production speed. [S28] In physical reality, safety hazards and operational unreliability stem from the same root causes: poorly maintained equipment, cluttered floors, uninsulated wiring, uncontrolled dust and heat, and inadequately trained supervision. [S10] When a sewing operator suffers a needle injury, when cotton lint ignites near an overheated motor, or when thermal stress and poor lighting cause exhaustion on an afternoon shift, worker harm is accompanied by line stoppages, spoiled material lots, emergency repairs and loss of skilled staff. [S28]

9.12 SIX HAZARD CATEGORIES REQUIRE ENGINEERED CONTROLS

The World Bank Group and IFC *Environmental, Health, and Safety Guidelines for Textile Manufacturing* ([S10]) and the 2022 ILO *Code of practice on safety and health in textiles, clothing, leather and footwear* ([S28], [S0902]) provide the technical reference framework for hazard prevention across the factory floor. The 2007 IFC EHS Guidelines explicitly state that their scope covers textile manufacturing rather than raw-materials agriculture or polymer synthesis ([S10]), and neither the IFC guidelines nor the ILO code replaces current Cameroonian factory inspection permits or environmental licences. Rather, they define six operational hazard categories that every plant layout and shift routine must control ([S10], [S26], [S28]):

1. **Machine guarding and mechanical entrapment:** Rotating shafts, carding cylinders, spindles, loom beat-up mechanisms, powered band-knives and industrial sewing needles create crush, amputation, entanglement and puncture risks. [S10] Every machine must operate with intact fixed or interlocked guards, needle-finger guards, eye shields and accessible emergency stops, reinforced by lock-out/tag-out procedures during maintenance. [S28]
2. **Fire safety, electrical integrity and structural egress:** Cotton lint, yarn fly and fabric dust are highly combustible, and historical tragedies in the global garment industry underscore the consequences of blocked exits and faulty wiring ([S0901], [S0902]). Plants require shift-by-shift lint cleaning around motors and panels, enclosed switchgear, thermal overload protection, fire detection and suppression, outward-opening unlatched emergency exits, illuminated evacuation paths and regular drills. [S28]
3. **Ergonomics, lighting and manual handling:** Garment assembly and inspection involve repetitive hand and wrist motions, sustained postures and visual concentration ([S10], [S28]). Workstations require adjustable chairs with backrests, task-matched surface heights, glare-free needle and inspection lighting, mechanical trolleys or hoists for heavy bales and fabric rolls, and scheduled micro-breaks. [S0903]
4. **Cotton dust and respiratory protection:** Opening, cleaning, carding, combing, spinning and cutting generate airborne organic cotton dust that causes byssinosis and respiratory irritation. [S10] Controls must prioritise local exhaust ventilation, fil-

tration and wet or vacuum cleaning over dry sweeping, supplemented by fitted respiratory protective equipment provided at no cost to workers in high-dust zones. [S28]

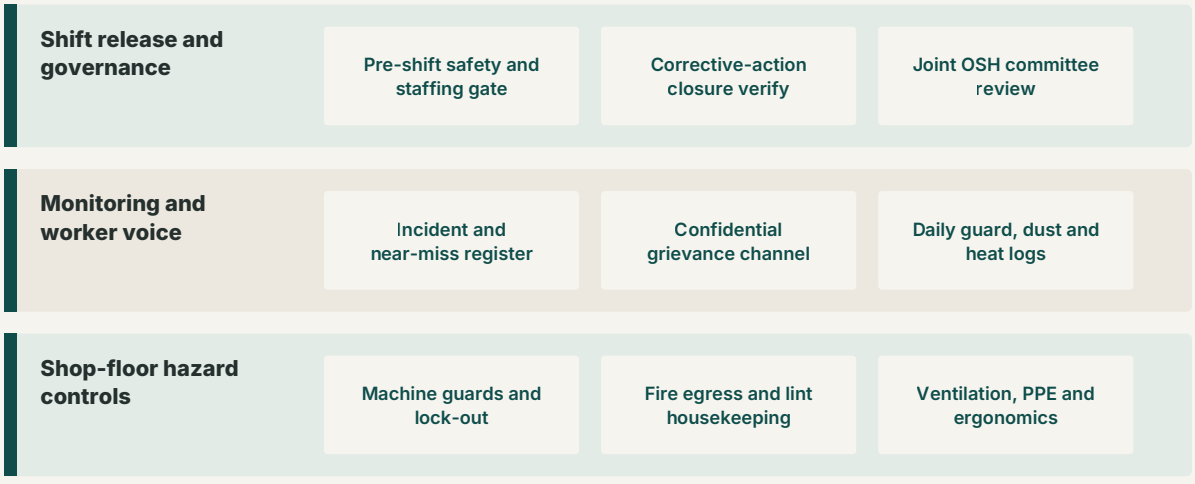
5. **Chemical storage and wet-processing hazards:** Where a facility conducts desizing, bleaching, mercerising, dyeing, printing, finishing or spot-cleaning, workers face exposure to alkalis, acids, oxidising agents, dyestuffs and solvents ([S10], [S26]). Controls require a restricted chemical store with secondary containment, current safety data sheets in French and English, enclosed chemical dosing, local fume extraction, plumbed eye-wash and drench showers, and chemical-resistant personal protective equipment. [S10]
6. **Thermal stress, steam and noise exposure:** Wet-processing vats, boilers, pressing stations and tropical ambient temperatures create heat-stress risks, while high-speed looms and spinning frames generate continuous noise. [S10] Factories must insulate steam pipes, ventilate hot zones, provide cool potable water on every line, map acoustic zones, maintain machinery to reduce vibration noise, and enforce hearing protection in designated bays. [S28]

9.13 INCIDENT AND GRIEVANCE RECORDS MUST DRIVE CORRECTIVE ACTION

To ensure these six hazard controls operate every day rather than only on audit days, IFC Performance Standard 1 ([S24]), Performance Standard 2 ([S25]) and the ILO OSH Code of Practice ([S28]) require an integrated management architecture connecting physical controls to worker reporting and management escalation, as structured in **Exhibit 39**, p. 142.

EXHIBIT 39 /

Occupational safety and labour standards require operational controls at every layer



ILLUSTRATIVE [S10] [S24] [S25] [S28] Illustrative: GFT proposed three-layer operating control structure integrating shop-floor physical hazard prevention (S10, S28), supervisory monitoring and confidential worker grievance channels (S24, S25), and shift-release governance. This is a proposed management design, not a certified or deployed factory system.

As **Exhibit 39**, p. 142 shows, physical safeguards on the shop floor (bottom layer) are sustained by daily monitoring and confidential worker reporting (middle layer) and enforced by shift-release governance (top layer). [S28] GFT does not invent baseline Cameroon textile injury rates, nor does this proposed architecture imply that any facility holds ISO 45001 or external social-compliance certification. [S24] Instead, the middle layer specifies four operational records that a factory must maintain from its first day of trial operation ([S24], [S25], [S28]):

- **First-aid and reportable incident log:** Every injury, occupational illness, fire event or chemical spill is recorded with date, shift, workstation, medical response and root-cause investigation. [S28]
- **Near-miss and hazard-observation log:** Workers and supervisors log unsafe conditions (such as a missing needle guard, frayed cable, blocked fire door or wet floor) before an injury occurs, treating near-miss reporting as a preventive contribution rather than a disciplinary fault. [S0902]
- **Corrective and preventive action (CAPA) tracker:** Every logged hazard, near-miss or audit finding is assigned a responsible owner, a containment deadline and physical verification before closure. [S24]
- **Confidential worker grievance mechanism:** In line with IFC Performance Standard 1 ([S24]) and Performance Standard 2 ([S25]), workers must have access to an understandable, confidential channel (including anonymous drop-boxes, focal points and worker representatives) to raise complaints regarding pay, hours, harassment or safety without fear of reprisal, with tracked resolution timelines.

9.14

Retention and inclusion require evidence beyond job counts

Public announcements of industrial textile projects almost always headline large projected employment totals. [S13] In the shared evidence register, Grade C press reports from November 2025 state that the announced Camtext SA integrated cotton-to-textile project ([R09], US$300 million or 180 billion XAF) projects 12,000 tonnes a year of cotton processing alongside about 12,000 jobs at a Dibamba hub and 3,000 jobs at Garoua, with optimal capacity projected around 2033 ([R10]). In an evidence-based strategy, such figures must be classified strictly as sponsor announcements and long-horizon projections, never as delivered, contracted or sustained employment. [S13]

9.15 SEVEN STATUS CATEGORIES SEPARATE JOB PROJECTIONS FROM SUSTAINED LIVELIHOODS

Counting announced jobs as social impact confuses a capital-raising target with an operating outcome. [S13] Even after recruitment begins, high early turnover can cause an enterprise to hire hundreds of people over a year while sustaining only a small fraction on active payroll. [S25] To prevent double counting and give public authorities, lenders and sponsors an honest view of employment creation, GFT proposes the seven-stage employment status register defined in **Exhibit 40**, p. 144. [S13]

EXHIBIT 40 /

Employment claims should identify their delivery status

Employment status	Operational definition	Required verification record	Responsible role
1. Announced or planned	Projected headcount in press releases, policy targets or feasibility studies (for example, R10 announcement)	Published project brief or feasibility staffing schedule; explicitly labelled non-realised	Project sponsor
2. Recruited and screened	Candidates who have completed application, age verification and initial aptitude screening	Recruitment register and verified identity check log	Human-resources lead
3. Contracted	Workers who have signed a lawful written employment contract stating grade, wage and hours	Countersigned employment contract and social-security registration filing	Human-resources lead
4. Qualified and filled	Contracted workers who have passed Stage 3 task and safety assessment and occupy an active shift post	Signed practical assessment sheet and active shift roster assignment	Operations and training leads
5. Paid active employment	Filled positions receiving verified, on-time wage and statutory benefit disbursements in the reporting period	Reconciled payroll bank transfer log, itemised payslips and social-security receipts	Finance and payroll lead
6. Retained employment	Paid workers remaining in active employment at 90, 180 and 365 days from onboarding	Cohort retention report cross-checked against continuous payroll history	Human-resources and operations leads
7. Progressed employment	Retained workers who have completed reassessment to advance into a higher skill, pay or supervisory band	Updated competence matrix, grade-promotion letter and adjusted payroll record	Operations and human-resources leads

ILLUSTRATIVE [R10] [S13] [S25] Illustrative: GFT status-accounting taxonomy separating announced or planned jobs (such as the projected jobs reported in R10) from recruited, contracted, filled, paid, retained and progressed positions, with required documentary evidence and responsible roles grounded in S13 and S25.

Exhibit 40, p. 144 establishes an auditable boundary between each stage of the employment lifecycle. [S25] A feasibility study or investment announcement ([R10]) sits at Status 1 (`Announced or planned`). It cannot be added to or compared with Status 5 (`Paid active employment`) or Status 6 (`Retained employment`). [S13] Status 6 also prevents a high-churn plant from inflating its job-creation claim: if a plant hires 300 illustrative trainees over twelve months to keep 100 shift posts filled because two-thirds leave within ninety days, its active employment is 100 filled posts and its cohort retention rate is one-third, not 300 jobs created. [S25]

9.16 RETENTION, SKILL PROGRESSION AND GENDER EQUITY ARE OPERATIONAL INDICATORS

Tracking retention and progression alongside headcount measures genuine social value for workers ([S13]) while protecting the factory's training investment ([S0901]). Every time an assessed operator or technician leaves, the line loses pace, first-pass quality dips during replacement onboarding, and Stage 1 to Stage 3 instruction costs recur. [S14] Monthly reviews should track cohort retention at 90, 180 and 365 days by line and supervisor, because clustered turnover on one line is often an early signal of abusive supervision, ergonomic strain or unfair piece-rate allocation. [S0903]

At the same time, the ILO highlights that while women represent the vast majority of the global garment workforce ([S13], [S0901]), they remain under-represented in technical, maintenance and line-supervisory roles and face heightened exposure to pay disparities and harassment ([S0901]). Where lawful under national data-protection and labour rules, human-resources records should track recruitment, training completion, grade progression, pay parity by occupational band, and retention on a gender-disaggregated basis, paired with strict privacy safeguards for worker files and grievances ([S13], [S24], [S25]). Opening the supervisor and technician pipelines to qualified female operators expands the internal talent pool while addressing a documented sector equity gap. [S0901]

9.17

A workforce gate should constrain the capacity ramp

Cameroon can retain more cotton value only by releasing each stage of industrial investment after its operating preconditions have been demonstrated. [S02] In Part III, that principle applies across utilities, logistics, finance and people: equipment deliveries and construction milestones must never force an unprepared workforce onto a live production floor. [S28]

9.18 SHIFT RELEASE REQUIRES VERIFIED COVERAGE OF CRITICAL TASKS

In GFT's stage-gate architecture, the workforce release condition is defined at the level of each intended operating shift rather than aggregate company headcount ([S02], [S28]). Before a plant manager or sponsor authorises Phase 1 trial production, an additional shift, or an upstream knitting, weaving, spinning or wet-processing unit, the operations and E&S leads must present documentary proof that five criteria are met simultaneously ([S10], [S25], [S28]):

1. **Assessed critical-role coverage on every scheduled shift:** Every workstation and support function required for the run is covered by personnel who have passed Stage 3 practical assessment, including an assigned line supervisor, mechanical machine setter, on-call electrical technician, inline quality inspector and trained first-aid and fire-wardens on that shift. [S28]
2. **Escalation and relief buffers:** The shift roster includes a verified cross-trained relief buffer (such as utility operators assessed across multiple seam or machine types) so that ordinary sickness or rest breaks do not leave critical quality or safety tasks uncovered. [S13]

3. **Verified labour-law and payroll readiness:** All assigned personnel hold signed written contracts, are registered with the statutory social-security body, and are enrolled in a tested payroll system whose wage bands, hours and overtime rules have formal legal sign-off. [S25]
4. **Operational safety and hazard clearance:** Pre-start safety inspections confirm that all machine guards, interlocks, electrical panels, dust-extraction systems, chemical stores, fire exits and emergency showers are intact and functional ([S10], [S28]), and that the worker grievance channel and incident log are active ([S24]).
5. **Stabilised effective-hour and quality baseline on existing lines:** Existing shifts have demonstrated acceptable attendance, controlled stoppage time and target first-pass quality acceptance over a prospective proving window before additional lines are loaded. [S14]

If any of these five conditions fails, the mandatory decision response is to pause the capacity ramp, hold the new shift or line in Stage 2 supervised practice, and remedy the competence or safety gap, even if crated machines are on the floor and operator applicants are waiting at the gate. [S28] Running complex textile machinery without qualified supervision, setting and electrical maintenance does not accelerate national cotton transformation; it produces off-specification fabric, damaged machines, injuries and working-capital losses mirroring the historical underutilisation recorded in [R12]. [S02]

GFT NOTE

Tie machine commissioning and shift expansion to the supervisor and technician pipeline

In GFT's Cameroon textile programme design, the most common scheduling error to guard against is ordering production machinery on a six-month delivery lead time while leaving supervisor, mechanic and electrician training until the month before installation. [S02] Because textile machine setters, industrial electricians and line supervisors take substantially longer to recruit, train and assess than entry-level sewing operators (**Exhibit 37**, p. 136), their qualification pipeline must start at Phase 0 alongside site preparation and buyer sampling. [S13]

Practically, GFT recommends two operating rules: 1. **Never open an unsupervised shift:** Do not add a second shift or expand line count by stretching a single supervisor or mechanic across double the machines. If an assessed supervisor, setter and safety lead cannot be rostered exclusively to the new shift, keep the equipment parked. [S28] 2. **Link the workforce model to live planning tools:** Use the programme's proposed `supervisor-pipeline` interface to schedule technician and supervisor qualification cohorts backward from commissioning gates, and use the `labour-cost` interface to stress-test unit economics against realistic ramp attendance, stoppage and first-pass yield curves (**Exhibit 36**, p. 133, **Exhibit 38**, p. 138). [S14] Detailed competency curricula, task-level grading rubrics and training-bay layouts are developed in companion paper `wp09` (illustrative programme cross-reference), while line-balancing and utilisation engineering are addressed in `wp15` (illustrative programme cross-reference). [S02]

9.19 THE WORKFORCE CASE CONNECTS DIRECTLY TO FINANCIAL VIABILITY

By anchoring the workforce plan in demonstrated competence, effective labour cost per accepted unit, verified labour standards and preventive safety controls, an industrial sponsor transforms human resources from an unmeasured risk into a verifiable operating asset. [S25] That operating discipline feeds directly into the financial and working-capital test examined in the next chapter: only when assessment-cleared teams convert lint and fabric into first-pass, buyer-accepted output on schedule can a factory cover its fixed conversion costs, turn over its working capital and retain real domestic value in Cameroon. [S03]

A machine sets the ceiling of what a factory might produce; trained supervision and safe work determine the floor of what it can reliably deliver.

CHAPTER SOURCE NOTES

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GREEN FUTURE TECH

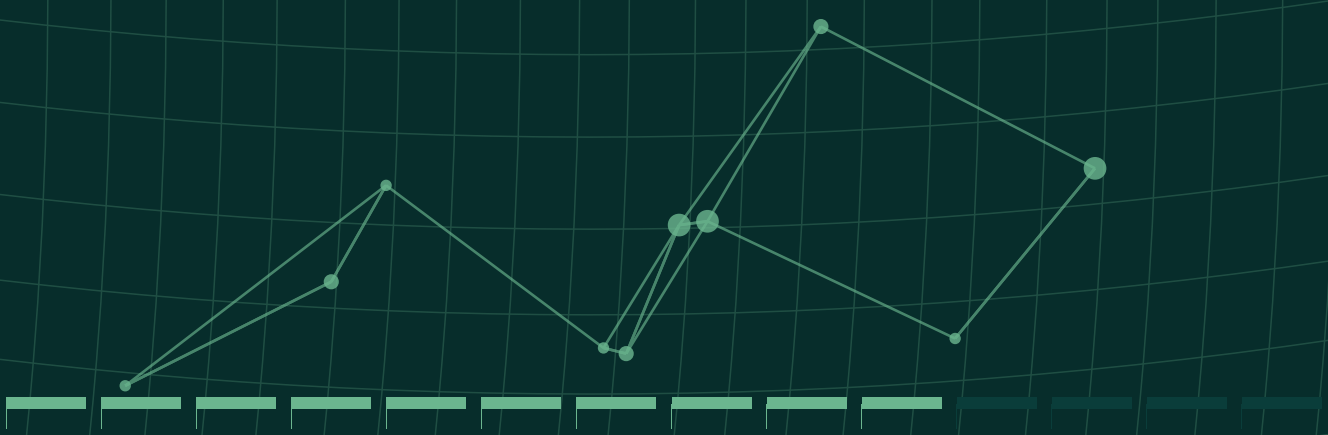
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10

PART III: MAKE THE SYSTEM OPERABLE AND FINANCEABLE / CASH FOLLOWS THE PROCESS

Utilisation and working capital determine whether local processing retains value

The economic case must compare saleable output with full conversion costs and the cash required to produce and collect payment.



CHAPTER 10
DECISION TEST

The economic case must compare saleable output with full conversion costs and the cash required to produce and collect payment.

Local processing retains value only when each accepted unit earns more than its avoidable cost and the cash used to make it returns before the next obligation falls due. A factory can increase throughput and still weaken the industrial system if it sells below full cost, accumulates rejected stock or cannot finance the interval between purchasing fibre and collecting payment. The relevant production measure is therefore saleable output, not machine running time, gross production or installed capacity.

GFT recommends that the investment case maintain four connected accounts: domestic value added, contribution per accepted unit, the operating cash cycle and downside liquidity. These accounts must be tested against continued lint exports and an alternative use of capital, rather than against an assumed do-nothing outcome. Historical press-reported utilisation of 33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2 in July 2023 shows why nameplate capacity is an unsafe proxy for economic output. [R12] Those observations are neither current measurements nor forecasts for another plant. They are a warning to make utilisation, quality and cash collection explicit variables.

This chapter sets out that decision framework. It distinguishes national value from factory revenue, defines the counterfactual, exposes the joint effect of price and utilisation, funds the cash cycle, separates commodity and currency risks, and places a failure boundary around public and private investment. It is an industrial-analysis method, not investment, legal or tax advice. Project decisions require current quotations, contracts, tax review and financing terms.

10.1

National value added differs from sales revenue

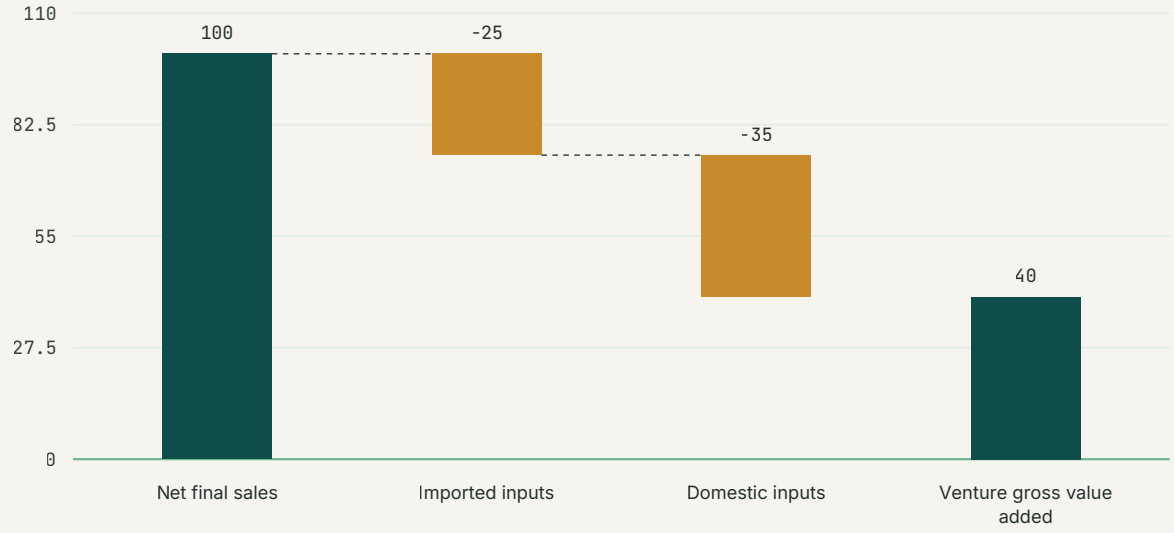
Sales revenue measures the consideration received for output. Domestic value added measures what domestic production adds after intermediate consumption. The historical Cameroon cotton-chain analysis separates the value generated by actors from the goods and services they consume, which prevents the turnover of every stage being treated as new national income. [S03] The distinction matters because lint, yarn, fabric and garments can change hands several times before final sale. Adding every transaction would count the same material value repeatedly.

At the level of one processing venture, gross value added can be expressed as net output value less intermediate consumption. Net output value should exclude collected taxes that are not revenue to the producer and should reflect discounts, returns and rejected deliveries. Intermediate consumption includes fibres, fabric, dyes, chemicals, packaging, purchased energy, contracted conversion and other goods and services consumed in the production process. Machinery is treated differently: its purchase is capital formation, while depreciation represents its consumption over time in an accounting analysis. The classification must remain consistent between the economic model and the cash model.

Exhibit 41, p. 151 provides a normalised venture-level illustration of this bridge. Its values are teaching assumptions, not observed Cameroon margins or a national multiplier.

EXHIBIT 41 / ILLUSTRATIVE VALUE UNITS PER PERIOD

Intermediate transactions must be removed before value added is claimed



ILLUSTRATIVE [S03] Illustrative venture-level arithmetic based on the value-added distinction in S03. Net sales are normalised to 100; imported intermediate inputs are 25 and domestic intermediate inputs are 35; venture gross value added is 100 - 25 - 35 = 40. Domestic supplier value added requires separate consolidation before a national claim. No multiplier or realised margin is asserted.

The illustrative result is 40 value units because `100 - 25 - 35 = 40`. It is not a claim that domestic processing adds 40 percent to national income. Nor does it mean that the 35 units paid to domestic suppliers disappear from the national account. A consolidated domestic-chain analysis must eliminate the venture's purchase from a domestic supplier while retaining the supplier's own value added. Imported intermediate inputs have a different treatment because their production value originated outside the domestic boundary. The consolidation schedule therefore needs entity, supplier origin, transaction and production-stage fields.

10.2 CONSOLIDATION PREVENTS A CHAIN FROM COUNTING ITS OWN TRANSFERS

Consider a simplified chain in which a spinner sells yarn to a fabric maker, which sells fabric to a garment producer. The spinner's yarn sale is revenue to the spinner but an intermediate input to the fabric maker. The fabric sale is revenue to the fabric maker but an intermediate input to the garment producer. Only a consolidated calculation can remove those internal transactions while preserving each firm's own contribution. This is the accounting implication of the staged chain examined in the historical cotton diagnostic, not evidence that any proposed integrated chain exists or performs profitably. [S03]

The boundary also determines which exports and imports enter the analysis. Cameroon's official external-trade publication reports raw cotton, textile products and second-hand clothing in separate categories, so a final-product sales figure cannot be inserted into a generic textiles total without checking its classification and material stage. [S23] A domestic garment venture using imported fabric may create domestic assembly value while still requiring foreign currency for its main material. Conversely,

a venture using domestic lint may import dyes, machinery parts or technical services. Local assembly is not automatically import-free, and domestic value added is not identical to foreign-exchange savings. [S10] [S23]

10.3 VALUE ADDED IS NOT THE SAME AS ITS DISTRIBUTION

Once value added has been measured, its distribution answers another question. Employee compensation, operating surplus and net production-related taxes are claims on value created, not additional amounts to be added on top of it. Retained profit is narrower still: it depends on depreciation, financing costs, tax and distributions to owners. A project may generate wages and supplier income while providing an inadequate return on the capital committed. Another may report accounting profit while concentrating payment risk in one buyer.

The policy question is therefore not simply how much turnover a factory reports. It is how much additional domestic value the complete route creates, who receives it, how long it persists and what public or private resources it consumes. The historical cotton-chain briefing provides a precedent for examining the distribution among producers, processors and supporting organisations, but its observations belong to their stated study period and should not be transferred to a future plant. [S03]

10.4

The counterfactual is continued export plus alternative use of capital

A processing proposal needs a credible alternative. For the fibre decision, the starting counterfactual is continued lint export and procurement of the relevant yarn, fabric or garment from another source. For the capital decision, the alternative also includes other uses of the sponsor's funds. Comparing a new factory only with an imaginary absence of production would overstate its incremental benefit and hide the return available from leaving capital elsewhere.

The product boundary must be equivalent on both sides. Cotton demand is derived from demand for downstream textile products, not created automatically by the availability of raw fibre. [S32] The comparison therefore starts with a specified product: construction, blend, quality tolerance, delivery window, order cadence, packaging and acceptance procedure. An imported fabric quotation is not comparable with a domestic offer if one includes delivery and testing while the other excludes them. An export-lint price is not comparable with domestic mill revenue if the lint grade, moisture basis, payment security or delivery obligation differs.

10.5 EQUIVALENT DELIVERED OUTCOMES MAKE THE COMPARISON HONEST

The counterfactual schedule should record the full route from the existing fibre position to the final product required by the buyer. On the export route, it includes preparing and moving lint, export administration, receipt timing and the subsequent purchase and delivery of the specified product. On the local-processing route, it includes fibre allocation, conversion losses, production, testing, delivery, returns and collection. Official customs categories can help identify the relevant trade flow, but they do not replace a product-level quotation or prove that an import can be substituted commercially. [S23]

The price date and currency must also match. A historical annual cotton benchmark cannot be paired with a current machinery quotation as though both described one transaction. Each input needs its own observation date and incidence: ex works, delivered, duty paid or another stated basis. Where taxes, duties or preferences are relevant, qualified advisers must verify their applicability to the actual classification and route. The model should show the gross price, each addition and the payment date rather than conceal them in a single landed-cost factor.

Capital requires the same discipline. Equipment purchase, installation, commissioning and initial spares are cash outflows before or during the ramp. Depreciation belongs in accounting profit but is not a second cash payment in each period. Maintenance, replacement parts and eventual renewal must nevertheless appear in the relevant cost and cash schedules. Excluding them would make a capital-intensive route look artificially inexpensive. Including both the full purchase price and full depreciation as annual cash costs would double count the asset.

Environmental and social obligations also belong inside the boundary. Textile manufacturing carries process-specific resource, pollution and worker-safety management requirements that cannot be assumed to cost nothing. [S10] The analysis should include effluent control where applicable, monitoring, protective equipment, safe maintenance, waste handling and remediation obligations. These are not deductions invented to penalise local production. They are part of delivering the same acceptable product without shifting costs to workers, communities or the environment.

Finally, the sponsor should compare incremental outcomes rather than total activity. The correct question is what changes if this processing route proceeds: additional domestic value added after consolidating transactions, additional accepted output, net foreign-exchange effects, public costs, environmental effects and cash at risk. If the local route cannot match the counterfactual's quality and delivery, the shortfall must be priced or the proposal rejected. A higher processing share achieved by producing unwanted or uneconomic goods is not retained value.

10.6

Contribution margin must absorb the utilisation ramp

Contribution is the net realised selling price less the variable cost of producing and delivering an accepted unit. Net realised price is the amount the buyer actually agrees to pay after discounts, credits, returns and any selling charges borne by the producer. Variable cost should follow the same accepted-unit denominator: fibre or fabric actually consumed, variable energy, directly variable labour, packaging, sales commissions and delivery charges where the producer bears them. Conversion losses and rejected units matter because their input costs must be carried by the units that can be sold.

Fixed operating costs require a separate schedule. Salaried supervision, routine maintenance, site services, insurance and other period costs may continue regardless of daily output, although every classification needs contractual verification. The model

should not call a cost fixed merely because it is inconvenient to allocate. It should ask whether the obligation changes with accepted volume over the relevant ramp and what notice or minimum commitment applies.

> **METHOD**
>
> For a defined product and period, GFT's operating identities are:
>
> ```
> Unit contribution = Net realised price per accepted unit - Variable cost per accepted unit
>
> Operating breakeven units = Defined fixed operating costs / Unit contribution
>
> Operating headroom = Accepted units x Unit contribution - Defined fixed operating costs
> ```
>
> The breakeven calculation is meaningful only when unit contribution is positive. If variable cost equals or exceeds realised price, additional volume cannot repair the operating case. Fixed operating costs must exclude debt service, income tax, distributions and capital purchases when the intended measure is operating break-even. Those items enter later cash and investor-return tests.

Utilisation changes the fixed cost carried by each accepted unit, but it does not change a negative contribution into a positive one. It also has several causes that should not be compressed into one unexplained percentage. Machine availability records whether equipment can run when required. Production loading records whether there is an order and material release for that available capacity. Performance compares the achieved rate with the specified rate under equivalent conditions. Quality records the share accepted without rejection or downgrade. A plant can have available machinery but no qualified orders, or a full order book but poor quality and low saleable output.

The historical site observations in R12 demonstrate the danger of reading capacity as production. They cannot be averaged into a national utilisation rate without compatible capacity weights, matching material stages and a common period. [R12] Nor can they be inserted as the default ramp of a new venture. Their proper use is to require downtime, loading, quality and denominator evidence before any utilisation assumption is accepted.

Exhibit 42, p. 155 tests price and utilisation together on a deliberately simple normalised basis. It demonstrates why an apparently attractive price can still fail when accepted volume is low, and why high utilisation cannot rescue an inadequate price.

EXHIBIT 42 / ILLUSTRATIVE COST UNITS PER PERIOD

Price and utilisation jointly determine operating headroom

	Price 1.0	Price 1.2	Price 1.4
40% utilisation	-14	-6	2
60% utilisation	-6	6	18
80% utilisation	2	18	34

Cell scale: -14 to 34

ILLUSTRATIVE [R12] Illustrative model. Nameplate is 100 saleable-unit equivalents per period; fixed operating cost is 30; variable cost is 0.6 per accepted unit. Rows use utilisation of 40%, 60% and 80%; columns use realised prices of 1.0, 1.2 and 1.4. Each cell is price x output - 0.6 x output - 30. R12 provides only a historical underutilisation warning, not any model input or forecast.

In this illustrative model, output is the nameplate of 100 units multiplied by utilisation. At a price of 1.0, contribution is 0.4 per unit and operating breakeven is `30 / 0.4 = 75` accepted units, equivalent to 75 percent of the normalised nameplate. At prices of 1.2 and 1.4, the corresponding illustrative breakeven volumes are 50 and 37.5 units. These are arithmetic demonstrations, not recommended prices, factory benchmarks or a forecast for Cameroon.

The grid also shows why average selling price alone is an incomplete commercial metric. A product mix may raise average price while adding changeovers, rejects or delivery costs that reduce accepted volume and contribution. Conversely, a lower-priced repeat order may improve headroom if it uses otherwise idle capacity and its incremental contribution remains positive. That conclusion holds only where the order does not displace a more profitable use of the same constrained capacity and where its cash terms are financeable.

Ramp decisions should therefore be released against observed contribution by product and order, not against gross machine output. During commissioning, rejected and downgraded units should remain visible rather than being removed from the denominator. During steady operation, the model should reconcile accepted units to invoices, credit notes and cash receipts. This keeps the technical production record and the commercial record on one boundary.

10.7

Working capital can bind before accounting profitability

A positive annual margin does not pay a supplier on the day payment is due. Funds may already be committed to lint, fabric, trims, work in progress, finished stock and unpaid invoices. The cash constraint becomes more severe when procurement is seasonal, when transport is uncertain or when buyers accept delivery later than planned. Historical cotton-chain analysis identifies seasonal and financial relationships in the chain, while shipment-based logistics analysis supports measuring delay and variability rather than assuming a fixed transit time. [S03] [S31]

Each component needs its own operational driver. Raw-material days follow procurement coverage and the relevant input-cost base. Work-in-progress days follow production flow and production cost. Finished-goods days follow dispatch and acceptance against cost of sales. Receivable days follow invoiced sales and collection, including credit notes and disputed amounts. Supplier-credit days follow eligible purchases and actual payment terms. Adding balances without recognising these different bases can produce a plausible but misleading cash requirement.

Taxes and statutory payment dates require separate treatment. A model should not assume that a tax collected for a public authority is available to finance operations, nor that every input tax is immediately recoverable. Qualified local advisers must verify transaction timing and documentation. The same rule applies to customer deposits, retention amounts and supplier advances: their cash effect depends on the actual contract, not on a generic sector assumption.

Exhibit 43, p. 157 simplifies these components onto one common cost base solely to expose the arithmetic. It compares a base teaching case, slower collection and a combined downside. It is not a working-capital benchmark for a textile factory.

EXHIBIT 43 / DAYS AND ILLUSTRATIVE COST UNITS AS LABELLED

Collection delay can create a funding need before annual margin disappears

Cash-cycle component	Base case	Delayed collection	Combined downside
Raw-material days	45	45	60
Work-in-progress days	10	10	15
Finished-goods days	20	20	30
Receivable days	45	75	90
Supplier-credit offset	-30	-30	-20
Net cash days	90	120	175
Funding, illustrative cost units	300	400	583

ILLUSTRATIVE [S03] [S31] Illustrative model on a 360-day year and a common annual cash-cost base of 1,200 cost units. Supplier credit is shown as a negative row; net cash days are the signed sum of the five component rows. Funding equals 1,200 x net cash days / 360. Base: 45 + 10 + 20 + 45 - 30 = 90 days and 300 units. Delayed collection: 120 days and 400 units. Combined downside: 60 + 15 + 30 + 90 - 20 = 175 days and 583.3 units. S03 and S31 motivate seasonality and delay testing, not the assumed values.

The illustrative base case requires 300 cost units because the operating cycle ties up 90 days of a 1,200-unit annual cash-cost base. Delaying collection by 30 days while leaving every other assumption unchanged raises the requirement to 400 units. The additional 100 units is precisely `1,200 x 30 / 360`. No selling price or accounting cost has changed, yet the venture needs more cash before it can repeat the same operating cycle.

WORKED EXAMPLE

Assume the illustrative base case has already earned a positive annual accounting margin. At the start of the next cycle, the venture must still fund raw materials for 45 days, work in progress for 10 days, finished goods for 20 days and receivables for 45 days. Supplier credit finances 30 days on the same simplified basis. The net requirement is `1,200 x (45 + 10 + 20 + 45 - 30) / 360 = 300` illustrative cost units.

If the buyer pays after 75 days rather than 45 days, the calculation becomes `1,200 x (45 + 10 + 20 + 75 - 30) / 360 = 400` illustrative cost units. The incremental funding need is 100 units. A lender, equity contribution, customer advance or additional supplier credit must cover that amount before the delay occurs. If none is available, the venture may have to reduce purchases or output despite its positive annual margin. The example is illustrative and uses a common cost base only to make the arithmetic inspectable.

Commissioning creates further demands that a steady-state cycle misses. Trial lots consume material before buyer approval. Rejected output may require rework, disposal or discounted sale while still carrying input and labour costs. Initial spare-parts

packages and minimum-order quantities can create stock before routine production begins. None of these items should be hidden in a generic contingency. Each needs an expected payment date, an owner and a downside case.

Customer concentration also changes the liquidity risk. A large order can improve utilisation while allowing one buyer to determine acceptance and payment timing. The cash plan should model disputed invoices, partial acceptance and the latest plausible collection date. It should also distinguish a confirmed purchase order from payment security. The order supports production planning; it does not guarantee that cash will arrive when required.

> **GFT NOTE**
>
> GFT recommends a funded cash-release gate before each capacity increment. The sponsor should demonstrate the peak funding requirement under delayed acceptance and collection, identify the committed financing source for every week of the deficit, and preserve a separately justified liquidity reserve. The proposed unit-economics and ramp-planner interfaces should share the same accepted-output denominator, while the proposed xaf-exposure interface should read the same transaction dates and currency assumptions. No expansion should rely on an uncommitted facility or an assumed buyer advance.

10.8

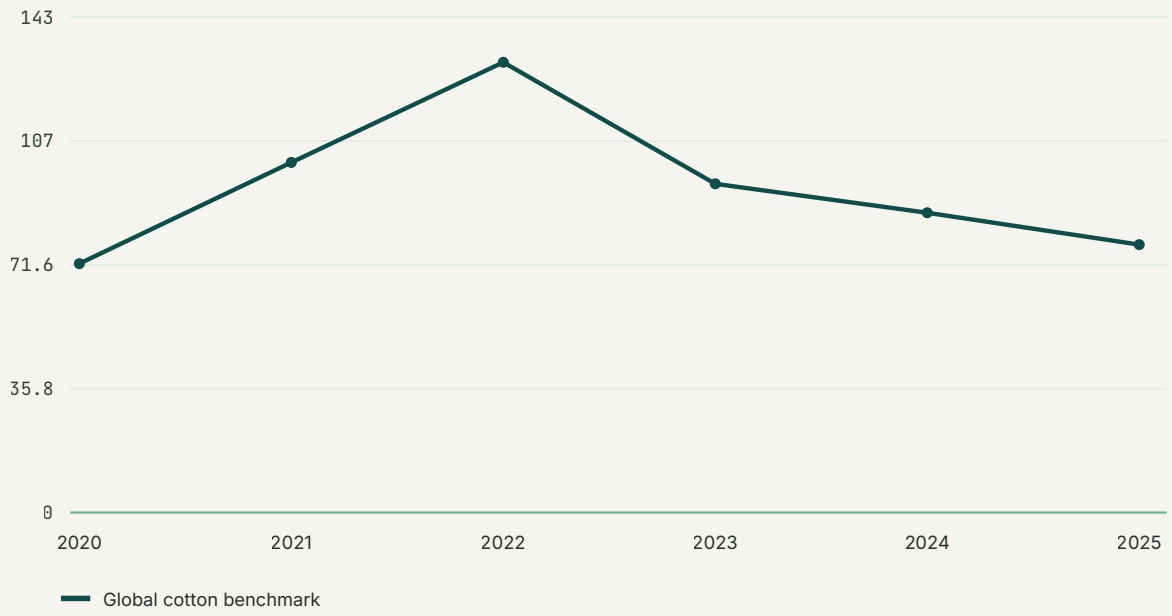
Cotton-price and currency risks require separate scenarios

Cotton procurement and currency conversion are distinct variables. A global benchmark can show that the international price context changes, but it cannot tell a Cameroon factory what it will pay for a specified lint lot, when payment is due or how much currency conversion will cost. The annual IMF series distributed by the Federal Reserve Bank of St. Louis is expressly a nominal global price series, not a farmgate, delivered-mill or forward price. [S33]

Exhibit 44, p. 159 retains the opened annual observations to establish the need for sensitivity testing. It does not predict the next price or describe a Cameroon procurement contract.

EXHIBIT 44 / US CENTS PER POUND, NOMINAL ANNUAL AVERAGE

The global cotton benchmark changed materially across recent annual observations



SOURCED [S33] Sourced annual observations from the opened PCOTTINDUSDA table, with source precision retained in the data. The series is global context only. It is not a SODECOTON price, a grower receipt, a delivered Cameroon lint quotation or a forward curve. Last table update recorded in the inherited source register: 24 March 2026.

Using the unrounded sourced observations, the annual average declined by approximately 40.5 percent from 130.139013 US cents per pound in 2022 to 77.435112 in 2025: `(130.139013 - 77.435112) / 130.139013 x 100`. [S33] This is GFT arithmetic on historical annual averages, not a measure of the price movement experienced by any producer or buyer between specific transaction dates. It demonstrates why a single long-run cotton price can conceal procurement risk.

The local supply model should instead begin with a dated quotation for the defined lot and delivery point. It should record grade, moisture and weight basis, quality deductions, storage, transport, payment timing and any link to an external benchmark. If a contract uses a benchmark, the model needs the quotation window, adjustment formula and currency. A change in the global series and a change in the exchange rate must then be applied separately so that their combined effect is visible rather than double counted.

Currency adds a second exposure. BEAC states a fixed parity of 1 euro to 655.957 CFA francs for the Central African monetary union. [S18] That parity provides a defined XAF and euro relationship; it does not establish a fixed US-dollar rate. Machinery, spares, chemicals, cotton benchmarks or buyer invoices may involve different currencies, depending on the actual contracts. The model must therefore use transaction-date exchange assumptions and explicit conversion charges rather than inventing a current dollar peg.

A currency register should identify each cash flow by invoice currency, settlement currency, amount, expected date and contractual rate mechanism. Euro-denominated revenue does not hedge a US-dollar machine purchase merely because both differ from XAF. Even cash flows in the same currency offset one another only across matching amounts and dates. The venture should test conversion cost and settlement delay as well as the headline exchange rate.

Scenario design can now separate three questions: what happens if the underlying input price changes, what happens if the relevant exchange rate changes, and what happens if the buyer price cannot adjust quickly enough? Contractual pass-through provisions may reduce exposure, but only to the extent that they are enforceable and accepted by the buyer. A model that instantly passes every input increase into the selling price assumes away the commercial problem it is meant to test.

10.9

Public support should buy additional capability rather than conceal losses

Public support is most defensible when it creates a capability that survives the supported transaction. Relevant candidates include reliable shared infrastructure, tested workforce competence, accessible quality laboratories and transparent procurement processes. Historical sector diagnosis identifies interdependent industrial constraints, while UNIDO's industrial-park guidance treats shared services as matters of planning and governance rather than automatic benefits of location. [S02] [S20]

Each intervention needs an additional outcome and a measurement rule. A testing service can be assessed by whether lots meet buyer specifications and whether rejection falls. A training intervention can be assessed by demonstrated competence and retention in critical roles. Shared power or effluent infrastructure requires service capacity, obligations and verified operating performance. A procurement programme needs lawful specifications, budget, award, acceptance and payment evidence. The outcome should be more accepted production or better productivity, not merely money disbursed.

Support also has a full public cost. World Bank analysis places Cameroon's diversification objective alongside fiscal and natural-resource constraints, so a grant, guarantee or tax concession should not be treated as costless industrial policy. [S09] The appraisal should include administration, contingent liabilities, displacement of other producers and the alternative public use of funds. If several projects receive support against the same fibre, utility capacity or buyer pool, the programme-level case must avoid counting the same benefit repeatedly.

The shared ledger records a reported Camtext investment announcement of US$300 million dated 12 November 2025. [R09] That announcement is not funding available to GFT, proof that financing has been drawn, or evidence of a bankable return for another venture. The same separation applies to any proposed public incentive: an announced intention enters the evidence register as an intention until legal commitment, conditions and disbursement are documented.

Most importantly, support should not disguise a negative operating contribution. Temporary capital assistance may help a viable venture through commissioning, but it cannot make a product whose realised price remains below variable cost sustainable at scale. Subsidised procurement also requires the same cash-collection test as private demand. The policy case and the venture case should be presented side by side so that a social benefit is not confused with a hidden operating deficit.

10.10

An investment decision needs a transparent failure boundary

The final test is not whether the base case produces a positive number. It is whether the venture can survive specified adverse conditions without uncommitted cash, and whether the public or private sponsor is willing to accept the remaining risk. GFT recommends setting that failure boundary before capital approval, while the assumptions and stop conditions can still be examined without defending a decision already taken.

The scenario set should vary buyer price, accepted-volume utilisation, conversion yield, electricity reliability, input cost and collection delay. These variables have different mechanisms. Lower buyer price reduces unit contribution. Lower accepted-volume utilisation reduces the number of contributions available to cover fixed costs. Lower yield increases input consumption per accepted unit. Electricity interruption can reduce availability and create restart losses; the IMF's country report identifies structural electricity-sector shortfall, but site-specific logs and connection evidence remain necessary. [S07] Input-cost changes alter working capital as well as unit cost. Collection delay increases the funding requirement without necessarily changing accounting profit.

Independent sensitivities show which variable matters. Combined downside cases show whether their interaction creates an unfinanceable period. A credible model should include at least one demand-led downside, where orders or acceptance limit loading, and one operations-led downside, where material, power or quality limits accepted output. The same physical loss must not be applied twice through both reduced utilisation and reduced yield.

> **METHOD**
>
> For each scenario, reconcile the following sequence:
>
> ```
> Accepted units x Unit contribution - Fixed operating costs = Operating
> headroom
> ```
>
> ```
> Closing cash = Opening cash + Cash collections + Committed financing drawn
> - Operating cash payments - Debt service - Capital payments
> ```
>
> The operating and cash statements must be reconciled through non-cash charges, working-capital movements and timing differences. The essential control is to connect physical output, invoices, operating cash and financing rather than inserting an unexplained balancing receipt. Any negative closing cash position needs a dated and committed response.

Four decision thresholds should remain separate. Operating breakeven asks whether accepted contribution covers defined operating costs. Accounting profit asks whether revenue covers the full accounting cost structure, including depreciation and financing charges as applicable. Cash breakeven asks whether obligations can be paid on time from opening liquidity, collections and committed financing. Investor return asks whether the timing and risk of distributable cash satisfy the sponsor's required return. A project can pass one threshold and fail another.

The investment memorandum should therefore report the first period and cause of failure, not just a summary return metric. It should state whether the trigger is negative contribution, inadequate orders, excessive stock, delayed collection, debt service or a capital payment. Management can then assign the correct response: reprice or redesign the product, reduce fixed commitments, improve yield, reschedule the ramp, arrange committed liquidity or stop the investment.

Evidence release should follow the same logic. Before expansion, the sponsor needs repeat paid orders, product-level contribution, a reconciled accepted-output record, current supplier and utility evidence, and a weekly cash forecast linked to contractual dates. The reviewer should be able to trace every scenario input to a quotation, observation or labelled assumption. Missing evidence remains unknown; it is not a zero cost or a favourable assumption.

The national implication is equally direct. Additional processing capacity deserves support only when it can become accepted production without creating an enduring cash drain or shifting unpriced costs elsewhere. A smaller, utilised and cash-generative route may retain more durable value than a larger installation that produces intermittently and cannot fund its next cycle. Expansion should follow demonstrated saleable throughput and collection, not precede them.

Finance the accepted unit and the days that turn it into cash.

CHAPTER SOURCE NOTES

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

S03 European Commission and Agrinatura. 2020.

S23 Institut National de la Statistique du Cameroun. 2025.

S10 World Bank Group / IFC. 2007-04-30.

S32 Food and Agriculture Organization of the United Nations. n.d..

S31 World Bank. 2025.

S33 International Monetary Fund, distributed by Federal Reserve Bank of St. Louis. 2026-03-24.

S18 Banque des Etats de l'Afrique Centrale. n.d..

S02 IFC and World Bank. 2022.

S20 United Nations Industrial Development Organization. 2019-11-29.

S09 World Bank. 2025-07-15.

R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S07 International Monetary Fund. 2025-02-25.

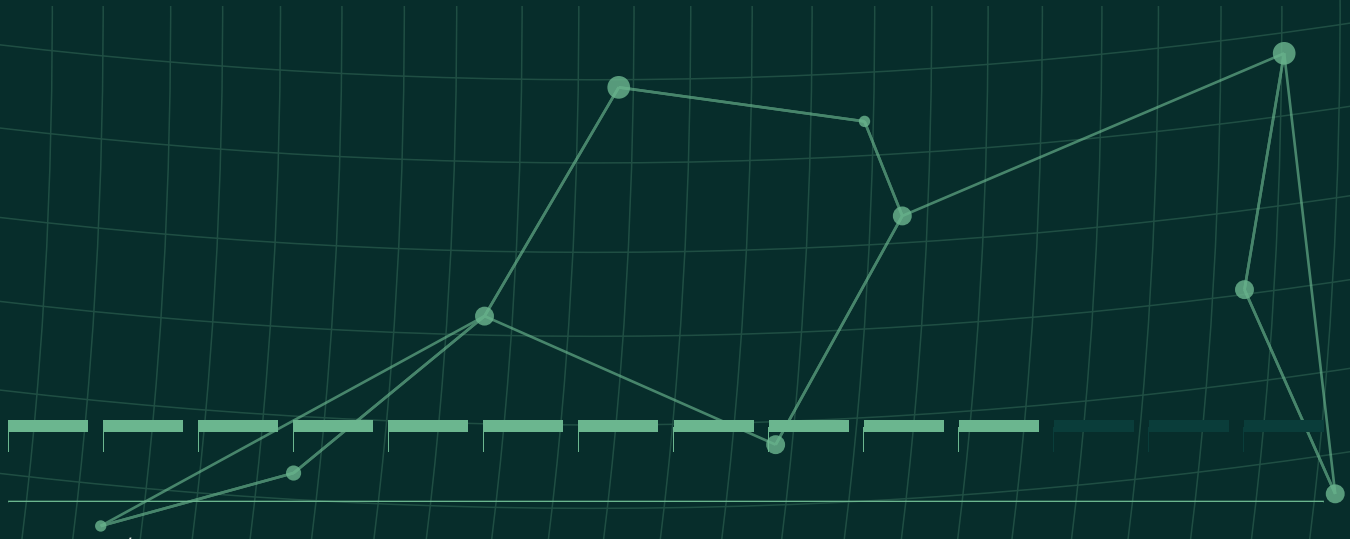
GREEN FUTURE TECH

LIMITED / HONG KONG SAR

11

Trade preferences create options only when product rules and buyers align

Domestic, regional and export routes need separate commercial and customs tests before entering a base case.



CHAPTER 11
DECISION TEST

Domestic, regional and export routes need separate commercial and customs tests before entering a base case.

A trade agreement does not buy a garment, and a headline tariff preference does not establish that a factory in Cameroon can land a product duty-free in a foreign port. Market access becomes an investable route only when seven conditions align for the exact garment or fabric produced: lawful market entry, an operative tariff schedule, satisfaction of the product-specific rule of origin, auditable proof of origin, physical and customs transit within the delivery window, destination due-diligence compliance, and a qualified buyer willing to place repeat orders and pay on time. [S16] [S30] [S32]

For Cameroon's cotton-to-garment transition, this distinction governs how domestic, regional and export routes enter the base case. The historical baseline, in which roughly 95 percent of Cameroonian cotton fibre is exported raw and about 5 percent is processed locally, reflects a structure that welcomes raw lint at minimal duties while subjecting textiles and apparel to tariff escalation, strict origin rules and concentrated buying power. [R06] [S01] [S1101] The target in the *Stratégie Nationale de Développement 2020-2030* (SND30) to transform at least 50 percent of local cotton fibre industrially by 2030 cannot be met merely by citing regional membership or unilateral preferences. [R07] [S34] In GFT's Cameroon textile programme (prepared 31 January 2024, sources refreshed 2026), the base case rests on testable domestic and regional demand, while preferential export routes are treated as conditional options qualified per product. [S02] [S16] [S17]

11.1

A base case needs a route that the producer can use

A sponsor sizing spinning, knitting, weaving or garment capacity must separate the legal existence of a trade arrangement from its usability at the factory gate. As the Food and Agriculture Organization of the United Nations (FAO) notes, cotton demand is a derived demand driven by downstream textile demand rather than raw lint availability. [S32] A plant in Cameroon cannot convert raw-cotton export receipts, recorded by the *Institut National de la Statistique* (INS) at XAF 177.2 billion (5.4 percent of export earnings) in 2024, into domestic textile revenue unless its output clears buyer qualification and customs administration. [S23]

11.2 TARIFF ESCALATION PENALISES RAW-MATERIAL EXPORTERS UNLESS DOWNSTREAM PRODUCTS QUALIFY

Global tariff structure explains why raw-cotton exporters face a hurdle when moving into fabric and garment exports. In its 2022 review (*Key Statistics and Trends in Trade Policy 2021*, using 2020 data), the United Nations Conference on Trade and Development (UNCTAD) documents how tariff escalation, imposing higher duties on finished consumer goods than on raw materials and intermediates, remains embedded across schedules. [S1101] As UNCTAD states verbatim: "This practice favours processing industries closer to consumers, while discouraging the undertaking of processing activities in countries where raw materials originate." [S1101]

Across all sectors in 2020, African exports to developed economies faced a trade-weighted Market Access Tariff Trade Restrictiveness Index (MA-TTRI) of about 0.9 percent (roughly 2 percent globally), because commodity export baskets face near-zero most-favoured-nation (MFN) duties. [S1101] For textiles and clothing, protection

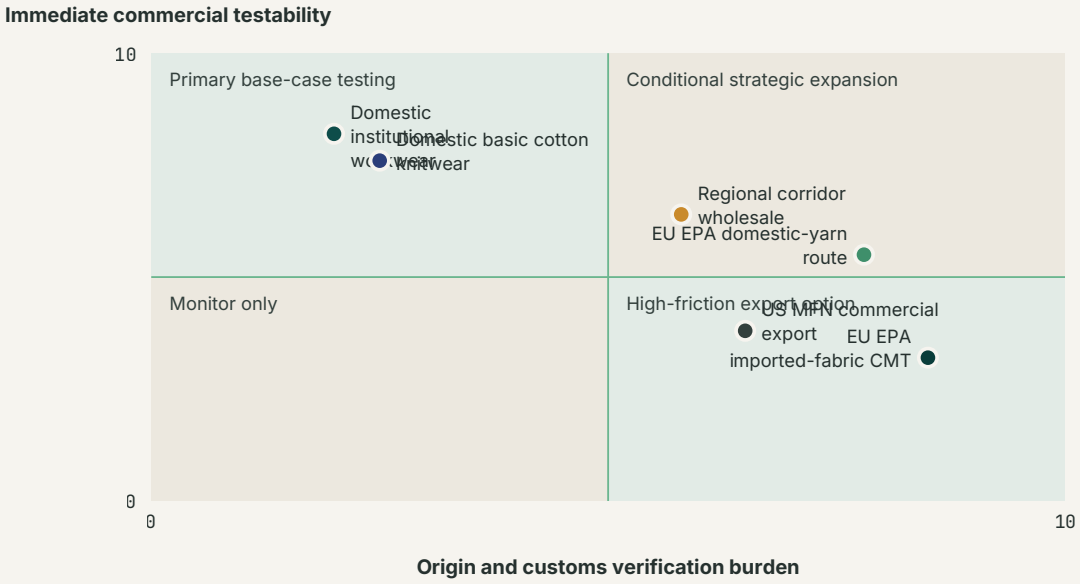
rises sharply: UNCTAD reports that even after preferences, international trade in textiles and apparel in 2020 faced a trade-weighted average tariff of about 6 percent globally, while roughly 10 percent of apparel trade faced tariff peaks of 15 percent or higher. [S1101]

11.3 SEVEN DISTINCT GATES SEPARATE A TREATY TEXT FROM COLLECTED EXPORT REVENUE

The World Trade Organization (WTO) notes that rules of origin are the legal criteria needed to determine the national source of a product, applying tests of substantial transformation such as a tariff-classification shift, an *ad valorem* percentage threshold or a specified manufacturing operation. [S1104] A plant launched around imported yarn or fabric may sell lawfully at home yet fail the transformation rule required for zero duty abroad. [S30] [S1104] **Exhibit 45**, p. 165 separates candidate routes along origin verification burden and commercial testability. [S16] [S17] [S30] [S31]

EXHIBIT 45 / ILLUSTRATIVE INDEX (0 TO 10)

Commercial qualification and tariff preference sit on separate axes



ILLUSTRATIVE [S16] [S17] [S30] [S31] Illustrative GFT analytical positioning informed by route rules in S16, S17, S30 and logistics constraints in S31. Coordinates are illustrative analytical indices (0 to 10) for decision structuring, not measured national volumes or tariff rates.

As **Exhibit 45**, p. 165 shows, domestic workwear and cotton knitwear carry the lowest customs-origin burden because they cross no international border, letting a new plant prove cut, make, trim and finishing discipline against local specifications and import prices. [S02] [S23] By contrast, a European Union Economic Partnership Agreement (EU EPA) route using domestic yarn offers preferential access if origin and documentary rules are met, whereas an EU route assembling imported non-originating fabric via cut-make-trim (CMT) faces severe barriers under double-transformation rules. [S16] [S1102] What **Exhibit 45**, p. 165 cannot establish is actual route profitability or volume; those depend on buyer quotes, conversion costs and customs rulings.

GFT NOTE

In GFT's Cameroon textile programme (prepared 31 January 2024, sources refreshed 2026), the base case does not rely on assumed unilateral tariff preferences. GFT recommends building Phase 1 revenue models around domestic and qualified regional buyers where specifications, lead times and CFA franc (XAF) or euro payment mechanics can be tested directly, adding preferential export routes only after lot-level origin compliance and buyer audits are proved. [S16] [S17] [S18]

11.4

Cameroon's AGOA position is distinct from programme authorisation

In sub-Saharan African apparel investment, the African Growth and Opportunity Act (AGOA) of the United States is often misread: statutory programme authorisation and individual country beneficiary designation are separate determinations. [R18] [S17]

11.5 THE OPENED JUNE 2026 NOTICE LISTS CAMEROON AMONG NON-DESIGNATED COUNTRIES

Under the AGOA statute, Congress sets the programme duration, while the President and the Office of the United States Trade Representative (USTR) review each sub-Saharan African country's eligibility annually. [R18] [S17] Shared evidence entry R18 records that Cameroon's AGOA beneficiary designation was terminated effective 1 January 2020 and that Cameroon remained ineligible through the 2025 list. [R18]

To verify the position without relying on missing annex entries, this paper opened the USTR Federal Register notice scheduled for publication on 30 June 2026 (*Request for Comments and Notice of Public Hearing Concerning the Annual Review of Country Eligibility for Benefits Under AGOA for Calendar Year 2027*, Document 2026-13177). [S17] On page 5 of that opened 30 June 2026 notice, USTR lists the sub-Saharan African countries that are **not** designated as beneficiary countries for calendar year 2026, and Cameroon appears directly on that non-designated list. [S17] Missing entries R19 to R22 are excluded under the shared rules, so this chapter does not cite them or repeat unverified secondary claims about reauthorisation dates; the opened 30 June 2026 USTR notice confirms that the 2027 review was active and that Cameroon was not a designated AGOA beneficiary in 2026. [S17]

11.6 ORDINARY MFN COMMERCIAL ACCESS REMAINS LAWFUL WHEN PRICED WITHOUT PREFERENCE ASSUMPTIONS

Excluding AGOA from the base case does not prohibit US exports: goods originating in Cameroon enter the United States under ordinary MFN tariff schedules, subject to standard customs classification, origin marking, supply-chain checks and duties. [S17] [S1104] Because US MFN duties on cotton garments are substantial while factories in designated beneficiary countries may enter duty-free, GFT excludes any assumed AGOA preference from base-case revenue, margin and capacity models for Cameroon, treating potential future redesignation strictly as unmodelled upside without forecasting 2027 eligibility. [S17] [S1101] **Exhibit 46**, p. 167 compares the four main routes across source vintage, country status, origin gate and base-case rule. [R18] [S16] [S17] [S30] [S1102]

EXHIBIT 46 / ROUTE STATUS AND DOCUMENTARY GATE

The opened 2026 USTR notice lists Cameroon among non-designated countries

Market route	Opened source and vintage	Cameroon status in record	Origin and documentary gate	GFT base-case rule
US under AGOA preference	S17 (2026-06-30); R18 (2020 termination)	Not designated for 2026 (S17 p. 5); under review for 2027	No preferential claim available while non-designated	Exclude AGOA preference from base case
US under ordinary MFN trade	S17 (2026-06-30); S1104 (WTO origin rules)	Lawful commercial trade subject to MFN tariffs	Standard customs entry, HS code and supply-chain proof	Model only with verified MFN duty and buyer quote
EU under EU-Cameroon EPA	S16 and S1102 (accessed 2026-10-30)	Implementing EPA partner; zero duty and zero quota on eligible goods	Product-specific origin rule plus EUR.1 or invoice declaration	Qualify per HS code and yarn/fabric origin route
Intra-African under AfCFTA	S30 (July 2022 manual)	State Party; non-originating goods attract MFN rates (S30 p. 12)	Operative textile concession, origin rule and certificate	Verify bilateral gazetted schedule before use

SOURCED [R18] [S16] [S17] [S30] [S1102] Compiled from R18 (historical 2020 termination), S17 (USTR notice dated 30 June 2026, PDF page 5), S16 and S1102 (European Commission DG Trade EPA overviews, accessed 30 October 2026), and S30 (AfCFTA Rules of Origin Manual, July 2022). Not legal or customs advice.

As **Exhibit 46**, p. 167 confirms, each route fails a different naive assumption. For the United States, the blocking factor for preferential access is country designation in the 30 June 2026 USTR notice. [S17] For the European Union, the agreement is in force, so the binding test shifts to product-specific rules of origin and customs documentation. [S16] [S1102] For intra-African trade under the African Continental Free Trade Area (AfCFTA), origin manuals exist, but textile concessions and customs implementation must be verified line by line. [S30] What **Exhibit 46**, p. 167 does not provide is a binding tariff classification or customs ruling for a specific shipment.

11.7

The EU route requires an origin and product check

Unlike the US preference route, Cameroon's preferential arrangement with the European Union is legally operative. As recorded in the European Commission Directorate-General for Trade and Economic Security overview (*EU trade relations with Central Africa*, S16) and *Access2Markets* guide (*EPA – Central Africa*, S1102), the Economic Partnership Agreement (EPA) between the EU and Cameroon has been provisionally applied since 2014, with Cameroon's tariff phase-down starting on 4 August 2016. [S16] [S1102] The EU grants permanent duty-free and quota-free access for all products originating in Cameroon, while Cameroon liberalises 80 percent of imports from the EU over 15 years and excludes around 20 percent of sensitive products, including used clothes and textiles. [S1102] Used clothing and sensitive textiles remain

excluded from Cameroon's liberalisation toward the EU, while Cameroonian textile and apparel exports to the EU enjoy zero duties and quotas **if and only if** the goods satisfy EPA rules of origin and carry valid proof of origin. [S1102]

11.8 GARMENT CLASSIFICATION DETERMINES WHICH TARIFF LINE AND ORIGIN RULE APPLY

Before checking an EU tariff rate or origin rule, the garment must be classified under the Harmonized System (HS) and the EU Combined Nomenclature. As the European Commission's *Access2Markets* guide on *Classifying textiles* (S1103) warns: "Often a small feature or point of difference will mean classifying your garments in a different classification code than you may otherwise assume." [S1103]

Chapter 61 covers knitted or crocheted apparel, whereas Chapter 62 covers woven apparel. [S1103] Within knitted cotton garments, minor features shift the heading:

- A lightweight knitted cotton vest-type garment with close-fitting sleeves, no buttons or fastenings, no collar, no neckline opening and a hemmed bottom without a drawstring or ribbed waistband is classified as a T-shirt under heading 6109 for men and women. [S1103]
- Adding a partial front neckline opening (fastened, overlapping or unfastened) shifts the garment to heading 6105 (men's or boys' knitted shirts, fastening left over right) or heading 6106 (women's or girls' knitted blouses, fastening right over left). [S1103]
- Adding a ribbed waistband, drawstring or other bottom tightening, or knitting with fewer than 10 stitches per linear centimetre on average, shifts the garment to heading 6110 (jerseys, pullovers and sweatshirts, where fine-knit subheadings 6110 20 10 and 6110 30 10 require at least 12 stitches per centimetre in both directions) or heading 6101/6102. [S1103]

Classification fixes the MFN duty rate, the product-specific origin rule and the textile tolerance rule; any design change during sampling requires re-verifying the HS code before quoting an EU price. [S19] [S1102] [S1103]

11.9 IMPORTED-FABRIC ASSEMBLY AND DOMESTIC-YARN CONVERSION FACE DIFFERENT ORIGIN TESTS

Once HS classification is fixed, the question is whether the manufacturing boundary confers Cameroonian originating status. While new rules of origin are under negotiation to be annexed to the EPA, Cameroon currently benefits from the general EPA rules of origin in Council Regulation (EU) 2016/1076 (formerly Regulation (EC) No 1528/2007). [S1102]

Wholly obtained products (cotton grown, spun, knitted or woven, and sewn in Cameroon) qualify directly. [S1102] [S1104] When non-originating inputs are used, most garments in Chapters 61 and 62 require manufacture starting from yarn (double transformation: fabric formation from yarn plus making up the garment), subject to

specific textile tolerances rather than the general 15 percent ex-works price tolerance applied to non-textile goods. [S1102] [S1104] This links Chapter 7's processing boundary to market access:

- **Route A (Imported non-originating fabric, local CMT assembly):** Using imported third-country fabric builds sewing skills and serves domestic buyers, though it contributes zero tonnes to domestic lint transformation. [S29] On the EU route, simple cutting and sewing of non-originating Asian fabric fails double-transformation origin unless the fabric originates in an eligible cumulation partner (bilateral cumulation with the EU, or diagonal/full cumulation with ACP states and Overseas Countries and Territories under specified conditions) or meets a printing-and-finishing rule. [S1102]
- **Route B (Domestic Cameroonian lint spun into yarn and converted into fabric and garments):** When SODECOTON lint grown in Cameroon is spun into yarn (cotton mill use per S29), knitted or woven into fabric, and sewn into garments in Cameroon, the garment satisfies both the SND30 lint-transformation goal and the EU origin threshold. [S29] [S34] [S1102]

11.10 PROOFS OF ORIGIN AND DIRECT-TRANSPORT EVIDENCE REQUIRE LOT-LEVEL TRACEABILITY

As the European Commission states in S1102: "To qualify for preferential duty rates, products originating in Cameroon must be accompanied by a proof of origin." [S1102] Under EU-Cameroon EPA procedures, a proof of origin is valid for 10 months and must be either a **Movement Certificate EUR.1** issued by exporting customs authorities or an **invoice declaration** by any exporter for consignments of EUR 6,000 or less, or by an **approved exporter** for any value, alongside evidence of **direct transport** and batch records linking every carton to specific yarn and fabric lots. [S11] [S1102]

11.11

AfCFTA membership does not settle an individual textile shipment

Because Cameroon is a State Party to the African Continental Free Trade Area (AfCFTA), proposals sometimes assume that any garment sewn in Douala, Garoua or Dibamba can cross African borders duty-free. That mistakes treaty ratification for customs clearance of a specific consignment. [S30]

11.12 THE RULES OF ORIGIN MANUAL SETS PROCEDURES RATHER THAN UNIVERSAL TEXTILE CONCESSIONS

This paper opened the AfCFTA Secretariat's *AfCFTA Rules of Origin Manual, Volume 1.0* (July 2022, S30), which sets procedures for Annex 2 (Rules of Origin) of the Protocol on Trade in Goods, covering wholly obtained goods, substantial transformation, cumulation, tolerances, direct consignment and AfCFTA Certificates of Origin. [S30] On page 12 (Section 2.1), the manual states: "Goods that are not originating from the State Parties attract MFN tariff rates." [S30] A procedural manual is not a gazetted schedule of tariff concessions across Chapters 50 to 63. Shared ledger entry R23 noted from an earlier secondary source that textiles and clothing were among the categories where tariff-line and origin negotiations remained unresolved at that time.

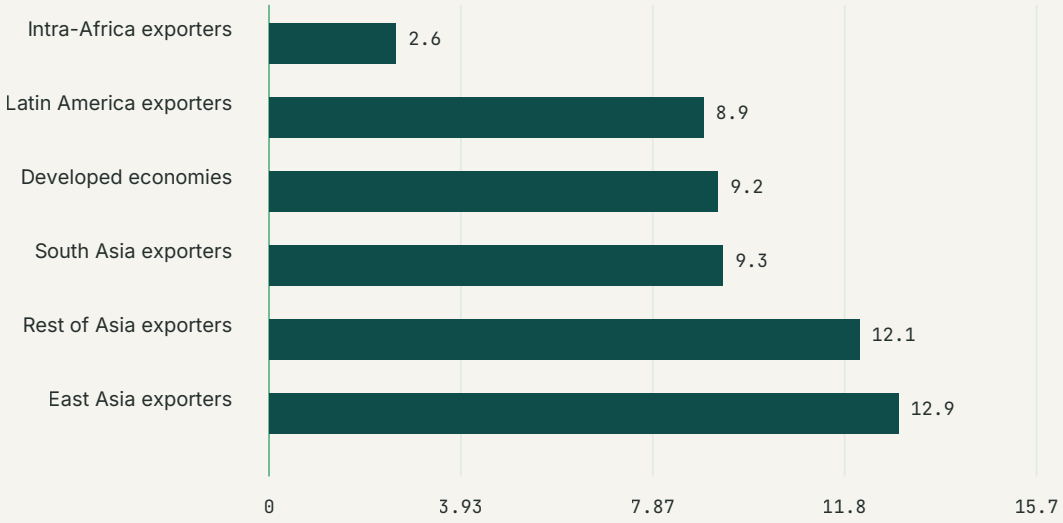
[R23] GFT does not repeat that older percentage of agreed lines from R23 as current; macro negotiation statistics never establish whether a specific 6- or 8-digit HS line has an agreed rule of origin and a reciprocally gazetted tariff schedule between Cameroon and a target African state today. [R23] [S30]

11.13 BILATERAL GAZETTING AND CUSTOMS ADMINISTRATION MUST BE VERIFIED PER CORRIDOR

Preferential clearance for an intra-African textile shipment requires four active elements on the day of shipment: an adopted Appendix IV product-specific rule of origin for the HS subheading, domestically gazetted preferential tariff schedules in both State Parties, customs authorities issuing and accepting the AfCFTA Certificate of Origin at the border post used, and batch records surviving verification. [S30] [S1104] UNCTAD's 2022 empirical analysis (S1101, Table 1 and Table 2, reporting 2020 tariff matrices) shows why verifying regional preferences matters once a product qualifies. [S1101] **Exhibit 47**, p. 170 plots UNCTAD's 2020 Tariff Trade Restrictiveness Index (TTRI) on imports into Africa from six exporting regions. [S1101]

EXHIBIT 47 / PERCENT TTRI ON IMPORTS INTO AFRICA (2020)

African import tariff restrictiveness varies sharply by exporter region



SOURCED [S1101] Sourced from UNCTAD (2022, S1101, Table 1, printed page 11 / PDF page 21, 2020 data based on UN COMTRADE and UNCTAD TRAINS). Shows trade-weighted average Tariff Trade Restrictiveness Index (TTRI) on imports into Africa by exporting region. All-goods regional averages do not establish the tariff rate or origin eligibility of an individual Cameroonian textile shipment.

As **Exhibit 47**, p. 170 illustrates from UNCTAD's 2020 matrix, intra-African trade faced an average TTRI of 2.6 percent when entering African markets, compared with 8.9 percent for Latin America, 9.2 percent for developed economies, 9.3 percent for South Asia, 12.1 percent for the rest of Asia and 12.9 percent for East Asia. [S1101] In UNCTAD's Table 2 (printed page 12 of S1101), African exporters trading within Africa enjoyed a positive Relative Preferential Margin (RPM) of 5.3 percentage points (about 5 percentage points in UNCTAD's summary) relative to foreign competitors in 2020. [S1101]

What **Exhibit 47**, p. 170 cannot establish is that a Cameroonian garment plant automatically captures a 5.3 percentage point advantage on clothing shipped to a neighbour. UNCTAD's TTRI is an all-goods 2020 continental average, not a Cameroon textile schedule; non-originating shipments pay full MFN rates under Section 2.1 of the AfCFTA manual; and tariff margins do not offset price competition from imported second-hand clothing (*friperie*) or informal border flows. [S02] [S23] [S30] [S1101]

11.14

Regional commerce still depends on physical and administrative delivery

A preferential tariff rate on paper is worthless if border delays, transit variability or payment friction prevent goods from reaching the buyer on time. As the World Bank states in *Connecting to Compete 2025: The New Logistics Performance Indicators 2.0* (S31): "Logistics underpins the movement of goods and the operation of supply chains within and across borders." [S31] In accordance with the shared rules and chapter outline, this analysis excludes the unsourced Common External Tariff (CET) approval dates, tariff-band percentages and intra-regional trade-share figures from missing annex entries R19 to R22, evaluating regional routes strictly through observable logistics, customs and settlement mechanics. [S18] [S19] [S31]

11.15 DWELL TIME AND VARIANCE CAN ERODE A NOMINAL TARIFF MARGIN

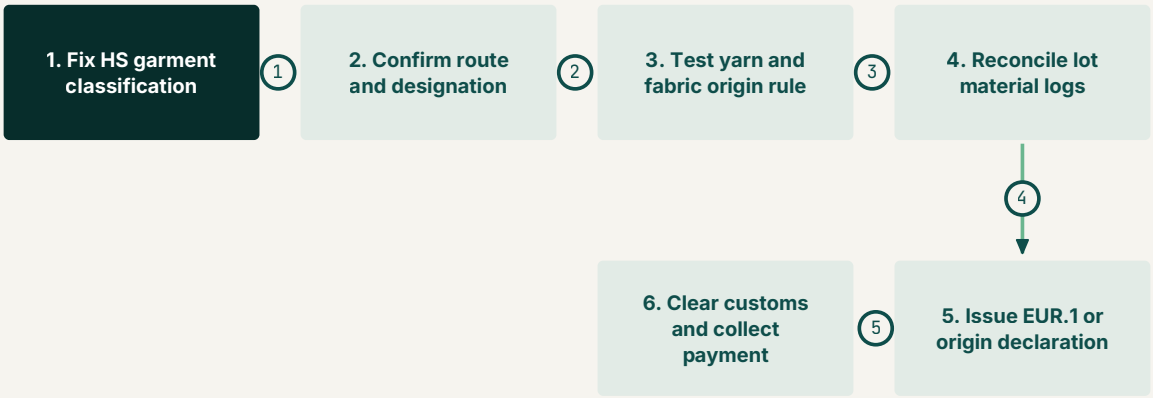
The World Bank's 2025 LPI 2.0 framework (built on observed 2023 and 2024 shipment tracking rather than perception surveys alone, and not spliceable with older LPI rankings) highlights port, airport and corridor dwell times and lead-time predictability. [S31] Even a plant processing 100 percent local lint from SODECOTON's nine ginning plants (S06) relies on port clearance for dyes, chemicals, trims and spare parts, and on inland corridors for regional deliveries. [S03] [S05] [S06] [S10] [S31] Every week of border dwell awaiting origin verification adds storage and working-capital costs while risking buyer rejection. [S31]

11.16 CURRENCY SETTLEMENT AND BORDER DOCUMENTATION REQUIRE CORRIDOR-SPECIFIC TESTING

Within the Central African Economic and Monetary Community (CEMAC), the *Banque des Etats de l'Afrique Centrale* (BEAC) confirms that the legal currency is the Central African CFA franc (XAF), pegged at 1 euro = 655.957 F.CFA. [R32] [S18] Sales within the BEAC zone avoid currency mismatch against XAF wages, whereas sales into non-BEAC neighbours such as Nigeria introduce convertibility and settlement risks alongside customs clearance. [S18] [S31] As UN Comtrade's metadata guidance (S19) explains, national customs statistics vary in release timing, valuation basis and partner attribution, so sponsors must validate corridors through live trial shipments rather than aggregate trade tables. [S19] [S31] **Exhibit 48**, p. 172 maps the six-step qualification sequence required before quoting a preferential price. [S16] [S30] [S1102] [S1103]

EXHIBIT 48 /

A preference claim follows product classification and origin proof



1. HS heading locked
2. Agreement active
3. Transformation met
4. Audit file complete
5. Valid for 10 months (EU EPA)

ILLUSTRATIVE [S16] [S30] [S1102] [S1103] Illustrative GFT operational sequence derived from customs classification and origin procedures in S16, S30, S1102 and S1103. A process diagram does not establish that any specific shipment has cleared customs.

As **Exhibit 48**, p. 172 shows, quoting a duty-free price is the **last** step of the verification chain. If Step 1 shifts the HS heading or Step 3 shows that imported non-originating fabric fails double transformation, the commercial team must price on an MFN duty-paid basis or re-engineer upstream sourcing before contracting. [S30] [S1102] [S1103]

WORKED EXAMPLE

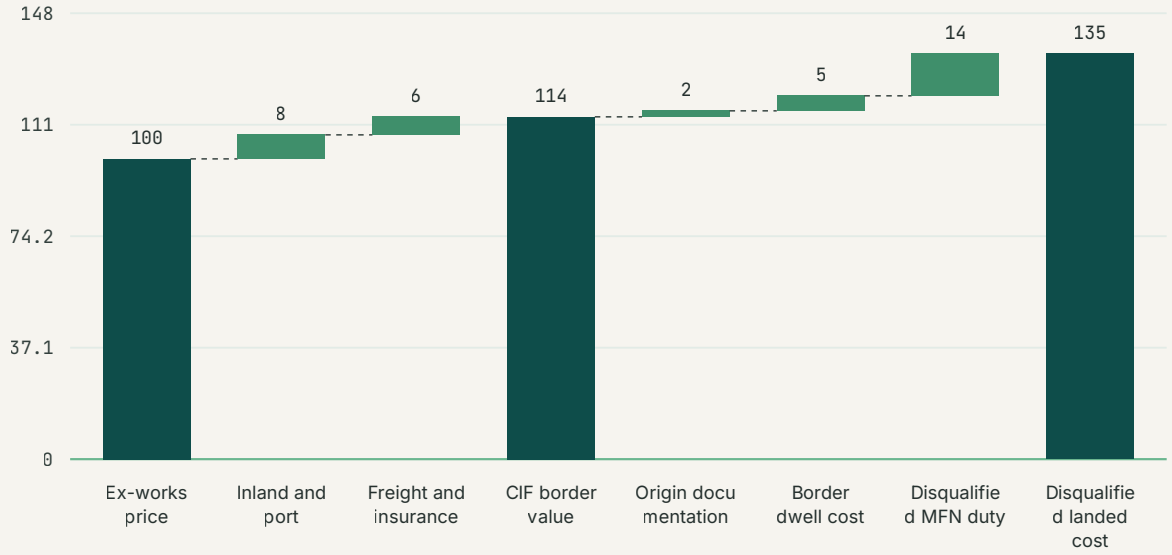
To show how an unverified origin assumption and border friction erode margins, consider an **illustrative** consignment of 10,000 knitted cotton T-shirts under HS heading 6109. [S1103] Figures are normalised **illustrative** index units (ex-works price = 100.0 index units) constructed solely to demonstrate the accounting method, not a quotation or GFT factory result.

1. **Unverified preferential quote:** Adding 8.0 illustrative units for inland/port handling and 6.0 illustrative units for freight and insurance to the 100.0-unit ex-works price yields a Cost, Insurance and Freight (CIF) border value of `100.0 + 8.0 + 6.0 = 114.0` illustrative units. Assuming 0 percent preferential duty and 2.0 illustrative units of customs administration, the sponsor projects a landed cost of `114.0 + 2.0 = 116.0` illustrative units against a buyer ceiling of 122.0 illustrative units (6.0 units of headroom).
2. **Realised outcome after origin failure and dwell delay:** Suppose the T-shirts were sewn from non-originating fabric that fails double-transformation origin, triggering customs inspection and MFN duty assessment. [S30] [S1102] CIF value remains `114.0` illustrative units, plus `2.0` illustrative units for documentation and `5.0` illustrative units for border dwell and working-capital cost. Customs assesses the MFN apparel tariff (modelled at an illustrative 12.2807 percent on the 114.0 CIF value, between UNCTAD's 6 percent average and 15 percent tariff-peak threshold in S1101), adding `114.0 x 0.122807 = 14.0` illustrative units. [S30] [S1101]
3. **Reconciled total:** Landed cost reaches `114.0 + 2.0 + 5.0 + 14.0 = 135.0` illustrative units, exceeding the 122.0-unit ceiling by `13.0` illustrative units (a 19.0-unit adverse variance above the 116.0-unit estimate).

The arithmetic from this worked example is reconciled in **Exhibit 49**, `p. 174` from the 100-unit ex-works baseline to the 135-unit disqualified landed cost. [S30] [S31] [S1101] [S1102]

EXHIBIT 49 / ILLUSTRATIVE LANDED-COST INDEX (EX-WORKS = 100)

Origin disqualification and border dwell erase assumed tariff margins



ILLUSTRATIVE [S30] [S31] [S1101] [S1102] Illustrative GFT cost-reconciliation model: 100 ex-works + 8 inland/port + 6 freight/insurance = 114 CIF border value; + 2 documentation + 5 border-dwell cost + 14 MFN duty shock (illustrative 12.28% on 114 CIF when origin fails per S30/S1102) = 135 landed cost. Pure method demonstration, not an empirical tariff quotation.

As **Exhibit 49**, p. 174 shows, the 14-unit MFN duty shock and 5-unit dwell penalty add 19 illustrative units above the 116-unit preferential estimate. Preferences cannot be booked until the bill of materials and customs documents are verified to pass border inspection on first presentation. [S30] [S31] [S1102]

11.17

Compliance can alter product and process choices

Market access in apparel trade is governed not only by tariffs and origin rules, but also by due-diligence, chemical, environmental and labour standards reaching upstream of the sewing line. [S11] [S12] [S15]

11.18 BUYER DUE DILIGENCE EXTENDS UPSTREAM INTO SPINNING, WET PROCESSING AND SUBCONTRACTING

The Organisation for Economic Co-operation and Development (OECD) sets the international reference in its *OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector* (2018, S11) and spotlight *Due diligence essentials for responsible garment and footwear* (26 February 2026, S12). [S11] [S12] As the OECD states in S12: "Each company is expected to identify its priority risk areas based on its individual circumstances, including risks not listed here." [S12]

Because garment chains are fragmented, salient risks sit upstream in raw-material production, spinning, weaving, knitting, wet processing and subcontracting. [S11] [S12] Buyer audits focus on three areas:

- **Labour and working conditions:** Buyers benchmark plants against International Finance Corporation (IFC) Performance Standard 2 (2012, S25) and International Labour Organization (ILO) guidance (2025, S13), checking forced and child labour controls, freedom of association, contracts, hours and wages. [S13] [S25]
- **Wet processing, chemicals and effluent:** As the World Bank Group / IFC *Environmental, Health, and Safety Guidelines for Textile Manufacturing* (2007, S10) and IFC Performance Standard 3 (2012, S26) detail, wet processing introduces chemical, water and effluent risks; outsourcing dyeing or finishing to a non-compliant partner disqualifies the garment. [S10] [S12] [S26]
- **Fibre provenance claims:** As Textile Exchange's *Materials Market Report 2025* (S27) and the United Nations Environment Programme's *Global Roadmap* (2023, S15) show, synthetic fibres dominate global volume, and any cotton-provenance claim requires chain-of-custody proof rather than generic assertions. [S15] [S27]

11.19 TRACEABILITY ARCHITECTURE CONNECTS CUSTOMS ORIGIN WITH ENVIRONMENTAL AND SOCIAL PROOF

Under GFT's **Warp and Signal** approach, customs origin and buyer due diligence share one lot-level data architecture: the batch identifier tracking SODECOTON lint bales through spinning, fabric formation and cutting for an EUR.1 certificate or AfCFTA origin declaration simultaneously records the facility, shift, chemical lot and inspection logs required for OECD-aligned due diligence. [S11] [S12] [S30] [S1102] Detailed analysis of evolving European Union regulatory instruments is assigned to companion paper seventeen (wp17), as no current legal obligation is asserted here without an opened legal text and applicability check. [S12] [S15] If a partner facility lacks auditable effluent and labour records, a sponsor must upgrade that partner, bring the process in-house, or restrict its base case to buyers matching the verified boundary. [S10] [S12] [S24]

ROUTE-QUALIFICATION AND ORIGIN-TRACEABILITY PROTOCOL

Before any route enters a factory's active revenue plan, GFT's operating system requires a six-point check:

1. **Product classification lock (`HS_6` to `HS_8`):** Record construction (Chapter 61 vs Chapter 62, blend, stitch density per centimetre, neckline opening, fastening direction and hem tightening) and verify the 6-digit HS subheading and destination tariff line. [S19] [S1103]
2. **Country and agreement status check (`Date_Verified`):** Confirm from an opened primary official notice or treaty database whether Cameroon is an active, designated beneficiary and whether the tariff line is liberalised and gazetted. [S16] [S17] [S30]
3. **Material-boundary origin test (`Rule_of_Origin`):** Map every bill-of-materials input by origin, HS heading and ex-works cost share, and test against the product-specific rule of origin (wholly obtained, double transformation from yarn, tariff shift, value-added threshold or cumulation). [S30] [S1102] [S1104]
4. **Lot-level documentary chain (`Proof_of_Origin`):** Verify that batch logs link incoming lint or yarn invoices through conversion stages to the packing list, supporting an EUR.1 certificate, approved-exporter declaration or AfCFTA Certificate of Origin, plus direct-transport bills. [S30] [S1102]
5. **Corridor and landed-cost test (`Transit_and_Cash`):** Measure transit days, border dwell, brokerage fees and currency settlement costs (`XAF`, `EUR`, `USD`) on a trial consignment under both preferential and MFN-fallback duties. [S18] [S31]
6. **Buyer and E&S qualification (`Order_and_Compliance`):** Record signed specifications, approved samples, due-diligence audit closure (per S10, S11, S12, S24, S25, S26) and a tested payment instrument. [S11] [S12] [S24]

11.20

A route register should carry the commercial decision

Because trade policy, country designations, bilateral tariff gazetting and customs practices change outside a factory's control, market access must be governed as a live engineering register inside the performance-management system. [S17] [S19] [S30]

11.21 EVERY CANDIDATE HS LINE NEEDS AN OWNED, DATED QUALIFICATION SHEET

In GFT's governance architecture, commercial and customs leads maintain an **HS-level route register** keyed to a 6- to 8-digit HS code, a manufacturing boundary and a destination customs regime. [S19] [S29] [S1103] The table below illustrates four candidate entries.

Route (illustrative) and product	Material boundary and origin test	Verified legal/source baseline (as of 2026-10-30)	Documentary and transit owner	Route qualification status
RT-DOM-01: Woven workwear (HS 6205/6203) for domestic buyers [S1103]	Domestic or partnered fabric; no export border; tenders require award [S02] [S34]	Domestic market; INS 2024 import baseline in S23 (146,139 tonnes textiles, 72,600 tonnes *friperie*) [S23]	Commercial lead; domestic delivery and XAF collection [S18]	Candidate for Phase 1 base case (subject to trial order) [S32]
RT-EU-02: Knitted T-shirt (HS 6109, hemmed bottom) for EU buyer [S1103]	EU EPA origin rule (double transformation from yarn or cumulation, not Asian fabric CMT) [S1102]	EU-Cameroon EPA in force; zero duty/quota on qualifying goods; EUR.1/declaration valid 10 months [S16] [S1102]	Customs and quality leads; direct-transport bill and lot logs [S1102]	Conditional option (requires origin proof and buyer audit) [S12] [S1102]
RT-AFC-03: Printed fabric (HS 5208/5209) for AfCFTA state [S30]	Agreed AfCFTA Appendix IV origin rule; non-originating goods pay MFN rate (S30 p. 12) [S30]	AfCFTA Manual (July 2022, S30); bilateral textile concession and border procedure must be verified [S30]	Logistics and customs leads; corridor dwell and currency test [S18] [S31]	Unverified until bilateral HS concession and clearance are tested [S30] [S31]
RT-US-04: Knitted pullover (HS 6110, >=12 stitches/cm) for US buyer [S1103]	Ordinary commercial origin and traceability rules; no AGOA preference assumed [S17] [S1104]	USTR notice dated 30 June 2026 (S17 p. 5) lists Cameroon among non-designated AGOA countries for 2026 [S17]	Commercial and compliance leads; MFN duty and USD/EUR hedging [S17] [S18]	Exclude AGOA from base case; test only at full MFN duty [S17]

11.22 STAGE GATES CLASSIFY ROUTES FROM UNVERIFIED TO REPEAT COMMERCIAL OPERATION

To prevent unverified market assumptions from distorting capital allocation in Chapter 13 and Chapter 14, every route is assigned one of four operational statuses: 1. **Status 0, Unverified hypothesis:** A trade agreement is cited, but the HS code, tariff schedule, origin rule, border procedure or buyer specification is unverified from primary sources. [S19] [S30] *Decision rule:* Zero revenue and zero capacity in the base case. 2. **Status 1, Technically eligible:** The 6- to 8-digit HS classification, tariff rate, origin rule and documentary procedure are confirmed from official instruments, and the bill of materials satisfies the transformation rule on paper. [S30] [S1102] [S1103] *Decision rule:* Eligible for sampling and outreach, not counted as bankable order coverage. [S1102] 3. **Status 2, Commercially qualified:** A buyer has approved samples, audited compliance records, placed a paid trial order, and the trial consignment has cleared the

corridor within budgeted lead time and duty treatment. [S11] [S12] [S31] *Decision rule:* Eligible to support Phase 1 launch or Phase 2 line allocation within tested limits. 4. **Status 3, Repeat commercial operation:** Consecutive consignments have cleared customs without origin disputes or unbudgeted dwell penalties, repeat orders are active, and cash is collected within the working-capital cycle. [S31] [S32] *Decision rule:* Qualified to anchor upstream capacity expansion gates. [S29]

Within GFT's toolkit, `market-access` structures HS-level tariff, origin-rule and landed-cost sensitivity checks across routes, while `trace-a-garment` maps lot-level custody from SODECOTON ginning bales through yarn, fabric and wet processing to the final proof of origin. [S04] [S30] [S1102] Detailed bilateral corridor analysis is developed in companion paper eight (`wp08`), while international sustainability and compliance regulations are addressed in companion paper seventeen (`wp17`). [S12] [S16]

> **SCOPE, REGULATORY VOLATILITY AND LEGAL DISCLAIMER**
>
> Trade statutes, country designations (including annual AGOA reviews under S17), tariff schedules, product-specific rules of origin under the EU-Cameroon EPA (S16, S1102) and AfCFTA (S30), customs valuation rules and destination supply-chain regulations are subject to sovereign change at any time. [S16] [S17] [S30] Nothing in this chapter or white paper constitutes legal, customs, tax or investment advice. Before quoting a landed price, signing an offtake contract, ordering machinery or claiming a preferential duty rate, a sponsor or exporter must obtain product-specific verification from a qualified customs broker, trade lawyer and the competent customs authorities. [S1102] [S1103]

By subjecting every trade route to the same engineering discipline applied to fibre mass balances, utilities and working capital, a Cameroonian textile venture protects itself against policy wishful thinking and customs shocks. A preference agreement does not create a viable factory; rather, a measured factory that controls its classification, material origin, compliance records and delivery reliability turns a conditional trade rule into durable domestic value retention. [S12] [S30] [S1102]

A treaty opens a border on paper, but only a traced specification and a paid order move a garment across it.

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GREEN FUTURE TECH

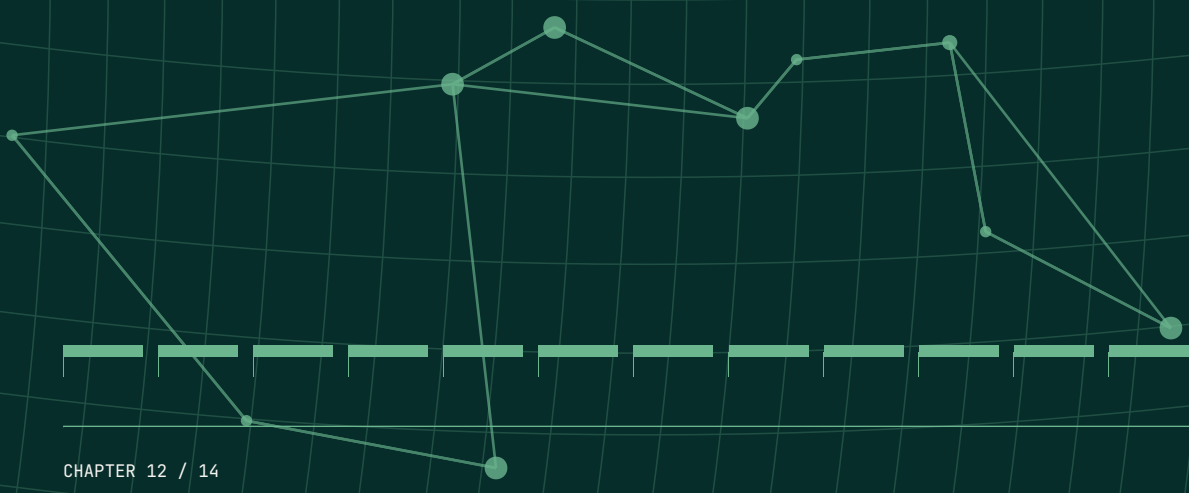
LIMITED / HONG KONG SA

12

PART IV: GOVERN THE TRANSITION AND MEASURE RESULTS / MEASURE WHAT MOVES

Local processing earns its sustainability claim through measured outcomes

Local value retention should be assessed alongside water, energy, pollution, land, labour and the complete system boundary.



CHAPTER 12
DECISION TEST

Local value retention should be assessed alongside water, energy, pollution, land, labour and the complete system boundary.

Local processing earns a sustainability claim only when it demonstrates better outcomes than a realistic alternative within a stated boundary. Geography alone proves where an activity occurs. It does not prove lower water use, lower emissions, safer work or reduced pollution. GFT therefore recommends a claim ledger that follows material from farm to accepted product, records resources and releases at each included stage, and preserves missing evidence as unknown. The decision is not whether a factory can call itself local. It is whether a specified product route improves the outcomes that matter without transferring harm outside the factory fence. UNEP's whole-chain approach and IFC's pollution-prevention warning both require that wider test. [S15] [S26]

12.1

Local is a production geography rather than an impact result

A Cameroonian factory can retain industrial capability and domestic value while still creating environmental or social costs. Those effects are not arguments against local processing. They are reasons to assess it rather than presume its virtue. UNEP states that changing production impacts alone will not transform the textile industry, while IFC treats resource efficiency and pollution prevention as necessary responses to industrial activity. [S15] [S26] The sustainability case must therefore sit beside the industrial case, not underneath it as a marketing conclusion.

The comparison starts with a functional unit. A tonne of accepted fabric, a specified garment delivered to a buyer, or another unit can be suitable only if quality and useful service are equivalent. A local fabric that fails early cannot be compared with a durable imported fabric solely by weight. Nor can a bale of exported lint be compared directly with a finished garment. The unit must describe the same service, at the same acceptance boundary, over a declared period.

The counterfactual must be equally concrete. One alternative may be continued lint export combined with imports of a comparable garment. Another may be garment assembly in Cameroon using imported fabric. A third may be domestic yarn and fabric production with wet processing outsourced. These routes have different material boundaries and different domestic contributions. Comparing them does not presuppose that the most integrated route wins. It reveals which stages, inputs and transfers must be measured before a choice is defensible.

Transport is only one term in that comparison. A shorter physical route may reduce some movements while new spinning, dyeing or finishing adds electricity, heat, water and chemical demands. Conversely, an imported input carries upstream effects that a factory-only account cannot see. No universal footprint advantage follows from either observation. The answer depends on measured process performance, actual input origins, energy sources, yields and the treatment of waste across the included chain.

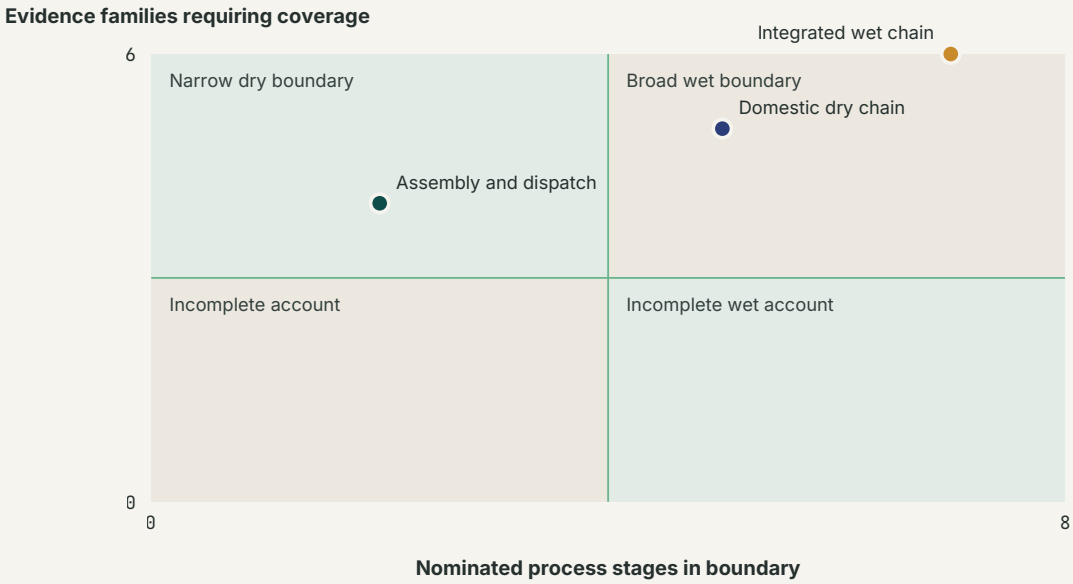
The boundary also determines who must supply evidence. Farm and ginning records cannot be replaced by a spinning mill's utility bills. An assembly plant cannot substantiate agricultural impacts from its purchase invoice alone. Where primary data are

unavailable, the analysis should identify the secondary dataset, its geography and vintage, and the uncertainty introduced. A precise total assembled from mismatched boundaries would be less honest than a qualified comparison with visible gaps.

Exhibit 50, p. 182 presents an illustrative boundary model. It counts nominated process stages and evidence families rather than scoring environmental performance. The integrated wet route requires more primary evidence in this model because it includes more activities and exposes more impact categories. Its position says nothing about whether its actual footprint is higher or lower.

EXHIBIT 50 / ILLUSTRATIVE COUNTS

A sustainable-factory claim needs a defined boundary and evidence



ILLUSTRATIVE [S03] [S10] [S15] [S22] [S25] Illustrative GFT boundary model, not an impact score. Assembly and dispatch includes two stages and four evidence families: energy, water, waste and labour. The domestic dry chain adds farm, ginning and fibre conversion, making five stages and five families with land included. The integrated wet chain adds wet processing and assembly, making seven stages and six families with chemicals and pollution included. Coordinates are counts from these definitions, not measurements or rankings of footprints.

This discipline changes the public claim. Instead of asserting that local is greener, a sponsor can state which route was compared, which stages were included, what was measured and what remains estimated. That wording is less sweeping but more useful to buyers, lenders and communities. It also creates an operating agenda: close the evidence gaps that materially affect the choice before committing to a broader claim.

12.2

Wet processing requires credible water and effluent evidence

Wet processing makes water accounting consequential because intake, consumption, reuse and discharge describe different events. Intake is water entering the defined site or process boundary. Consumption is the portion not returned to the same water system in the accounting period, subject to the method used. Discharge is water leaving the process or treatment boundary. None of these measures, alone, establishes

whether a water catchment can sustain the abstraction or whether the receiving environment can assimilate the effluent. IFC's textile guideline treats resource use, wastewater and monitoring as distinct technical concerns, and its scope does not extend to raw-material production. [S10]

A credible water record therefore begins at the meter and ends at a verified destination. The site needs an intake meter, a process allocation method and a reconciliation of recycled flows, discharge, consumption and changes in stored water. Laboratory results need sampling points, dates, methods and the operating condition of the plant. A sample taken during a low-load trial cannot represent every production state without further evidence. Equal attention belongs to sludge and treatment residues, whose movement off site is not proof of acceptable final disposal.

The permit and catchment questions sit beside the factory balance. Proposed operations require evidence of lawful abstraction and discharge conditions, available water under seasonal stress, treatment capacity, monitoring duties and responsibility for incidents. Those requirements must be checked for the actual site and process with qualified advisers. The IFC guideline is a technical reference dated 2007, not a Cameroon permit or evidence that a proposed facility complies with current requirements. [S10] No discharge-compliance or water-saving result is asserted here.

Resource intensity also needs an output denominator that reflects useful production. Litres divided by fabric entering a department can be helpful for process control, but it understates the resource burden of rejected output when the purpose is to compare accepted products. The reporting pack should retain both views. Input intensity helps an engineer improve a bath or machine. Accepted-output intensity shows the resources embodied in saleable production. Rejects, rework and unplanned reprocessing must remain visible rather than disappearing into an improved average.

Exhibit 51, p. 184 shows the measurement sequence. The critical design choice is to link meter records and quality records for the same batch and period. A water total without accepted output cannot support an intensity claim. Accepted output without a reconciled water balance cannot support a reduction claim either.

EXHIBIT 51 / PROPOSED BATCH AND PERIOD RECORDS

Resource denominators should follow accepted material output



1. volume and period
2. process record
3. same batch
4. numerator
5. denominator
6. trend and variance

ILLUSTRATIVE [S10] [S26] Illustrative GFT measurement flow based on the monitoring distinctions in the cited technical references. It does not assert installed meters, measured savings or a litres-per-garment benchmark.

WORKED EXAMPLE: THE DENOMINATOR CHANGES THE APPARENT WATER RESULT

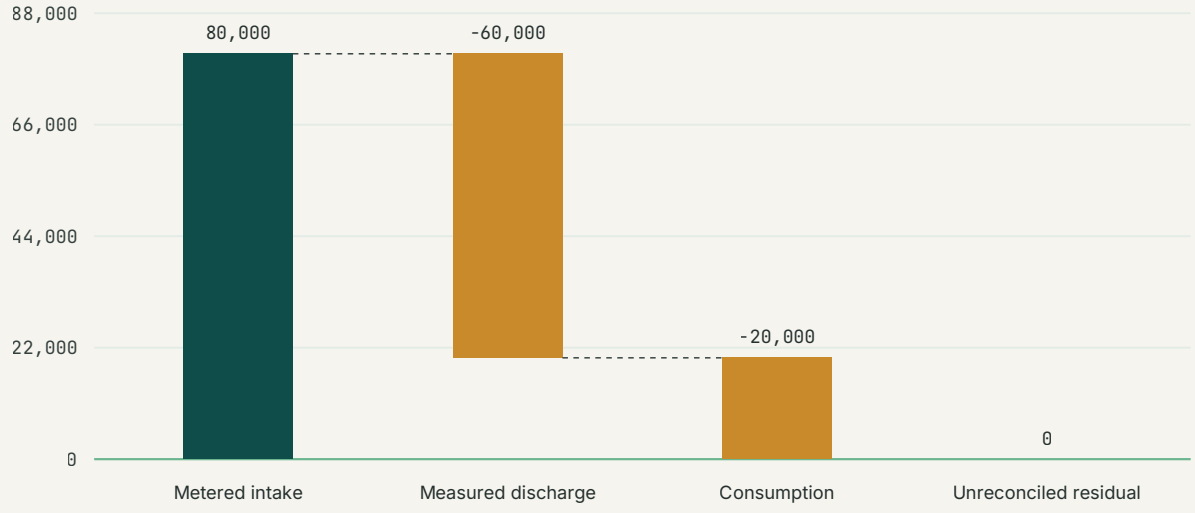
This illustrative batch assumes 1,000 kilograms of fabric input, 900 kilograms accepted after processing and inspection, 80,000 litres of metered intake and 60,000 litres of measured discharge. The values are selected solely to demonstrate the accounting method and are not textile benchmarks or observations from a GFT factory. [S10]

With no change in stored water and no other flows in this simplified case, illustrative consumption is 80,000 minus 60,000, which equals 20,000 litres. Intake intensity is 80,000 divided by 900, or 88.9 litres per accepted kilogram. Using input instead would give 80.0 litres per input kilogram, concealing the effect of rejected mass. Discharge and consumption intensities on accepted output would be 66.7 and 22.2 litres per kilogram respectively, each rounded to one decimal place. These are GFT arithmetic from the stated illustrative inputs, not forecasts.

Exhibit 52, p. 185 closes that simplified balance. In an operating plant, an unexplained residual would trigger checks of meters, stock changes, sampling times and unrecorded flows. It would not be relabelled as consumption merely to make the account close.

EXHIBIT 52 / LITRES PER ILLUSTRATIVE BATCH

The illustrative water balance closes only after discharge and consumption



ILLUSTRATIVE [S10] Illustrative inputs: intake 80,000 litres, discharge 60,000 litres, assumed consumption 20,000 litres and no change in stored water. GFT arithmetic: 80,000 - 60,000 - 20,000 = 0. Values teach the balance only and are not observed factory data or performance benchmarks.

GFT NOTE

Do not approve a water-reduction claim from a single site total. GFT recommends a paired batch record covering intake, reuse, discharge, accepted output, rejects and treatment exceptions. Publish the denominator and period with the result. If the water balance does not close, report the residual and investigate it before making a comparative claim.

12.3

Energy intensity and carbon need defined denominators

Energy accounting should preserve the physical distinctions that explain a factory's operation. Electricity, steam, direct fuel and backup generation serve different equipment and can have different measurement errors. A single utility bill may describe the whole site but not the spinning, wet-processing or assembly departments within it. IFC's textile guideline identifies energy use and emissions among the performance issues to monitor, while its pollution-prevention companion standard makes resource efficiency an explicit management concern. [S10] [S26] The useful starting point is therefore sub-metering by process where practicable, supported by fuel receipts, runtime records and a clear allocation method for shared services.

The denominator should follow accepted output, as it does for water, but a textile chain rarely produces one homogeneous product. Yarn counts, fabric constructions, finishes and garments differ in the service they provide and the processing they require. A plant-level kilowatt-hour total divided by mixed kilograms may be a useful

internal trend if the product mix is stable. It can mislead when mix changes. Comparative claims need either a narrowly specified product or a documented allocation and normalisation method. Any such method should be tested against engineering knowledge rather than chosen because it flatters the result.

Quality losses belong in the same account. Energy used to produce rejected fabric does not vanish because the fabric is not sold. Rework and reprocessing add consumption that a simple good-output meter reading may conceal. The record should pair energy with input, first-pass acceptance, rework, final acceptance and the reason for rejection. This allows a manager to distinguish a machine-efficiency problem from a quality-yield problem. It also prevents an apparent fall in energy per input unit from being reported as an improvement while accepted output deteriorates.

Carbon requires another layer of definitions. The GHG Protocol Corporate Standard concerns an organisation-level emissions inventory. That purpose is different from a product footprint and different again from a claim that one route avoids emissions relative to another. [S22] A corporate inventory can support management of the organisation's emissions. It cannot be divided by a mixed output total and presented automatically as a product footprint. The product method must specify lifecycle stages, allocation, emission factors, data quality and treatment of co-products.

Every emissions factor needs a source, geography, unit and period. Electricity consumption does not itself establish emissions without an appropriate factor and a statement of how purchased or self-generated power is treated. Fuel combustion, purchased steam, transport and upstream inputs need consistent inclusion rules. Where backup generation operates, its fuel and electricity output should be reconciled rather than counted only as a fuel purchase or only as an electricity meter reading. These are methodological safeguards, not a quantified Cameroon emissions estimate.

The baseline determines the meaning of a reduction. A factory may compare a later period with its own earlier performance, with a proposed design or with an alternative supply route. Those baselines answer different questions. An improvement against last year's operation does not prove superiority to an imported alternative. A modelled design saving does not prove a realised saving. A consequential avoided-emissions claim would require a still broader analysis of what changes in the relevant systems, and should not be inferred from an organisational inventory. [S22]

Production changes also complicate interpretation. Absolute energy or emissions can rise while intensity falls during a ramp, or fall while output collapses. A decision pack should show absolute quantities, accepted output, intensity and product mix together. The reader can then see whether a ratio improved because process performance changed, because the denominator changed, or because accounting coverage changed. Restatements should preserve the original result, the correction and its cause.

A measured carbon claim is consequently the end of an evidence chain, not a colour applied to a local product. The chain runs from physical meters and accepted production through allocation and emission factors to a declared boundary and baseline. Breaking any link does not make the physical data worthless. It limits the claim those data can carry.

12.4

Farming impacts remain part of the system

A processing claim that begins at the factory gate omits the agricultural system on which domestic cotton depends. The historical Cameroon value-chain analysis discusses land pressure, soil fertility, pesticide use, transport and biodiversity within its own study boundary and period. [S03] Those findings are not a current measurement of every cotton lot. They demonstrate why agriculture cannot be declared outside the sustainability question merely because the investment decision concerns industrial equipment.

The first distinction is between reallocating existing lint and expanding the crop. Supplying a domestic mill from lint that would otherwise have been exported changes the destination of fibre. It does not, by itself, create additional cultivated area. A strategy that increases total cotton production may have different land, input and water implications. The two routes should not share an unsupported impact assumption. Their counterfactuals differ, and the evidence should follow the actual sourcing decision.

Lot-level evidence provides the practical connection. A proposed record would identify the producing area and campaign, the ginning lot, delivered weight, moisture basis and available agricultural practice information. It would distinguish verified lot attributes from regional or sector averages used as proxies. The purpose is not to burden every transaction with an inaccessible database. It is to prevent a broad national claim from being attached to material whose origin and production conditions are unknown.

Ginning also requires material discipline. SODECOTON's technical description explains that cleaning can involve weight loss, which means quality and mass must be considered together. [S04] Fibre, seed and other outputs are not interchangeable categories of waste. Seed destined for oil or feed has a different economic and physical pathway from contaminated residues requiring disposal. A chain account that counts every non-lint output as a loss would misstate both material efficiency and the co-product boundary.

Allocation becomes important when several saleable outputs share upstream processes. A product footprint may need to assign farm and ginning burdens between lint and co-products using a stated method. That choice can materially affect the result. It should be disclosed and tested rather than hidden in a single emissions factor. The appropriate method belongs to the detailed product-footprint protocol; the essential point here is that no allocation is assumption-free.

The historical bale-export perspective cannot simply be extended to a future integrated garment plant. New domestic stages add energy, water, chemicals, waste and transport events, while the destination and useful service of the final product change. Applying an old distribution of impacts across farm, ginning and transport to that new configuration would preserve a familiar chart at the expense of a valid boundary. GFT's inference from the historical chain analysis and the textile manufacturing guideline is that the account must be rebuilt around the proposed route. [S03] [S10]

Agricultural evidence also needs social interpretation. Practices that improve an environmental indicator may alter producer costs, labour demands or payment timing. Those effects should be investigated with producer organisations and workers rather than assumed to be benign. The recommendation is conditional: expand domestic processing in a way that protects the viability of the cotton base and records unresolved agricultural impacts. A local-lint claim that weakens producer resilience would not satisfy the paper's wider industrial objective.

12.5

Waste needs a verified destination and material balance

Waste accounting begins with a material balance, not a recycling slogan. Each process should reconcile inputs to accepted output, stocks, co-products, recoverable material, rejects, emissions to water or air where relevant, and measured adjustments. The categories must suit the stage. Cottonseed pathways belong to ginning. Spinning waste, fabric offcuts, treatment sludge and rejected garments arise at different points and carry different hazards and recovery options. IFC's textile guideline addresses both process residues and pollution control, while SODECOTON's ginning description reinforces the need to track weight changes through cleaning. [S10] [S04]

A transfer to another company is not sufficient evidence of recovery. The record should identify the material, quantity, date, carrier, receiving facility and intended process, then obtain confirmation of the destination actually used. Where material is stored, the stock and its condition should remain in the balance. Where a contractor blends several waste streams, the factory should state what it can and cannot verify about final treatment. A receipt documents a transfer; it does not automatically establish recycling.

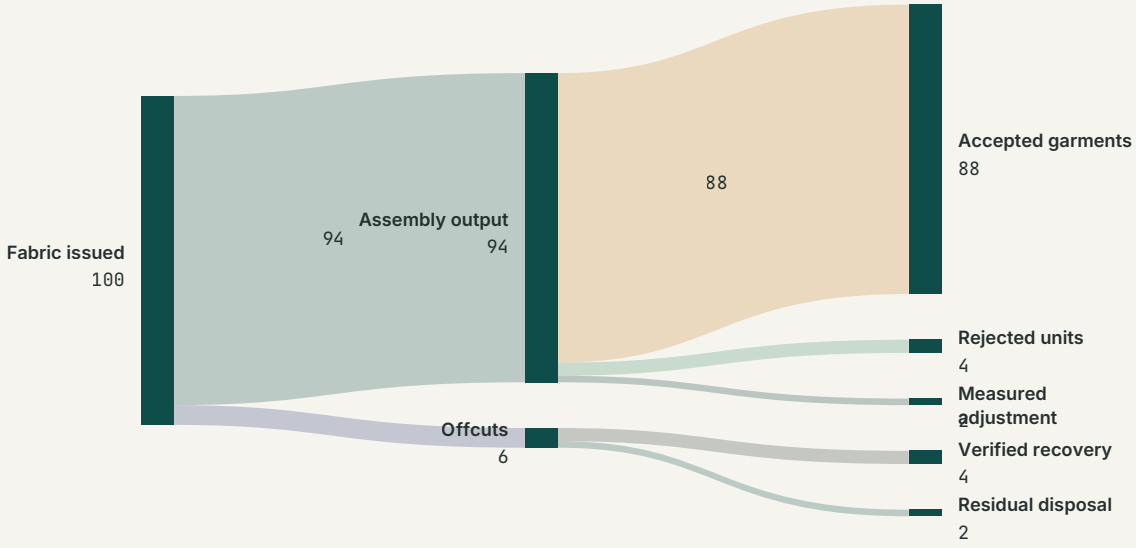
The same caution applies to recycled content. A claim needs evidence of input composition and chain of custody for the specific product, not a general statement about the global textile industry. Textile Exchange's global materials reporting provides sector context, including the continuing importance of synthetic fibres, but it does not establish a Cameroon recovery rate or the infrastructure available to a proposed plant. [S27] Local collection, sorting, reprocessing capacity and end markets must be demonstrated locally before circularity becomes an operating claim.

Offcuts and rejected products also need separate treatment. Clean, homogeneous cutting waste may be technically easier to recover than mixed or contaminated material, but actual recovery still depends on a qualified route. Rejected garments may be reworked, downgraded, dismantled or disposed of, with different economic and environmental consequences. Recording only the mass leaving the factory would hide those distinctions. The quality system and the waste system should therefore share batch identifiers and disposition codes.

Exhibit 53, p. 189 gives an illustrative fabric balance. It shows why a verified recovery stream cannot be inferred from the difference between input and accepted output. The model explicitly separates offcuts, rejected units and an adjustment, then follows only part of the offcuts to verified recovery. All values are assumptions selected to reconcile the example.

EXHIBIT 53 / KILOGRAMS OF FABRIC-EQUIVALENT MATERIAL

An illustrative fabric balance separates recovery from disposal



ILLUSTRATIVE [S04] [S10] [S15] Illustrative model with 100 kilograms issued: 94 kilograms reach assembly output and 6 become offcuts. Assembly output divides into 88 accepted, 4 rejected and 2 measured adjustment. Offcuts divide into 4 verified recovery and 2 residual disposal. Internal balances: 94 = 88 + 4 + 2 and 6 = 4 + 2. Values are invented to demonstrate conservation and destination coding, not a conversion yield or recycling rate.

The exhibit cannot establish that any real factory achieves this balance or that the recovered fraction has a lower impact than another treatment. Those questions require destination evidence and an assessment of the recovery process itself. It does establish a reporting rule: the numerator of a recovery claim must match a verified destination, while the denominator must include the relevant material generated within the same boundary and period.

UNEP's whole-chain roadmap also prevents the account from stopping at the factory. Product durability, use and end of life affect the service delivered and the waste created downstream. [S15] A factory may have limited control over those stages, but it can avoid claiming that its production boundary exhausts the product's impacts. Where downstream evidence is absent, the claim should remain a manufacturing waste claim rather than becoming a comprehensive circularity claim.

12.6

Worker and community outcomes need accessible reporting

A forecast of employment is not a measured social outcome. The ILO places working conditions, skills, gender inequality and a just transition within the textile employment question, not outside it. [S13] A sustainability account should therefore distinguish announced jobs, filled positions, paid work and sustained employment. It should then examine contract security, hours, earnings, progression, safety and worker experience using applicable law and verified records. Headcount alone cannot establish that industrialisation has improved people's lives.

Worker evidence needs both management records and safe channels for challenge. IFC's labour standard addresses fair treatment, working conditions and risks in primary supply chains, while the ILO promotes preventive safety systems and cooperation between employers and worker representatives. [S25] [S28] A proposed factory should record incidents and near misses, corrective actions, grievances and their resolution. It should also test whether workers can raise concerns without retaliation. A log with no entries is not proof of a safe or fair workplace if reporting routes are inaccessible or distrusted.

Privacy determines how the evidence can be published. Individual medical, disciplinary, wage and grievance records should not become public sustainability exhibits. Public reporting can use aggregated indicators, defined populations and narrative explanations of corrective action, with access controls and lawful handling of personal data. Independent reviewers may need restricted access to underlying records. The objective is inspectability without turning a worker's identity or complaint into communication material.

Community outcomes extend beyond the payroll. Water abstraction, effluent, traffic, noise, dust and land access can affect people who never work at the plant. IFC's environmental and social management standard calls for stakeholder consultation and a means for worker and community complaints to be addressed. [S24] Consultation should occur early enough to influence design, not merely announce decisions. Records should identify concerns raised, responses made, commitments accepted and unresolved disagreements.

Accessibility also concerns the form of reporting. Technical summaries, monitoring results and grievance routes should be available to affected people in a form they can use, with language and disclosure decisions suited to the site. Publishing a dense assurance statement on a corporate website does not by itself make a community informed. Equally, a meeting attendance sheet does not prove that consultation changed the project. Evidence should show both participation and response.

Supply-chain labour risks cannot be closed by auditing final assembly alone. Subcontracting, labour recruitment and primary inputs may carry different risks and different visibility. IFC's labour standard explicitly includes primary-supply-chain concerns within its framework. [S25] The proposed review should therefore map where work occurs, who employs the workers and which records or credible complaints reveal conditions beyond the direct operator. Findings should lead to remediation and follow-up, not simply removal of a supplier in a way that leaves affected workers without remedy.

A measured social claim is consequently specific and bounded. It might report paid employment over a defined period, closure of verified corrective actions, or the operation of an accessible grievance process, with supporting definitions. It should not convert planned recruitment into decent work or describe consultation as community consent without evidence. The strength of the claim lies in what affected people experience and what independent examination can confirm.

12.7

Claims should identify the baseline and verification status

A public sustainability claim should carry its evidence status in the wording, not relegate it to a technical annex. A target states an intended future condition. An estimate applies a method and assumptions to incomplete observations. A measured outcome comes from records within a defined period and boundary. A reviewed outcome has undergone a documented challenge. An assured outcome has been examined under a stated assurance scope by a competent independent party. These categories are not interchangeable, and none should be shortened into an unqualified green label.

GFT recommends an evidence card for every external claim. The card should name the product, site and period; define the functional unit and system boundary; identify the counterfactual or internal baseline; list measurements, estimates and emission factors; disclose allocation and uncertainty; and identify the reviewer and assurance status. OECD's risk-based due-diligence approach supports attention to actual supply-chain circumstances rather than a generic checklist. [S11] The GHG Protocol's distinction between organisational inventories and other carbon questions reinforces the need to match the method to the claim. [S22]

The baseline must be visible in the claim itself. A statement about reduction should answer reduction from what, measured where and over which period. If the baseline was a design model rather than an operating condition, that difference belongs beside the result. If production volume or product mix changed, the report should explain the effect on comparability. Where data have been restated, the evidence card should link the original disclosure, correction and reason. A reader should not need to reconstruct the accounting from marketing copy.

Exhibit 54, p. 192 defines a practical status ladder. It is a proposed communication control, not a certification scheme. The important feature is that each step adds evidence without erasing the limitations of the previous one. Independent assurance does not repair an unsuitable boundary, and primary metering does not establish that the chosen counterfactual is appropriate.

EXHIBIT 54 / PROPOSED EVIDENCE-CARD DEFINITIONS

Measured results require a stronger evidence status than targets

Status	Minimum evidence	Required wording limit
Target	Owner, intended period and boundary	State ambition, never attainment
Estimate	Method, inputs, assumptions and uncertainty	Name the model and missing observations
Measured	Source records, period, denominator and reconciliation	State exactly what was measured
Reviewed	Documented challenge, corrections and residual limitations	Name review scope, not blanket approval
Assured	Independent assurance statement and defined criteria	Match wording to assurance scope and level

ILLUSTRATIVE [S11] [S22] [S24] Illustrative GFT claim-governance model informed by due-diligence, emissions-boundary and management-system references. The categories are not an external certification standard and do not assert that any GFT project has attained them.

Verification should test the evidence chain rather than admire the presentation. A reviewer should be able to move from the public sentence to the calculation, from the calculation to source records, and from source records to meters, quality decisions, invoices or destination receipts as appropriate. Sampling should include periods of abnormal operation and rejected output, not only well-performing batches. Conflicts between records should remain visible until resolved. A polished dashboard cannot substitute for that trail.

The reviewer also needs sufficient independence and competence for the subject. A commercial team checking its own arithmetic is an internal review, not independent assurance. An environmental specialist reviewing water data is not thereby qualified to assure labour outcomes. The evidence card should describe who examined which fields, against which criteria, and what was excluded. IFC's management-system approach to consultation and complaints adds another check: affected people should have a route to challenge relevant claims or underlying performance. [S24]

Some claims should be withheld. An unknown water destination, an unverified waste contractor, an inconsistent product boundary or inaccessible worker records may each prevent a specific statement even when other performance is strong. Withholding a claim is not an admission that no benefit exists. It is recognition that the available evidence cannot support the proposed wording. The remedial action is to obtain the missing evidence or narrow the claim, not to increase its certainty linguistically.

GFT's Cameroon textile programme is a design engagement covering feasibility, performance-management system design and digital strategy. It does not establish plant certification, realised resource savings or independently assured social outcomes. The programme's relevance here is methodological: build the measurement and decision logic before production claims are made. Detailed water and energy design, circularity and carbon methods belong to specialist companion work, but the public claim must retain the boundary tests set out here.

MINIMUM CLAIM-RELEASE PROTOCOL

Before release, the responsible role should freeze the claim sentence, product, period and boundary. The evidence owner should attach the calculation and source records, mark every estimated input and reconcile the material or resource balance. A separate reviewer should test the baseline, denominator, source vintage and wording against the evidence card. Legal or regulatory questions should go to qualified advisers where applicable. Release requires unresolved limitations to appear beside the claim. Any later change in process, sourcing or accounting method triggers a comparability review.

The result is a practical sustainability contract between production and communication. Local processing may well support industrial and social objectives, but each claimed benefit must survive its own test. Water needs a balance and a destination. Carbon needs a method and a baseline. Waste needs a verified route. Social outcomes need worker and community evidence. The claim released to a buyer should be only as broad as that chain of proof.

Local production earns trust when every claimed benefit leaves a measurable trail.

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S10 World Bank Group / IFC. 2007-04-30.

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GREEN FUTURE TECH

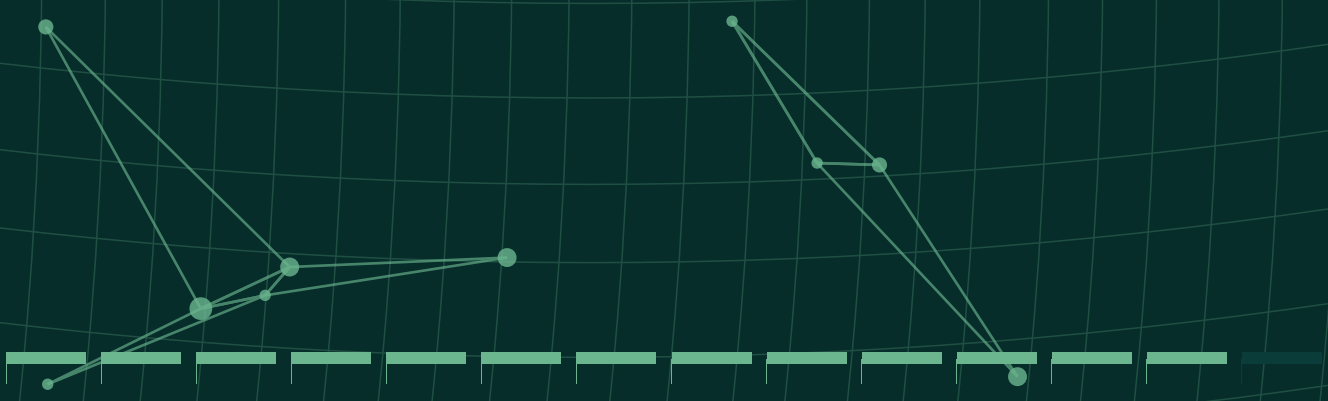
LIMITED / HONG KONG SAR

13

PART IV: GOVERN THE TRANSITION AND MEASURE RESULTS / WEAVE THE SIGNAL

A shared evidence system makes industrial coordination accountable

The national programme and each factory need a small, interoperable set of measures that can reveal failure early.



CHAPTER 13
DECISION TEST

The national programme and each factory need a small, interoperable set of measures that can reveal failure early.

Industrial policy fails silently when public planners, project sponsors, utility operators and factory managers read incompatible numbers. Cameroon's ambition to transform at least 50 percent of local cotton fibre by 2030 requires coordinated decisions across ginning allocation, spinning and fabric investment, garment assembly, power and water infrastructure, workforce training and trade administration. [R07] [S34] None of those actors needs visibility into every shop-floor ledger, and no single factory can compile the national mass balance alone. Coordination becomes accountable only when a small, interoperable set of measures links factory-floor lot records to a national project and material register without erasing commercial confidentiality or counting the same bale of lint at multiple stages. [S19] [S29] [S1301]

Green Future Tech Limited (GFT), Hong Kong SAR, designed its three-part Cameroon textile programme around this connection between production and measurement. Prepared on 31 January 2024 with source-refresh notes retained in 2026, the programme pairs an industrial feasibility study with a production performance-management system (PMS) design and a phased digital strategy. That work remains a design architecture, not a commissioned factory or an operating national statistical platform. Its core proposition is straightforward: a factory should capture usable production, quality, utility, safety and cash records from its first shift, using simple manual logs before software automation, and release capital for the next conversion stage only when independent verification confirms that the current stage operates within its technical and financial boundaries. [S02] [S24] This paper provides an industrial decision framework and does not constitute investment, legal or tax advice.

13.1

The national register and factory records answer different questions

Public authorities and private factory operators ask different questions of the cotton-to-garment system, and forcing both into a single undifferentiated report corrupts both decisions. [S02] [S1301] A national coordinator needs to know how much domestic lint is produced, how much enters first-stage domestic conversion beyond ginning, what capacity is genuinely commissioned and operating, and whether public commitments generate net domestic value added and sustained jobs. [S03] [S29] [S34] A plant manager needs shift-level visibility into lot quality, machine availability, first-pass yield, rework, order fulfilment, energy and water per saleable unit, and the cash conversion cycle. [S10] [S12]

13.2 SEPARATE NATIONAL STOCK-AND-FLOW ACCOUNTING FROM ENTERPRISE EXECUTION

When national monitoring relies on unverified project announcements, planned capacity is easily confused with realised throughput. [R08] [R09] [R10] In the inherited evidence register, press accounts report an announced consolidation between SODECOTON and CICAM targeted by 2030 alongside the announced Camtext SA investment of US$300 million (180 billion XAF) dated 12 November 2025, citing 12,000 tonnes a year of processed volume, about 12,000 jobs at Dibamba and 3,000 at Garoua, an 11-year return horizon and optimal capacity around 2033. [R08] [R09] [R10] Meanwhile, July 2023 press reporting recorded historical capacity utilisation of

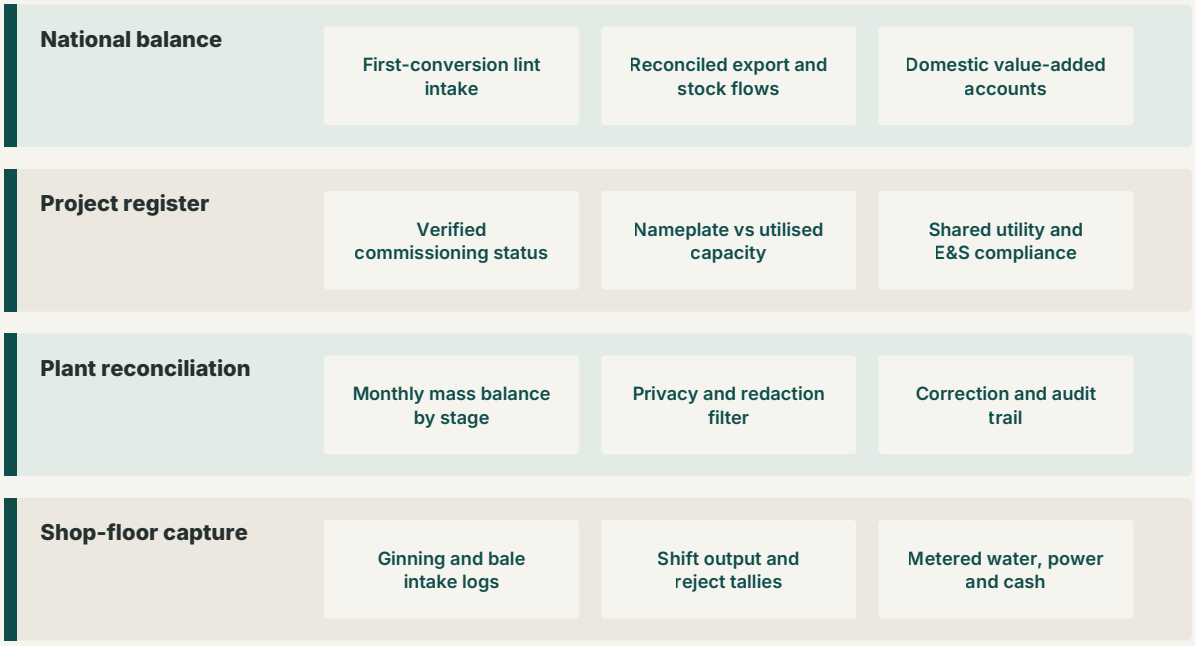
33.7 percent at Garoua, 48.9 percent at CICAM 1 and 10.83 percent at CICAM 2, with underutilisation costing about XAF 2 billion in 2020. [R12] Treating announced future capacity as current supply, or historical nameplate equipment as active conversion capability, obscures the actual processing gap. [S02] [S06]

To prevent that distortion, GFT proposes separating the evidence architecture into four layers: shop-floor lot and shift capture, plant-level reconciliation, a national project-status register and an aggregated national material-balance indicator set. [S19] [S29] The World Bank's Statistical Performance Indicators framework emphasises that useful national statistics draw on administrative and private-firm records alongside traditional surveys, governed by clear standards and dialogue between data producers and users. [S1301] In Cameroon, the Institut National de la Statistique (INS), placed under the technical supervision of the ministry in charge of statistics, maintains enterprise-statistics and economic-synthesis departments alongside a national quality-assurance framework and administrative-data guidelines. [S1302] Linking industrial reporting to those established conventions avoids creating parallel ministry spreadsheets that cannot be reconciled with customs or national-accounts series. [S19] [S23] [S1302]

Exhibit 55, p. 196 illustrates how factory records and national registers exchange verified summaries without exposing confidential pricing or customer identities. [S11] [S19] [S29]

EXHIBIT 55 / PROPOSED INFORMATION LAYERS

National reporting should be fed by reconciled factory records



ILLUSTRATIVE [S19] [S29] [S1301] Illustrative system architecture proposed by GFT, informed by UN Comtrade metadata principles (S19), OECD-FAO mill-use boundary definitions (S29) and World Bank statistical infrastructure pillars (S1301). This is a proposed information model, not a deployed software platform.

As **Exhibit 55**, p. 196 shows, the bottom two layers belong to the operating enterprise, while the upper two layers serve industrial coordination and public statistics. [S19] [S1301] What this diagram cannot establish is an existing data-sharing mandate or an automated link between Cameroonian mills and statistical agencies; establishing the reporting protocol requires explicit legal and administrative agreement. [S34] [S1302]

13.3 COUNT DOMESTIC LINT ONCE AT FIRST QUALIFYING CONVERSION

The most common accounting failure in multi-stage textile programmes is double counting across vertical stages. [S04] [S29] In international commodity statistics, the OECD-FAO Agricultural Outlook defines cotton consumption strictly as the transformation of cotton fibres by mills into yarn. [S29] Once ginned lint enters a spinning mill and is spun into yarn, that fibre has crossed the boundary from raw agricultural commodity to industrially transformed material. [S04] [S29] If that yarn is subsequently transferred to a domestic weaving or knitting mill, and the resulting fabric is cut and sewn into garments by a domestic apparel plant, three factories perform real industrial work, but only one quantity of domestic lint is taken off the raw-export market. [S12] [S29]

If a national scorecard simply adds the cotton-equivalent weight reported by spinners, weavers, knitters and garment makers, a single lot of domestic fibre is counted two or three times, creating the illusion that Cameroon is approaching its 50 percent transformation ambition while raw lint exports remain near their historical 95 percent share. [R06] [R07] [S01] Conversely, if a garment factory launches operations using imported fabric under a cut-make-trim (CMT) model, its output generates domestic jobs and assembly value added, yet its contribution to domestic lint transformation is zero. [S12] [S29]

GFT therefore recommends two accounting rules for the national register. [S19] [S29] First, the national lint-transformation numerator must record domestic-origin ginned lint once at the point where it enters its first qualifying domestic conversion stage beyond ginning (typically spinning into yarn). [S04] [S06] [S29] Second, downstream fabric formation, wet processing and garment assembly must be tracked in separate stage accounts measuring stage-specific throughput, conversion yield, domestic lint content share and net domestic value added after subtracting intermediate inputs. [S03] [S29]

WORKED EXAMPLE

To see how un-reconciled reporting distorts policy decisions, consider an illustrative three-stage domestic chain over one reporting year. Assume an illustrative domestic ginning outturn delivers 1,000 tonnes of qualified lint from northern Cameroon to a domestic spinning line. [S04]

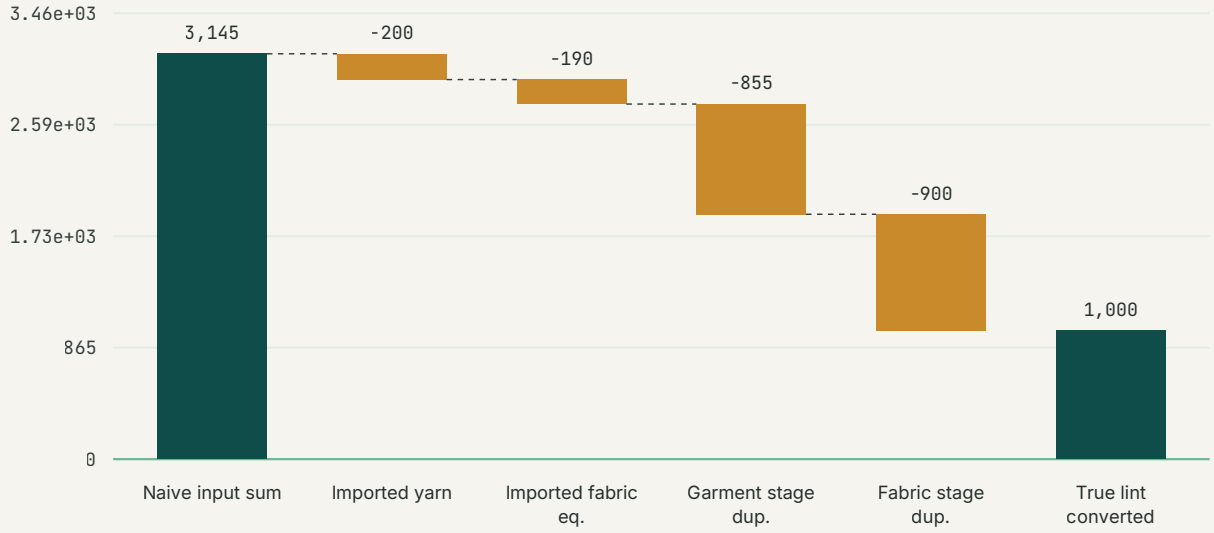
1. **Spinning stage:** The spinning mill takes in 1,000 tonnes of domestic lint. At an illustrative spinning yield of 90 percent (100 tonnes of opening and carding waste), the mill produces 900 tonnes of saleable yarn. [S04] [S29]
2. **Fabric stage:** A domestic fabric mill receives those 900 tonnes of domestic yarn and imports an illustrative 200 tonnes of combed yarn. At an illustrative fabric yield of 95 percent, the mill produces 855 tonnes of fabric from domestic yarn and 190 tonnes from imported yarn, totalling 1,045 tonnes of fabric. [S12] [S29]
3. **Garment stage:** A domestic garment factory receives the 1,045 tonnes of fabric and, at an illustrative cutting and sewing yield of 85 percent, dispatches 888.25 tonnes of finished garments (of which 726.75 tonnes derive from the original domestic lint). [S12]

If the secretariat asks each factory for its annual cotton volume processed without boundary rules and sums the responses, the spinning mill reports 1,000 tonnes, the fabric mill reports 1,100 tonnes of yarn input, and the garment plant reports 1,045 tonnes of fabric input. A naive gross input sum across the three plants reports 3,145 tonnes, and even summing only the domestic-origin streams across stages (1,000 + 900 + 855) yields an illustrative 2,755 tonnes, overstating actual domestic lint transformation by 1,755 tonnes (175.5 percent). Under GFT's single-point rule, the national lint-transformation account credits 1,000 tonnes at spinning intake, while the fabric and garment accounts separately report 855 tonnes and 726.75 tonnes of domestic-origin throughput alongside their value added. This calculation is purely illustrative to demonstrate the accounting identity and is not a measurement of any Cameroonian mill.

Exhibit 56, p. 199 visualises this illustrative reconciliation from naive multi-stage summation back to the true first-conversion lint intake. [S04] [S19] [S29]

EXHIBIT 56 / TONNES OF COTTON-EQUIVALENT MATERIAL (ILLUSTRATIVE)

Counting lint once at first conversion prevents multi-stage inflation



ILLUSTRATIVE [S04] [S19] [S29] Illustrative GFT mass-balance reconciliation for a 1,000-tonne domestic lint lot passing through spinning (90% yield), fabric formation (95% yield, plus 200 tonnes imported yarn) and garment assembly (85% yield). Shows how subtracting imported intermediates and downstream stage transfers restores the true 1,000-tonne first-conversion numerator defined by S29.

As **Exhibit 56**, p. 199 demonstrates, nearly two-thirds of the un-reconciled activity total in an integrated chain consists of internal transfers and imported intermediates rather than fresh domestic lint intake. [S19] [S29] While the exhibit clarifies the accounting mechanism, it cannot reveal the actual magnitude of double counting in Cameroon's historical estimates because published sector studies do not provide a plant-by-plant input-output reconciliation table. [S01] [S06]

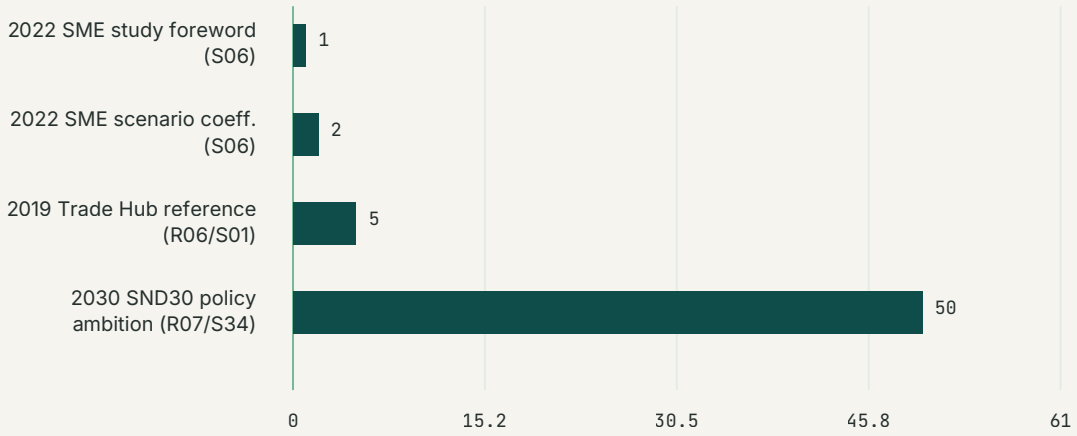
13.4

Every measure needs an owner and a definition

A metric without an explicit boundary, unit, observation period, source record and named functional owner inevitably drifts into promotional reporting. [S19] [S22] Historical estimates of Cameroon's cotton processing illustrate the problem: the often-cited figure of roughly 5 percent local processing and 95 percent raw export traces to a 2019 article in *Cameroon Business Today* reproduced on the Cameroon Trade Hub, whereas the September 2022 ministry study on SME structuring cites approximately 1 percent local transformation in its foreword and applies a 2 percent CICAM coefficient in its scenario tables, alongside the 50 percent minimum transformation ambition by 2030 in SND30. [R06] [R07] [S01] [S06] [S34] **Exhibit 57**, p. 200 compares those published figures by vintage and status. [R06] [R07] [S01] [S06] [S34]

EXHIBIT 57 / PERCENT OF COTTON FIBRE

Published local-processing figures require vintage and definition labels



SOURCED [R06] [R07] [S01] [S06] [S34] Comparison of published historical local-processing estimates in S06 (September 2022 foreword ~1% and scenario coefficient 2%) and R06/S01 (2019 article ~5%) against the 2030 policy target of at least 50% in R07 and S34 paragraph 108. Differences in vintage and unstated denominators prevent averaging.

As **Exhibit 57**, p. 200 shows, neither the 2019 reference nor the 2022 ministry report publishes the complete underlying numerator, denominator, stock adjustment or moisture convention, so they cannot be averaged or treated as a continuous time series. [S01] [S06]

13.5 SPECIFY EIGHT METADATA FIELDS FOR EVERY INDICATOR

In the PMS component of GFT's Cameroon textile programme, every operational and policy indicator is governed by an eight-field metadata specification before any number is collected: [S19] [S24]

1. **Unit and denominator:** The physical, monetary or ratio unit, with the exact denominator stated (such as kilowatt-hours of electricity divided by net kilogrammes of accepted saleable fabric dispatched). [S10] [S26]
2. **Observation period and cohort rule:** Whether the measure covers a shift, calendar month, financial year or crop campaign, and how cross-period inventory drawdowns are treated. [S03] [S19]
3. **System boundary:** Which production stages, facilities, subcontractors and material streams are included or excluded, mirroring the GHG Protocol Corporate Standard and IFC textile guidelines. [S10] [S22]
4. **Primary source record:** The physical document, weighbridge ticket, meter register, customs bill of entry or ledger entry from which the figure is drawn. [S19] [S30]
5. **Functional owner:** The specific role accountable for recording and primary sign-off (such as the ginning dispatch supervisor, quality lead, plant controller or statistical officer), never an unnamed committee. [S24] [S28]
6. **Recording and reporting frequency:** How often the raw observation is captured (per lot, per shift, daily) and how often reconciled summaries are transmitted (weekly, monthly, quarterly). [S19]

7. **Validation and reconciliation check:** The arithmetic or physical cross-check applied before a figure is accepted (reconciling opening stock plus intake minus output and waste against physical closing stock). [S04] [S19]
8. **Missing-data and correction rule:** Missing data must be recorded explicitly as `unknown` or `unreported`, never silently replaced with zeros, averages or nameplate assumptions. [S19] [S1301] When a historical figure is revised after audit, the correction log retains the original entry, revision date and documentary reason. [S19]

Exhibit 58, p. 201 sets out the minimum ten-measure scorecard proposed by GFT to connect factory execution with national programme oversight. [S10] [S19] [S24] [S29]

EXHIBIT 58 / PROPOSED INDICATOR SPECIFICATIONS

The minimum scorecard links industrial outcomes to source records

Measure	Operational definition and unit	Primary source record	Functional owner
Domestic lint intake	Tonnes of domestic lint entering first conversion at standard moisture	Weighbridge ticket, bale tag and ginning dispatch note	Materials controller
Saleable output	Net tonnes or pieces passing final inspection and buyer spec	Final inspection release log and packing list	Quality assurance lead
Buyer acceptance rate	Accepted delivered value divided by total invoiced shipment value (%)	Customer goods-received note and credit-note ledger	Commercial lead
Effective utilisation	Saleable output divided by time-weighted nameplate capacity (%)	Shift production log and machine availability register	Operations manager
Unit contribution	Net realised price less direct variable cost per saleable unit (XAF)	Costed bill of materials and sales ledger	Plant finance lead
Cash conversion cycle	Inventory days plus receivable days minus payable days (days)	Aged inventory, debtor and creditor sub-ledgers	Treasury controller
Energy intensity	Grid and backup kWh plus thermal MJ per saleable kg	Feeder sub-meter logs and fuel-issue vouchers	Utilities engineer
Water and effluent	Intake m3 per saleable kg and compliance of treated discharge	Flow-meter log and certified lab effluent test sheet	E&S manager

ILLUSTRATIVE [S10] [S19] [S24] [S29] Illustrative scorecard specification from GFT's PMS design engagement (prepared 31 January 2024, refreshed 2026), aligned with UN statistical metadata practices (S19), OECD-FAO mill-use definitions (S29), IFC textile environmental indicators (S10) and IFC management-system standards (S24).

EXHIBIT 59 / PROPOSED INDICATOR SPECIFICATIONS

The minimum scorecard links industrial outcomes to source records, continued

Measure	Operational definition and unit	Primary source record	Functional owner
Workforce safety	Recordable injuries, near misses and overdue safety actions per shift	Shift OSH logbook and worker committee register	OSH coordinator
Payment continuity	Share of cotton-supplier and wage obligations paid within contract terms (%)	Bank settlement confirmations and payroll receipts	Finance director

ILLUSTRATIVE [S10] [S19] [S24] [S29] Illustrative scorecard specification from GFT's PMS design engagement (prepared 31 January 2024, refreshed 2026), aligned with UN statistical metadata practices (S19), OECD-FAO mill-use definitions (S29), IFC textile environmental indicators (S10) and IFC management-system standards (S24).

Every row in **Exhibit 58**, p. 201 ties an industrial objective to an inspectable primary document and a named role. [S10] [S19] [S24] The table cannot set a universal numeric target for unit contribution, energy intensity or water use across all plants, because those thresholds depend on whether a facility performs dry garment assembly, spinning or wet dyeing. [S10] [S26] Readers can inspect how national and enterprise metrics decompose into shop-floor drivers using the proposed `kpi-cascade` interface, while detailed PMS rules appear in `wp02` and data schemas in `wp14`. [S19] [S24]

13.6 PROTECT COMMERCIAL CONFIDENTIALITY WHILE VERIFYING MATERIAL FLOWS

Private textile sponsors and buyers will not submit proprietary unit costs, customer prices or order margins to a public competitor register. [S11] [S12] Equally, public authorities and lenders cannot release concessional infrastructure or verify the 50 percent transformation target from unverified self-declarations. [S02] [S20] [S34] The OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector emphasises collaborative approaches that verify supply-chain risks and material origin across tiers while respecting commercial boundaries. [S11] [S12]

GFT separates **lot-level provenance verification** from **financial and commercial disclosure**: [S11] [S19]

- **Physical lint and origin balances** (bale lot numbers, ginning origin, standard-moisture weight, date of first conversion, and monthly conversion loss) are reported to the national statistical and programme register and cross-checked against SODECOTON dispatch summaries and INS customs export records (which recorded XAF 177.2 billion of raw-cotton exports, or 5.4 percent of total export receipts, in 2024). [S04] [S19] [S23]
- **Plant-specific commercial and financial metrics** (unit contribution margin, customer names, credit notes and working-capital drawdowns) remain inside the enterprise and are shared only with the board, lenders and accredited auditors under non-disclosure obligations. [S11] [S24]

- **Published national dashboards** release only aggregated sector totals, project statuses and anonymised distributions whenever fewer than three enterprises operate in a stage, following official-statistics confidentiality practice. [S19] [S1301] [S1302]

> **GFT NOTE**
>
> Never allow a confidentiality clause to block physical mass-balance verification. A sponsor receiving public land, shared park utilities, fiscal incentives or domestic lint allocation must open its weighbridge intake logs, bale-origin registers, utility sub-meters and effluent test certificates to independent verification, while keeping customer pricing and margins confidential. [S10] [S19] [S20] [S24]

13.7

A manual system can establish the first useful history

A common failure in industrial digitalisation is buying enterprise software or sensor networks before the factory has stabilised physical workflows, lot numbering and shift supervision. [S02] [S12] When operators do not record bundle tickets, machine stoppages or rework reasons accurately on paper or basic tablets, software merely automates missing or fabricated numbers. [S19]

13.8 BUILD DISCIPLINE THROUGH FOUR OPERATIONAL CADENCES

In GFT's Cameroon textile programme, the PMS runs manual-first during Phase 0 setup and Phase 1 launch. [S02] [S24] These cadences are proposed design choices, not descriptions of an operating Cameroonian factory:

1. **Shift-level capture (every 8-hour or 12-hour shift):** Operators and quality checkers record lot intake tags, bundle completions, first-pass rejects by defect code, stoppage minutes by cause (power cut, breakdown, yarn break, material wait, absence) and utility meter readings at handover, signed by outgoing and incoming supervisors. [S10] [S28]
2. **Daily line review (15 to 20 minutes at morning shift start):** Operations, quality, maintenance and OSH leads meet at the production board to reconcile planned versus actual saleable output, inspect the top three defect types from reject bins, verify machine guards and assign 24-hour actions. [S10] [S28]
3. **Weekly performance and cash review (60 minutes every Monday):** Plant management reconciles weekly material mass balance, checks on-time delivery, reviews utility use per saleable kilogramme, audits supplier and payroll payment continuity, and tracks worker grievances or safety near misses to closure. [S24] [S25] [S28]
4. **Monthly demand-capacity and balance reconciliation (half-day at month-end):** The controller, commercial lead and operations manager conduct a physical stocktake of lint, fabric, work-in-progress and finished goods; reconcile counts against ledgers; verify customer collections; and lock the monthly return before transmitting indicators to investors or the national register. [S19] [S29]

METHOD

Monthly plant mass-balance verification check

Before a monthly production report enters management accounts or the national lint-transformation register, the plant controller and an independent verifier check the mass-balance identity for each stage in dry-standardised mass units (kilogrammes or tonnes): [S04] [S19] [S29]

$$\text{Opening Stock} + \text{Verified Intake} = \text{Accepted Output} + \text{Measured Waste} + \text{Rework} + \text{Closing Stock} + \text{Discrepancy}$$

- **Opening and closing stocks** are verified by physical count at month start and end, adjusted to standard moisture. [S04]
- **Verified intake** separates domestic-origin cotton material (traced by ginning lot or mill certificate) from imported or synthetic material. [S19] [S27] [S29]
- **Discrepancy rule:** If the absolute mass discrepancy exceeds an illustrative tolerance band of 1.5 percent of stage intake, the report is flagged `un-reconciled`, no domestic-lint transformation credit is booked for the lot, and a physical audit of weighbridges, moisture meters and waste bins is triggered before the next gate. [S04] [S19]

13.9 PRIORITISE RECONCILED LOGS OVER DECORATIVE DASHBOARDS

A paper ledger and a version-controlled spreadsheet passing the monthly mass-balance check are far more valuable for governance than a real-time dashboard fed by uncalibrated sensors. [S19] [S1301] Manual capture forces supervisors to agree on what counts as a first-pass defect, when a stoppage begins and how offcuts are weighed. [S10] [S28] It also keeps recording intact during the voltage fluctuations and power outages that the International Monetary Fund identifies as a structural constraint in Cameroon's electricity sector. [S07] Once six to twelve months of reconciled manual history exist, database migration is straightforward; companion papers `wp02` and `wp14` detail that transition. [S19]

13.10

Digital tools need locally tested value

The third component of GFT's Cameroon textile programme outlines a phased digital strategy covering production tracking, computer-vision inspection, demand forecasting and design workflows. Engineering honesty requires separating **global industry benchmarks** in vendor or consultancy literature from **demonstrated local factory outcomes**. [S12]

13.11 GLOBAL AI BENCHMARKS ARE NOT CAMEROON FACTORY FORECASTS

In the inherited evidence register, secondary sources report global claims for artificial intelligence and computer vision in textiles and apparel. McKinsey's *The State of Fashion 2025* R27 cites potential inventory-cost reductions of 35 to 40 percent, forecast-accuracy gains of 20 to 30 percent, revenue-per-customer increases of 15 to 25 percent, forecast-error cuts of 20 to 50 percent and lost-sales reductions up to 65 percent for fashion firms deploying AI at scale. [R27] Market-research entry R28 projects the global fabric-defect-detection AI market to grow from US$523.4 million in

2024 to US$6,522.1 million by 2033 at 33.8 percent a year, while inspection-literature entry R29 reports manual fabric inspection accuracy of 60 to 70 percent (missing 20 to 30 percent of defects) versus computer-vision accuracy above 90 percent across more than 40 defect types at speeds up to 60 metres a minute. [R28] [R29] Entries R30 and R31 describe the shift from generative design imagery in 2023 to 2024 to physics-constrained multi-model garment pipelines by 2025 to 2026. [R30] [R31]

None of those figures was measured in Cameroon, and none may enter a Cameroon factory feasibility model as an assumed saving or revenue uplift. [R27] [R29] [S02] A vision camera on a knitting frame or inspection table in Douala or Garoua will not cut unit costs if the plant lacks stable lighting, clean power, spare optical parts, a calibrated local defect library, or upstream process control to fix root causes. [S07] [S10] [S12] Similarly, forecasting models trained on high-frequency retail data cannot schedule a new Cameroonian plant bidding on episodic uniform tenders or wholesale lots without historical sales series. [S02] [S32]

13.12 REQUIRE LOCAL DEFECT ECONOMICS AND HUMAN-IN-THE-LOOP VERIFICATION

Instead of assuming technology savings, GFT's digital strategy subjects every proposed software or machine-learning tool to a staged qualification protocol: [S12] [S24]

- **Off-the-shelf operational backbone first:** Before testing predictive algorithms, the plant introduces simple purchased modules for barcode or QR lot tracking, maintenance scheduling, payroll verification and accounting reconciliation, after manual logs run cleanly for a full quarter. [S12] [S28]
- **Vision inspection qualification gate:** Optical inspection is considered only when fabric volume and buyer penalty clauses justify the capital and maintenance cost. [S12] Before sign-off, the system must be tested on representative Cameroonian cotton fabrics against human inspectors, measuring both **missed-defect cost** and **false-reject cost** (acceptable fabric flagged as defective, causing unnecessary stops or waste). [R29] [S04] [S25] Supervisors retain override authority and recalibrate weekly. [S25] [S28]
- **Forecasting and inventory qualification gate:** Statistical forecasting begins only after accumulating a verified history of buyer enquiries, sample approvals, trial orders, repeat purchases, lead times and returns across multiple seasons. [S31] [S32] Until then, scheduling remains order-backed or governed by conservative safety-stock rules (wp04, wp12, wp20). [S31] [S32]
- **Governance and worker protection:** Under IFC Performance Standard 2 and ILO safety principles, digital monitoring must never set unsafe speeds, bypass ergonomics or penalise workers for stoppages caused by power cuts, material defects or maintenance delays. [S25] [S28]

Readers can evaluate digital readiness using the proposed maturity and use-case-portfolio interfaces, while specialist methods appear in wp03, wp04, wp14 and wp18. [S12]

13.13

Public support needs milestones and transparent accountability

Moving Cameroon's cotton sector toward the minimum 50 percent local-transformation ambition in the *Stratégie Nationale de Développement 2020-2030* (SND30) involves public instruments: land allocation, transport and power upgrades, vocational training, testing laboratories, fiscal regimes and public-service clothing procurement. [S02] [S06] [S34] Historical experience shows that unconditional subsidies or unmonitored capital injections can absorb scarce fiscal resources while utilisation stays low and arrears grow. [R12] [R13] [S03] [S07] [S09]

13.14 TIE EVERY PUBLIC COMMITMENT TO VERIFIED OPERATIONAL DELIVERABLES

GFT recommends structuring public-private coordination around **evidence-linked tranche releases** rather than blanket concessions. [S02] [S20] These institutional functions are proposed by GFT for policy analysis, not existing government commitments: [S02] [S34]

- **Industrial policy and planning function:** Defines the 50 percent local-fibre transformation indicator, maintains the public project-status register (separating `announced`, `feasibility completed`, `financed`, `built`, `commissioned`, `qualified` and `operating` capacities), and requires verified mass-balance reporting for park tenancy or incentives. [R08] [R09] [S20] [S34]
- **Official statistics and customs reconciliation function:** Cross-checks processor lint-intake declarations against ginning dispatches and HS customs declarations, publishing an annual reconciled material balance with uncertainty bounds and vintage labels. [S19] [S23] [S1302]
- **Public procurement and institutional buyer function:** Translates uniform and sportswear ambitions into published technical specifications, tender calendars and payment-security escrows so mills bid on bankable contracts. [S02] [S11] [S34]
- **Infrastructure and fiscal oversight function:** Releases co-investments in substations, water lines, effluent plants or training stipends in tranches tied to verified milestones: equipment commissioning, environmental permits, multi-shift supervision and audited payment of suppliers and workers. [S07] [S13] [S20] [S24]

When a supported enterprise misses its operational, environmental or payment milestones within an agreed cure period, remedies include pausing subsequent tranches, reallocating reserved park utility capacity, or stepping in on shared infrastructure before fiscal liabilities compound. [S07] [S09] [S20]

13.15

Shared services need commercial and environmental rules

Both the IFC/World Bank diagnostic and the ministry SME study note that individual textile enterprises face high unit costs when each firm must build standalone power backup, water treatment, testing laboratories and maintenance workshops. [S02] [S06]

UNIDO's *International Guidelines for Industrial Parks* show that clustering factories in a well-governed zone can lower entry barriers and improve environmental compliance when operated under clear commercial and technical rules. [S20]

13.16 SPECIFY COMMERCIAL TERMS AND LOW-UTILISATION STRESS TESTS FOR SHARED ASSETS

Shared infrastructure is not an automatic saving; an oversized or poorly maintained common effluent treatment plant (CETP) or microgrid can halt every tenant factory or saddle early movers with unaffordable fixed charges. [S07] [S10] [S20] Drawing on UNIDO guidelines and IFC performance standards, GFT recommends five binding rules before tenant capital is committed: [S20] [S24] [S26]

1. **Metered cost recovery and tariff structure:** Every shared utility and laboratory service must use a transparent two-part tariff (fixed capacity charge plus metered volumetric rate), with any public operating subvention disclosed and stress-tested against fiscal delays. [S07] [S10] [S20]
2. **Non-discriminatory access and scheduling:** Testing laboratories, training workshops, bonded yards and partner conversion slots must publish intake standards, turnaround times and queues so SMEs are not crowded out by an anchor tenant. [S06] [S11] [S20]
3. **Inlet pretreatment and environmental liability boundaries:** In a shared effluent system, un-neutralised alkaline liquor, heavy metals or prohibited dyes from one dyehouse can disable biological treatment for the entire park. [S10] [S26] The park operator must enforce tenant inlet-pretreatment limits, continuous discharge monitoring, shut-off valves and polluter-pays guarantees under IFC Performance Standard 3 and IFC textile EHS guidelines. [S10] [S26]
4. **Ring-fenced maintenance sinking fund:** A set share of tariff collections must fund a ring-fenced account for critical spares (membranes, dosing pumps, transformer bushings, lab calibration standards) independent of annual public budget votes. [S07] [S20]
5. **Low-utilisation downside allocation:** When pioneer lines operate at 30 to 50 percent of park design load, fixed overheads cannot be divided across a few active units without pricing pioneers out of the market. [R12] [S20] The park financial model must specify who carries unabsorbed fixed capacity during Phase 1 and Phase 2 via modular phasing, sponsor standby facilities or explicit public availability payments. [S07] [S20]

> **WARNING**
>
> **Unresolved constraint: shared park governance and environmental enforcement**
>
> No operating shared textile park with certified common effluent treatment and firm industrial power availability was verified in Cameroon in the opened sources; industrial-hub plans at Dibamba and Garoua (R09, R10) remain press-reported announcements rather than audited utilities. [R09] [R10] [S02] [S07] Until a park operator agreement, discharge permit, tariff schedule and low-utilisation covenant are verified, factory feasibility models must carry the full standalone cost of on-site water treatment, backup power and laboratory testing. [S07] [S10] [S26]

13.17

An independent challenge should be part of expansion

Optimism bias is strongest at the transition from pilot assembly to upstream capital expenditure. [S02] [S03] Once a garment workshop is sewing shirts or uniforms, pressure mounts to order spinning frames, knitting machines and dyeing vats to claim vertical integration. [R08] [R09] [S02] Yet CICAM's low site utilisation (R12) and the EU/Agrinatura analysis (S03, finding cotton-chain activities profitable for all agents except CICAM) warn that adding upstream conversion assets before demand, power reliability, maintenance skills and working capital are proven can turn a viable downstream business into a loss-making pole. [R12] [S03]

13.18 GATE EVERY CAPITAL RELEASE ON FOUR GRADED EVIDENCE STATES

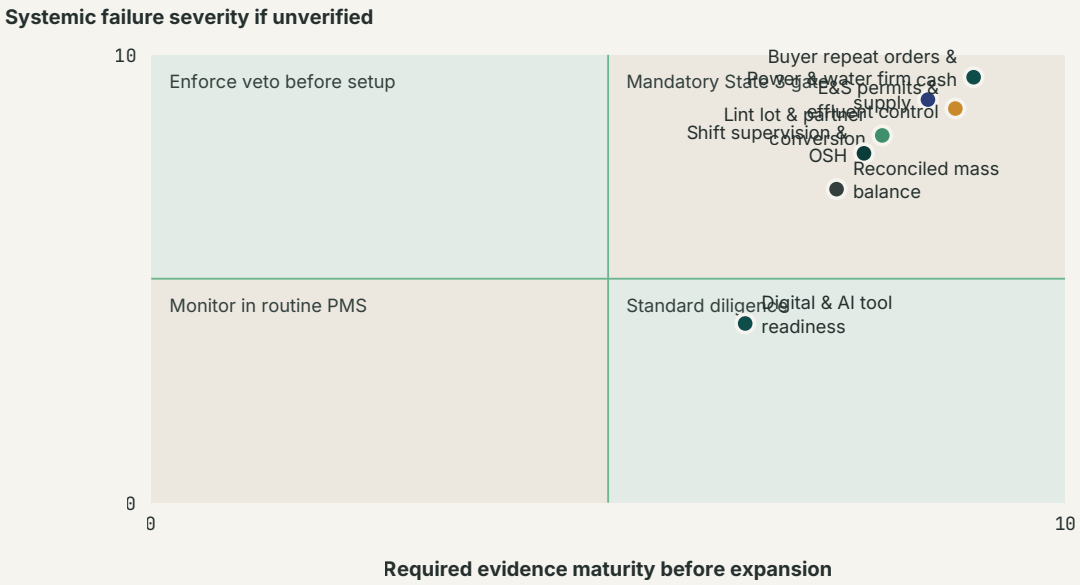
GFT proposes an **independent challenge panel** (engineering, commercial, financial and E&S reviewers with no remuneration tied to equipment procurement) at every stage gate, scoring each domain across four evidence states: [S11] [S24]

- **State 0 (`Unknown / Unverified`):** No primary document exists, or claims rest on press announcements, vendor brochures or un-reconciled historical estimates. [R09] [S01] [S19]
- **State 1 (`Documented design`):** Drawings, draft contracts, policy ambitions, financial models or operating procedures exist on paper (such as GFT's 31 January 2024 design deliverables), but remain untested with live materials, utilities or counterparties. [S02] [S24]
- **State 2 (`Tested in pilot / trial`):** Representative cotton lots have been trialled, buyer samples approved, trial orders delivered, feeders load-tested and manual shift logs captured over an initial window. [S04] [S11] [S28]
- **State 3 (`Accepted in repeat operation`):** Consecutive commercial cycles meet buyer quality and delivery tolerances, cash is collected within terms, monthly mass balances reconcile, effluent and OSH records pass independent inspection, and unit contribution covers operating and working-capital costs. [S10] [S19] [S24] [S25]

Exhibit 60, p. 209 maps the seven expansion domains across readiness and impact dimensions. [S02] [S20] [S24] [S25]

EXHIBIT 60 / ILLUSTRATIVE GATE SCORE (0 TO 10 SCALE)

Evidence strength should govern the expansion decision



ILLUSTRATIVE [S02] [S20] [S24] [S25] Illustrative GFT stage-gate decision matrix informed by private-sector diagnostic constraints (S02), industrial-park guidelines (S20) and IFC environmental and labour standards (S24, S25). Horizontal axis shows required evidence maturity before upstream capex; vertical axis shows failure consequence if unverified. Positions are analytical design illustrations, not measurements of a live plant.

As **Exhibit 60**, p. 209 illustrates, high-consequence domains (repeat paid buyer orders, firm power and water supply, environmental discharge control, qualified lint conversion and shift supervision) sit in the upper-right quadrant, requiring verified State 3 repeat-operation evidence before committing upstream capital. [S02] [S07] [S24] [S25] Advanced digital and AI tools sit lower on failure severity: they still require high data maturity (horizontal score 6.5 in the illustrative chart), but delaying a vision camera or forecasting model does not threaten solvency while manual reconciliation logs remain intact. [S12] [S19] Like all conceptual matrices, **Exhibit 60**, p. 209 organises decision rules and cannot replace project-specific engineering and financial due diligence. [S02]

13.19 PUBLISH UNRESOLVED LIMITATIONS ALONGSIDE PROGRESS CLAIMS

Accountable coordination requires publishing what remains unknown alongside what has been achieved. [S19] [S22] Every quarterly national report and venture board pack should include an explicit **limitations and open-data register** separating design completion from construction, mechanical commissioning, buyer qualification and profitable, compliant operation. [R08] [R09] [S24] Where a national baseline remains unresolved, such as the discrepancy between the 2019 5 percent reference in R06/S01 and the 2022 1 to 2 percent figures in S06, reports should state both figures with their vintages and record the missing plant-intake reconciliation as an active statistical task. [R06] [S01] [S06]

By binding shop-floor logs, plant mass balances, shared-park rules and national registers into one evidence architecture, Cameroon's industrial actors can spot bottlenecks early, re-sequence capital when utilities or orders lag, and ensure that every

tonne of cotton counted toward the 2030 target represents real domestic value creation. [R07] [S29] [S34] Chapter 14 translates this architecture into a conditional roadmap with explicit actor responsibilities and stop conditions. [S02] [S24]

A factory that cannot reconcile its material balance on paper cannot make its investment case accountable in software.

CHAPTER SOURCE NOTES

R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.

S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.

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S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.

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R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.

R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.

S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.

S1302 Institut National de la Statistique du Cameroun. 2015-12-15.

S23 Institut National de la Statistique du Cameroun. 2025.

S11 OECD. 2018-03-07.

S04 SODECOTON. n.d..

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.

S01 Cameroon Trade Hub, reproducing Cameroon Business Today. 2019.

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S30 African Continental Free Trade Area Secretariat. 2022.

S28 International Labour Organization. 2022-04-26.

S20 United Nations Industrial Development Organization. 2019-11-29.

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S27 Textile Exchange. 2025.

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R28 DataIntelo. Publication date unrecorded; inherited source-text check.

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R30 Design Journal (Taylor and Francis). Publication date unrecorded; inherited source-text check.

R31 arXiv 2509.04705. Publication date unrecorded; inherited source-text check.

S32 Food and Agriculture Organization of the United Nations. n.d..

S31 World Bank. 2025.

R13 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.

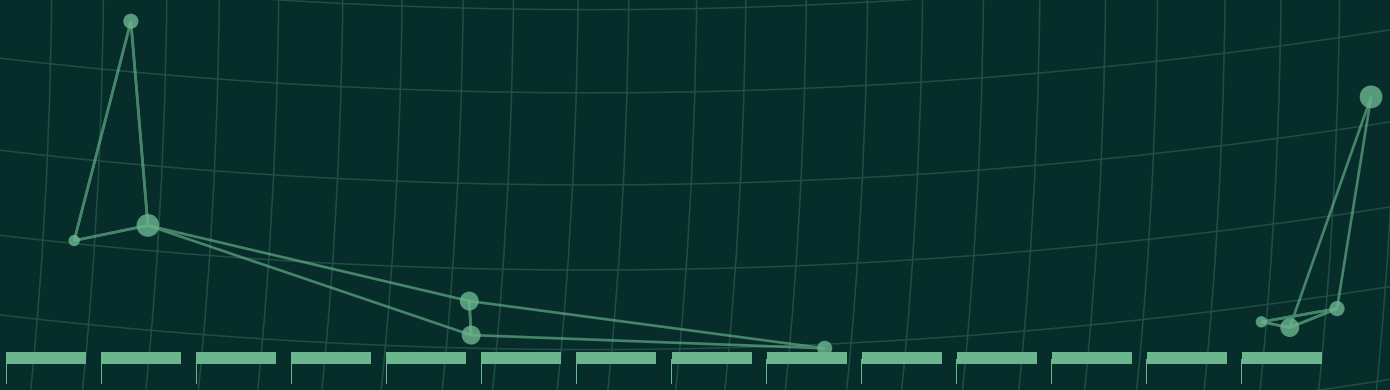
S09 World Bank. 2025-07-15.

S13 International Labour Organization. 2025-03-28.

14

Expand only after demand, conversion and cash have been demonstrated

The route towards the national target is a sequence of measurable decisions, with clear stop conditions and separate national and venture responsibilities.



CHAPTER 14
DECISION TEST

The route towards the national target is a sequence of measurable decisions, with clear stop conditions and separate national and venture responsibilities.

Cameroon can move from a historical reference where approximately 95 percent of cotton fibre was exported raw and about 5 percent processed locally to its 2030 national ambition of at least 50 percent domestic industrial transformation only by governing expansion through verified operational gates rather than calendar deadlines. [R06] [R07] [S01] [S34] Machinery procurement by itself neither creates a buyer nor guarantees that lint will become saleable yarn, fabric or garments at a positive cash margin. [S02] [S03] [S32] Green Future Tech Limited (GFT), Hong Kong SAR, therefore structures the transition as a four-phase conditional roadmap in which every capital release depends on measured proof of repeat paid orders, qualified material conversion, reliable utilities, competent shift supervision and funded working capital. [S02] [S24] [S28] Where a gate is not met, the disciplined engineering response is to remediate the constraint, defer upstream capital or stop expansion before losses mount. [R12] [S03]

This concluding chapter translates the paper's findings into a decision sequence that separates national policy accounting from venture-level execution. It synthesises the three components of GFT's Cameroon textile programme, comprising the feasibility study, the production performance-management system design and the digital strategy, prepared on 31 January 2024 with source-refresh notes retained in 2026. [R06] The framework is an industrial engineering and governance method, not a prediction that the 2030 policy target has been or will be achieved, and not investment, legal or tax advice.

14.1

First agree what the target measures

A national industrialisation target can guide capital allocation only when public authorities, statistical agencies, cotton institutions and factory operators measure the same physical flow across the same boundary. [S06] [S19] [S29] In Cameroon's primary planning document, the National Development Strategy 2020 to 2030 (SND30, paragraph 108), the state sets an ambition to achieve a minimum 50 percent industrial transformation rate for local cotton fibre by 2030, while stating a separate upstream production ambition of 600,000 tonnes of cotton by 2025 and public procurement intentions for locally made clothing and sportswear. [R07] [S02] [S34] Without an agreed accounting rule, programmes risk conflating seed-cotton weight with ginned lint, confusing garment assembly of imported cloth with domestic fibre conversion, or counting the same bale repeatedly as it passes from spinning to weaving and sewing. [S04] [S06] [S29]

14.2 A SHARED NUMERATOR AND DENOMINATOR PREVENT DOUBLE COUNTING ACROSS STAGES

To make the national target auditable, GFT recommends a joint reporting protocol built around first qualifying conversion of domestic lint. [S06] [S19] [S29] Under this protocol, the numerator is the metric tonnage of domestic-origin cotton lint, measured after ginning outturn from seed cotton on a standardised moisture basis, that physically enters a qualifying domestic conversion process beyond ginning during the reporting period. [S04] [S29] In international commodity accounting used by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO), cotton mill use is defined specifically as the transformation of cotton fibres by mills into yarn. [S29] Adopting first conversion

beyond ginning as the national numerator boundary ensures that each tonne of domestic lint is counted once, when it enters spinning or an equivalent primary fibre process, and never counted again when that yarn is knitted or woven into fabric or sewn into garments. [S12] [S29]

This boundary rule preserves clarity across three industrial activities that contribute differently to the national economy:

1. **Primary domestic lint transformation:** Domestic cotton fibre entering local spinning or primary textile conversion directly increases the national lint-processing numerator and retains fibre value domestically, provided the resulting yarn or fabric meets buyer specifications and sells above conversion cost. [S03] [S29] [S32]
2. **Downstream conversion of domestic yarn:** Weaving, knitting, wet processing and cut-make-trim assembly that process domestically spun yarn deepen domestic value added and employment without adding new lint tonnage to the primary fibre numerator. [S03] [S12] [S29]
3. **Garment assembly using imported fabric:** A cut-make-trim operation that imports fabric under customs regimes recorded by the National Institute of Statistics (INS) builds workforce skills, generates revenue and validates commercial channels, yet its direct contribution to the domestic cotton-lint transformation share is zero tonnes. [S19] [S23] [S29]

The denominator requires equal precision. Agricultural campaign records report seed cotton harvested across the northern basin, whereas textile mills consume ginned lint. [R01] [S04] [S06] In the September 2022 study for the Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts (MINPMEESA), paired historical campaign data for 2017/18 recorded 254,181 tonnes of seed cotton and 107,618 tonnes of ginned fibre, giving an observed ginning outturn of approximately 42.34 percent alongside a 42 percent planning scenario coefficient. [S06] Because crop campaigns span calendar years and customs declarations follow calendar months, deducting annual raw-cotton exports from campaign lint production without adjusting for warehouse stocks produces false residuals. [S19] [S23] A credible national denominator must reconcile opening lint stocks, campaign lint outturn, lint imports, customs lint exports, verified mill intake and closing stocks on a consistent reporting calendar. [S04] [S19] [S29]

14.3 HISTORICAL REFERENCES AND POLICY TARGETS REQUIRE SEPARATE EVIDENCE LABELS

Public debate frequently cites the 95 percent raw export and 5 percent local processing split as if it were a contemporary audited measurement. [R06] [S01] Traceability across the evidence register shows why a fresh baseline census is required. The 95 percent and 5 percent figures in the shared ledger trace to a Cameroon Trade Hub reproduction of a February to March 2019 article in *Cameroon Business Today*, which referenced earlier Industrialisation Master Plan ambitions. [R06] [S01] Meanwhile, the September 2022 MINPMEESA sector study stated in its foreword that local transformation stood at approximately 1 percent of fibre while applying a 2 percent domestic uptake coefficient to the incumbent processor in its scenario tables. [S06] An earlier European Commission and Agrinatura value-chain analysis (published in 2020 from 2017 and 2017/18 observations) likewise noted that nearly all lint was exported and domestic industrial uptake remained marginal. [S03]

These historical estimates differ in observation date, denominator definition and facility coverage, so they cannot be averaged. [S01] [S03] [S06] As summarised in **Exhibit 61**, p. 215, decision-makers must keep historical reference figures, primary policy targets and unverified current performance separate.

EXHIBIT 61 / PERCENT OF COTTON FIBRE AND EVIDENCE STATUS

The reference share and national target need different evidence labels



SOURCED [R06] [R07] [S01] [S02] [S06] [S34] R06 and S01 provide the approximate 95% export and 5% local processing historical reference (2019 article vintage); S06 (September 2022) cites roughly 1% in its foreword and 2% in scenario tables. R07, S02 and S34 (paragraph 108) record the minimum 50% local fibre transformation target by 2030. Current verified national share remains unresolved pending a stock-adjusted census.

Exhibit 61, p. 215 establishes that the gap between historical domestic processing and the 2030 ambition is wide under every published baseline, whether measured against the 5 percent reference in [^R06] and [^S01] or the 1 to 2 percent figures in [^S06]. What **Exhibit 61**, p. 215 cannot establish is the exact percentage of lint transformed in Cameroon in 2026, because no consolidated, stock-adjusted mill-intake census has been published for the current crop cycle. [S06] [S19] Retaining R06 as a dated historical benchmark while commissioning a reconciled baseline prevents policy teams and investors from mistaking an unmeasured residual or an announced project pipeline for realised industrial progress. [R06] [R09] [R10]

14.4

Prepare supply, buyers and the operating site together

Industrial expansion fails when sponsors commit capital to long-lead production machinery before verifying the complementary inputs required to run it. [S02] [S03] Historical evidence from Cameroon's incumbent textile operations illustrates the penalty of asynchronous preparation: press-reported capacity utilisation at the incumbent's Garoua, CICAM 1 and CICAM 2 plants stood at 33.7 percent, 48.9 percent and 10.83 percent respectively in July 2023, with historical underutilisation losses reported near XAF 2 billion in 2020. [R12] Sector diagnostics by the International Finance Corporation (IFC) and the World Bank, alongside the European Commission value-chain study, attribute such underperformance to the simultaneous interaction of ageing equipment, working-capital illiquidity, power interruptions, high transport costs and competition from imports and second-hand clothing. [S02] [S03] [S23]

14.5 SIX PRE-COMMITMENT WORKSTREAMS GOVERN PHASE 0

In GFT's programme sequence, **Phase 0 (Set up and qualify)** functions as a mandatory synchronisation gate before capital is locked into factory construction or equipment purchase orders. [S02] [S24] Phase 0 requires documentary and trial proof across six interdependent pillars, assigned to five functional leadership roles (Sponsor, Commercial Lead, Operations Lead, Finance Lead and Environmental and Social Lead, defined as governance accountabilities rather than named appointments):

- **Product specification and buyer qualification (Commercial Lead):** Because demand for cotton fibre is derived from downstream demand for specific yarns, fabrics and garments, aggregate continental market forecasts cannot justify a plant configuration. [R24] [R25] [S32] Phase 0 requires buyer-signed technical specification packs covering yarn count, fabric construction, weight, shrinkage, colourfastness and sizing tolerances, backed by sample approvals and trial order frameworks in candidate segments such as uniforms, workwear, basic knitwear or printed cloth. [S02] [S27] [S32] Where public procurement is considered, the policy ambition in SND30 must be translated into verified tender budgets, lawful eligibility and payment security before being counted as demand. [S02] [S34]
- **Feedstock and input lot qualification (Operations Lead):** If the venture plans to convert domestic lint directly or through a partner, Phase 0 must test representative bale lots from SODECOTON ginneries for staple length, strength, micronaire, moisture content and contamination against the target yarn specification. [S04] [S06] If the venture launches with garment assembly using purchased fabric, Phase 0 must qualify fabric mills, verify customs classification and rules of origin for intended sales routes, and establish lot-level chain-of-custody records. [S11] [S16] [S17] [S30]
- **Site utilities and corridor verification (Operations Lead):** Because Cameroon's electricity sector faces structural shortfalls and grid proximity does not guarantee industrial voltage stability, national access statistics cannot be used as factory uptime assumptions. [S07] [S08] Phase 0 requires feeder-specific load studies,

outage logs, backup generation or solar-plus-storage cost envelopes, water supply and effluent discharge feasibility, and shipment-level corridor transit and dwell measurements across northern and coastal options. [S07] [S10] [S31]

- **Environmental, social and safety architecture (E&S Lead):** Before civil works or equipment installation begin, the venture must establish an environmental and social management system (ESMS) aligned with IFC Performance Standard 1, including stakeholder consultation and worker and community grievance mechanisms. [S24] It must also document labour and working-condition controls under Performance Standard 2, pollution-prevention plans under Performance Standard 3, occupational safety procedures following International Labour Organization (ILO) textile guidance, and statutory environmental permits. [S10] [S25] [S26] [S28]
- **Supervisory and maintenance skills pipeline (Operations Lead):** Statutory wage floors do not translate into competitive unit labour costs if machine availability and first-pass quality are low. [R14] [S14] Phase 0 defines task-level competency matrices and practical assessments for line supervisors, machine setters, maintenance technicians and quality inspectors so that every planned shift has verified coverage. [S02] [S13] [S28]
- **Working-capital and cash-cycle funding (Finance Lead):** Seasonal lint purchasing, imported chemical and spare-parts lead times, commissioning scrap and customer payment terms create a working-capital trough that binds before accounting depreciation. [S03] [S31] Phase 0 requires a committed cash plan covering peak inventory and receivable days, separating euro-pegged CFA franc (XAF, fixed at 655.957 XAF per euro) operating costs from US-dollar cotton benchmark and machinery exposures. [R32] [S18] [S33]

> **GFT NOTE**
>
> In GFT's Cameroon textile programme, Phase 0 is governed as a joint sign-off gate rather than a collection of disconnected studies. The Sponsor should hold back binding equipment deposits and construction contracts until the Commercial Lead presents signed sample protocols, the Operations Lead presents verified utility connection terms and feedstock trial results, the E&S Lead confirms permit filings and grievance channels, and the Finance Lead demonstrates committed working-capital facilities sufficient to survive a downside ramp. [S02] [S07] [S24] Treating any one of these six items as a post-commissioning task transfers unpriced stop risk onto the factory floor. [R12] [S03]

14.6

Launch with a measured and commercially limited scope

Once Phase 0 evidence is accepted at Gate 0, the programme enters **Phase 1 (Launch and stabilise)**. The engineering objective of Phase 1 is not to maximise headline volume or rush into full vertical integration, but to prove that the operating system can convert inputs into buyer-accepted products on time, collect cash on schedule, protect worker safety and record accurate shift-level data. [S02] [S13] [S28]

14.7 MANUAL SHIFT LOGS ESTABLISH THE FIRST OPERATIONAL BASELINE

New textile operations frequently stumble when they launch too many stock-keeping units (SKUs) across unseasoned crews while attempting to deploy complex software before shop-floor routines exist. [S02] [S12] GFT's performance-management system design therefore specifies a narrow initial product portfolio, such as two or three standardised workwear, uniform or basic knit constructions, paired with disciplined manual-first data capture. [S02] Reducing style and yarn-count changeovers allows operators, supervisors and technicians to stabilise machine settings, establish standard operating procedures and isolate the causes of defects and downtime. [R12] [S28]

During Phase 1, every operating shift records seven mandatory operational logs at the process boundary:

1. **Material intake and batch identity:** Bale or fabric roll identifiers, supplier lot numbers, gross and net weights, moisture readings where applicable, and incoming inspection outcomes. [S04] [S11]
2. **Production throughput and first-pass yield:** Units or kilograms entering and exiting each stage, separating first-pass accepted output from reworkable seconds and irrecoverable waste. [S04] [S10]
3. **Categorised downtime and availability:** Machine running hours versus planned shift hours, with every stoppage above five minutes coded to a specific cause: grid power failure, voltage dip, mechanical breakdown, preventive maintenance, spare-parts wait, operator absence or material starvation. [R12] [S07]
4. **Order fulfilment and buyer acceptance:** Dispatch dates against promised delivery windows, carrier transit times, buyer inspection certificates, and any commercial claims, returns or invoice deductions. [S31] [S32]
5. **Cash conversion events:** Dates of supplier advance payments, customs clearance outlays, customer invoice issuance and cleared bank receipts in XAF or foreign currency. [S03] [S18]
6. **Utility and resource meter readings:** Shift or daily sub-meter readings for electricity (kilowatt-hours), backup generator fuel (litres), water intake (cubic metres), and wastewater discharge volumes and quality checks. [S10] [S26]
7. **Occupational safety and labour records:** Shift attendance, overtime hours within statutory limits, training task sign-offs, near-miss and injury logs, and worker grievance filings and closure dates. [S13] [S24] [S25] [S28]

These logs feed a structured cadence of operational governance: a daily fifteen-minute line review at shift handover to correct immediate quality or maintenance faults, a weekly plant performance review to reconcile material balances and downtime pareto causes, and a monthly demand-and-capacity review linking commercial order books to procurement and cash flow. [S02] [S24]

14.8 ASSEMBLY CAPABILITY AND LINT TRANSFORMATION REMAIN SEPARATE PROOFS

Phase 1 must enforce strict honesty about material boundaries. In GFT's programme architecture, a venture may launch Phase 1 with a cut, make, trim and finishing configuration while testing upstream spinning and knitting through partnered conversion slots. [S02] [S29] If the initial Phase 1 batches use imported fabric to qualify sewing

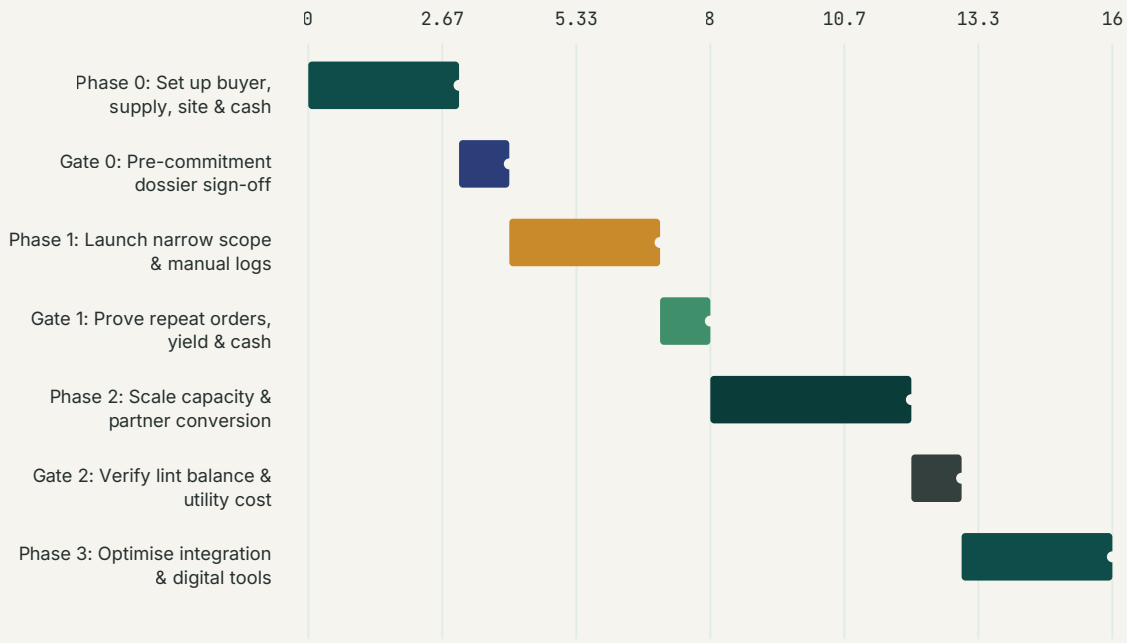
lines and institutional buyers, the venture is proving garment assembly, quality management and commercial collection, which are essential building blocks of a viable textile enterprise. [S12] [S23] However, as established by the OECD-FAO mill-use definition, sewing imported fabric does not transform Cameroonian cotton lint. [S29]

To move from assembly proof to lint-transformation proof during Phase 1, the Operations Lead must execute controlled trial lots in which traced domestic lint from northern ginneries is converted into yarn and fabric by a qualified partner mill (or a pilot conversion module) and fed into the garment line. [S02] [S04] [S06] Comparing the conversion loss, defect rate, unit cost and buyer acceptance of the domestic-fibre batch against the imported-fabric baseline generates the empirical evidence required for Gate 1. [S29] [S32]

Exhibit 62, p. 219 illustrates how Phase 0, Phase 1, Phase 2 and Phase 3 link together across a sequence of dependency gates rather than predetermined calendar dates.

EXHIBIT 62 / ILLUSTRATIVE GATE-SEQUENCE INDEX (DEPENDENCY UNITS)

The proposed roadmap advances by gates rather than promised calendar dates



ILLUSTRATIVE Illustrative GFT programme phase spine informed by constraints in S02, S03, S10 and S24. Horizontal positions 0 to 16 represent sequential dependency steps and gate reviews, not promised calendar durations, completion dates or approved investments. Advancement to each subsequent bar requires passing the preceding stage gate.

As shown in **Exhibit 62**, p. 219, each phase is separated by an explicit decision gate (Gate 0, Gate 1 and Gate 2). The horizontal axis uses an illustrative dependency index from 0 to 16 solely to represent logical precedence. It cannot establish how many months a specific venture will require in Phase 1 or Phase 2, because real elapsed time depends on utility connection works, shipment dwell times, workforce learning curves and buyer reorder cycles. [S07] [S13] [S31] If a venture at Gate 1 shows strong assembly quality on imported cloth but has not yet achieved acceptable yarn strength

or cost in partnered domestic lint trials, it may continue operating at Phase 1 scale while remediating the upstream conversion specification, rather than forcing premature capital into Phase 2. [S02] [S04] [S29]

14.9

Add conversion only when the next stage has a proven outlet

Passing Gate 1 authorises entry into **Phase 2 (Scale repeat capacity and partnered conversion)**. In this phase, the venture expands throughput on proven product lines and deepens domestic cotton-lint transformation by converting verified downstream demand into upstream spinning, knitting or weaving pull. [S02] [S29] [S32]

14.10 UPSTREAM INTEGRATION REQUIRES INTERNAL OFFTAKE AND PARTNERED TRIALS

The historical vulnerability of standalone spinning and weaving mills stems from building large fixed-cost conversion plants without captive downstream demand or assured export competitiveness. [S02] [S03] When a domestic garment and fabric operation has already demonstrated repeat paid orders and stable quality in Phase 1, that downstream operation provides a predictable internal order book for specific yarn counts and fabric constructions. [S29] [S32]

Even with internal demand established, Phase 2 prioritises staged commitment over an immediate turnkey integrated complex:

- **Expand partnered toll conversion first:** Before purchasing spinning frames or wet-processing ranges, the venture increases contracted conversion volumes with domestic or regional spinning, knitting and finishing partners under formal tolling agreements. [S02] [S04] The tolling contract must specify bale lot identity, maximum trash and moisture allowances, yarn or fabric quality tolerances, process waste allowances, turnaround schedules, title retention and fee structures. [S04] [S11]
- **Add modular owned conversion only where bottlenecks bind:** Where partnered capacity cannot meet verified volume, quality or lead-time requirements, or where tolling margins and transport costs justify internalising a process step, the venture evaluates modular capacity additions in knitting, weaving or spinning. [S02] [S10] Each module is sized to the proven base load of narrow-portfolio products rather than peak seasonal demand, supporting high utilisation from commissioning. [R12] [S02]
- **Verify wet-processing utilities and permits before internalising dyeing or finishing:** Wet processing introduces step-change demands in water intake, thermal steam, chemical storage and effluent treatment. [S10] [S26] A venture should internalise dyeing, bleaching or printing in Phase 2 only if site water rights, continuous power and steam economics, sludge disposal pathways and environmental discharge permits are verified against IFC EHS textile guidelines and national law. [S10] [S24] [S26]

14.11 DATA-DEPENDENT TOOLS WAIT FOR CLEAN OPERATIONAL HISTORY

Phase 2 is also the stage at which GFT's digital strategy permits selective transition from manual shift logs to structured digital workflows and analytical tools. [S12] Industry literature reports substantial global potential for artificial intelligence in fashion and textiles: McKinsey's *State of Fashion 2025* cites inventory cost reductions of 35 to 40 percent and forecast error reductions of 20 to 50 percent from AI at scale, while inspection literature notes that automated computer vision can exceed 90 percent defect detection accuracy across more than 40 defect types at line speeds up to 60 metres a minute compared with 60 to 70 percent accuracy for manual inspection. [R27] [R29]

However, GFT's governance rules prohibit transferring global vendor or literature benchmarks into Cameroon factory projections as guaranteed outcomes. [R27] [R28] [R29] Statistical demand forecasting requires multiple seasons of clean, SKU-level order, delivery and stockout history to outperform simple reorder rules; introducing algorithmic forecasting during a cold-start launch merely amplifies noise. [S12] [S31] Similarly, automated optical fabric inspection requires stable lighting and tension, a labelled library of local fabric defects, known false-reject costs and trained technicians who can recalibrate cameras without halting the line. [R29] [S28] In Phase 2, digital investments must pass the same gate test as mechanical equipment: proved data readiness, a quantified local error or waste baseline from Phase 1 logs, and a positive net cash payback after software licensing, sensor hardware and local maintenance costs. [S02] [S12]

METHOD

Stage-Gate Throughput, Cash and Mass-Balance Release Test (Gate 1 to Phase 2 and Gate 2 to Phase 3)

Before releasing capital for Phase 2 scale-up or Phase 3 integration, the review committee evaluates five operational rules over a prospectively defined qualifying window:

1. **Effective saleable utilisation:** `Effective utilisation = Saleable output / Nameplate capacity` must meet or exceed the agreed gate floor, where saleable output covers only units passing final buyer inspection without rework or discount, tested across illustrative planning bands of 50 percent, 70 percent and 85 percent against historical underutilisation warnings. [R12]
2. **Stage mass-balance closure:** `Mass variance = Input mass - (Accepted output + Reworkable seconds + Weighed scrap + Stock change)` must remain within the agreed measurement tolerance before domestic lint conversion claims are certified. [S04] [S19] [S29]
3. **Positive operating contribution after reliability costs:** `Operating surplus = (Net price - Unit material - Unit labour - Unit grid power - Unit backup fuel - Unit outage scrap) * Saleable output - Fixed plant overhead` must be strictly positive under observed grid outage frequencies. [S03] [S07] [S10]
4. **Funded cash conversion cycle:** `Cash conversion cycle (days) = Inventory days + Receivable collection days - Payable days` must be fully covered by committed working-capital facilities so that peak cumulative cash draw never delays grower or supplier payments. [S03] [S31]
5. **Zero unclosed critical E&S or safety non-conformities:** Verified compliance with water intake, effluent treatment quality, machine guarding, fire safety, statutory wage payments and grievance closure timelines. [S10] [S24] [S25] [S26] [S28]

To see how this method operates at both the venture boundary and the national coordination boundary, consider a worked example connecting gated factory expansion to the normalised national lint-processing arithmetic.

WORKED EXAMPLE: CONDITIONAL LINT CONVERSION AND WORKING-CAPITAL GATE

Purpose and basis: This worked example is explicitly **illustrative** (`status: illustrative` and `derived` arithmetic from cited policy parameters). It shows how a stage-gate review evaluates both a national programme's progress from the historical 5 percent reference ([^R06]) to the 50 percent target ([^R07], [^S34]) and a venture's cash-cycle gate. None of the figures represent a forecast or a measured GFT factory result.

Part A: National conditional throughput blocks on a normalised 100,000-tonne lint base. Hold annual domestic lint supply constant at an illustrative 100,000 tonnes solely to keep percentage shares and tonnages transparent. At the historical 5 percent reference ([^R06], [^S01]), baseline domestic conversion is `100,000 * 0.05 = 5,000` tonnes of lint per year. Reaching the minimum 50 percent policy ambition ([^R07], [^S34]) requires `100,000 * 0.50 = 50,000` tonnes of lint per year, an incremental conversion requirement of `50,000 - 5,000 = 45,000` tonnes per year (a tenfold increase in processed lint volume, `50,000 / 5,000 = 10`).

Suppose the national industrial programme sequences this illustrative 45,000-tonne increment across four conditional gate releases:

- **Step 1 (Phase 1 partnered conversion trials):** Qualified toll-spinning and knitting trials absorb an illustrative 5,000 additional tonnes of domestic lint, lifting national transformation from 5,000 to 10,000 tonnes (10 percent of the normalised base).
- **Step 2 (Phase 2 initial scale-up):** Following Gate 1 proof of repeat garment and fabric sales, initial modular conversion additions absorb an illustrative 15,000 tonnes of domestic lint, raising cumulative transformation to 25,000 tonnes (25 percent).
- **Step 3 (Phase 2 multi-line portfolio expansion):** Following Gate 2 verification of utility reliability, effluent compliance and working-capital lines, secondary conversion modules absorb an illustrative 15,000 tonnes, reaching 40,000 tonnes (40 percent).
- **Step 4 (Phase 3 integrated optimisation):** Debottlenecking, shift expansion and high-efficiency spinning and finishing absorb the final illustrative 10,000 tonnes, reaching 50,000 tonnes (50 percent).

At an illustrative achievable utilisation of 70 percent, absorbing the 45,000-tonne incremental lint intake requires installed nameplate lint-conversion capacity of `45,000 / 0.70 = 64,286` tonnes per year (rounded to the nearest tonne). If power shortfalls or maintenance delays depress utilisation to 50 percent, required nameplate rises to `45,000 / 0.50 = 90,000` tonnes per year; if disciplined operations achieve 85 percent utilisation, required nameplate falls to `45,000 / 0.85 = 52,941` tonnes per year.

Part B: Venture-level Gate 1 hold triggered by receivable delay. Consider a candidate venture seeking Gate 1 approval to expand from an illustrative Phase 1 intake of 1,000 tonnes of lint per year to 3,000 tonnes per year in Phase 2. Assume an illustrative conversion yield of 85 percent from lint to saleable fabric and garment weight (`1,000 tonnes * 0.85 = 850 tonnes saleable output`), an illustrative net contribution margin of 400 cost units per tonne of saleable output, and fixed operating costs of 220,000 cost units per year.

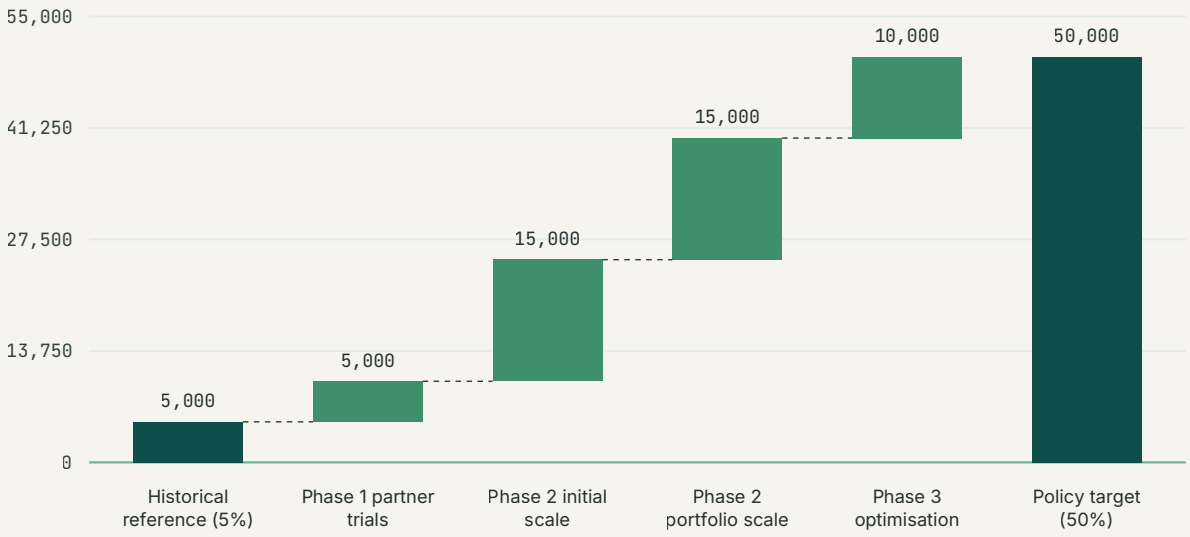
- Operating surplus at this illustrative Phase 1 scale is `(850 * 400) - 220,000 = 340,000 - 220,000 = +120,000` cost units per year, passing the accounting contribution test.

- However, shift and finance logs in this illustrative case reveal that while raw lint must be paid within 15 payable days to preserve upstream ginning liquidity ([^S03]) and inventory sits in seasonal buffer and work-in-progress for 90 inventory days, institutional buyers take 135 receivable days to settle invoices instead of the contracted 60 days.
- The realised illustrative cash conversion cycle is `90 + 135 - 15 = 210` days (versus the planned `90 + 60 - 15 = 135` days). Scaling intake threefold to 3,000 tonnes under a 210-day cash cycle would multiply peak working-capital draw beyond the venture's committed credit line. Under GFT's stage-gate rule, **Gate 1 is placed on hold**: the venture may not order Phase 2 conversion machinery until buyer payment security brings realised collection days back inside the funded cash boundary.

Exhibit 63, p. 224 presents the derived national reconciliation bridge from the 5,000-tonne historical reference volume to the 50,000-tonne policy target on the normalised illustrative 100,000-tonne annual lint basis. [R06] [R07] [S34]

EXHIBIT 63 / TONNES OF LINT PER YEAR (100,000-TONNE ILLUSTRATIVE BASE)

Staged conversion blocks reconcile the tenfold gap from reference to target



DERIVED [R06] [R07] [S34] Derived GFT arithmetic on a constant illustrative denominator of 100,000 tonnes annual lint supply. Opening balance of 5,000 tonnes reflects R06's approximate 5% historical reference; closing balance of 50,000 tonnes reflects R07 and S34's 50% policy target (+45,000 tonnes total increment, 10x reference volume). Intermediate phase steps (+5,000, +15,000, +15,000, +10,000) are illustrative conditional gate allocations, not forecasts.

Exhibit 63, p. 224 makes visually explicit why a single flagship project cannot close the national gap alone. Even if the announced Camtext SA project reported in the shared evidence ledger at 12,000 tonnes per year of processed volume ([^R09], [^R10], grade-C press announcement dated 12 November 2025, with optimal capacity projected around 2033) were fully financed, commissioned, verified as domestic lint input and operated at 100 percent of its stated tonnage, 12,000 tonnes would represent just over a quarter of the 45,000-tonne incremental requirement on a 100,000-tonne lint base, and less than one-tenth of the 126,000-tonne requirement

under a 600,000-tonne seed-cotton policy scenario at 42 percent ginning yield. [R10] [S02] [S06] [S34] What **Exhibit 63**, p. 224 cannot establish is the calendar year in which any step will occur, because each block is released by operational evidence rather than a fixed timetable.

14.12

Optimisation should protect returns and public value

When a venture has passed Gate 2 by demonstrating sustained multi-line throughput, verified domestic lint conversion, positive cash generation and full environmental and labour compliance, it enters **Phase 3 (Optimise integration, resource intensity and advanced systems)**. At this stage, capital allocation shifts from proving viability to defending long-term competitiveness, lowering resource intensity and maximising verified domestic value retention. [S10] [S15] [S26]

14.13 RESOURCE EFFICIENCY AND WET-PROCESSING UPGRADES MUST PASS INCREMENTAL HURDLE TESTS

Localising textile production in Cameroon does not automatically reduce global environmental impact or guarantee sustainable operations. [S15] [S26] As the United Nations Environment Programme (UNEP) global textile roadmap and IFC Performance Standard 3 emphasise, wet processing, thermal energy generation and chemical finishing can create severe local water pollution, air emissions and hazardous sludge if managed poorly. [S10] [S15] [S26]

In Phase 3, every optimisation investment must be evaluated against an explicit counterfactual baseline drawn from the plant's own Phase 2 sub-meter records: [S10] [S22]

- **Water and effluent closed-loop upgrades:** Investments in counter-current washing, dye-bath recovery, membrane filtration or biological effluent polishing are measured by cubic metres of freshwater saved per accepted tonne of fabric and verified compliance with discharge limits. [S10] [S26]
- **Energy and carbon decarbonisation:** Additions of solar photovoltaics, battery storage, biomass boilers using agricultural residues (where competition with soil fertility and feed uses is excluded, [^S03]), or steam condensate recovery are evaluated using the Greenhouse Gas (GHG) Protocol Corporate Standard boundary. [S22] Organisational Scope 1 and Scope 2 inventories must be kept separate from product lifecycle claims, with emission factors and grid outage displacement documented transparently. [S07] [S22]
- **Waste valorisation and circularity:** Spinning waste, knitting and cutting offcuts, and cottonseed co-products are tracked to verified destinations, separating mechanical recycling or co-product sales from landfill or incineration without assuming global recycling averages apply locally. [S04] [S10] [S15] [S27]
- **Advanced digital and physics-constrained design pipelines:** Only in Phase 3, after basic forecasting and optical inspection have proved net savings in Phase 2, should a factory evaluate multi-model digital design pipelines coupling fabric construction, weave or knit parameters and garment physics simulation. [R30] [R31]

14.14 VENTURE PROFITABILITY AND NATIONAL ADDITIONALITY ANSWER DIFFERENT QUESTIONS

A critical governance rule in Phase 3 is keeping enterprise return on capital distinct from national policy additionality. [S03] [S29] Suppose an operating garment and knitting firm invests in automated fabric spreaders or internalises a spinning stage that was previously performed under a tolling contract by a domestic incumbent mill. That investment may reduce unit cost and improve private cash flow, which is commercially sound for the venture. However, if the investment merely shifts existing lint conversion from one domestic mill to another without increasing total domestic lint intake beyond ginning, national local-processing additionality is zero tonnes. [S02] [S29]

Conversely, when public authorities or development-finance institutions consider co-funding shared industrial-park infrastructure, such as dedicated electrical substations, common effluent treatment plants, accredited testing laboratories or vocational training centres ([^S07], [^S13], [^S20]), the public investment case must test for genuine national additionality:

1. Does the shared asset remove a verified binding constraint that prevented multiple processors from passing Gate 1 or Gate 2? [S02] [S20]
2. Are tariff rates, access rules, uptime service-level agreements and maintenance sinking funds contractually bound so the facility does not degrade into an unmaintained subsidy? [S07] [S20]
3. Does the intervention preserve upstream producer prices, timely grower payments and cottonseed oil and cake market balance ([^S03], [^S04]), consistent with Cameroon's broader economic diversification and fiscal constraints? [S09]

14.15

The scorecard should expose why progress stalls

A roadmap is only as strong as the diagnostic signals it produces when operations deviate from plan. [S19] [S24] In GFT's Warp and Signal architecture, production is the warp and measurement is the weft: every thread of physical material moving from northern ginneries through spinning, fabric formation and garment assembly is crossed by a defined measurement node that records quantity, quality, resource use and cash. [S04] [S10] [S29]

14.16 TEN OPERATIONAL METRICS GOVERN THE FACTORY WEFT

To prevent management teams from hiding operational decay behind gross production totals or uncollected invoice revenue, GFT's performance-management system design specifies ten core factory metrics, each tied to an accountable owner, an explicit denominator and a verification record:

1. **Qualified domestic lint intake:** Metric tonnes of Cameroonian-origin ginned lint entering first conversion beyond ginning per month, reconciled against ginnery bale certificates and warehouse weights (Operations Lead). [S04] [S29]

2. **Chain-of-custody origin coverage:** Share of active batches carrying complete lot linkage from incoming bale or fabric roll to finished carton, enabling rules-of-origin verification under European Union Economic Partnership Agreement (EPA) or African Continental Free Trade Area (AfCFTA) procedures and OECD due-diligence checks (Operations Lead). [S11] [S12] [S16] [S30]
3. **Stage conversion yield and first-pass quality yield:** Ratio of usable output mass to input mass at spinning, fabric formation and cutting, paired with the percentage of garments passing final inspection on the first pass without rework (Operations Lead). [S04] [S10]
4. **Saleable accepted output:** Volume of finished yarn, fabric or garments meeting full buyer specification and accepted for invoicing, excluding unaccepted stock, seconds and internal transfers (Commercial and Operations Leads). [S29] [S32]
5. **Buyer retention and on-time delivery:** Percentage of revenue from repeat paid orders by qualified buyers, alongside the share of shipments delivered on time and in full within the contractual window, minus claims and returns (Commercial Lead). [S31] [S32]
6. **Effective capacity utilisation:** Saleable accepted output divided by design name-plate capacity over scheduled shift hours, decomposed into availability, speed and quality losses (Operations Lead). [R12]
7. **Utility and corridor disruption burden:** Hours of grid outage and voltage excursion per month, share of kilowatt-hours generated on backup diesel or storage, restart scrap mass per outage, and standard deviation of corridor transit days (Operations Lead). [S07] [S31]
8. **Shift competence coverage and safety performance:** Percentage of critical supervisory, maintenance and quality posts staffed by task-certified personnel on every active shift, worker retention, injury and near-miss rates, and grievance closure timeliness (Operations and E&S Leads). [S13] [S24] [S25] [S28]
9. **Unit contribution and cash conversion cycle:** Net realised selling price minus variable conversion, utility reliability and logistics costs per accepted unit, paired with realised inventory, receivable and payable days in XAF, euro and US dollars (Finance Lead). [S03] [S18] [S33]
10. **Resource and effluent intensity:** Cubic metres of water intake, kilowatt-hours of electrical and thermal energy, and verified effluent compliance per accepted tonne of output across each active stage (E&S Lead). [S10] [S22] [S26]

14.17 FIVE NATIONAL INDICATORS LINK FACTORY RECORDS TO POLICY ACCOUNTABILITY

Aggregating plant-level records into national reporting without compromising commercial confidentiality requires a compact five-indicator register maintained by public authorities and statistical bodies: [S19] [S34]

- **Audited project-status capacity pipeline:** A public ledger classifying every domestic textile initiative into one of seven statuses: *announced*, *feasibility completed*, *financed*, *under construction*, *commissioned*, *buyer-qualified* and *in sustained operation*, standardised to annual domestic lint intake in tonnes. [R08] [R09] [R10] [S29] This pre-

vents announced mergers ([^R08]) or multi-year investment announcements ([^R09], [^R10]) from being counted as active capacity until commissioning and intake certificates exist.

- **Stock-adjusted national lint-transformation share:** The official ratio of verified domestic-origin lint entering first domestic conversion beyond ginning to total domestic lint outturn for the defined period, published alongside customs export reconciliations from INS and UN Comtrade metadata ([^S06], [^S19], [^S23], [^S29]).
- **Consolidated domestic value added:** Chain-wide gross output minus intermediate imported and domestic inputs, calculated using the value-chain accounting method in the European Commission VCA4D study (which recorded XAF 96 billion of total value added across Cameroon's cotton chain in 2017, with 80.7 percent accruing to direct actors and 38.4 percent to producers) so inter-plant transfers are consolidated rather than double counted. [S03]
- **Sustained formal textile employment:** Number of workers under active contracts receiving verified statutory or collective-agreement wages and social-security contributions for at least twelve consecutive months, kept separate from projected job counts in project announcements. [R10] [R14] [S13] [S25]
- **Upstream producer-payment and co-product health:** Timeliness of seed-cotton payments to the more than 220,000 supported northern cotton producers ([^R03]), ginning outturn stability across the nine ginneries ([^R03], [^S06]), and domestic market clearance for cottonseed oil and oilcake ([^S03], [^S04]), ensuring industrial fibre allocation never starves the agricultural base of cash.

14.18

The recommendations remain conditional on evidence

Closing Cameroon's local-processing gap is an engineering and coordination challenge whose outcome depends on disciplined execution by five actor groups. Because every stage involves technical, commercial and financial uncertainty, GFT frames its recommendations as conditional decision rules paired with explicit stop conditions. [S02] [S24]

14.19 FIVE ACTOR GROUPS CARRY DISTINCT RESPONSIBILITIES

1. **Public authorities and statistical agencies:** Adopt first domestic conversion beyond ginning as the operational numerator for the SND30 50 percent target ([^S29], [^S34]); publish a reconciled annual mass balance linking SODECOTON lint outturn, mill intake, warehouse stocks and INS customs exports ([^S06], [^S19], [^S23]); maintain the seven-stage project-status register; structure public uniform and workwear procurement around multi-year qualification lots and payment escrow ([^S02], [^S34]); and bind industrial-park power, water and effluent infrastructure to enforceable service-level agreements aligned with UNIDO guidelines ([^S07], [^S20]).
2. **Industrial sponsors and finance institutions:** Structure investment commitments in tranches tied to Gate 0, Gate 1 and Gate 2 evidence rather than lump-sum equipment disbursements; size working-capital facilities to cover seasonal cotton

stocks, corridor transit variance and receivable collection cycles ([^S03], [^S31]); compare incumbent rehabilitation ([^R12], [^R13]), partnered toll conversion and greenfield builds on identical product, cash and E&S boundaries ([^S02], [^S24]); and exclude unverified trade preferences such as African Growth and Opportunity Act (AGOA) duty-free access from Cameroon base cases given the 30 June 2026 United States Trade Representative (USTR) notice listing Cameroon among non-designated countries for 2026 ([^R18], [^S17]).

3. **Factory operators and engineering teams:** Launch with a narrow product specification to stabilise first-pass yield and machine availability ([^R12], [^S02]); implement manual shift logs and daily, weekly and monthly reconciliation from the first trial batch; enforce bale-to-carton lot traceability ([^S11], [^S12]); verify supervisor and maintenance task competence on every active shift before expanding hours ([^S13], [^S28]); and delay algorithmic forecasting or automated vision inspection until Phase 1 logs prove data readiness and positive net savings ([^R27], [^R29], [^S12]).
4. **Commercial and institutional buyers:** Provide complete technical specification packs and objective inspection protocols; use graduated sample, trial and repeat orders to build domestic supplier capability ([^S11], [^S32]); verify HS classification and origin documentation on domestic, regional, European Union EPA ([^S16]) and MFN export routes ([^S30]); and honour contracted invoice settlement dates so working-capital bottlenecks do not halt compliant production lines ([^S03]).
5. **Independent technical, financial and E&S reviewers:** Audit mass-balance reconciliations and capacity utilisation denominators before each gate release; verify water intake, wastewater treatment performance, occupational safety controls and worker grievance logs through site inspection ([^S10], [^S24], [^S25], [^S26], [^S28]); and issue written challenge reports that flag unresolved data requests rather than treating missing evidence as zero risk.

Exhibit 64, p. 230 consolidates these governance rules into a decision register showing who owns each gate, what evidence is required to proceed, and what failure response applies when evidence falls short.

EXHIBIT 64 / GOVERNANCE GATE, ROLE ACCOUNTABILITY AND DECISION RULE

Every scale decision should have an owner and a stop condition

Decision gate & action	Proposed role	Evidence required	Failure or stop response	Primary scorecard field
Baseline & target definition	Public authorities & statistics lead	Stock-adjusted lint outturn, customs export and mill-intake reconciliation	Retain historical qualifier on R06/S01; do not publish unverified current share	National lint-tran sformation share
Gate 0: Release Phase 1 launch capital	Sponsor, Commercial, Ops, Finance & E&S leads	Signed tech packs, lot tests, feeder/water proof, ESMS permits & funded cash plan	Hold equipment deposits; re-site, re-specify product or stop project	Pre-commitment dossier completion
Gate 1: Approve Phase 2 capacity scale	Sponsor, Commercial, Ops & Finance leads	Repeat paid orders, first-pass yield, shift coverage, positive margin & cleared cash	Freeze capacity at Phase 1; fix quality, power backup or DSO collection terms	Saleable output, utilisation & cash days
Partnered or owned lint conversion	Operations & Commercial leads	Qualified domestic yarn/fabric trials, tolling terms & captive downstream demand	Continue garment assembly on purchased cloth; defer spinning/wet capex	Qualified domestic lint intake (t)
Gate 2: Release Phase 3 integration & AI	Sponsor, Ops, Finance & E&S leads	Multi-month clean logs, effluent compliance, counterfactual ROI & audit sign-off	Keep manual PMS and current boundary; stop uneconomic upstream or digital spend	Incremental margin & resource intensity

ILLUSTRATIVE Illustrative GFT stage-gate governance table synthesising the programme phase spine and risk standards in S02, S10, S19, S24, S25, S26, S28, S29 and S32. Roles denote functional accountabilities, not named staff.

Exhibit 64, p. 230 demonstrates that a conditional roadmap protects both private capital and public policy credibility. It cannot guarantee that any individual venture will pass Gate 0, Gate 1 or Gate 2; rather, its value lies in making failure conditions visible before irreversible capital is sunk. [S02] [S24]

HARD STOP CONDITIONS THAT REQUIRE DEFERRAL OR TERMINATION

Across every phase of the roadmap, seven conditions act as non-negotiable stops on expansion capital: 1. **Inadequate repeat paid demand:** Prospective buyers offer only non-binding expressions of interest, reject trial batches or fail to place repeat orders at prices covering conversion cost. [S32] 2. **Persistent quality or conversion loss:** Yarn strength, fabric defect rates or garment rework percentages remain outside buyer tolerances after supervisory and maintenance remediation. [R12] [S04] 3. **Unsafe work or labour non-compliance:** Critical machine guarding, fire safety, heat and dust controls or statutory wage and working-hour obligations are breached and remain unclosed. [S13] [S25] [S28] 4. **Unresolved permits or untreated pollution:** Site operations lack valid environmental permits, exceed sustainable water extraction limits or discharge untreated wet-processing effluent. [S10] [S24] [S26] 5. **Unfinanceable working-capital cycle:** Inventory accumulation, seasonal lint prepayments or delayed customer collections exceed committed credit lines and threaten supplier or grower payment continuity. [S03] [S31] 6. **Unmitigated utility or corridor disruption:** Grid outages, voltage instability, backup fuel costs or freight dwell times erode positive unit contribution across downside stress cases. [S07] [S31] 7. **Unverifiable material or origin claims:** Chain-of-custody records cannot prove whether processed fibre is domestic lint or imported cloth, or cannot substantiate preferential origin declarations. [S11] [S19] [S29] [S30]

14.20 THE GFT PROGRAMME CONNECTS FEASIBILITY, MEASUREMENT AND DIGITAL TOOLS TO COMPANION RESEARCH

The argument of this paper closes where GFT's engineering practice begins: production and measurement must be designed as a single operating system from the first shift. In GFT's three-part Cameroon textile programme (prepared 31 January 2024, sources refreshed 2026), the **feasibility study** defines the commercial product boundary, partnered upstream conversion options, corridor trade-offs and cash-cycle gates; the **production performance-management system design** establishes the manual-first shift logs, daily-to-monthly review cadences and ten-metric factory scorecard that feed reconciled national reporting; and the **digital strategy** sequences forecasting, traceability and computer-vision inspection behind operational stability and verified unit economics. [R06] [S12]

Readers can inspect and stress-test the relationships set out in this chapter using four interactive analytical interfaces in the GFT tool library:

- `cotton-value-flow` reconciles seed-cotton campaign outturn, ginning yield, warehouse stocks and stage-by-stage conversion losses from lint to finished garments under explicit denominator rules. [S04] [S06] [S29]
- `ramp-planner` models the interaction between nameplate capacity, achievable shift utilisation, learning curves, working-capital troughs and Gate 0 to Gate 2 release thresholds. [R12] [S02] [S03]
- `kpi-cascade` connects operator and shift logs to plant-level contribution margin, resource intensity and the five national policy accountability indicators. [S10] [S19] [S24]
- `risk-matrix` evaluates site utility shortfalls, corridor dwell variance, cotton and currency exposures, and E&S stop conditions across northern and coastal operating configurations. [S07] [S18] [S24] [S31] [S33]

Specialist technical implementation of the methods introduced in WP01 continues across the companion white papers in the GFT library. Readers should consult **WP02** for the complete shop-floor performance-management system and shift-reconciliation architecture, **WP08** for HS-level market-access qualification, rules of origin and corridor logistics testing, **WP13** for staged capital structure, working-capital facilities and covenant design, and **WP19** for comparative institutional analysis of African cotton-to-textile industrialisation programmes. [S02] [S19]

Until a current, stock-adjusted national census of domestic lint outturn and mill intake is completed, and until individual ventures assemble the buyer, utility, workforce, environmental and cash evidence required at each gate, the 2030 processing ambition remains an open industrial challenge to be earned batch by batch. [R06] [R07] [S06] [S34]

A target sets the direction, but only measured saleable throughput earns the right to scale.

CHAPTER SOURCE NOTES

R06 Cameroon Trade Hub. Publication date unrecorded; inherited source-text check.
R07 Ecofin Agency. Publication date unrecorded; inherited source-text check.
S01 Cameroon Trade Hub, reproducing Cameroon Business Today. 2019.
S34 Republic of Cameroon, Ministry of Economy, Planning and Regional Development. 2020.
S02 IFC and World Bank. 2022.
S03 European Commission and Agrinatura. 2020.
S32 Food and Agriculture Organization of the United Nations. n.d..
S24 International Finance Corporation. 2012.
S28 International Labour Organization. 2022-04-26.
R12 Business in Cameroon. Publication date unrecorded; inherited source-text check.
S06 Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022.
S19 United Nations Statistics Division, UN Comtrade. n.d..
S29 OECD and Food and Agriculture Organization of the United Nations. 2026-06-29.
S04 SODECOTON. n.d..
S12 OECD. 2026-02-26.
S23 Institut National de la Statistique du Cameroun. 2025.
R01 Business in Cameroon. Publication date unrecorded; inherited source-text check.
R09 Ecofin Agency. Publication date unrecorded; inherited source-text check.
R10 Ecofin Agency. Publication date unrecorded; inherited source-text check.
R24 Mordor Intelligence. Publication date unrecorded; inherited source-text check.
R25 Market.us. Publication date unrecorded; inherited source-text check.
S27 Textile Exchange. 2025.
S11 OECD. 2018-03-07.
S16 European Commission, Directorate-General for Trade and Economic Security. n.d..
S17 Office of the United States Trade Representative / Federal Register. 2026-06-30.
S30 African Continental Free Trade Area Secretariat. 2022.
S07 International Monetary Fund. 2025-02-25.
S08 World Bank. 2025-01-16.

S10 World Bank Group / IFC. 2007-04-30.

S31 World Bank. 2025.

S25 International Finance Corporation. 2012.

S26 International Finance Corporation. 2012.

R14 WageIndicator. Publication date unrecorded; inherited source-text check.

S14 International Labour Organization. 2022-06-24.

S13 International Labour Organization. 2025-03-28.

R32 Wise; XE. Publication date unrecorded; inherited source-text check.

S18 Banque des Etats de l'Afrique Centrale. n.d..

S33 International Monetary Fund, distributed by Federal Reserve Bank of St. Louis. 2026-03-24.

R27 McKinsey, The State of Fashion 2025. Publication date unrecorded; inherited source-text check.

R29 MDPI; industry inspection literature. Publication date unrecorded; inherited source-text check.

R28 DataIntelo. Publication date unrecorded; inherited source-text check.

S15 United Nations Environment Programme. 2023.

S22 World Resources Institute and World Business Council for Sustainable Development, GHG Protocol. n.d..

R30 Design Journal (Taylor and Francis). Publication date unrecorded; inherited source-text check.

R31 arXiv 2509.04705. Publication date unrecorded; inherited source-text check.

S20 United Nations Industrial Development Organization. 2019-11-29.

S09 World Bank. 2025-07-15.

R08 Business in Cameroon. Publication date unrecorded; inherited source-text check.

R03 SODECOTON. Publication date unrecorded; inherited source-text check.

R13 Business in Cameroon; MMI News. Publication date unrecorded; inherited source-text check.

R18 Congressional Research Service IF10149; AGOA (Wikipedia). Publication date unrecorded; inherited source-text check.

Provenance travels with the claim.

Available inherited records and all chapter-local source records are graded below. Identical source identities are consolidated without losing citation aliases. Missing annex references are excluded. Unrecorded dates are disclosed rather than invented.

R01 Inherited evidence R01 GRADE C

Business in Cameroon. Publication date unrecorded. businessincameroon.com

Cameroon seed-cotton production 2022-2024: 330,000 t (2022), 314,455 t (2023), about 340,000 t (2024).

Inherited source-text check; original source not independently re-opened for this edition.

R02 Inherited evidence R02 GRADE C

Fibre2Fashion; Business in Cameroon. Publication date unrecorded. fibre2fashion.com; businessincameroon.com

2025 seed-cotton projection above 350,000 t.

Inherited source-text check; original source not independently re-opened for this edition.

R03 Inherited evidence R03 GRADE C

SODECOTON. Publication date unrecorded. sodecoton.cm

Company profile: more than 220,000 cotton producers supported in northern Cameroon; nine ginning plants; two oil mills.

Inherited source-text check; original source not independently re-opened for this edition.

R04 Inherited evidence R04 GRADE C

Financial Fortune Media. Publication date unrecorded. financialfortunemedia.com

Source metadata retained for traceability. This entry is not cited in the chapter text.

Inherited source-text check; original source not independently re-opened for this edition.

R05 Inherited evidence R05 GRADE C

Ecofin Agency. Publication date unrecorded. ecofinagency.com

CFA-zone cotton output 2.3 million t in 2024/25, down 11.5 percent.

Inherited source-text check; original source not independently re-opened for this edition.

R06 Inherited evidence R06 GRADE C

Cameroon Trade Hub. Publication date unrecorded. cameroontradehub.cm

About 95 percent of cotton fibre exported raw against 5 percent processed locally; industrialisation target of 50 percent local processing.

Inherited source-text check; original source not independently re-opened for this edition.

R07 Inherited evidence R07 GRADE C

Ecofin Agency. Publication date unrecorded. ecofinagency.com

SND30 restates the 50 percent local-processing target by 2030.

Inherited source-text check; original source not independently re-opened for this edition.

R08 Inherited evidence R08 GRADE C

Business in Cameroon. Publication date unrecorded. businessincameroon.com

Announced SODECOTON and CICAM merger to create a cotton-textile industrial pole targeted by 2030.

Inherited source-text check; original source not independently re-opened for this edition.

R09 Inherited evidence R09 GRADE C

Ecofin Agency. Publication date unrecorded. ecofinagency.com

Camtext SA integrated cotton-to-textile project, US$300 million (180 billion XAF); Panafritex and Arise with SODECOTON, CNPS and Marlo; 12 November 2025.

Inherited source-text check; original source not independently re-opened for this edition.

R10 Inherited evidence R10 GRADE C

Ecofin Agency. Publication date unrecorded. ecofinagency.com

Camtext SA: 12,000 t a year processed; about 12,000 jobs at the Dibamba hub and 3,000 at Garoua; return on investment near 11 years; optimal capacity around 2033.

Inherited source-text check; original source not independently re-opened for this edition.

R11 Inherited evidence R11 GRADE C

Business in Cameroon; MMI News. Publication date unrecorded. businessincameroon.com; mimimefoinfos.com

CICAM market share from about 85 percent three decades ago to about 5 percent today.

Inherited source-text check; original source not independently re-opened for this edition.

R12 Inherited evidence R12 GRADE C

Business in Cameroon. Publication date unrecorded. businessincameroon.com

CICAM capacity utilisation, July 2023 report: Garoua 33.7 percent, CICAM 1 48.9 percent, CICAM 2 10.83 percent; underutilisation cost about CFAF 2 billion in 2020.

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R13 Inherited evidence R13 GRADE C

Business in Cameroon; MMI News. Publication date unrecorded. businessincameroon.com; mimimefoinfos.com

CICAM restructuring cost estimate CFAF 30.7 to 48.2 billion; one relaunch plan cited at 70.2 billion.

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R14 Inherited evidence R14 GRADE C

WageIndicator. Publication date unrecorded. wageindicator.org

Cameroon minimum wage (SMIG) XAF 41,875 a month in 2023, raised to XAF 43,969 a month from 23 February 2024, about US$76, a rise of 5 percent.

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R15 Inherited evidence R15 GRADE C

wage.is. Publication date unrecorded. wage.is/cameroon

Average salary across sectors in Cameroon about US$359 a month.

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R16 Inherited evidence R16 GRADE C

WageIndicator. Publication date unrecorded. wageindicator.org

Informal share of employment about 90 percent; standard 40-hour week, 48-hour maximum, overtime at 1.2 times.

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R17 Inherited evidence R17 GRADE C

just-style. Publication date unrecorded. just-style.com

Cambodia garment-sector minimum wage US$204 a month for 2024 (labour-cost benchmark).

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R18 Inherited evidence R18 GRADE B

Congressional Research Service IF10149; AGOA (Wikipedia). Publication date unrecorded. congress.gov; en.wikipedia.org

AGOA: Cameroon terminated effective 1 January 2020 for gross human-rights violations; remained ineligible; listed ineligible for calendar year 2025.

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R23 Inherited evidence R23 GRADE C

MacMap; AfCFTA. Publication date unrecorded. macmap.org

Textiles and clothing among unresolved AfCFTA tariff-line categories; 92.3 percent of lines agreed excluding vehicles, textiles and clothing.

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R24 Inherited evidence R24 GRADE C

Mordor Intelligence. Publication date unrecorded. mordorintelligence.com

Africa textile market about US$37.3 billion in 2025, projected US$49.41 billion by 2030 at 4.73 percent a year.

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R25 Inherited evidence R25 GRADE C

Market.us. Publication date unrecorded. market.us

Africa textile market to about US$72.7 billion by 2035 at 6.9 percent a year; fashion and apparel 48.1 percent of the market in 2024.

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R26 Inherited evidence R26 GRADE C

Statista. Publication date unrecorded. statista.com

Cameroon clothing and footwear spend about US$94.70 a person in 2024 and about 8.0 pieces a person; apparel eCommerce revenue US$20.32 million (2023) to US$33.61 million (2027) at 13.41 percent a year; user penetration 18.0 percent (2023) to 22.7 percent (2027).

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R27 Inherited evidence R27 GRADE B

McKinsey, The State of Fashion 2025. Publication date unrecorded. mckinsey.com

AI at scale in fashion: inventory cost down 35 to 40 percent; forecast accuracy up 20 to 30 percent; revenue per customer up 15 to 25 percent; forecast errors cut 20 to 50 percent; lost sales down up to 65 percent; 75 percent of executives prioritising; sector operating-profit potential US$150 to 275 billion over three to five years.

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R28 Inherited evidence R28 GRADE C

DataIntelo. Publication date unrecorded. dataintelo.com

Fabric-defect-detection AI market US$523.4 million (2024) to US$6,522.1 million (2033) at 33.8 percent a year; Asia-Pacific about 46 percent in 2024.

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R29 Inherited evidence R29 GRADE C

MDPI; industry inspection literature. Publication date unrecorded. mdpi.com

Manual defect inspection 60 to 70 percent accurate, missing 20 to 30 percent of defects; computer vision above 90 percent across more than 40 defect types; line-scan inspection up to 60 metres a minute.

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R30 Inherited evidence R30 GRADE C

Design Journal (Taylor and Francis). Publication date unrecorded. tandfonline.com

Generative AI in apparel 2023-2024 mainly design-side image generation (Midjourney, Stable Diffusion) across style, silhouette, colour and pattern.

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R31 Inherited evidence R31 GRADE C

arXiv 2509.04705. Publication date unrecorded. arxiv.org/abs/2509.04705

By 2025-2026 the field moved to multi-model garment-design pipelines (fabric construction, shade, weave, silhouette) and physics-constrained generation coupling neural generation with simulation validation.

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R32 Inherited evidence R32 GRADE C

Wise; XE. Publication date unrecorded. wise.com; xe.com

CFA franc to US dollar reference rates; franc pegged to the euro at 655.957. The GFT study's method note places the franc near 590 to 610 per US dollar across the 2023 study window and near 563 to 577 more recently, and treats currency conversions as estimates.

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Ministry of Small and Medium-sized Enterprises, Social Economy and Handicrafts, Cameroon. 2022. https://www.minpmeesa.cm/site/inhoud/uploads/2019/01/etudecontontextilecuire.pdf

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c14-S33 Same source record as c10-S33.

c14-S34 Same source record as c01-S34.

Stable definitions make comparisons useful.

Seed cotton

Harvested cotton containing fibre, seeds and other material before ginning.

Lint

Cotton fibre separated from the seed by ginning; the relevant material for spinning intake.

Ginning

Separation and cleaning of cotton fibre from seed, with quality and weight consequences.

Ginning outturn

Lint weight divided by seed-cotton input weight on a consistently stated moisture and measurement basis.

Cotton mill use

Transformation of cotton fibres into yarn by mills; use the source definition in S29.

Local-processing share

Domestic-origin lint actually entering qualifying domestic conversion beyond ginning, divided by domestic lint production for the defined period, with stock and coverage adjustments disclosed.

Mass balance

A reconciliation of material entering, leaving, remaining in stock or recorded as loss within a stated boundary.

Moisture basis

The convention for water content used when weighing, pricing or comparing fibre.

Crop campaign

The agricultural production and marketing season, which may differ from a calendar reporting year.

Nameplate capacity

Specified maximum output or input rate under stated design conditions, not actual production.

Throughput

Material or product processed per unit of time, with its stage and acceptance status specified.

Capacity utilisation

Actual throughput divided by the matching capacity denominator over the same period.

Saleable output

Finished output meeting the agreed quality and commercial acceptance requirements.

First-pass yield

Share of units meeting acceptance criteria without rework on the first pass.

Conversion yield

Usable output mass divided by corresponding input mass for a defined production stage.

Spinning

Conversion of fibre into yarn of a specified construction and quality.

Knitting

Formation of fabric by interlooping yarn.

Weaving

Formation of fabric by interlacing warp and weft threads.

Wet processing

Textile treatment such as washing, dyeing and finishing involving water, chemicals and often thermal energy.

Cut, make, trim

Garment assembly activities using fabric and trims; they do not by themselves establish local lint conversion.

Toll conversion

Processing material for its owner under agreed service, quality, loss and payment terms.

Offtake

A purchase arrangement whose quantity, quality, timing, pricing and enforceability must be specified.

Buyer qualification

Evidence that a supplier and product meet a buyer's technical and commercial requirements.

Contribution margin

Net realised sales less variable costs, expressed in total or per accepted unit.

Operating breakeven

The output or revenue level covering defined operating costs, distinct from cash breakeven or investor return.

Working capital

Funds tied up in operating assets such as stocks and receivables, less qualifying operating liabilities.

Cash conversion cycle

The time and funding relationship between paying for inputs and collecting payment for output.

Domestic value added

Value created domestically after subtracting intermediate consumption, with consolidation boundaries disclosed.

Intermediate consumption

Goods and services consumed in production, distinguished from capital formation.

Counterfactual

The specified alternative against which a proposed economic or environmental effect is compared.

HS classification

The customs product classification used to identify the applicable tariff and origin rules.

Rules of origin

Criteria determining whether a product qualifies as originating under a trade arrangement.

Proof of origin

The documentary evidence required by the applicable trade arrangement and customs procedure.

MFN tariff

Most-favoured-nation tariff treatment applicable under the relevant customs schedule, subject to its legal scope.

AGOA

The African Growth and Opportunity Act, whose programme authorisation and country and product eligibility are distinct questions.

AfCFTA

The African Continental Free Trade Area; a shipment's preferential treatment still requires applicable implementation and origin evidence.

EPA

Economic Partnership Agreement, used here for the EU-Cameroon trade arrangement.

XAF

Currency code for the Central African CFA franc issued by the BEAC; separate from West African XOF.

Firm industrial supply

Electricity actually deliverable to the load under specified capacity, availability and quality conditions.

Lead-time variability

Variation in elapsed delivery time, which affects service levels, buffer stocks and cash.

Environmental and social management system

A management framework for identifying, managing, monitoring and addressing environmental and social risks.

Resource intensity

Resource use per defined accepted output unit within a stated process boundary.

Chain of custody

The documented transfer and control of material identity or claims through successive actors.

Stage gate

An explicit decision to proceed, remedy, defer or stop against prospectively defined evidence requirements.

Evidence vintage

The date of the underlying observation or analysis, which may differ from a page's posting or access date.

Additionality

The incremental outcome attributable to an intervention compared with the specified alternative.

Follow the terms back to their context.

Page references point to occurrences in chapter prose. When a term does not occur in a chapter, its glossary definition is indexed.

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