

WHITE PAPER 01 · CAMEROON STEEL

FROM ORE TO STEEL: CAMEROON'S MISSING LINK IS IRONMAKING, NOT ROLLING

Cameroon holds large iron ore deposits, some of them high-grade, and a growing construction market, yet captures little of the value between the mine and the building site. The gap is upstream, in iron units and billets. Local processing under the 2023 Mining Code and a steel chain built in phases at Kribi can turn ore exports into industrial value.

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How to read this paper. Every figure carries a source marker in square brackets, for example [C05], which maps to the sources list in Annex C. Figures marked derived are analyst arithmetic on sourced inputs; the method and assumptions are in Annex A. Figures marked planned or indicative describe Cameroon Steel's reference configuration (RC-1) and are not commitments. Images marked Illustrative view are visualisations, not photographs of the project. Exhibit status chips: SOURCED, DERIVED, ASSUMED, ILLUSTRATIVE. Annex D gives the values plotted in every chart, map and diagram, with units, status and sources.

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EXECUTIVE SUMMARY

Cameroon holds large iron ore deposits, some of them high-grade, and a growing construction market, yet it captures little of the value between the mine and the building site. The gap is not in rolling, where the country already has more mills than it needs; it is upstream, in the iron units and billets that its mills import and that no Cameroonian plant makes. The 2023 Mining Code's requirement that at least 15% of mine output be available for local transformation, together with a steel chain built in phases at Kribi, can turn ore exports into industrial value, provided the rule is made to deliver iron-grade feed rather than raw ore.

517 Mt

Mbalam-Nabeba reserve at 62.2% Fe, of which about 154 Mt in Cameroon (Mbarga) and 363 Mt in Congo (Nabeba); JORC 2012 code, statement of May 2015 [O05]

412 kt

Chapter 72 steel imports in 2025, up 33% [C05]

161 kt

Billet imports in 2023, the largest single line [C06]

50 %

Utilisation of about 1.2 Mtpa of rolling capacity [C38][C40]

15 %

Minimum share of mine output for local transformation, Mining Code art. 40(4) [Z42]

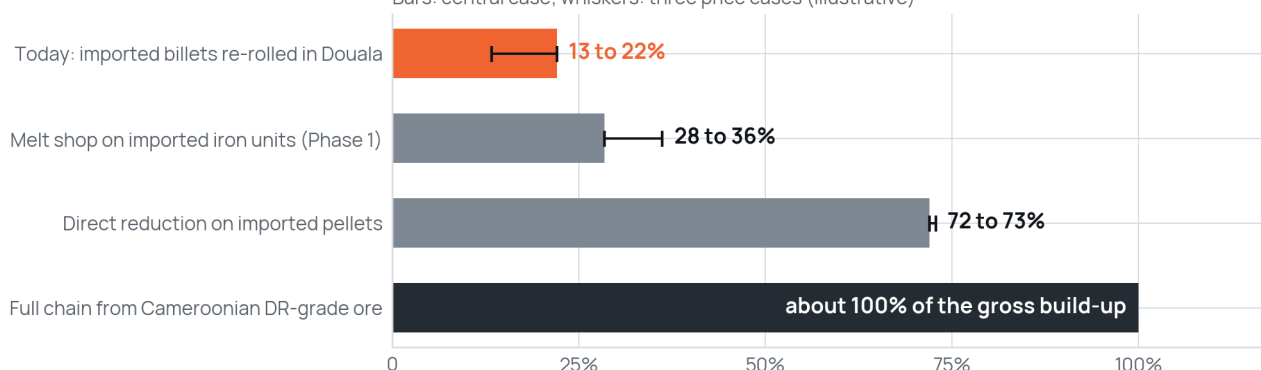
Ten findings

- 01 Cameroon's steel chain has its ends but not its middle.** The country has 64 Mtpa of iron-ore mine capacity in development, the world's fourth-largest pipeline [G18], and about 1.2 Mtpa of steel rolling and transformation capacity [C38]. Between the two there is no pelletising, no direct reduction and no blast furnace; Sub-Saharan Africa as a whole made only 0.09 Mt of direct-reduced iron in 2025 on Midrex plant statistics [T13].
- 02 The import bill is a bill for iron units.** Chapter 72 imports rose 33% to 412,049 t in 2025, worth 170.1 bn FCFA; with chapter 73 articles, steel accounted for 13.0% of the trade deficit [C05]. Billets were the largest single import in 2023, at 161.4 kt and about half of chapter 72 spending, 78% of them from Indonesia [C06].
- 03 Rolling is saturated; feed is the constraint.** Rebar capacity of 627 kt/yr is about 3.5 times domestic demand of 180 kt/yr [C30], mills run at about 50% [C38][C40], and local scrap covers only about 40% of their needs [C38]. In September 2026 the leading producer borrowed €40 m from Afreximbank specifically to import billets [C38][C39].
- 04 Tonnage is not the constraint; grade is.** The only code-compliant reserve, Mbalam-Nabeba, holds 517 Mt at 62.2% Fe, about 154 Mt of it on the Cameroonian side and 363 Mt in Congo, and 5,638 Mt of itabirite at 33.4% Fe, 3,924 Mt of it at Mbarga in Cameroon [O05]. Its direct-shipping ore suits export and blast furnaces, not gas-based direct reduction, which needs pellets near 67.5% Fe with low silica and alumina [N16]. A 68% Fe concentrate meeting that basis has been made only in 2014 testwork [O04].
- 05 DR-grade feed is scarce worldwide, which raises its value.** Merchant demand for DR-grade pellets could grow from 46.4 Mt in 2022 to 117.3 Mt in 2033, leaving 31.6 Mtpa without an identified source [N01]; the Middle East and North Africa alone need 30 to 40 Mtpa more within a few years [N02]. A Cameroonian DR-grade concentrate would have buyers at home and abroad.

- 06 Most of the value of a tonne of rebar is made before the rolling mill.** On dated 2025 and 2026 prices, ore and ironmaking account for 64 to 72% of the value of a tonne of rebar, melting for 6 to 15% and rolling for 13 to 22% (illustrative, Chapter 8). Carried through to rebar, a tonne of DR-grade concentrate is worth about 3.6 times as much as the same tonne sold as ore.
- 07 Policy now requires local transformation but does not yet make it bankable.** Article 40(4) of the Mining Code sets a 15% minimum [Z42], the Mbalam and Lobé conventions contain 15% clauses [O17][O33], and a committee at the Prime Minister's office has coordinated mines-metallurgy integration since December 2025 [Z79]. No public text yet defines transformation, grade, price or timing, and the tariff charges billets the same 10% as iron ore [P24].
- 08 Successful producers built backwards from a port-based melt shop or DR plant.** Algeria moved from a 1 Mt steel deficit to a 1 Mt surplus between 2021 and 2025 with gas-based DRI [A04]; Egypt's imports shifted towards billets as its rolling outgrew its ironmaking [A07]; Vietnam built a coastal complex on imported ore [N13]. Nigeria's Ajaokuta, a mismatched megaproject, has never produced liquid steel [N14].
- 09 A phased chain at Kribi can capture the value step by step.** A melt shop first, sections on evidence of demand, and direct reduction of Cameroonian concentrate when grade, gas and scale allow. Cameroon Steel's reference configuration RC-1 illustrates the sequence: Phase 1 at a nameplate of 0.3 Mtpa (expected sustained output 270 to 300 kt), with works targeted from 2029 and a first heat in the second half of 2030, rising to a design capacity of 1 Mtpa after 2034, with a reserve for about 1 Mtpa of DRI later (planned / indicative) [F01][X04]. Phase 1's billets can be rolled into wire rod and rebar or sold to the existing re-rollers, which import about 60% of their charge [C38]; on imported iron units it competes behind the tariff and saves little foreign exchange relative to those re-rollers (White paper 09).
- 10 Kribi is the hinge, and its later links must be secured.** Kribi offers a 16 m quay [Z37], an industrial zone with a steel cluster [Z4], a 225 kV supply of 100 MW for the whole port platform from the end of 2026 [Z43] and a gas field that lost its LNG buyer in July 2026 [E09]. A DR module would need about 9 bcf of gas a year, about 12% of 2025 output [E04], firm power at the substation's later 330 to 400 MW stage, bulk handling and the Mbalam railway.

Most of the value in a tonne of rebar is made before the rolling mill

Share of the gross price build-up of 1 t of rebar occurring in Cameroon
Bars: central case; whiskers: three price cases (illustrative)



ILLUSTRATIVE **Figure ES.1.** Most of the value in a tonne of rebar is made before the rolling mill. Share of the gross price build-up of one tonne of rebar occurring in Cameroon under four configurations of the chain, on dated 2025 and 2026 international prices; bars show the central case and whiskers the three price cases of Chapter 8. Today's mills capture about a fifth (13 to 22%); a full chain from Cameroonian DR-grade ore would capture about 100% of the gross build-up, before imported consumables and capital service.

Source: Cameroon Steel calculation from [G31], [N03], [G34], RC-1 yields [F01] and pellet ratio [N01]; method in Chapter 8 and Annex A. Gross price spreads, not value added. Status: illustrative.

The diagnosis: an hourglass economy

Cameroon is about to become an iron-ore exporter. The State's 2026 to 2030 programme commits 1,748 bn FCFA, about US\$3.1 bn, to three projects: Mbalam, Bipindi-Grand Zambé and Kribi-Lobé [O29]. Mbalam's developer plans up to 10 Mtpa of exports by road until 2029 and 25 Mtpa by rail from 2030 [O25]; Lobé plans to raise concentrate output to 8 Mtpa by 2031 [O35]. At the same time, the country's steel industry runs on imported billets and scarce scrap, and its rolling mills run at half capacity.

That combination, a large and growing ore stream at the top, a saturated rolling industry at the bottom and nothing in between, is the hourglass this paper describes in Chapter 1. It explains why Cameroon can export ore and import steel at the same time, and why more rolling mills would not change the picture. The constraint is iron.

The demand side is solid but small. Apparent steel use is about 450 kt/yr [C40], roughly 15 to 20 kg per inhabitant depending on the population estimate [C13][C14], against 29.2 kg for Africa and 209 kg for the world [G05]. Construction grew 4.3% in real terms in 2025 [C09], the housing deficit is estimated at 1.8 to 2.0 million units [C15] and Africa's steel use is forecast to grow by 3.8% in 2026 and 4.6% in 2027 [G09]. A national chain at the scale of 1 Mtpa would need export markets in CEMAC and beyond: Cameroon already exports about 31 kt of rebar a year, mostly to Chad [C05][C06].

CAMEROON CAN EXPORT ORE AND IMPORT STEEL AT THE SAME TIME. MORE ROLLING MILLS WOULD NOT CHANGE THAT; MAKING IRON WOULD.

Executive summary

The proposal: a chain built in phases

The paper proposes a chain built backwards from the melt shop, with each step designed to stand on its own merits and none committed before its conditions are met (Chapter 6).

- **Phase 1: make billets in Cameroon.** An electric arc furnace, ladle furnace and billet caster, with a bar and wire-rod mill, running on scrap and imported DRI or HBI. In RC-1 this phase has a nameplate of 0.3 Mtpa of finished product (expected sustained output 270 to 300 kt), needs about 0.36 Mtpa of metallics and draws about 36 MW of average load, within the first 100 MW that the 225 kV line brings to the whole port platform; an allocation to the steelworks remains to be agreed [F01][Z43]. Works are targeted from 2029, with a first heat in the second half of 2030 and ramp-up in 2031 [F01]. Its output is flexible between wire rod and rebar and merchant billets for the existing re-rollers, which import about 60% of their charge as billets (161 kt in 2023) [C06][C38]; with rebar capacity at 3.5 times demand [C30], its tonnage has to displace imported billets and wire rod or be exported within CEMAC, not add to domestic rebar. On imported iron units it saves about as much foreign exchange per tonne as today's re-rollers and competes behind the tariff (White paper 09), so its case rests on quality, merchant billets and the outlet it creates for local iron. It also builds the skills and infrastructure that later phases need.
- **Phases 2 and 3: sections and heavy long products.** Light angles and flats are rolled locally in small quantities [C25]; medium and heavy sections and H-beams are not produced in Cameroon and are imported [C06]. Phase 2 (second melt line and light/medium sections mill), indicatively 2032 to 2034, and Phase 3 (melt-shop expansion and heavy-section mill), after 2034, would take RC-1 to its design capacity of 1 Mtpa [F01][X04]; both should follow evidence of demand, including exports.
- **The direct-reduction module: Cameroonian concentrate, when its conditions are met.** A module of about 1 Mtpa of DRI, needing about 1.45 Mtpa of DR-grade pellets [N01] and 8.4 to 9.1 bcf/yr of gas [T09][T10], held in reserve in RC-1 and indicative after 2034 [F01]. It should be built only when DR-grade concen-

trate has been proven at pilot scale and contracted under the 15% rule, when gas is secured by an audited long-term contract, and when firm power and bulk handling are in place.

The order mirrors what worked elsewhere and avoids what failed (Chapter 4): it starts where the import bill is, uses modular and proven equipment, secures feed before each furnace and sits at a deep-water port. It also manages the four critical risks identified in Chapter 9: rebar saturation, the legacy of rolling without iron, and three that concern iron units and energy, namely iron-unit shortage, the lack so far of DR-grade feed, and firm power.

On carbon, the chain starts low. On Cameroon's hydro-based grid, RC-1 Phase 1 has an estimated intensity of about 0.32 t of CO₂ per tonne of finished steel for direct and electricity emissions, and about 0.58 t including the upstream emissions of imported DRI [F01], against a world average of 1.92 t [T01]. That matters because the EU's carbon border adjustment mechanism now covers DRI, billets, rebar, wire rod and pellets [D08].

What the paper asks of government, investors and partners

Chapter 10 sets out seventeen recommendations. Five carry most of the weight.

1. **An implementing text for article 40 (4)** that defines transformation by depth, prices local supply at export parity, links the obligation to DR-grade concentrate, and requires public reporting.
2. **A gas allocation for industry at Kribi**, backed by an independent audit of Sanaga Sud reserves, now that the LNG offtake has ended.
3. **A framework for heavy-industry power contracts** above 10 MW, timely delivery of the 225 kV supply and its later stage, and published allocation and power-quality terms for arc-furnace loads.
4. **Tariffs and trade remedies that reward ironmaking**: duties that escalate from ore to semis to finished steel, national preference for locally made billets and sections, and a capacity to respond to import surges.
5. **For investors, a melt shop first and the DR module prepared now**: pilot testwork on DR-grade concentrate, grade and price terms with convention holders, and hydrogen-ready equipment, with development-finance institutions financing phase by phase.

None of these requires a large public subsidy. Together they would move the share of the gross price build-up of a tonne of rebar occurring in Cameroon from about one-fifth today towards one-third with a melt shop, and towards most of it, before imported consumables and capital service, once Cameroonian ore is reduced at home (Figure ES.1).

About this paper

This is the first of ten white papers published by Cameroon Steel, which is developing a phased steel complex at Mboro, in the Kribi industrial-port zone, with a design capacity of 1 Mtpa [X04]; its foundation stone was laid on 30 December 2024 by the Prime Minister, representing the Head of State [X01]. Cameroon Steel's sister company, Cameroon Mining Company, holds the Mbalam exploitation permit [X01]. The paper is written from that vantage point, and readers should weigh it accordingly; for that reason it relies on public, cited evidence wherever possible.

Sources. Every figure carries a marker that maps to the list of sources in Annex C: international data from worldsteel, the OECD, the World Bank, the IEA and Midrex; Cameroonian data from the national statistics institute (INS), the electricity regulator, the national hydrocarbons company and the national press; and company, ministry and port documents cited by title and date. The data cut-off is 10 October 2026.

Status of figures. Figures marked derived are analyst arithmetic on sourced inputs, with the method in Annex A. Figures marked illustrative show orders of magnitude and are not forecasts of any plant's revenue or margin. Figures for Cameroon Steel's reference configuration, RC-1, are planned or indicative: they are engineering planning values, not commitments, and they will change with detailed design. The paper gives no investment amounts or financial returns for the project.

Structure. Chapter 1 sets out the value-chain gap; Chapter 2 the ore endowment and grades; Chapter 3 consumption and imports; Chapter 4 lessons from six producers; Chapter 5 beneficiation policy; Chapter 6 the phased chain; Chapter 7 Kribi; Chapter 8 the economics of value capture; Chapter 9 risks; Chapter 10 recommendations; and Chapter 11 the evidence that is still missing and how it will be obtained. Four annexes follow: the method and assumptions (Annex A), a glossary (Annex B), the sources (Annex C) and the data behind every exhibit (Annex D).

Statement of interest. This paper is published by Cameroon Steel, which is developing a steelworks at Kribi. It is written to inform public debate; its analysis is independent of any commercial offer, and every figure is sourced or labelled with its status.

CHAPTER 1

THE GAP IS UPSTREAM: CAMEROON ROLLS STEEL BUT MAKES NO IRON

Cameroon already rolls more steel than it uses, yet it makes almost none of the iron that steel is made from. Its mills re-roll imported billets and scarce local scrap; no plant in the country turns ore into pellets or iron units. On dated 2025 and 2026 market prices, the steps Cameroon does not perform, from ore to iron units, account for about seven-tenths of the value of a tonne of reinforcing bar.

1.1 Seven steps separate a tonne of ore from a tonne of rebar

Steel reaches a building site at the end of a chain of physical transformations. Each step takes an input, removes something (rock, oxygen, impurities, shape) and passes on a product that is worth more per tonne than what came in. Understanding where Cameroon sits on that chain is the starting point of any serious discussion of local value addition, so it is worth setting the steps out plainly.

Mining extracts iron-bearing rock. Some ore is rich enough to be sold almost as mined after crushing and screening; the trade calls this direct-shipping ore (DSO). The Mbalam-Nabeba reserve, at 62.2% iron, is of this kind [O05]. Most of Cameroon's tonnage, however, is itabirite or magnetite at about 30 to 35% iron, which must be upgraded before anyone will buy it [O05][O32][O42].

Beneficiation grinds the ore and separates iron minerals from silica and alumina by gravity, magnetic or flotation methods. The output is a fine concentrate. Testwork on Mbalam itabirite produced a concentrate of 68% iron with 1.8% silica and 0.2% alumina, at a mass yield of 45% [O04]: every tonne of concentrate needs a little over two tonnes of rock.

Agglomeration turns fine concentrate into something a furnace can use. Pelletising rolls the concentrate into balls and hardens them in an induration furnace. Pellets come in two broad qualities: blast-furnace (BF) grade, and the purer direct-reduction (DR) grade, assessed by price reporters on a basis of 67.5% iron, 1.5% silica and 0.5% alumina [N16].

Ironmaking removes the oxygen bound to the iron. There are two industrial families. The blast furnace melts sinter, pellets and lump ore with coke made from coking coal; it produces liquid pig iron and dominates world output. Direct reduction instead strips oxygen in the solid state with a reducing gas, usually reformed natural gas, in a shaft furnace; the product is direct-reduced iron (DRI), or its compacted, shippable form, hot-briquetted iron (HBI). The world made 151.0 Mt of DRI in 2025, 65.1% of it in gas-based plants [T13].

Steelmaking melts iron units and adjusts chemistry. In an electric arc furnace (EAF), electricity melts a charge of scrap, DRI or HBI; a ladle furnace refines the liquid steel; a continuous caster solidifies it into square **billets** (for long products) or flat slabs. Electric steelmaking produced 30.3% of the world's crude steel in 2025 [G05], and 89.0% of Africa's [G05].

Rolling reheats billets and passes them through stands of rolls to make reinforcing bar (rebar), wire rod, merchant bars, angles, channels and heavier sections such as H-beams.

Fabrication and use cut, bend, weld and assemble those products into buildings, bridges, towers and machines.

Table 1.1 The iron and steel value chain, step by step, and Cameroon's position in October 2026

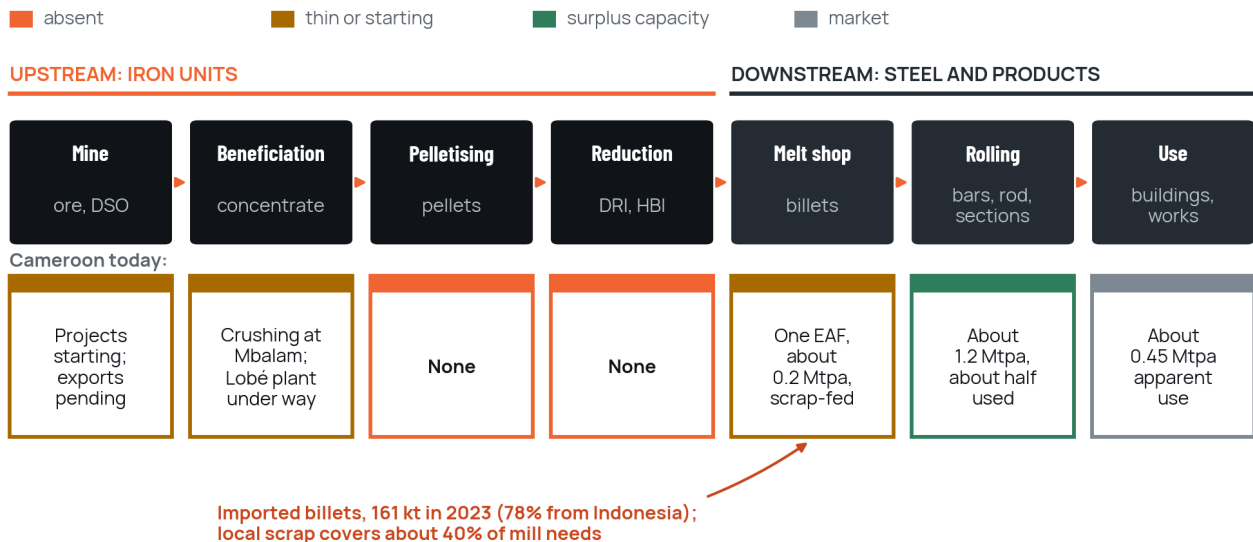
Step	Main input	Main output	What it needs	Cameroon, October 2026
Mining	Ore body	DSO or run-of-mine ore	Deposit, permit, haulage	Several projects; first exports pending [O24][O35]
Beneficiation	Run-of-mine ore	Concentrate, 60 to 68% Fe	Water, power, grinding	Crushing at Mbalam; Lobé concentrator under construction [O29][O35]
Pelletising	Concentrate	BF or DR pellets	Fuel, binder, scale	None
Direct reduction	DR pellets	DRI or HBI	Natural gas or hydrogen, power	None; Sub-Saharan Africa made 0.09 Mt in 2025 (Midrex statistics) [T13]
Melt shop	Scrap, DRI, HBI	Liquid steel, billets	Firm power, electrodes, oxygen	One EAF disclosed, about 0.2 Mtpa, scrap-based [C27]
Rolling	Billets	Rebar, wire rod, sections	Reheating fuel, power	About 1.2 Mtpa installed, about 50% used [C38][C40]
Use	Long and flat products	Buildings, works	Construction demand	About 0.45 Mtpa apparent use [C40]

Source: compiled by Cameroon Steel from the sources shown; status as reported at 10 October 2026.

The term that recurs throughout this paper is **iron units**: the iron-bearing feed of a steel furnace, whether scrap, DRI, HBI or pig iron. A country can roll steel without making iron units, as long as it imports billets or collects enough scrap. It cannot capture the value of its own ore without making them.

Cameroon's chain is missing its middle: no pellets, no direct reduction

Steps of the iron and steel value chain and their status in Cameroon, October 2026



SOURCED **Figure 1.1.** Cameroon's chain has its ends but not its middle. The upstream steps that convert ore into iron units (pelletising and direct reduction) do not exist in the country; the downstream steps exist and are under-used.

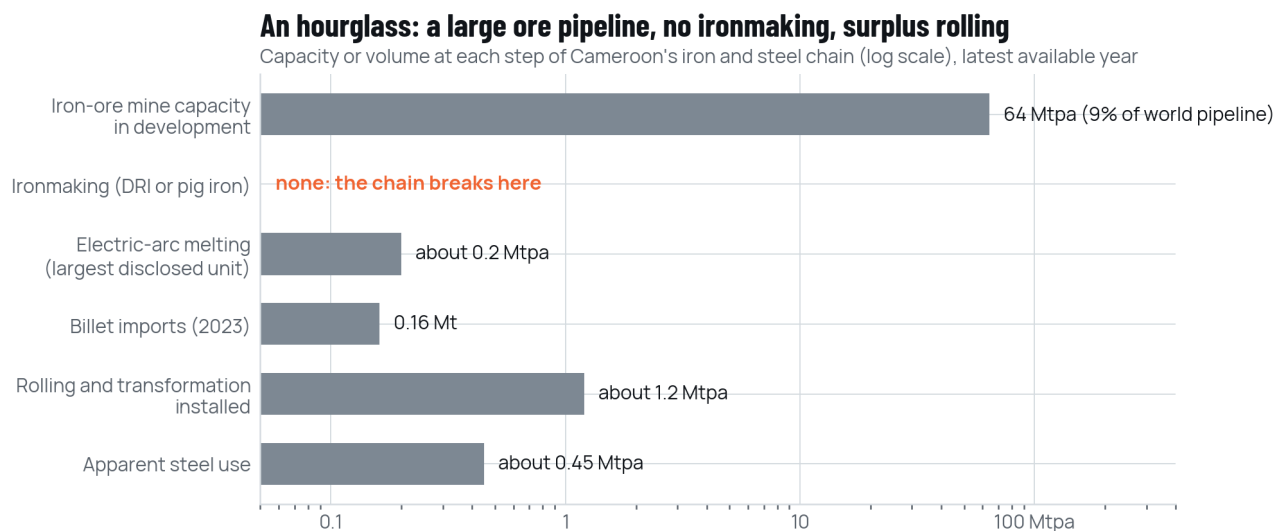
Source: Cameroon Steel analysis of [C06], [C27], [C38], [C40], [O24], [O35].

1.2 Cameroon sits at both ends of the chain and not in the middle

Laid out step by step, Cameroon's position resembles an hourglass. At the top is a large and growing ore pipeline. Global Energy Monitor counts 64 Mtpa of iron-ore mine capacity in development in Cameroon, 9% of the world pipeline and the fourth largest after Australia, China and Guinea [G18]. The State's 2026 to 2030 iron-ore programme puts 1,748 bn FCFA, about US\$3.1 bn, behind three projects: Kribi-Lobé, Mbalam and Bipindi-Grand Zambi [O29].

At the bottom is a sizeable downstream industry. Cameroon's steel transformers have about 1.2 Mtpa of installed capacity and run at about half of it [C38][C40]. The industry body Ocitram puts reinforcing-bar capacity at 627 kt/yr against domestic rebar demand of about 180 kt/yr [C30]. Apparent steel use is about 450 kt/yr [C40], roughly 15 kg per inhabitant on the World Bank's population estimate [C13], against 209 kg worldwide and 29.2 kg for Africa [G05].

In the middle there is almost nothing. No pellet plant, no direct-reduction plant and no blast furnace operates in Cameroon. Sub-Saharan Africa as a whole made 0.09 Mt of DRI in 2025 on Midrex plant statistics, and its two shaft-furnace DR plants, at Warri in Nigeria and Saldanha in South Africa, were idle [T13]. Cameroon's melt shops are few and small: Prometal's electric arc furnace, presented in 2023 as the first of its kind in Central Africa, was reported at about 200,000 t/yr [C27], and the other mills are scrap-based or re-roll bought-in billets [C27][C29].



SOURCED Figure 1.2. The chain narrows to nothing at ironmaking. Iron-ore capacity in development is measured in tens of millions of tonnes; rolling capacity in about a million; ironmaking is zero. Log scale.

Source: [G18] (ore pipeline, 2026), [T13] (DRI), [C27] (EAF), [C06] (billet imports, 2023), [C38], [C40] (rolling capacity, apparent use).

The consequence is visible in the trade data. Billets and other semi-finished steel (HS 7207) were Cameroon's largest single steel import in 2023: 161.4 kt, 78% of it from Indonesia [C06]. By value they made up about half of the chapter 72 import bill [C06]. Local scrap covers only about 40% of what the mills need [C38]. In September 2026 the largest producer, Prometal, signed a €40 m revolving facility with Afreximbank specifically to import billets [C38][C39]. A country that rolls more rebar than it can use is borrowing hard currency to buy the semi-finished steel that feeds its mills.

CAMEROON ROLLS MORE REBAR THAN IT USES, AND BORROWS HARD CURRENCY TO BUY THE BILLETS THAT FEED ITS MILLS.

Chapter 1, from [C30], [C38], [C06]

1.3 Most of the value sits before the rolling mill

Market prices show where value is added. On dated assessments, a tonne of 62% iron-ore fines averaged US\$100.2/dmt in 2025 on a cost-and-freight basis into China [G31]. Hot-briquetted iron from Libya was offered at about US\$370/t delivered to Italy and Türkiye in January 2026 [N03]. Brazilian merchant pig iron sold at about US\$475/t free on board in August 2026 [N04]. Chinese billets were quoted at US\$465 to 470/t FOB on 3 October 2026, and Turkish rebar at US\$620 to 630/t FOB the same week [G34].

These prices are for different products, places and dates, so they cannot be read as a single value chain without adjustment. Chapter 8 builds that adjustment explicitly, converting each price into its contribution to one tonne of finished rebar with the yields set out in Annex A. The broad result is robust to reasonable changes in the inputs:

- the ore that goes into a tonne of rebar is worth about 28% of the rebar's price;
- turning that ore into iron units (pelletising and direct reduction) adds about 43%;
- melting and casting the iron units into billets adds about 6%;
- rolling the billets into rebar adds about 22%.

The figures are illustrative, not a forecast of anyone's margin. Their message is structural. Today, Cameroon's mills capture the rolling step and, where they melt scrap, a share of the melting step. They do not capture the ironmaking step, which is the largest, and the ore step accrues to the country only if its ore is mined and sold, which at the time of writing it largely is not [O28].

WHAT THE COMPARISON SHOWS

On international prices, the rolling margin over imported billets is thin: about US\$100 to 160 per tonne of rebar between October 2024 and October 2026 [G34][G35][G36][G38]. Melting imported iron units into billets adds even less. The largest increment in the chain is made when ore becomes iron, and that is exactly the step Cameroon lacks.

1.4 The rolling-first model has reached its limits

For a decade, Cameroon's steel policy has protected the end of the chain. The Prime Minister's office suspended rebar imports on 31 May 2016 [C20], and Customs reaffirmed the ban on 3 April 2023 [C21]; no document lifting it has been found [C34]. A mandatory rebar standard has applied since 2022 and the Prime Minister's office refused to revise it in January 2026 [C34][C35]. Rebar prices are homologated by the Ministry of Commerce: in October 2023 the Douala price of a 12 mm FE500 bar implied about 633,000 FCFA/t, roughly €965/t [C44].

That protection did its job. Investment followed: Prometal inaugurated two plants worth 57 bn FCFA in January 2024, adding wire rod, beams, angles and flats to its range [C25]. Wire-rod imports collapsed from 58.1 kt in 2021 to 7.8 kt in 2023 as local rolling replaced them [C06]. Cameroon even exports rebar, about 31 kt in 2025, mostly to Chad [C05][C06].

Three signals show that the model has run its course.

Capacity has overshoot demand. With about 1.2 Mtpa of installed transformation capacity against about 450 kt/yr of apparent use, mills run at about 50% [C38][C40], and more than 30 bn FCFA of unsold stock was reported in September 2026 [C41]. The Prime Minister's strategic committee on mines-metallurgy integration, reviewing the metals industry in April 2026, found domestic capacity in excess of local demand [Z79]. Adding rolling capacity does not add value; it divides the same demand among more mills.

Feedstock is the binding constraint. The only quantified national study put ferrous scrap arising at 53,000 to 61,833 t/yr, using 2006 data [C42]. Scrap purchase prices rose by about 30% recently [C40], and recorded scrap exports fell to near zero after 2019 [C06]. When mills cannot find scrap they import billets, and billet imports are the largest single item in the steel import bill [C06].

The foreign-exchange cost is rising. Chapter 72 imports rose 33% in tonnage in 2025, to 412,049 t worth 170.1 bn FCFA [C05]. Together with chapter 73 articles, iron and steel imports reached 278.1 bn FCFA in 2025, 5.3% of all imports and 13.0% of the trade deficit [C05]. The Central African Monetary Community's foreign reserves stood at 4.2 months of imports at the end of 2025 [P07]. An import bill dominated by semi-finished steel is a direct claim on those reserves.

Table 1.2 What protection achieved, and what it did not

Indicator	Before or at the start	Latest	Source
Rebar imports (HS 7214)	14.0 kt (2020)	3.3 US\$ m, tonnage not reported (2023)	[C06]
Wire-rod imports (HS 7213)	58.1 kt (2021)	7.8 kt (2023)	[C06]
Rebar exports	33.4 kt (2021)	31.0 kt (2025)	[C02][C05]
Billet imports (HS 7207)	52.5 kt (2019)	161.4 kt (2023)	[C06]
Chapter 72 imports	182.9 kt (2019)	412.0 kt (2025)	[C01][C05]
Rolling and transformation utilisation	n/a	about 50% (2026)	[C38][C40]

Source: Cameroon Steel compilation from INS foreign-trade notes and UN Comtrade.

Protection moved rolling home. It did not move ironmaking home, and the growth of billet imports since 2019 shows that the country's dependence has shifted up the chain rather than disappeared.

1.5 The opportunity is a chain that runs back towards the mine

The policy environment has begun to shift in the same direction as this diagnosis. The 2023 Mining Code requires mining conventions to make a minimum of 15% of production available for local transformation (art. 40(4)) [Z42]. The Kribi-Lobé convention of May 2022 already reserved 15% of production for the local market [O33], and the Mbalam convention, as described by Cameroon Mining Company (CMC), provides for 15% of production to be transformed locally; the same source presents Cameroon Steel as the future national steel hub of the programme [O17]. In December 2025 the Prime Minister created a strategic committee on mines-metallurgy integration, whose mandate includes a reliable iron-ore supply chain for local steelmakers and enforcement of the Mining Code's local-processing requirements [Z79][Z80]. The Kribi industrial-port zone lists "steel linked to mineral exports" among its development clusters [Z4].

These are necessary conditions, not sufficient ones. A 15% share of a DSO export stream does not, by itself, make a tonne of iron: the ore must be of the right grade, it must be reduced with gas or hydrogen, and the reduced iron must find a melt shop and a market. The rest of this paper examines each of those links:

- Chapter 2 assesses Cameroon's ore and which ironmaking routes each grade can feed;
- Chapter 3 sets out the steel the country consumes and imports, product by product;
- Chapter 4 draws lessons from Egypt, Algeria, Nigeria, India, Vietnam and Brazil;
- Chapter 5 reviews the beneficiation policy framework and its gaps;
- Chapter 6 proposes a phased chain, using Cameroon Steel's reference configuration as an illustrative case;
- Chapter 7 explains why Kribi is the natural hinge of that chain;
- Chapter 8 quantifies, illustratively, the value captured at each step;
- Chapters 9 and 10 set out the risks and the recommendations.

THE ARGUMENT IN ONE PARAGRAPH

The gap in Cameroon's steel industry is not a shortage of rolling mills: there are too many for the market. It is the absence of the steps that turn ore into iron units. Building those steps in sequence, starting with a melt shop that makes billets locally and ending with direct reduction of Cameroonian concentrate when grade, gas and scale allow, would move the country from the thinnest part of the value chain to its thickest.



ILLUSTRATIVE **Illustrative view.** Liquid steel is where iron units become a product: the melt shop is the first upstream step that Cameroon can build quickly. Generated image; not a photograph of any project, place or person.

CHAPTER 2

CAMEROON'S ORE IS LARGE ENOUGH; ITS GRADE DECIDES THE ROUTE

Cameroon's iron-ore endowment is measured in billions of tonnes and its project pipeline is the world's fourth largest. Tonnage is therefore not the constraint on local steelmaking. Grade is: the country's only code-compliant reserve is direct-shipping ore at 62.2% iron, suited to export and blast furnaces, while gas-based direct reduction needs a 67 to 68% iron product that Cameroon has so far made only in testwork.

2.1 An endowment measured in billions of tonnes

The most thoroughly documented iron-ore body in Cameroon is Mbalam-Nabeba, which straddles the border with the Republic of Congo. It is also the only one with a reserve statement prepared under the JORC code, Australia's standard for public reporting of mineral resources and reserves. As at 20 May 2015, the probable ore reserve, reported under the 2012 edition of the code, stood at **517 Mt at 62.2% Fe**, with 4.46% silica, 2.80% alumina and 0.09% phosphorus [O05]. The reserve is split between the Mbarga deposit in Cameroon (134 Mt at 63.1% Fe, plus 19.6 Mt at 61.4% at Mbarga South), about 154 Mt in all, and the Nabeba deposits in Congo (328 Mt at 62.2% Fe, 27.9 Mt at 58.8% at Nabeba North-West and 7.6 Mt at 61.1% at Nabeba South), about 363 Mt [O05].

Beneath the high-grade cap lies a much larger body of lower-grade rock. The same statement reports a high-grade haematite resource of 805.7 Mt at 57.3% Fe and an itabirite resource of **5,638 Mt at 33.4% Fe**, of which 3,924 Mt sit at Mbarga in Cameroon [O05]. An exploration target published in 2014 suggested 9.3 to 13.2 billion tonnes at 30 to 40% Fe across the project [O04]. Itabirite is a banded rock of iron oxide and quartz; it is not saleable as mined but can be ground and concentrated to a high-grade product.

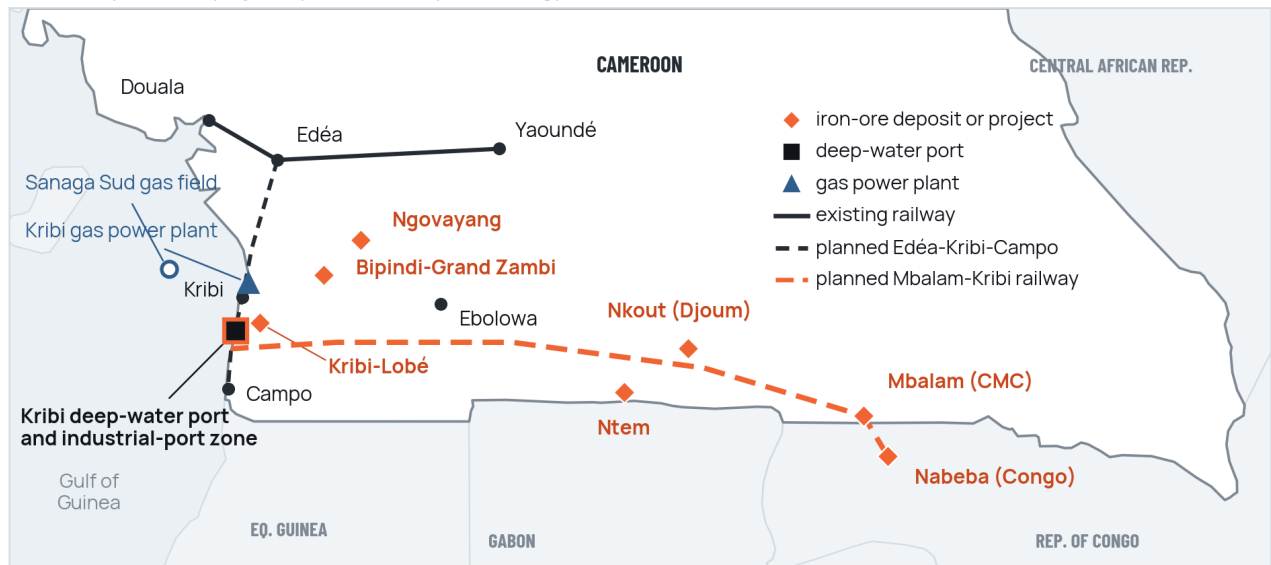
Public statements give other figures. Cameroon Tribune, reporting the foundation-stone ceremony of the Kribi steel complex, cited reserves "over 2 billion tonnes", including 517 Mt of direct-shipping ore above 62.3% Fe [X01]; in October 2024 the Minister of Mines referred to "proven reserves of 887 Mt" [O55]. These figures are not code-compliant estimates and this paper uses the JORC figures throughout, labelling other numbers as company or official statements.

Mbalam is one of several deposits in the south of the country, most of them within reach of Kribi:

- **Kribi-Lobé**, held by Sinosteel Cam SA, a magnetite deposit of 632.8 Mt at about 33% Fe, under a convention signed in May 2022 for 10 Mtpa of run-of-mine ore producing about 4 Mtpa of concentrate at 60% Fe [O32] [O34]. The convention reserves 15% of production for the local market, and the exploitation permit followed in 2022 [O33].
- **Bipindi-Grand Zambi**, held by G-Stones Resources, reported at 150 Mt at 29.45% Fe, with a target of 1.3 Mtpa of concentrate [O38] [O40].
- **Nkout**, near Djoum, with an NI 43-101 estimate (2013) of 1.6 billion tonnes indicated at 33.3% Fe and 0.9 billion tonnes inferred at 30.8%, plus 64.3 Mt of direct-shipping material at 54.5% Fe [O42] [O43].
- **Ntem**, 98.8 Mt at 35.3% Fe on a 2025 company figure [O44], and **Ngovayang**, where published figures range from 111 Mt to 800 Mt and the exploration licences expired in September 2024 [O49] [O50].

Cameroon's iron ore lies 30 to 600 km from one deep-water port: Kribi

Iron-ore deposits and projects, planned railways and energy assets, southern Cameroon (schematic)



SOURCED Figure 2.1. Cameroon's iron-ore deposits cluster in the south, between 30 km and about 600 km by planned rail from the deep-water port of Kribi. Locations and railway alignments are indicative.

Source: Cameroon Steel, drawn on Natural Earth 1:50m boundaries; deposits from [O05], [O32], [O37], [O42], [O44], [O49]; railways from [O01], [Z45]; Kribi power plant [E24]. Indicative locations; not a survey map.

Table 2.1 Cameroon's principal iron-ore deposits and projects, as published

Deposit	Holder	Tonnage and grade	Basis	Status, 2026
Mbalam-Nabeba DSO	CMC (Cameroon); Congo side separate	517 Mt at 62.2% Fe (154 Mt in Cameroon)	JORC 2012 code, statement of May 2015 [O05]	First export targeted for early 2026, then possibly 2027 [O25] [O28]
Mbalam-Nabeba itabirite	as above	5,638 Mt at 33.4% Fe (3,924 Mt in Cameroon)	JORC resource [O05]	DR-grade concentrate in testwork only [O04]
Kribi-Lobé	Sinosteel Cam SA	632.8 Mt at about 33% Fe	Company [O32]	Exports moved to July 2027; concentrate above 60% Fe [O35]
Bipindi-Grand Zambi	G-Stones Resources	150 Mt at 29.45% Fe	Company and official [O38]	Bank financing of 41.2 bn FCFA; BEAC window approved Dec 2025 [O40][O41]
Nkout	Investor consortium	1.6 Bt indicated at 33.3% Fe	NI 43-101, 2013 [O42]	Blocked by an investor dispute; start now 2027 [O47]
Ntem	Caminex	98.8 Mt at 35.3% Fe	Company, 2025 [O44]	Dormant
Ngovayang	Camina SA	111 Mt to 800 Mt, about 35% Fe	Inconsistent [O49] [O50]	Licences expired September 2024

Source: as shown. Company and official statements are not code-compliant estimates.

The national picture is therefore one of abundance at low grade and a single proven body of high-grade ore. Global Energy Monitor's 2026 tracker counts 64 Mtpa of iron-ore mine capacity in development in Cameroon, 9% of the global pipeline, which ranks the country fourth, after Australia (179 Mtpa), China (124 Mtpa) and Guinea (120 Mtpa) [G18]. For comparison, the whole of Africa produced 89.2 Mt of iron ore in 2024 and exported 88.3 Mt [G05].

2.2 The 2026 to 2030 programme sets the calendar

The State has committed public resources to three projects. The finance-law annex for 2026 to 2030 carries an iron-ore investment programme of 1,748 bn FCFA, about US\$3.1 bn: 747 bn FCFA for Mbalam, 570 bn FCFA for Bipindi-Grand Zambé and 431 bn FCFA for Kribi-Lobé [O29]. Each project has a published calendar that slipped at least once.



ILLUSTRATIVE Illustrative view. Haematite is the iron oxide of direct-shipping ore; itabirite holds the same mineral in thin bands with quartz. Generated image; not a photograph of any deposit.

1,748 bn FCFA

2026 to 2030 iron-ore programme, about US\$3.1 bn [O29]

747 bn FCFA

Mbalam [O29]

570 bn FCFA

Bipindi-Grand Zambé [O29]

431 bn FCFA

Kribi-Lobé [O29]

Mbalam. Cameroon Mining Company received the Mbalam exploitation permit in August 2022 [Z69] and launched works in December 2023 [O17]. CMC described a processing plant of 3.6 Mtpa rising to 10 Mtpa by 2027 [O17]; the plant was reported 30% complete in December 2025, when first exports were moved to the first quarter of 2026 [O24]. The export plan is in two phases: up to 10 Mtpa by road in 75-tonne-axle trucks between 2026 and 2029, then **25 Mtpa by rail from 2030 to 2050** [O25]. In April 2026 first shipments were "not yet confirmed" [O27], and in May 2026 Cameroon Tribune reported uncertainties that could push the start to 2027 [O28]. The railway corridor is reported at 659 km, 540 km of it in Cameroon, with a cost above US\$8 bn [O27]; the 2011 feasibility study had costed a 510 km line from Mbarga to the coast plus a 70 km spur to Nabeba [O01].

Kribi-Lobé. Sinosteel has moved first exports to July 2027, after spending about US\$200 m of a US\$700 m budget; it plans a 42 MW thermal plant and a ramp-up of concentrate output from 2 Mtpa to 4 Mtpa in 2028 and 8 Mtpa in 2031, at more than 60% Fe [O35].

Bipindi-Grand Zambé. Five banks have backed 41.2 bn FCFA of a 68.7 bn FCFA financing, and the central bank's special refinancing window was approved in December 2025 [O40][O41]. A first export, targeted for mid-2025, has not been confirmed in the sources reviewed [O38].

Two lessons follow. First, Cameroon's iron-ore exports are about to begin, after a decade and a half of announcements, and the State has a direct financial stake in their success. Second, the timing is uncertain enough that a downstream steel chain should not be designed to depend on any single mine starting on schedule. Chapter 6 returns to that point.

2.3 Grade decides which ironmaking route is open

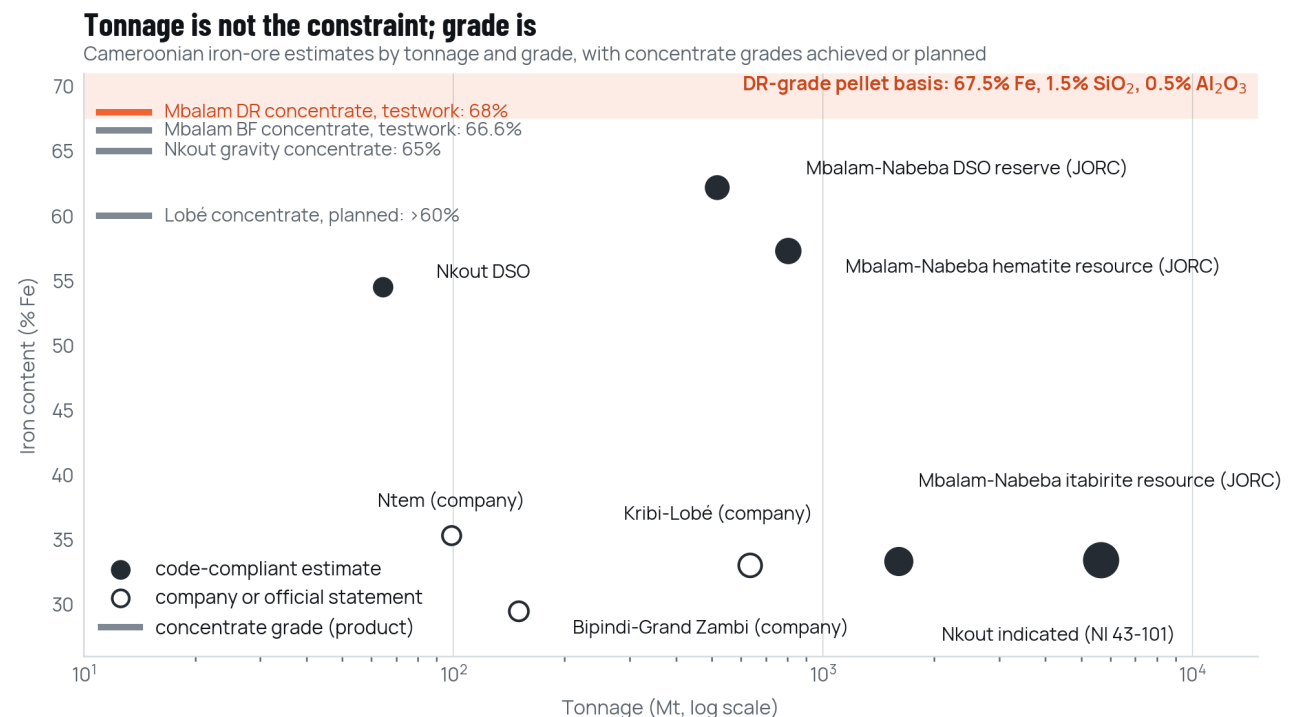
Iron ore is sold on its iron content and its impurities. For a steelmaker the critical impurities are silica and alumina, together called gangue, because they do not leave the iron during reduction.

In a **blast furnace**, gangue melts into a liquid slag fluxed with limestone and is tapped off. The furnace tolerates ores with several per cent of silica and alumina, which is why 62% Fe fines are the world's benchmark seaborne product [G31].

In a **gas-based shaft furnace**, the ore is reduced in the solid state. Nothing melts, so every tonne of silica and alumina in the pellet stays in the DRI and must be slagged off later in the electric arc furnace, at the cost of extra electricity, flux and slag. Shaft-furnace operators therefore buy DR-grade pellets. The price reporter Fastmarkets assesses the DR-grade pellet premium on a basis of **67.5% Fe, 1.5% silica and 0.5% alumina**, in a market that runs mainly on long-term contracts with quarterly premium settlements [N16].

Measured against that basis, Cameroon's products fall into three groups:

- Mbalam direct-shipping ore, at 62.2% Fe with 7.3% silica plus alumina [O05], is a good seaborne and blast-furnace product but is not a DR feed.
- The Lobé concentrate planned at more than 60% Fe [O35], the Nkout gravity concentrate at 65% Fe [O42] and the Mbalam blast-furnace concentrate from testwork, at 66.6% Fe with 3.5% silica and 0.3% alumina [O04], sit in between: suited to export, to blast furnaces and to the newer DRI-plus-smelter route, but not to a conventional shaft furnace feeding an EAF.
- The **Mbalam DR concentrate** produced in testwork, at **68% Fe, 1.8% silica, 0.2% alumina and 0.03% phosphorus** [O04], meets the DR basis on iron and total gangue. It was obtained by grinding itabirite to 80% passing 53 micrometres, at a mass yield of 45% and an iron recovery of 81% [O04]. It has never been produced at industrial scale.



SOURCED Figure 2.2. Cameroon has billions of tonnes of low-grade rock and one high-grade reserve, but only one product, so far made in testwork, reaches DR grade. Code-compliant estimates in solid markers; company or official statements in open markers.

Source: [O05], [O04], [O42], [O32], [O35], [O38], [O44]; DR-grade basis [N16]. The Mbalam-Nabeba points cover both sides of the border: about 154 Mt of the reserve is in Cameroon.

The second route matters because it widens the options. Iron-metallics specialists list the use of blast-furnace pellets in direct reduction, followed by an intermediate electric smelting step between the DR plant and the steel plant, among the responses to the shortage of DR-grade ore [N01]. A smelter melts the DRI, separates the gangue as slag and delivers liquid iron to the steel plant; it tolerates lower-grade feed but adds a process step, capital and electricity. Figure 2.3 summarises, as an analyst assessment, which Cameroonian feeds suit which route.

Only a 67 to 68% Fe product opens the gas-DRI route

Analyst assessment of which Cameroonian feeds suit which ironmaking route

	SiO ₂ +Al ₂ O ₃	Seaborne export	Gas shaft DRI to EAF	DRI plus electric smelter	Blast furnace in Cameroon
Mbalam DSO, 62.2% Fe	7.3%	suited	not suited	possible	possible
Mbalam hematite, 57.3% Fe	n/a	possible	not suited	possible	possible
Lobé concentrate, >60% Fe	n/a	suited	not suited	possible	possible
Nkout gravity concentrate, 65% Fe	n/a	suited	possible	suited	possible
Mbalam BF concentrate, 66.6% Fe	3.8%	suited	possible	suited	possible
Mbalam DR concentrate, 68% Fe	2.0%	suited	suited	suited	possible
Imported DR pellets, 67.5% Fe	2.0%	not suited	suited	suited	not suited

The smelter and blast-furnace routes tolerate more gangue. The blast-furnace column is shown for completeness only: Cameroon has no coking coal and the route has the highest CO₂ intensity.

DERIVED **Figure 2.3.** Grade-to-route matrix. Only a 67 to 68% Fe product opens the conventional gas-DRI route; 65 to 66.6% Fe concentrates open the smelter route; direct-shipping ore is an export and blast-furnace product.

Source: Cameroon Steel assessment from [O05], [O04], [O42], [O35], [N16], [N01], [T02].

The fourth column of the matrix, a blast furnace in Cameroon, is shown only for completeness. The country has no coking coal; a new integrated blast-furnace works costs about US\$1.2 bn per million tonnes [T04] and needs multi-million-tonne scale; and the route emits about 2.34 t of CO₂ per tonne of crude steel against 1.47 t for DRI-EAF [T01], a gap that the European Union's carbon border mechanism now prices on exports [D01][D08].

2.4 DR-grade feed is scarce worldwide, which raises its value

If Cameroon can make DR-grade concentrate, it will be entering a tight market. The International Iron Metallurgical Association (IIMA) estimates that direct-reduction plants using merchant ore needed about 46.4 Mt of DR-grade pellets in 2022, assuming 1.45 t of pellets per tonne of DRI, and that demand could reach 117.3 Mt by 2033 as announced plants come on stream [N01]. Against announced supply additions from the main pellet producers, IIMA's scenario leaves **31.6 Mtpa of 2033 demand without an identified source** [N01].

The Middle East and North Africa illustrate the pressure. Direct-reduction capacity in the region, excluding Iran, was about 33 Mtpa in late 2025 and is expected to grow by 21 to 23 Mtpa within two to three years, to about 55 Mtpa of DRI and HBI; regional DR-pellet demand would then reach 85 to 90 Mtpa, and the market is expected to remain in deficit until 2030 [N02]. The think-tank Agora Industry warned in 2023 that DR-grade ore supply will lag demand by 2030 [D12].

117 Mt

Merchant DR-pellet demand in 2033, scenario, from 46.4 Mt in 2022 [N01]

31.6 Mtpa

2033 demand without an identified supply source [N01]

55 Mtpa

MENA DRI and HBI capacity expected within two to three years, from about 33 [N02]

1.45 t

DR pellets per tonne of DRI, planning ratio [N01]

Scarcity cuts both ways. It raises the value of a future Cameroonian DR-grade concentrate, whether used at home or sold to direct-reduction plants abroad. It also means that a Cameroonian DRI plant cannot count on imported DR pellets being cheap or abundant. Either way, the ability to make DR-grade concentrate from Cameroonian itabirite is a strategic asset, and it is the piece of the chain that today exists only on paper.

2.5 What this means for local transformation

Three conclusions shape the rest of this paper.

Volume will not be the problem. Fifteen per cent of Mbalam's planned road-phase exports of up to 10 Mtpa is 1.5 Mtpa, and 15% of the rail phase's 25 Mtpa is 3.75 Mtpa [O25][Z42]. A 1 Mtpa direct-reduction module needs about 1.45 Mtpa of pellets [N01]. The quantities line up, but in tonnage only: the DR feed would have to come from itabirite mined and concentrated outside the DSO export stream.

Grade will be. Those 1.5 to 3.75 Mtpa would be direct-shipping ore at about 62% Fe, which cannot feed a shaft furnace without upgrading. Turning the 15% obligation into iron requires a concentrator and pellet plant working on itabirite, of the kind the former holder's 2011 Mbalam "Stage 2" study sized at 35 Mtpa of concentrate at 66% Fe and for which it costed a 4 Mtpa pellet plant at US\$400 m within a US\$3.1 bn package [O01], or a decision to take the smelter route with lower-grade feed.

Evidence must be built. The 68% Fe concentrate is a testwork result from 2014 [O04]. Before any investor commits to a DR module on Cameroonian ore, the industry needs pilot-scale concentration and pelletising tests, reduction tests in a shaft-furnace simulator, and a certified resource statement for the itabirite to be mined for local use. Chapter 11 lists these evidence gaps and how they can be closed.

FINDING

Cameroon's ore endowment is sufficient to supply a national steel chain for decades. The binding constraint is the absence of DR-grade concentrate and pellet capacity, not the quantity of ore. Local transformation policy should therefore target grade, not only tonnage.

CHAPTER 3

CAMEROON IMPORTS IRON UNITS AND FLAT STEEL, NOT REBAR

Cameroon uses about 450 kt of steel a year and imported 412 kt of chapter 72 iron and steel in 2025, a third more than in 2024. The largest single import is not a finished product but billets, the semi-finished feed of the country's own rolling mills; flat products and heavy sections come next. Rebar, banned from import since 2016, is a domestic and even an export product. The market therefore points to iron units, billets and non-rebar products as the targets for import substitution.

3.1 A small market that grows with construction

Cameroon's steel demand is a construction story. Real GDP grew by 3.5% in 2025, according to the national statistics institute (INS), while construction value added grew by 4.3% for the second year running and reached 1,991.1 bn FCFA, about 5.8% of GDP [C09]. The 2026 State budget of 8,816.4 bn FCFA allocates 2,026.3 bn FCFA to public investment [C16]. The housing deficit is estimated at 1.8 to 2.0 million units, with demand of about 300,000 units a year against about 150,000 supplied [C15]. More than half of Cameroonians, 55.7% in 2025, live in towns and cities [C13].

Apparent steel use, that is production plus imports minus exports of finished steel, is put by the industry at about 450 kt/yr [C40]. That is roughly 15 kg per inhabitant on the World Bank's 2025 population estimate of 29.88 million [C13], or about 20 kg on the provisional census count of 22.7 million published in October 2026 [C14]. Either way it is low: worldsteel puts average steel use at 29.2 kg per person for Africa, 22.5 kg for Africa excluding Egypt and South Africa, and 209 kg for the world in 2025 [G05].

The regional trend is favourable. Africa's apparent steel use rose 10.4% to 45.0 Mt in 2025, and worldsteel's April 2026 outlook forecasts growth of 3.8% in 2026 and 4.6% in 2027, describing the post-2023 recovery as a "transformative shift" [G09]. Africa, however, met that demand largely from imports: 32.9 Mt in 2025, up from 23.9 Mt in 2024, with China's share rising from 13.8 Mt to 19.4 Mt [G05][G06]. Global excess capacity, estimated by the OECD at 640 Mt in 2025 and heading for 745 Mt by 2028 [G16], is looking for unprotected markets, and Sub-Saharan Africa is one of them.

412 kt

Chapter 72 imports, 2025, +33% on 2024 [C05]

161 kt

Billet imports, 2023, the largest single line [C06]

450 kt

Apparent steel use, industry estimate [C40]

13 %

Share of the 2025 trade deficit due to iron and steel [C05]

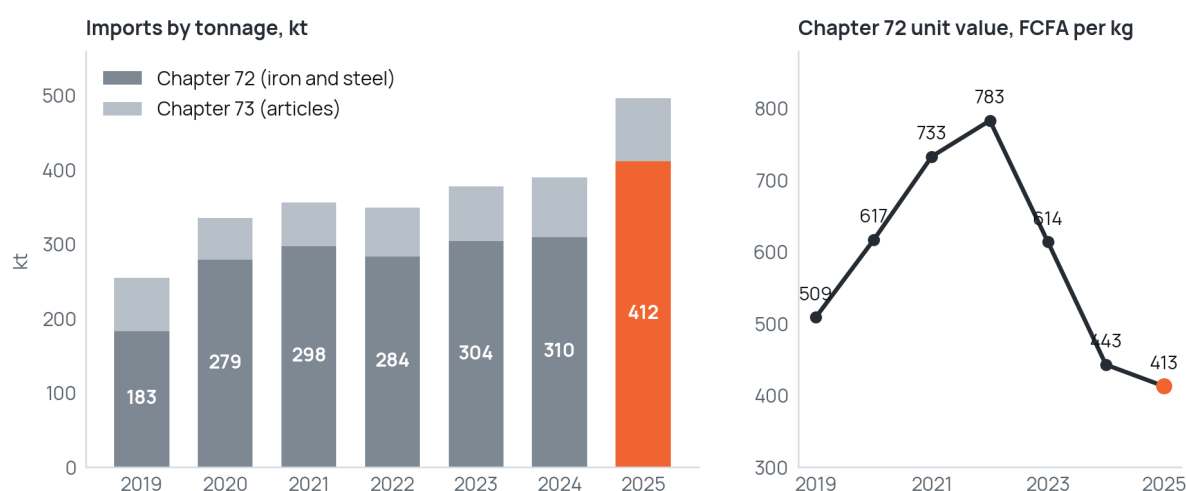
3.2 Imports: tonnage up, unit values down

Cameroon's imports of chapter 72 goods (iron and steel in primary, semi-finished and rolled forms) more than doubled between 2019 and 2025, from 182,890 t to 412,049 t [C01][C05]. Imports of chapter 73 articles (structures, tubes, wire products and other fabrications) rose more slowly, from 72,253 t to 84,008 t [C01][C05]. The 2025 jump was the steepest of the period: +33% in a single year.

At the same time, the average value of a kilogram of chapter 72 imports fell from a peak of 783 FCFA in 2022 to 413 FCFA in 2025, about €629 per tonne [C02][C05]. Two forces explain the divergence. International prices fell from their 2021 and 2022 highs as Chinese exports reached records of 111 Mt in 2024 and 119 Mt in 2025 on a customs basis [G19][G20]; and the import mix shifted towards cheaper semi-finished steel as Cameroon's rolling capacity grew.

Steel imports rose 33% in 2025 as unit values fell

Cameroon imports of iron and steel (HS chapters 72 and 73), 2019 to 2025; 2025 provisional



SOURCED Figure 3.1. Chapter 72 import tonnage rose 33% in 2025 while the average unit value fell to 413 FCFA/kg, a sign of cheaper and more semi-finished imports. 2025 data are provisional.

Source: INS, notes on foreign trade 2020 to 2025 [C01], [C02], [C03], [C04], [C05].

In value, iron and steel imports cost the country 170.1 bn FCFA for chapter 72 and 108.0 bn FCFA for chapter 73 in 2025, a total of 278.1 bn FCFA, about €424 m [C05]. That is 5.3% of all imports and 13.0% of Cameroon's trade deficit of 2,145.2 bn FCFA [C05]. Steel is therefore one of the few industrial import lines large enough to move the external balance.

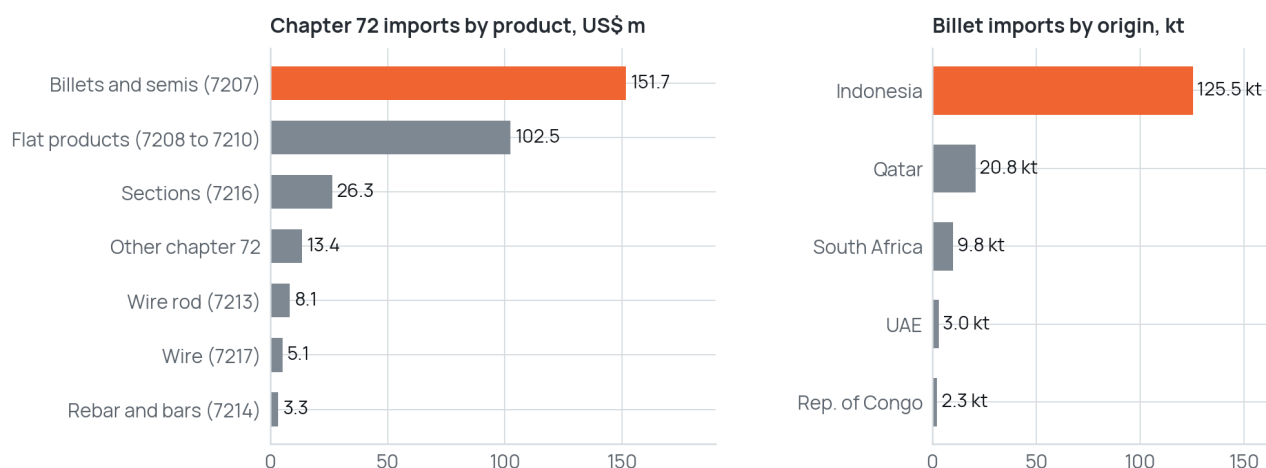
3.3 Billets first, flat products second, rebar almost nothing

UN Comtrade gives the product detail for 2023, the latest year Cameroon has reported [C06]. Of US\$310.4 m of chapter 72 imports that year, **billets and other semi-finished steel (HS 7207) accounted for US\$151.7 m, about 49%**, on a volume of 161.4 kt [C06]. Flat products followed: hot-rolled coil (US\$18.3 m), cold-rolled coil (47.5 kt, US\$52.0 m) and coated sheet (30.5 kt, US\$32.2 m), together about US\$102.5 m [C06]. Sections (HS 7216) cost US\$26.3 m, wire rod US\$8.1 m for 7.8 kt, wire US\$5.1 m and rebar US\$3.3 m [C06]. In chapter 73, fabricated structures (HS 7308) cost US\$58.0 m for 25.7 kt and welded tubes (HS 7306) US\$26.0 m for 9.5 kt [C06].

One caution applies. Comtrade's declared values for billets imply about US\$940/t in 2023, well above international billet prices at the time, so values by line should be used with care; tonnages are more reliable [C06]. The ranking does not change on a tonnage basis: billets are the largest line by a wide margin.

Billets are half of the steel import bill, and Indonesia supplies most of them

Cameroon chapter 72 imports by product and billet imports by origin, 2023 (UN Comtrade)



SOURCED Figure 3.2. Billets are half of the chapter 72 import bill, and four-fifths of them came from one country, Indonesia, in 2023. Rebar imports are marginal.

Source: UN Comtrade, Cameroon (reporter 120), HS 72 at four- and six-digit level, 2023 [C06].

The origin of the billets is concentrated. Indonesia supplied 125.5 kt, 78% of the total, followed by Qatar (20.8 kt), South Africa (9.8 kt), the United Arab Emirates (3.0 kt) and the Republic of Congo (2.3 kt) [C06]. For chapter 72 as a whole, China (US\$125.5 m) and Indonesia (US\$119.3 m) dominated, ahead of Qatar, South Africa, Türkiye, Belgium and India [C06]. A single-country dependence for the main feed of the domestic industry is a supply risk in its own right, independent of price.

Three conclusions follow from the product detail:

- 1. Iron units are the import.** About half of chapter 72 spending buys semi-finished steel for local mills. Every tonne of billet made in Cameroon and sold to these mills, from local or imported iron units, displaces a tonne of these imports directly; billets rolled into yet more rebar do not.
- 2. Flat steel is the second gap.** About 95 to 100 kt a year of hot-rolled, cold-rolled and coated sheet is fully imported [C06]. Flat products need a different and far more capital-intensive chain (slab casting, hot strip mill, cold mill, coating line), which is beyond the scale of the Cameroonian market for now.
- 3. Sections and structures are largely imported.** Light angles and flats are rolled locally in small quantities [C25]; medium and heavy sections and H-beams are not produced in Cameroon and are imported [C06]; structures imported under HS 7308 contain them in fabricated form. These are long products made from billets or blooms, which places them within reach of a phased chain.



ILLUSTRATIVE Illustrative view. Medium and heavy sections and H-beams are not produced in Cameroon; they are long products that a Cameroonian melt shop can feed. Generated image; not a photograph of any project, place or person.

3.4 The domestic industry: ample rolling, thin melting, short of feed

Cameroon's steel industry is a cluster of re-rollers and small melt shops around Douala. The largest, Prometal, inaugurated two plants worth 57 bn FCFA in January 2024, with a rolling mill supplied by SMS group that makes wire rod, beams, angles, flats and rebar; the group reports about 360 kt/yr of finished steel and 1,000 direct jobs [C25][C26]. Prometal's electric arc furnace, presented in 2023 as the first in Central Africa, was reported at about 200,000 t/yr of rebar [C27]. Aciéries du Cameroun was reported at 250,000 t/yr in 2021 and Metafrique Steel at 60,000 t/yr, scrap-based [C27]. Smaller units include a rebar plant financed by a 8.95 bn FCFA loan from the regional development bank BDEAC [C36].

The industry's electricity bills give a sense of how much melting actually happens: Prometal paid 8.37 bn FCFA in 2024, Metafrique 3.81 bn, Acero Metal 3.11 bn and Aciéries du Cameroun 1.61 bn [C31]. Prometal's load was about 40 MW, rising to about 90 MW once its aluminium affiliate runs, and it moved to a high-voltage supply with a dedicated 50 MVA transformer [C31].

The industry association Ocitram published capacity and demand by product in May 2026 (Table 3.1). Every product line has more capacity than the market needs, and all but annealed wire have at least twice as much.

Table 3.1 Capacity and domestic demand by product, as reported by the industry, May 2026

Product	Installed capacity (kt/yr)	Domestic demand (kt/yr)	Capacity over demand
Reinforcing bar	627	180	3.5 times
Wire rod and nails	72	36	2.0 times
Sheets	43	21	2.0 times
Tubes	34	14	2.4 times
Annealed wire	2.8	1.8	1.6 times
All steel transformation	about 1,200	about 450	about 2.7 times; mills run at about 50%

Source: Ocitram as reported by Cameroon Tribune [C30]; total capacity, demand and utilisation [C38][C40]. The rebar capacity figure is printed as "627 tonnes" in the source and is read as 627 kt, consistent with the industry total.

The constraint is feed, not capacity. Local scrap covers about 40% of the mills' needs and the balance is imported as billets [C38]. Scrap purchase prices rose by about 30% [C40]. The only quantified study of national scrap arising, using 2006 data, found 53,000 to 61,833 t/yr, collected 53% by recyclers, 29% by small "casseurs"

and 15% by exporters [C42]. Recorded scrap exports, 3,675 t in 2019, fell to almost nothing afterwards [C06]; no legal export ban was found, so the fall is best read as a de facto restriction [C58]. Even if every tonne of national scrap reached a furnace, it would feed only a fraction of the existing mills.

THE INDUSTRY IS NOT SHORT OF MILLS. IT IS SHORT OF IRON.

Chapter 3, from [C30], [C38], [C42]

Two further facts complete the picture. Quality remains a concern: the standards body ANOR sanctioned non-compliant rebar in 2024, and in January 2026 the government refused to revise the mandatory rebar standard to admit a lower grade [C34][C35]. And in September 2026 Prometal secured a €40 m (26.2 bn FCFA) revolving facility from Afreximbank to import billets [C38][C39][C40]. The country's leading producer is financing imported iron units because there is no domestic source.

3.5 Prices and protection

Rebar is a price-controlled product. In October 2023 the Ministry of Commerce lowered homologated producer prices in Douala; the 12 mm FE500 bar went from 6,900 to 6,750 FCFA, while the street price stood at about 7,500 FCFA [C44]. At 10.66 kg per 12-metre bar, the homologated price implies about 633,000 FCFA/t, roughly €965/t [C44]. Turkish rebar was offered for export at US\$550 to 575/t FOB at the same time [G37]. Even so, Cameroonian rebar was reported to be about 10% cheaper than in Côte d'Ivoire and about 25% cheaper than in Gabon in August 2023 [C45].

The tariff structure protects finished products more than semis, but unevenly. Under the CEMAC common external tariff as applied by Cameroon, rebar carries a 20% duty, while billets, iron ore, DRI and scrap carry 10%, sections and hot-rolled coil 10%, and wire rod only 5% [P24]. A new CEEAC-CEMAC tariff applies from 1 January 2026, but its steel-line rates had not been published at the cut-off date [P23]. Since 2026 an environmental tax of 5,000 FCFA per tonne of reinforcing bar (fer à béton) has been payable by local producers and importers alike [P19]. Chapter 5 discusses how these instruments could be aligned with the goal of local ironmaking.

3.6 The regional market is real but contested

Cameroon is the largest steel importer in the Central African Economic and Monetary Community (CEMAC). The sum of chapter 72 imports reported or mirrored for its members came to about US\$501 m in 2023, of which Cameroon accounted for about 62% [C06][C07]. The other members import rebar directly or through Cameroon.

Table 3.2 Steel imports of Cameroon's neighbours, latest available year

Country	Chapter 72 imports	Rebar (HS 7214)	Note	Source
Gabon	US\$68.5 m (2023)	50.7 kt (2023)	VAT on local rebar cut from 10% to 3% (July 2026); new 120 kt/yr scrap-based mill at Nkok	[C07][C52][C39]
Republic of Congo	US\$45.5 m (2024)	32.8 kt (2024)	Large chapter 73 imports (oil and gas)	[C07]
Chad	US\$73.4 m (2023, mirror data)	Cameroon supplied 25.9 kt of bars (2023)	Benin and Cameroon the main suppliers	[C07][C06]

Country	Chapter 72 imports	Rebar (HS 7214)	Note	Source
Equatorial Guinea	US\$11.6 m (2023, mirror data)	n/a	China and Türkiye the main suppliers	[C07]
Central African Republic	US\$2.6 m (2024)	1.0 kt	Small market	[C07]
Nigeria	US\$225.7 m (2024)	n/a	Down from US\$930.4 m in 2021	[C07]

Source: UN Comtrade [C07] and as shown; CEMAC total derived.

The neighbours are also building their own rolling capacity. Prometal is building a 120,000 t/yr scrap-based rebar mill in Gabon's Nkok special economic zone [C39], the Fokou group is adding scrap capacity at Port-Gentil [C53], and Gabon has cut VAT on locally made rebar [C52]. Further afield, new 300 kt/yr bar and wire-rod mills were ordered in 2026 for Tanzania and Abidjan [A21][A22]. Regional rebar is becoming as contested as domestic rebar. Billets, sections and iron units are not.

3.7 What the market says about where to invest

The import and industry data lead to a simple ranking of opportunities for a Cameroonian steel chain:

- **Iron units and billets** are the largest import, have a captive domestic buyer in the existing re-rollers, which import about 60% of their charge [C38], and are the binding constraint on the whole industry.
- **Medium and heavy sections** are not produced in Cameroon and are imported, are made from billets or blooms, and are not yet targeted by the new regional mills.
- **Flat products** are a real gap but require a scale and capital outlay beyond the current market.
- **Rebar** is saturated at home and increasingly contested in the region; new rebar capacity adds little value unless it comes with its own iron units.

The policy and investment question is therefore not whether Cameroon needs more steel mills. It is whether it can make the iron that its existing and future mills need, and where it can make it most cheaply. Chapter 4 looks at how other producers answered that question.

CHAPTER 4

SUCCESSFUL PRODUCERS MATCHED IRONMAKING TO THEIR GAS, THEIR ORE AND THEIR MARKET

Six producers show what turns ore into a steel industry and what does not. Egypt and Algeria used cheap natural gas and modular direct reduction to replace imports within a few years. Brazil and India show that ore wealth alone does not create a steel chain. Vietnam shows that a port-based complex can thrive on imported ore and add its own later. Nigeria shows the cost of a megaproject mismatched to its ore, its fuel and its logistics. The common thread for Cameroon is to sequence proven, modular technology behind secure feed and a deep-water port.

4.1 Six cases, one question

Every country with iron ore faces the same choice: export it, or turn some of it into iron and steel at home. The answer depends on four things that vary from country to country: the grade of the ore, the energy available to reduce it, the size and protection of the domestic market, and the logistics that connect mine, plant and port. Table 4.1 compares six producers on those four dimensions, chosen because each illuminates a decision Cameroon now faces.

Table 4.1 Six producers compared on the four determinants of an ore-to-steel chain

Country	Ore base	Energy	Iron route	Key policy instruments	Outcome	Lesson for Cameroon
Egypt	Imported DR pellets	Domestic gas	Gas DRI to EAF	Duties on billets and coil; anti-dumping	10.6 Mt steel (2025); semis 45% of imports	Gas DRI works in Africa; protect semis too
Algeria	Imported pellets; own ore from 2026	Cheap domestic gas	Gas DRI to EAF	30% duty; import certificates; price preference	Net importer to net exporter, 2021 to 2025	Fast results, but trade defence abroad
Nigeria	Itakpe ore, never delivered at scale	Coal planned	Blast furnace never blown; idle DR plant	State ownership; revival plans	No liquid steel in about 47 years	Match technology to ore and fuel; logistics first
India	Large domestic ore base	Coal, some gas	Blast furnace; coal-based DRI	Steel policy; export duties in 2022	164.9 Mt steel (2025)	Market size drives scale; export taxes are blunt
Vietnam	Mostly imported ore	Coal	Coastal blast-furnace complex	Anti-dumping on coil	24.7 Mt steel (2025), +12%	A port complex can come before local ore
Brazil	Very large, high grade	Coal, charcoal	Blast furnace; port slab plant	Import quotas	416.4 Mt ore exported vs 33.3 Mt steel	Ore wealth alone does not create steel

Source: Cameroon Steel synthesis of [G05], [T13], [A04], [A07], [N14], [G01], [N10], [N12], [N13], [N05], [N06] and sources cited in this chapter.

4.2 Egypt: gas-based direct reduction on imported pellets

Egypt is Africa's largest steel producer, with 10.6 Mt of crude steel in 2025 [G05], and its industry is built on gas-based direct reduction. worldsteel puts Egyptian DRI output at 6.6 Mt in 2025, and Midrex at 6.06 Mt [G05][T13]. Egypt is listed among the countries whose DR plants run on merchant pellets bought on the world market [N01]: its own ore is not of DR grade. The chain was assembled from imported pellets, domestic gas and electric arc furnaces, and the largest producer, Ezz Steel, now has about 7 Mtpa of rolling capacity, 2.3 Mtpa of it for hot-rolled coil and 4.7 Mtpa for long products [A07].

Egyptian plants are among the most efficient in the world. Suez Steel's modernised DR plant now consumes about 2.2 Gcal of gas and 93 kWh of electricity per tonne of DRI [A07]; its technology supplier reported a sustained figure below 2.2 Gcal, about 9.2 GJ per tonne [T10]. Beshay Steel commissioned a 2 Mtpa DRI module during its 2021 to 2025 programme [A07].

Two features of Egypt's experience are directly relevant to Cameroon. First, rolling capacity outran ironmaking: the sector has about 20 Mtpa of rolling capacity running at roughly 50% [A07], and the structure of its imports has shifted accordingly. Finished products made up 95% of steel imports in 2021 and 55% in 2025, while semi-finished steel rose from 5% to 45% [A07]. That is Cameroon's situation on a larger scale: mills that need billets more than the market needs bars.

Second, Egypt protects semi-finished steel as well as finished products. Since April 2026 billets carry a 13% duty with a minimum of US\$65/t and an annual quota of 176,700 t, hot-rolled coil 13.6% with a minimum of US\$75.25/t, and Chinese rebar an anti-dumping duty of 29% [A06][A07]. The vulnerability of the model is its feed: DR plants that depend on seaborne pellets are exposed to the supply tightness described in Chapter 2, with the Middle East and North Africa alone expected to need 30 to 40 Mtpa more DR pellets within a few years [N02].

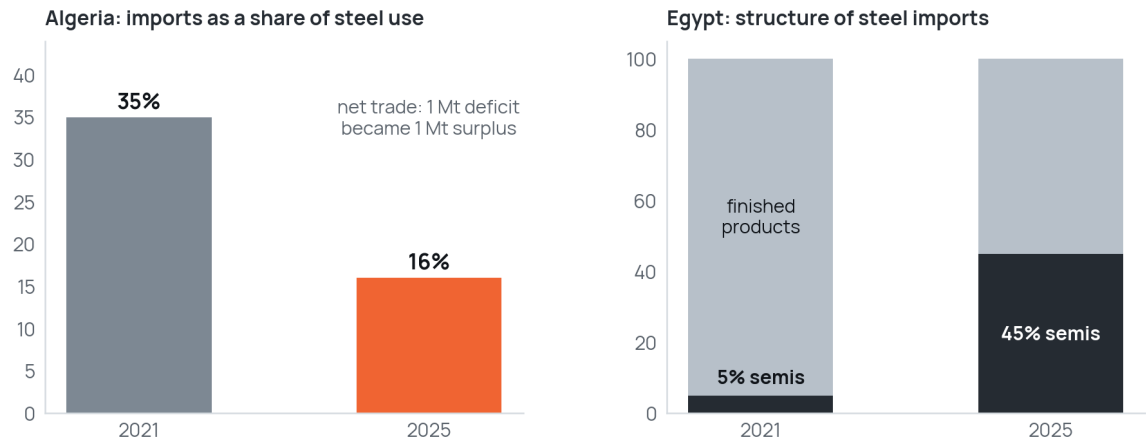
4.3 Algeria: from importer to net exporter in four years

Algeria shows how fast a gas-rich country can substitute imports once it commits to direct reduction at scale. In 2021 it ran a steel deficit of about 1 Mt; by 2025 it was a net exporter of about 1 Mt, and imports fell from 35% to 16% of consumption [A03][A04]. Crude steel output reached 5.5 Mt in 2025, up from 4.5 Mt in 2024 [G05].

The engine of that change was foreign direct investment in gas-based DRI-EAF complexes. Tosyali Algérie, a Turkish-owned complex near Oran, has 6.2 Mtpa of steelmaking capacity, 5 Mtpa of DRI capacity, a third EAF of 2.7 Mtpa and a hot strip mill of 2.5 Mtpa [A04]. Algerian Qatari Steel at Bellara added a 2.5 Mtpa DRI module in 2021 to 2.2 Mtpa of steelmaking, and the smaller Ozmert plant a 0.5 Mtpa DRI module in 2024 [A04]. The State's historic integrated works at El Hadjar, with 2 Mtpa of nominal capacity, produces 1 to 1.5 Mtpa on worn equipment [A04].

Gas-based ironmaking changed what North Africa imports

Algeria's import dependence and Egypt's import mix, 2021 and 2025, in per cent



SOURCED Figure 4.1. Gas-based ironmaking changed what North Africa imports. Algeria cut imports from 35% to 16% of steel use in four years; Egypt's imports shifted from finished to semi-finished steel as its rolling capacity outgrew its ironmaking.

Source: [A03], [A04] (Algeria); [A07] (Egypt).

The policy package was generous. Domestic gas for industry cost less than 10% of production costs in 2023 to 2025, saving Tosyali an estimated US\$50 to 80 per tonne of finished steel; imports face a 30% basic duty; Algerian products enjoy a price preference of up to 25% in public procurement; and an import-agency certificate is refused automatically where similar local production exists [A04]. Algeria is now integrating backwards into ore: a 950 km railway linking the Gara Djebilet deposit to Béchar and the north was inaugurated in early 2026, and a first processing unit of 4 Mtpa of ore was due to start by the end of April 2026, with Tosyali's complex among the intended users [N15].

The other side of the ledger is cost and exposure. Tosyali's newest complex was announced at US\$2.5 bn for 1.6 Mtpa, about US\$1,560 per tonne of capacity [A26]. And the United States imposed, in July 2026, an anti-dumping duty of 127.32% and a countervailing duty of 72.94% on Algerian rebar, partly on the ground that cheap gas is a subsidy [A04]. A chain built on subsidised energy can win its home market and lose its export markets.

4.4 Nigeria: the cost of a mismatched megaproject

Nigeria is the cautionary tale of African steel. The Ajaokuta steel complex was begun around 1979 under a cooperation agreement with the Soviet Union, around a blast furnace designed to use ore from Itakpe, about 65 km away. Some 47 years later, its blast furnace has never been blown and it has never produced liquid steel; Itakpe ore has never been fully produced and delivered to the plant, and the rail links that were to connect mine, mill and port remain incomplete [N14]. In Warri, the Delta Steel direct-reduction plant, with 1.02 Mtpa of capacity built in 1982, is idle [T13].

Ajaokuta failed on each of the four determinants. Its technology, a blast furnace, required coking coal Nigeria does not produce in quantity and ore of a quality Itakpe did not deliver; its scale was set by politics rather than by the market; its logistics were never completed; and the project was repeatedly rescued with public money rather than disciplined by customers. Political claims that it would create half a million jobs [P05] show how large promises can obscure basic engineering questions.

Nigeria still has the demand. Its chapter 72 imports were US\$930.4 m in 2021 and US\$225.7 m in 2024, after the naira devaluation compressed them [C07]. Global Energy Monitor counts only 0.6 Mtpa of operating steel capacity in plants of at least 0.5 Mtpa, but 3.0 Mtpa of EAF capacity in development [G18], including a US\$450 m hot-rolled coil plant [A16]. The lesson for Cameroon is not that Africa cannot make steel; it is that the chain must be built in modules that work at each step, with feed and logistics secured before the furnace.

A STEEL CHAIN FAILS WHEN TECHNOLOGY, FEED AND LOGISTICS ARE NOT MATCHED BEFORE THE FURNACE IS BUILT.

Chapter 4, on Ajaokuta [N14]

4.5 India: a large market and captive ore

India is the world's second-largest steel producer, with 164.9 Mt of crude steel in 2025, up 10.4% [G01]. Its National Steel Policy of 2017 set targets of 300 Mt of crude steel capacity and 255 Mt of production by 2030–31, with per-capita consumption rising to 158 kg [N10]. India is also the world's largest maker of DRI, 58.8 Mt in 2025, but 49.9 Mt of that came from coal-fired rotary kilns and only 8.9 Mt from gas [T13]. Coal-based DRI emits about three times as much CO₂ directly as gas-based DRI [T02], which exposes Indian exporters to carbon border measures.

India illustrates two policy lessons. The first is that a large domestic market and captive ore make scale possible: steelmakers can integrate from mine to mill because the market absorbs their output. The second is that export taxes on ore are a blunt instrument. In May 2022 India imposed a 50% duty on exports of low-grade iron-ore lumps and fines and a 45% duty on pellets, to cool domestic prices; it withdrew them in November 2022 [N11]. The measure redirected ore to domestic mills for six months but disrupted miners, pellet makers and their customers, and did not survive the first change in market conditions.

Cameroon's approach under the 2023 Mining Code is different in kind. It does not tax exports; it obliges each convention to set aside a minimum share of production for local transformation [Z42]. A quantity rule written into long-term conventions is more predictable for investors than a tax that changes with prices, provided the rule is backed by clear offtake terms. Chapter 5 discusses what those terms should contain.

EXPORT TAXES AND QUANTITY RULES COMPARED

An export tax changes the price of ore for everyone, can be reversed at short notice and pushes miners to sell less rather than to process more. A local-transformation quantity rule, written into long-term conventions, leaves export prices untouched and reserves a defined share of output for domestic processors. It is more predictable for both miners and processors, provided the price, grade and timing of the reserved share are defined.

4.6 Vietnam: a port-based complex can run on imported ore

Vietnam's crude steel output reached 24.7 Mt in 2025, a five-year high and 12% more than in 2024, according to the Vietnam Steel Association; exports rose to 3.15 Mt [N12]. Growth accelerated in 2026: Vietnam's output rose 29.1% year on year in January to August, to 20.6 Mt [G04].

The country's largest producer built its flagship integrated complex at Dung Quat, on the coast of Quang Ngai province, and imports most of its iron ore because domestic sources are limited. In May 2026 it proposed to develop the Thach Khe deposit, estimated at about 500 Mt, to reduce that dependence [N13]. Vietnam therefore reversed the sequence many ore-rich countries follow: it built a deep-water, port-based steel complex first,

served a fast-growing construction market, and is only now looking to integrate back into domestic ore. It also uses trade defence to protect new capacity, with provisional anti-dumping duties of 19.38 to 27.83% on Chinese hot-rolled coil from March 2025 [G27], and it moves into specialised products: a 700,000 t/yr rail and special-steel plant broke ground in 2026 [N12].

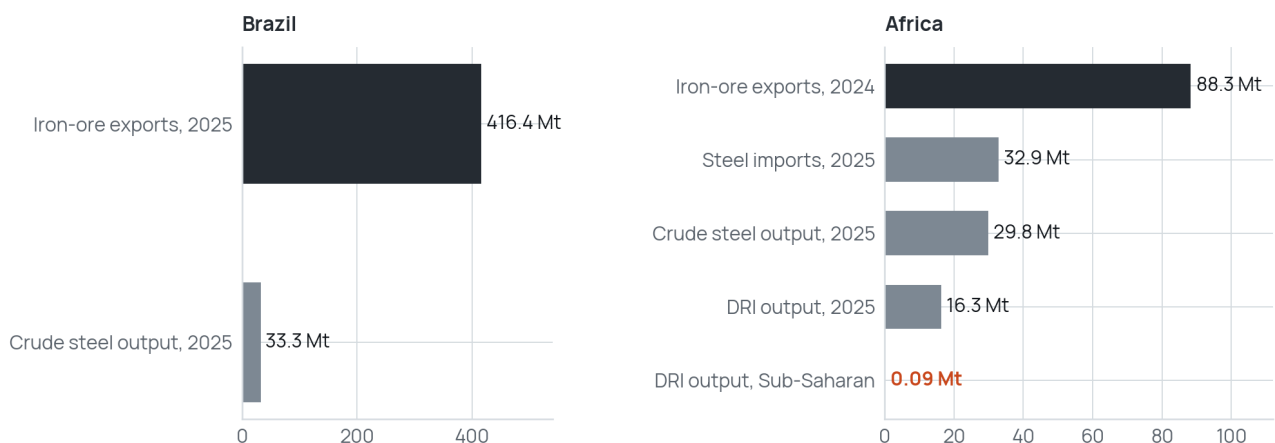
For Cameroon, Vietnam's lesson is that a coastal plant with good port access can start on imported raw materials, as Dung Quat did with imported ore and coal, and integrate backwards when its own ore is ready. That is the logic of the phased chain proposed in Chapter 6, which starts instead on imported iron units for an electric arc furnace.

4.7 Brazil: ore wealth does not make a steel industry by itself

Brazil exported a record 416.4 Mt of iron ore in 2025, the first time its shipments exceeded 400 Mt [N05]. Its crude steel output the same year was 33.3 Mt, down 1.6% [N06]. The ratio, more than twelve tonnes of ore exported for every tonne of steel made, shows that abundant high-grade ore and a large economy do not by themselves create a proportionate steel industry; Brazilian mills face the same import competition as everyone else and the country has used quotas on 11 steel products, with a 25% duty above quota, since 2024 [G29].

Ore leaves, steel comes back

Iron-ore exports against steel output, steel imports and DRI output, Brazil and Africa



SOURCED Figure 4.2. Ore leaves, steel comes back. Brazil exports more than twelve tonnes of iron ore per tonne of steel it makes; Africa exports about 88 Mt of ore a year while importing about 33 Mt of steel, and Sub-Saharan Africa makes almost no DRI.

Source: [N05], [N06] (Brazil); [G05], [T13] (Africa). Africa's ore exports refer to 2024; other values to 2025.

Brazil also offers the most relevant model of downstream investment by an ore miner. The Pecém steel company (CSP) in Ceará, a 3 Mtpa blast-furnace slab plant commissioned in 2016 and linked by conveyor to a deep-water port, was built by the miner Vale with the Korean steelmakers POSCO and Dongkuk [N07]. ArcelorMittal bought it in March 2023 at an enterprise value of about US\$2.2 bn and cited the option of adding direct reduction and rolling at the site [N07]. In October 2022 Vale signed agreements with Saudi Arabia, the United Arab Emirates and Oman to study "mega hubs" in port industrial zones that would make HBI and steel products from Vale's agglomerated ore, noting that gas-based HBI emits about 60% less CO₂ than blast-furnace pig iron [N08].

The pattern is clear: miners that want to add value build or co-invest in iron and steel plants at ports with access to gas, in partnership with established steelmakers that bring technology and markets. Kribi offers the same combination of port, gas and ore within one industrial zone.

4.8 Guinea and Mauritania: beneficiation written into the deal

Africa's newest iron-ore giant takes a further step. Simandou in Guinea, which began operations in November 2025 and is designed for up to 120 Mtpa [A10][N09], operates under a co-development agreement that requires the companies to submit a feasibility study for either a 500,000 t/yr steel mill or a 2 Mtpa pellet plant within two years of the mine entering production. A study for a 2 Mtpa pellet plant was reviewed by the mines ministry in June 2026; it projects up to 1,950 construction jobs and 788 permanent positions [N09]. Mauritania's state miner SNIM is studying a 2.5 Mtpa green-iron project with a partner [A19], and Namibia opened Africa's first hydrogen-based iron pilot in April 2025 [D14].

These agreements share a feature that Cameroon can borrow: the beneficiation obligation is specific (a pellet plant or a mill of stated size), time-bound (two years from first production) and modest relative to the mine (2 Mt of pellets against up to 120 Mt of ore).

4.9 Seven lessons for Cameroon

The six country cases and the newer African conventions point to seven practical lessons.

1. **Match the ironmaking route to the energy you have.** Egypt and Algeria chose gas-based direct reduction because they have gas; Nigeria chose a coal-based blast furnace without coking coal. Cameroon's gas and hydro power point to DRI-EAF, not to a blast furnace.
2. **Secure the feed before building the furnace.** Egypt and Algeria began on imported pellets and Algeria is only now bringing its own ore on line; Ajaokuta never received its ore. A Cameroonian DR plant should be built when DR-grade concentrate is assured, from local or imported sources.
3. **Build in modules and grow with the market.** DR modules range from 0.25 Mtpa to 2.5 Mtpa [T13]; EAF mini-mills of 0.3 to 0.5 Mtpa are standard [T20][T21]. Oversized single projects fail.
4. **Start where the import bill is.** Egypt's import mix shifted to semis as rolling outgrew ironmaking. In Cameroon, billets are the largest import; making them locally is the first step.
5. **Protect intelligently and temporarily.** Algeria's and Egypt's trade measures cover semis as well as finished goods, and Vietnam uses trade remedies rather than bans. Protection should reward ironmaking and be paired with competition and quality standards.
6. **Bring in anchor partners with technology and markets.** Tosyali in Algeria and the Korean steelmakers at Pecém brought proven processes and offtake.
7. **Put the plant at the port.** Vietnam's Dung Quat, Brazil's Pecém and Vale's Gulf hubs all sit at deep-water ports with access to gas or power. Kribi is Cameroon's equivalent.

FINDING

No country in the sample built a successful ore-to-steel chain by starting at the mine and working forward in one leap. The successes started at a port on imported raw materials, with a melt shop or DR plant on imported iron units (Egypt, Algeria) or a blast furnace on imported ore (Vietnam), protected the semi-finished step, and integrated backwards into domestic ore once grade, energy and scale were proven.

CHAPTER 5

POLICY NOW REQUIRES LOCAL TRANSFORMATION; IT DOES NOT YET MAKE IT BANKABLE

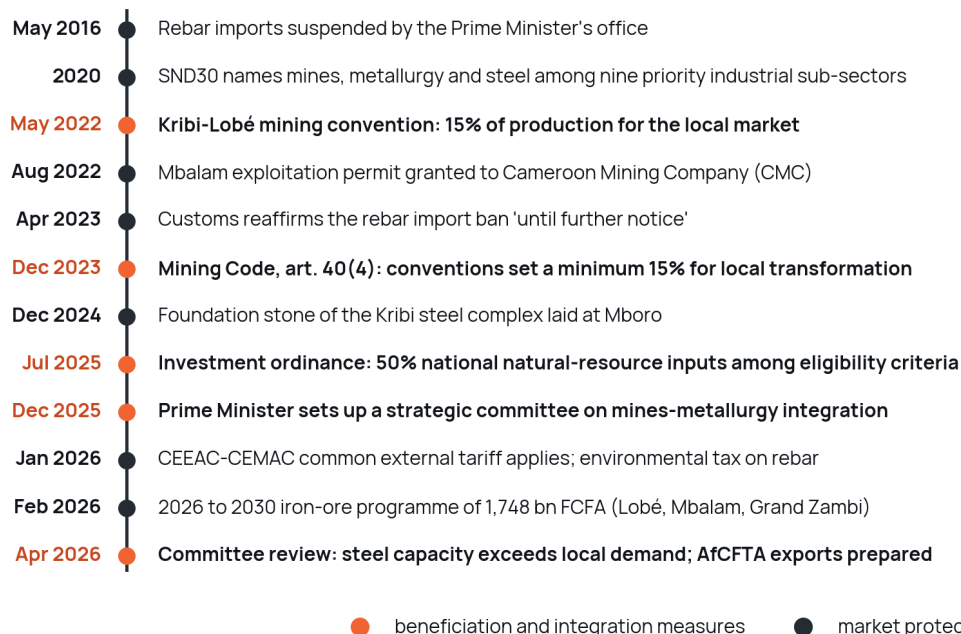
Cameroon's policy framework has moved from protecting rolling mills to requiring that part of each mine's output be transformed at home. The 2023 Mining Code sets a minimum of 15% for local transformation, two major conventions already contain the clause, and a committee at the Prime Minister's office now has the mandate to enforce it. What is still missing is the machinery that turns an obligation into a bankable supply contract: a definition of transformation, a grade and pricing rule, a tariff structure that rewards ironmaking, and an allocation of gas and power.

5.1 Four layers of policy now point the same way

Local beneficiation policy in Cameroon is not one instrument but four layers, built up over a decade (Figure 5.1).

From protecting rolling mills to requiring local transformation

Milestones in Cameroon's steel and beneficiation policy, 2016 to 2026



SOURCED Figure 5.1. From protecting rolling mills to requiring local transformation. Milestones highlighted in orange concern beneficiation and mines-metallurgy integration; the others concern market protection, projects and budget.

Source: [C20], [P13], [O33], [Z69], [C21], [Z42], [X01], [Z39], [Z79], [P23], [P19], [O29], [Z80].

Strategy. The National Development Strategy 2020 to 2030 (SND30) names "mines, metallurgy and steel" among nine priority industrial sub-sectors and adopts the doctrine of accelerating import substitution while densifying exports [P13]. It targets manufacturing value added of 25% of GDP by 2030 [P13], against about 13.3% in 2025 on national-accounts data [C09]. The earlier Industrialisation Master Plan (PDI) aimed to raise industry from 13% to 24% of GDP by 2035, with particular emphasis on metallurgy and steel, and was being revised in late 2024 [P14][P15]. SND30 says little about ore beneficiation as such and cites iron among the projects of earlier decades that did not materialise [P13].

Law. The Mining Code, Law No. 2023/014 of 19 December 2023, replaced the 2016 Code [O52][O36]. Its article 40(4) requires every mining convention to set out how production will be made available for local transformation, **at a minimum rate of 15%** [Z42]. The Code also gives the State a free carried interest of 10% in industrial mines, with an option to take up to 25% more (art. 47), and sets production-sharing ranges of 2 to 15% for non-precious substances (art. 48) [Z42]. Its local-content provisions reserve 95% of non-skilled jobs for Cameroonians (art. 124), give priority to Cameroonian subcontractors (art. 125) and require skills and technology transfer (art. 126) [O36]. Implementing decrees followed in November 2024 [O36].

Contracts. The Code codifies a practice that already existed in conventions. The Kribi-Lobé convention of May 2022 reserves 15% of production for the local market [O33][O34]. The Mbalam convention, as described by Cameroon Mining Company, authorises CMC to mine the deposit "while locally transforming 15% of its production"; the same source presents Cameroon Steel as the future national steel hub of the programme, without saying that the convention names the company [O17]. The terms of the Bipindi-Grand Zambi investment agreement on local supply were not found in public sources [O37].

Institutions and incentives. On 10 December 2025 the Prime Minister set up a strategic committee on mines-metallurgy integration, chaired by Dr Tang Ahanda Barnabé, special adviser to the Prime Minister [Z79][Z80]. Its mandate includes a reliable iron-ore supply chain for local steelmakers, enforcement of the Mining Code's local-processing requirements and protection of domestic industry [Z79][Z80]. Its review of the metals industry in April 2026 found domestic capacity in excess of local demand and began preparing steel exports under the African Continental Free Trade Area (AfCFTA) [Z79][Z80]. In parallel, Ordinance No. 2025/002 of 18 July 2025, ratified by Law No. 2025/015 of 17 December 2025, replaced the 2013 investment-incentives law [Z39][Z40][Z41]. New projects must meet at least two eligibility criteria, among them one direct job per 50 m FCFA invested and, for industrial projects, at least 50% of inputs drawn from national natural resources; projects in economic zones receive an operating phase extended to seven years; and investors must present a local-skills and technology-transfer programme and evidence of financing [Z39].

FOR THE FIRST TIME, THE LAW, THE CONVENTIONS AND AN INSTITUTION AT THE PRIME MINISTER'S OFFICE ALL POINT AT THE SAME OBJECTIVE: IRON MADE FROM CAMEROONIAN ORE.

Chapter 5

5.2 What the 15% rule settles, and what it leaves open

Article 40(4) settles the principle and the floor. It establishes that a share of every convention's output must be available for local transformation and that the share cannot be lower than 15% [Z42]. For the projects now starting, the volumes are significant (Chapter 6): 15% of Mbalam's planned road phase of up to 10 Mtpa is 1.5 Mtpa; 15% of its rail phase of 25 Mtpa is 3.75 Mtpa [O25]; 15% of Lobé's planned concentrate output is 0.6 Mtpa at 4 Mtpa in 2028 and 1.2 Mtpa at 8 Mtpa in 2031 [O35].

What the rule does not settle, at least in the public texts, is how that ore reaches a local processor. Five questions remain open.

1. **What counts as transformation?** Crushing and screening, concentration, pelletising, direct reduction and steelmaking all transform ore, but they add very different value. If crushing counts, the obligation can be met at the mine gate without creating any iron.
2. **What grade?** Fifteen per cent of a direct-shipping ore stream at 62% Fe is not a feed for a direct-reduction plant (Chapter 2). The rule says nothing about whether the miner must supply a concentrate of a given grade or simply a share of what it produces.
3. **At what price?** A local buyer paying the full seaborne price gains only the freight saving; a buyer paying a regulated discount transfers value from the miner and, through royalties and the State's equity, from the Treasury. The rule needs a reference price, most simply export parity, that is, the seaborne index adjusted for grade and less the freight and port costs the miner avoids.
4. **When?** If the local processor is not ready, does the obligation lapse, accumulate or convert into a payment? Without a timing rule, a miner may reasonably argue that no buyer exists.
5. **Where and how?** Delivery at the mine, at a rail siding or at the Kribi terminal implies different logistics costs and responsibilities.

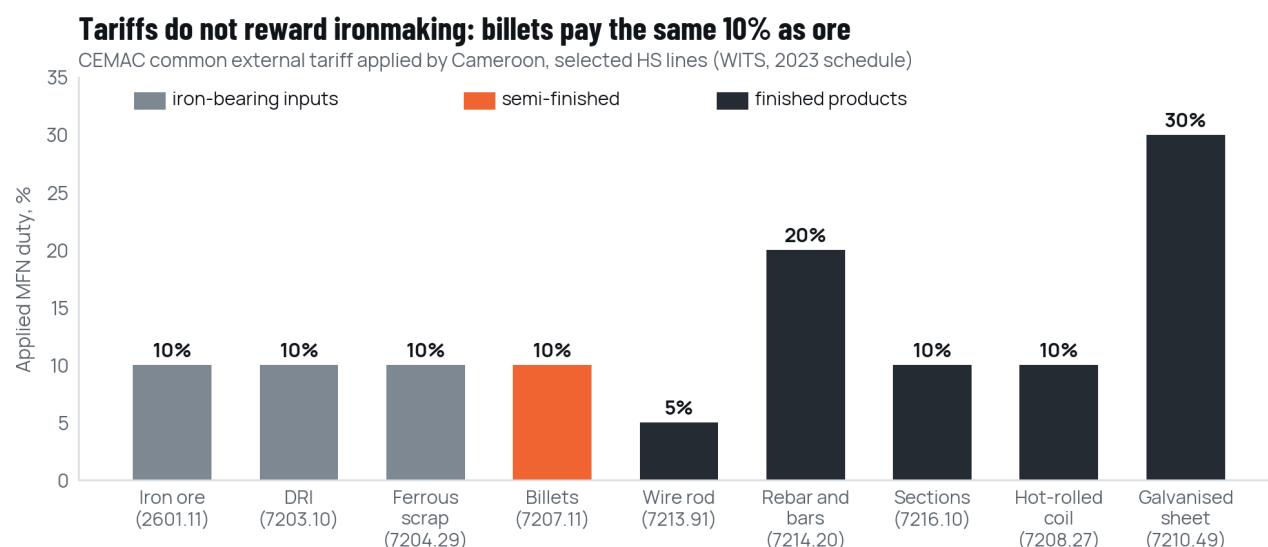
QUESTIONS AN IMPLEMENTING TEXT SHOULD ANSWER

Definition of local transformation, ranked by depth (concentration, agglomeration, reduction, steelmaking); minimum grade or a grade-adjusted volume; reference price formula and indexation; delivery point and incoterm; ramp-up schedule and what happens if the processor or the mine is late; dispute resolution; reporting to the mines-metallurgy committee and to EITI.

The Guinea precedent described in Chapter 4 shows how such questions can be answered in a convention: a specific facility (a 2 Mtpa pellet plant or a 0.5 Mtpa steel mill), a deadline (a feasibility study within two years of first production) and a reviewing authority [N09].

5.3 Tariffs and trade rules do not yet reward ironmaking

Cameroon's external tariff protects finished products more than inputs, but it does not distinguish between raw ore and semi-finished steel. Under the CEMAC common external tariff as applied in 2023, iron ore, direct-reduced iron, ferrous scrap and billets all carry a 10% duty, as do sections and hot-rolled coil; rebar carries 20%, galvanised sheet 30%, and wire rod only 5% [P24]. A billet melted in Cameroon competes against an imported billet that pays the same duty as the iron ore it might have been made from.



SOURCED Figure 5.2. The applied tariff does not escalate from iron-bearing inputs to semi-finished steel: billets pay the same 10% as iron ore, DRI and scrap, and wire rod pays only 5%.

Source: World Bank WITS, Cameroon reported MFN tariffs by HS line, 2023 [P24]. The new CEEAC-CEMAC tariff applies from 1 January 2026; its steel-line rates were not published at the cut-off date [P23].

Several features of the trade regime create room for adjustment. Cameroon's WTO bindings cover only 0.2% of non-agricultural tariff lines, so steel duties are effectively unbound and can legally be adjusted [P26]. A new CEEAC-CEMAC common external tariff applies from 1 January 2026, with bands reported as 0, 5, 10, 20 and 40%; its steel lines were not yet public at the cut-off date [P23]. The Finance Law for 2025 introduced a "national preference" under which imported goods that have locally made equivalents lose customs facilities, with exceptions for goods under the economic partnership agreements with the EU and UK, AfCFTA, CEMAC and CEEAC [P18].

Other instruments protect the step that least needs protection. The 2016 rebar import ban, still in force [C20] [C21] [C34], shields the most saturated product. Price homologation caps what local mills can charge for rebar [C44]. The environmental tax introduced in 2026, 5,000 FCFA per tonne of reinforcing bar (fer à béton), applies equally to local producers and importers [P19]. And Cameroon has no trade-remedy practice in steel, while 62 countries had adopted 207 measures against Chinese steel by October 2025 [G30] and neighbours such as Egypt protect billets explicitly [A07].

Regional rules matter for exports. Cameroon ratified the AfCFTA agreement on 31 January 2020 and deposited its instrument on 1 December 2020 [P27]. The rules of origin that will apply to chapter 72 products, for example whether a billet melted from imported DRI qualifies as Cameroonian, were not verified for this paper [P31]. The answer will decide whether a phased chain that begins on imported iron units can export into the continental market.

5.4 Energy policy is the missing layer

A steel chain that reaches back to direct reduction needs natural gas and firm power, and here the policy framework is thinnest.

Gas. In 2025 Cameroon produced 75.5 bcf of natural gas, about 98.5% of it from the Sanaga Sud field off Kribi; about 95% was sold as feed to the Hilli Episeyo floating liquefaction vessel [E04]. The vessel left Cameroon in July 2026 for a new charter in Argentina [E08] [E09]. Gas sold in 2025 to the Kribi power plant cost about 1,830 FCFA per thousand cubic feet (Mscf), roughly US\$3.2, and gas sold to an industrial buyer 3,135 FCFA/Mscf,

roughly US\$5.6 [E04]. A tax of 70 FCFA per cubic metre on natural gas has applied since 2023; whether it would apply to gas used as a reductant was not established [E11]. No allocation of gas to the Kribi industrial zone in a published master plan was found.

Power. No regulated tariff exists above 10 MW: large industrial users contract bilaterally at high voltage. The six legacy high-voltage customers paid an average of 18.4 FCFA/kWh in 2025, the published band for 9 to 10 MW implies about 44 FCFA/kWh in 2026, and the regulator's cost-reflective average is 105.46 FCFA/kWh [E15][E17] [E37]. Chapter 7 discusses supply at Kribi.

5.5 Fiscal room is limited, so incentives must be targeted

Cameroon's fiscal position constrains what the State can offer. The IMF rates the country at high overall risk of debt distress [P32], noted fiscal slippage in 2025 [P09], and CEMAC foreign reserves fell to 4.2 months of imports at the end of 2025 [P07]. Open-ended tax exemptions will be scrutinised, and the State's own resources are already committed to the 1,748 bn FCFA iron-ore programme [O29]. Cameroon's suspension from the Extractive Industries Transparency Initiative in February 2024, with a validation score of 53, adds a governance argument for transparent, rules-based beneficiation terms [O52].

This argues for instruments that cost the budget little: clear offtake rules, a tariff structure that rewards ironmaking, trade-remedy capacity, and long-term energy contracts, rather than large subsidies.

Table 5.1 Instruments relevant to local transformation of iron ore: status, gaps and possible complements

Instrument	Status	What it does	Gap	Possible complement
Mining Code, art. 40(4)	In force since Dec 2023 [Z42]	Minimum 15% of output for local transformation	No definition, grade, price or timing in public texts	Implementing text on definition, export-parity price, delivery and timing
Mining conventions (Lobé, Mbalam)	Signed 2022 [O33][O17]	15% for local market or local transformation	Terms not public	Publish offtake terms; align with the Code
PM's mines-metallurgy committee	Created Dec 2025 [Z79]	Organises ore supply to steelmakers; enforcement	No published work programme	Annual public report on 15% compliance
Investment ordinance 2025/002	In force [Z39]	Rewards national resource inputs and jobs	Incentive value for ironmaking not differentiated	Higher tier for ironmaking from national ore
CEMAC common external tariff	10% on ore, DRI, billets; 20% on rebar [P24]	Protects finished products	No escalation from ore to semis	Review billet and section lines in the new CET
Rebar import ban	Since 2016 [C20] [C21]	Protects rebar rolling	Protects the saturated step only	Phase into a tariff and quality regime over time
National preference (Finance Law 2025)	In force [P18]	Removes customs facilities for imports with local equivalents	Coverage of semis unclear	Apply explicitly to billets made locally
Trade remedies	None in steel	n/a	No anti-dumping or safeguard practice	Build investigating capacity
Gas allocation and pricing	No published allocation to Kribi zone	n/a	Reserves and price for a DRI plant unknown	Reserve audit and long-term supply contract

Instrument	Status	What it does	Gap	Possible complement
Electricity above 10 MW	Bilateral only [E15]	n/a	No reference tariff for heavy industry	Published framework for high-voltage industrial contracts

Source: Cameroon Steel analysis of the sources shown.

5.6 From obligation to bankable supply

The direction of policy is right and consistent with the experience of other producers (Chapter 4). The 15% floor gives local transformation a legal basis that few African ore producers have; the mines-metallurgy committee gives it an owner; the investment ordinance rewards the use of national resources. To become bankable, that is, to support a lender's decision to finance a pellet plant or a DR module, the obligation must become a contract that specifies grade, price, volume, timing and delivery, backed by tariff and energy policies that make ironmaking competitive with imported billets. Chapter 10 sets out a short list of measures to that end.

FINDING

Cameroon has the legal principle of local transformation; it lacks the implementing rules. The most valuable next step is an implementing text that defines transformation by depth, prices local supply at export parity, and links the 15% obligation to DR-grade concentrate rather than to raw direct-shipping ore.

CHAPTER 6

A PHASED CHAIN: MELT FIRST, THEN SECTIONS, THEN IRON FROM CAMEROONIAN ORE

The fastest credible route from ore exports to industrial value is a chain built backwards from the melt shop. A first phase that melts and casts billets in Cameroon creates the capability the country lacks, offers billets to re-rollers that import most of their charge, and builds the skills, power supply and port logistics the later phases need; sections and heavy long products follow; direct reduction of Cameroonian concentrate closes the chain when grade, gas and scale allow. On imported iron units the first phase saves little foreign exchange and competes behind the tariff, so it is the platform for local iron rather than the prize itself. Cameroon Steel's reference configuration, RC-1, illustrates the sequence. Its figures are planned and indicative, not commitments.

6.1 Five design principles

The diagnosis of Chapters 1 to 3 and the international lessons of Chapter 4 lead to five principles for any ore-to-steel chain in Cameroon, whoever builds it.

1. **Start where the import bill is.** Billets and other iron units are the largest steel import and the binding constraint on the existing industry [C06][C38]. The first investment should make iron units or billets in Cameroon.
2. **Use proven, modular technology.** Electric arc furnaces of a few hundred thousand tonnes a year and direct-reduction modules from 0.25 Mtpa to 2.5 Mtpa are standard equipment with long operating records [T13][T20][T21]. A blast furnace is not suited to Cameroon's fuel or market (Chapter 2).
3. **Secure the feed before building the furnace.** No phase should depend on a supply that does not yet exist. The first phases run on imported and local scrap and on imported DRI or HBI; direct reduction waits for DR-grade concentrate and a gas contract.
4. **Put the chain at the port.** Bulk inputs, exports and the gas field are all at Kribi (Chapter 7).
5. **Avoid adding to saturated segments without adding iron.** New rolling capacity only makes sense if it comes with its own melt shop and a product mix that goes beyond domestic rebar.

6.2 The reference configuration RC-1

Cameroon Steel is developing a steel complex at Mboro, in the Kribi industrial-port zone, with a design capacity of 1 Mtpa of steel, built in phases [X04]. The foundation stone was laid on 30 December 2024 by the Prime Minister, representing the Head of State [X01]. The first phase is focused on reinforcing bar and wire rod, made from

steel melted in an electric arc furnace. Cameroon Steel's sister company, Cameroon Mining Company, holds the Mbalam exploitation permit [X01], and the Kribi zone lists steel linked to mineral exports among its development clusters [Z4].

To discuss the project in engineering terms, Cameroon Steel uses a reference configuration, RC-1, which sets out phases, capacities and indicative utility needs on the basis of international benchmarks. RC-1 is a planning tool; it is not a final design and its figures will change with detailed engineering. Its current edition, RC-1.1 (October 2026), targets the start of Phase 1 works from the first quarter of 2029, once the environmental certificate is obtained, a first heat in the second half of 2030 and ramp-up through 2031; Phase 2 (second melt line and light/medium sections mill) is indicative for 2032 to 2034 and Phase 3 (melt-shop expansion and heavy-section mill) for after 2034, both subject to market and financing; the direct-reduction (DR) module comes later, subject to ore, gas and approvals [F01]. Table 6.1 summarises it, and Figure 10.1 in Chapter 10 shows the sequence.

Table 6.1 RC-1 reference configuration by phase (planned / indicative)

	Phase 1	Phases 1 and 2	Phases 1 to 3	DR module (reserve)
Scope added	EAF melt shop, ladle furnace, billet caster; bar and wire-rod mill	Second melt line (EAF of the 40 t class, ladle furnace, caster); light and medium sections mill (angles, channels, flats)	Melt-shop expansion; heavy-section and H-beam mill	Direct-reduction module for Cameroonian concentrate
Finished capacity, cumulative	0.3 Mtpa nameplate; sustained 0.27 to 0.30	0.5 Mtpa	1.0 Mtpa (0.85 to 1.0)	unchanged; about 1 Mtpa of DRI (0.8 to 1.1)
Metallics needed	0.36 Mtpa	0.60 Mtpa	1.21 Mtpa	up to 1.21 Mtpa met by own DRI
Average electrical load	about 36 MW	about 53 MW	about 94 MW	about 115 to 130 MW (derived)
Water make-up at 2 m ³ /t (1.5 to 3.0)	about 0.6 Mm ³ /yr	about 1.0 Mm ³ /yr	about 2.0 Mm ³ /yr	plus DR plant needs
Direct jobs	about 500 (450 to 550)	n/a	about 1,100 (900 to 1,300)	additional, not estimated
Iron-unit sources	Imported scrap and DRI or HBI; domestic scrap about 30 kt/yr (0 to 60, assumed)	as Phase 1	as Phase 1	Cameroonian DR-grade concentrate
Timing (target / indicative)	Works from Q1 2029; first heat H2 2030; ramp-up 2031	Indicatively 2032 to 2034, subject to market and financing	After 2034, subject to market and financing	Later, subject to ore, gas and approvals

Source: Cameroon Steel, RC-1 reference configuration and model, edition 10 October 2026 [F01]; benchmarks from IFC EHS guidelines and worldsteel as listed in Annex A. The DR module load is derived in Annex A from [T09]. Edition RC-1.1. Status: planned / indicative.

6.3 Phase 1: a melt shop that makes billets in Cameroon

The first phase is the most important, because it creates the capability that the country lacks today: making steel from iron units rather than reshaping steel made elsewhere.

What it does. An electric arc furnace melts a charge of scrap and direct-reduced iron; a ladle furnace adjusts temperature and chemistry; a continuous caster solidifies the steel into billets. The billets are reheated and rolled into reinforcing bar and wire rod. At its nameplate of 0.3 Mtpa of finished product, Phase 1 needs about

0.36 Mtpa of metallic charge, using a metallic yield of 88% and a combined casting and rolling yield of 94% [F01]. With a single furnace of the 40 t class, its expected sustained output is 270 to 300 kt a year; nameplate is reached only with debottlenecking [F01].

Where its iron comes from. National scrap arising, last measured at 53,000 to 61,833 t/yr in 2006 [C42], is already insufficient for the existing mills [C38]. RC-1.1 therefore assumes only about 30 kt/yr of domestic scrap for the works, within a range of 0 to 60 kt/yr [F01]. Phase 1 must run on imported DRI or HBI and imported scrap, which puts its bulk inbound flow through the port at about 351 kt a year, consumables included [F01]. RC-1 treats the share of DRI or HBI in the charge as a design variable, indicatively 20 to 50% with 30% as a planning value [F01]. Imported HBI is a traded commodity: Libyan HBI was offered at about US\$370/t delivered to Italy and Türkiye in January 2026 [N03], and international DRI trade reached about 10.8 Mt in 2025 on trade-data basis [T13]. Contracted supply and the delivered cost of these imported iron units are not yet established (Chapter 11, E18).

Where its output goes. Phase 1's melt shop makes billets, and its output is flexible between rolled products, wire rod and rebar, and merchant billets sold to the existing re-rollers, which import about 60% of their charge as billets: 161 kt in 2023 [C06][C38]. Rebar is saturated at home, with about 627 kt of capacity for about 180 kt of demand [C30], so Phase 1 tonnage has to go where it displaces imports or reaches new buyers: billets for the re-rollers, wire rod (7.8 kt imported in 2023 [C06]), certified rebar where projects require it, and exports within CEMAC. New rebar capacity on its own would close no gap.

What it saves, and what it does not. The economics paper of this series tests the first phase at border prices. On imported scrap and HBI, a Kribi works would retain about US\$47 to 181 of foreign exchange per tonne of rebar, against US\$48 to 170 for today's re-rolling of imported billets: essentially the same (White paper 09, Chapter 9). Its rebar would compete behind the 20% tariff rather than at the border price before duty, and merchant billets would match delivered imports only in a low-cost case (White paper 09, Chapter 7; the series' indicative comparison of a Kribi billet with a delivered import is in White paper 04, Chapter 8). On imported iron units, Phase 1 is therefore not a large foreign-exchange saver. Its case rests on certified quality, on merchant billets for re-rollers that today borrow hard currency to import them, and on the outlet it creates for local iron units, first scrap and later DRI, which is where the saving lies.

Why it comes first. Phase 1 trains operators, maintenance technicians and metallurgists in electric steelmaking, which no Cameroonian training institution currently teaches as a dedicated programme [K02][K03][K04]. It requires a high-voltage connection and port handling of bulk metalics, both of which later phases will reuse. And its average load of about 36 MW is about a third of the initial 100 MW of the 225 kV line being built to the port [F01][Z43]. That 100 MW serves the whole port platform, however: the port, a cement plant and more than 60 zone tenants [Z4][Z54]. An allocation to the steelworks, and power-quality measures for the arc furnace (static VAR compensation and adequate short-circuit capacity at the connection), remain to be agreed.

What it must avoid. Phase 1's bar and wire-rod mill enters the most saturated part of the domestic market (Chapter 3). Its justification is the melt shop behind it, not additional rolling capacity: whenever merchant billets are worth more to the market than rolled bars, the melt shop's output should go to the Douala re-rollers that import billets today.

THE MELT SHOP, NOT THE ROLLING MILL, IS THE REASON FOR PHASE 1.

Chapter 6

6.4 Phases 2 and 3: sections and heavy long products

Sections are the next step because they are long products made from billets and blooms, need no new process route, and are largely imported. Cameroon imported US\$26.3 m of sections and US\$58.0 m of fabricated structures in 2023 [C06]. Light angles and flats are rolled locally in small quantities [C25]; medium and heavy sections and H-beams are not produced in Cameroon and are imported [C06].

RC-1's Phase 2 adds a second melt line, with an electric arc furnace of the 40 t class, a ladle furnace and a caster, and a light and medium sections mill for angles, channels and flats, raising finished capacity to about 0.5 Mtpa, indicatively from 2032 to 2034. The second line is what makes the step possible: one furnace of that class gives at most about 0.32 Mt of liquid steel a year, so the 0.60 Mtpa of metallics that Phases 1 and 2 need cannot be melted without it. Phase 3 expands the melt shop and adds a heavy-section and H-beam mill, reaching the design capacity of 1 Mtpa after 2034 [F01][X04]. Metallic demand rises to about 0.60 Mtpa and then 1.21 Mtpa [F01].

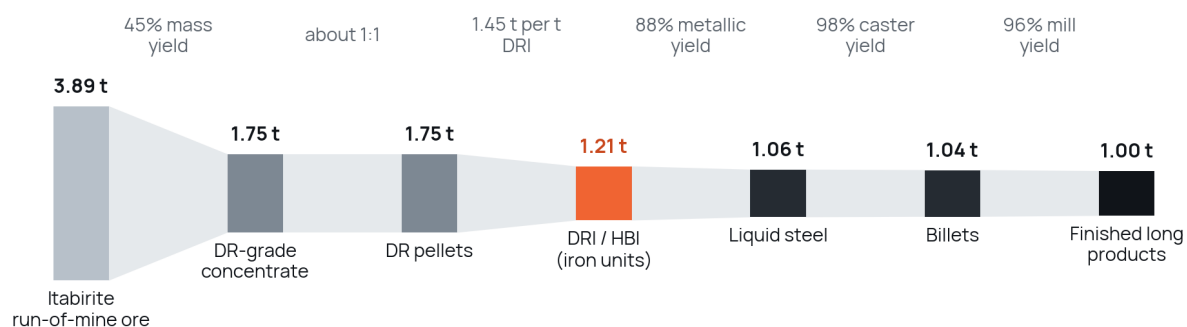
At this scale, two facts become decisive. First, output of 1 Mtpa is more than twice Cameroon's total chapter 72 imports of 412 kt in 2025 [C05]; more than half of it would have to be exported, to CEMAC neighbours, to West Africa or to wider AfCFTA markets. The timing of Phases 2 and 3 should follow evidence of demand, not a calendar. Second, 1.21 Mtpa of metallics cannot come from scrap. At this point the question of where the iron comes from stops being a sourcing detail and becomes the central strategic issue.

6.5 The direct-reduction module: Cameroonian ore, when its conditions are met

RC-1 reserves space and utilities for a direct-reduction module of about 1 Mtpa of DRI, sized to the melt shop's iron-unit need at full capacity and subject to ore quality and gas supply, indicatively after 2034 [F01]. RC-1 holds it in reserve rather than scheduling it as a phase: its construction is gated on a set of conditions, not on a date.

One tonne of steel needs about 1.75 t of DR-grade concentrate and 3.9 t of itabirite

Indicative mass flow per tonne of finished long product, all-DRI charge (derived)



DERIVED Figure 6.1. One tonne of finished steel made entirely from DRI needs about 1.21 t of DRI, 1.75 t of DR-grade pellets and concentrate, and about 3.9 t of itabirite at the testwork mass yield of 45%.

Source: Cameroon Steel derivation from RC-1 yields [F01], pellet ratio [N01] and testwork mass yield [O04]; method in Annex A.

The mass flow in Figure 6.1 shows what the module implies. For each tonne of finished long product made entirely from DRI, the chain needs about 1.21 t of DRI, about 1.75 t of DR-grade pellets at 1.45 t per tonne of DRI [N01], about the same tonnage of concentrate, and about 3.9 t of itabirite at the 45% mass yield achieved in testwork [O04]. A 1 Mtpa DRI module therefore needs about 1.45 Mtpa of pellets and about 3.2 Mtpa of itabirite run-of-mine ore.

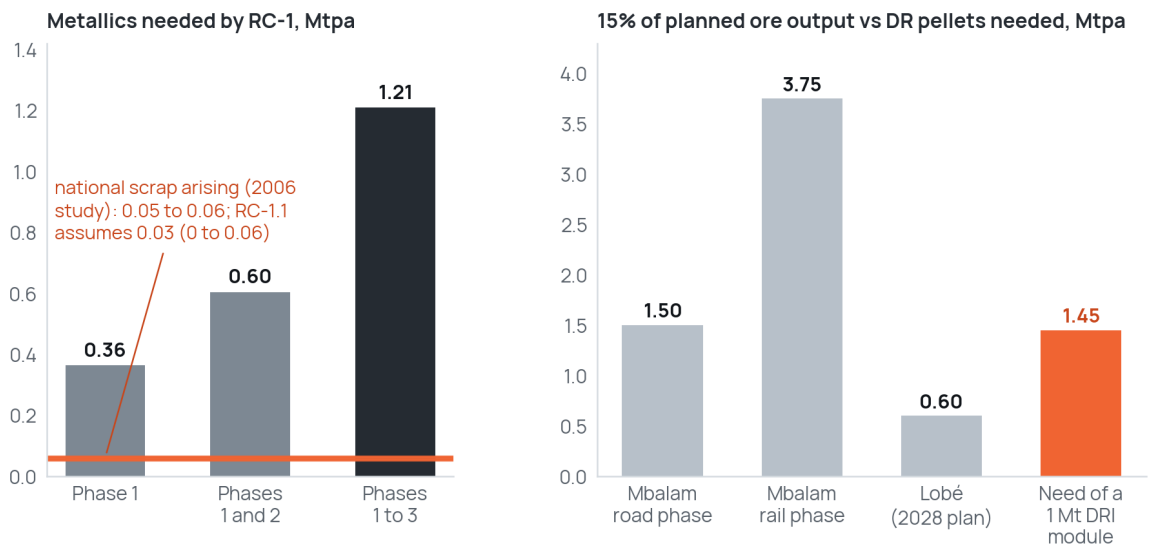
Compare that with the ore that the 15% rule makes available (Figure 6.2). Fifteen per cent of Mbalam's road-phase exports would be up to 1.5 Mtpa and of its rail-phase exports 3.75 Mtpa [O25] [Z42]; fifteen per cent of Lobé's planned 2028 concentrate output would be 0.6 Mtpa [O35]. In volume, the obligation covers the need of a 1 Mtpa DRI module. In grade, it does not: Mbalam's direct-shipping ore is at 62% Fe and Lobé's concentrate is planned above 60% Fe, whereas a shaft furnace needs a product near 67.5% Fe with low gangue [O05] [O35] [N16].



ILLUSTRATIVE Illustrative view. DR-grade pellets are the missing link of the Cameroonian chain. Generated image; not a photograph of any project, place or person.

Volume is there; grade and reduction capacity are not

Iron units needed by the RC-1 phases against national scrap and ore available under the 15% rule



DERIVED Figure 6.2. Volume is there; grade and reduction capacity are not. Left: iron units needed by the RC-1 phases against the only national scrap estimate and the RC-1.1 domestic scrap assumption. Right: ore available under the 15% rule against the DR pellets a 1 Mtpa module needs. Ore tonnages are not iron units.

Source: RC-1 [F01]; scrap [C42]; Mbalam export plan [O25]; Lobé plan [O35]; 15% rule [Z42]; pellet ratio [N01]. Status: planned / derived.

Table 6.2 sets out the conditions that should be met before the module is built.

Table 6.2 Conditions for building the direct-reduction module on Cameroonian ore

Condition	Threshold or test	Evidence today	Source
Grade	Concentrate near the DR basis of 67.5% Fe, 1.5% SiO ₂ , 0.5% Al ₂ O ₃ , proven at pilot scale	68% Fe, 1.8% SiO ₂ , 0.2% Al ₂ O ₃ in 2014 testwork only	[N16][O04]
Resource for local use	Certified resource and mine plan for the itabirite or concentrate dedicated to local supply	JORC itabirite resource of 5,638 Mt at 33.4% Fe; no mine plan for local supply	[O05]
Pelletising	Pellet plant at the mine or at Kribi, about 1.45 Mtpa	None planned publicly; 2011 study costed a 4 Mtpa plant at US\$400 m	[N01][O01]

Condition	Threshold or test	Evidence today	Source
Gas	About 9.2 to 10 GJ per tonne of DRI, i.e. 8.4 to 9.1 bcf/yr for 1 Mtpa, under a long-term contract backed by a reserve audit	75.5 bcf produced in 2025; LNG offtake ended July 2026; reserves not public	[T09][T10] [E04][E09]
Power	Firm supply for about 115 to 130 MW average for the full chain	Kribi substation 100 MW initially, 330 to 400 MW later	[F01][Z43]
Bulk logistics	Handling about 1.45 Mtpa of pellets or concentrate	Mineral terminal of 125 Mtpa: MoU of 4 November 2025, completion expected within five to six years of March 2026; rail from 2030	[O31][Z4] [O25]
Offtake	Market for about 0.8 Mtpa of steel per Mt of DRI, or HBI exports	Domestic market about 0.45 Mtpa; CEMAC and AfCFTA	[C40][C07]
Contract	15% offtake agreement with grade, export-parity price and timing	Obligation exists; terms not public	[Z42][O17]

Source: Cameroon Steel analysis; thresholds from the sources shown.

The pelletising step deserves particular attention. In 2011 the former holder's Mbalam "Stage 2" study envisaged 35 Mtpa of itabirite concentrate at 66% Fe and costed a 4 Mtpa pellet plant at US\$400 m within a US\$3.1 bn package that also required about 350 MW of power [O01]. A pellet plant sized for a single 1 Mtpa DRI module would be much smaller, about 1.45 Mtpa. It could sit at the mine, which avoids moving moisture-laden concentrate, or at Kribi, which allows it to serve both the DR module and export customers. That choice belongs in the feasibility work that the DR module requires.

6.6 Carbon: the phased chain starts low and stays below the world average

Electric steelmaking on Cameroon's grid starts with a low carbon footprint. The latest published emission factor for that grid is about 226 g CO₂/kWh, for 2024, a year in which the same Ember dataset puts hydropower at about 72% of generation [E56][E57]. The electricity regulator reports a higher hydropower share for 2025, about 90% [E15]; no emission factor has yet been published for that year. RC-1 keeps 226 g as a conservative planning value [F01]. On that basis, Phase 1's estimated intensity is about 0.32 t CO₂ per tonne of finished steel for direct (scope 1) and electricity (scope 2) emissions, and about 0.58 t including the upstream emissions of the imported DRI in the charge [F01]. For comparison, worldsteel's 2024 averages are 0.69 t for scrap-based EAF, 1.47 t for DRI-EAF and 2.34 t for blast furnace and basic oxygen furnace, with a world average of 1.92 t [T01].

A gas-based DR module raises the chain's direct emissions; on a direct and indirect basis, the IEA puts gas DRI-EAF at about 1.4 t of CO₂ per tonne against 2.2 t for the blast-furnace route [T02]. But it keeps the chain well below the blast-furnace route, and modern shaft furnaces can take hydrogen: one supplier reports a 53% reduction against the blast-furnace route with natural gas and 86% with 100% hydrogen [T09]. Since the EU's carbon border adjustment mechanism (CBAM) covers DRI, billets, rebar, wire rod and even iron-ore pellets [D08], and its certificate price reached €82.32/t of CO₂ in the third quarter of 2026 [D05], a low and verified carbon intensity is a commercial asset for any export.

6.7 Why this order, and not another

Three alternative sequences were considered and set aside.

- **Direct reduction first.** Building a DR module before a melt shop would require, at once, DR-grade feed that does not yet exist at scale, a gas contract that has not been negotiated, and a melt shop large enough to absorb about 1 Mtpa of DRI or an export market for HBI. It concentrates every risk in a single investment, the pattern that failed at Ajaokuta (Chapter 4).

- **A pellet plant at the mine for export only.** Exporting DR-grade pellets rather than direct-shipping ore would add value and could be an excellent business in a market short of DR pellets [N01][N02]. It is complementary to the phased chain rather than an alternative: the same pellets can feed a Kribi DR module later. It does not by itself create a steel industry.
- **More rebar capacity.** Adding rolling capacity without a melt shop would deepen the saturation of Chapter 3 and increase billet imports.

The phased order follows the pattern of the successful cases. It starts where the import bill is, as Egypt's semi-finished imports show was necessary; it starts at a deep-water port on imported raw materials, as Vietnam's coastal complex did with imported ore; and it integrates backwards into national ore once grade, energy and scale are proven, as Algeria is now doing with Gara Djebilet.

FINDING

A phased chain turns the 15% local-transformation principle into an industrial programme with decision points. Phase 1 can proceed on imported iron units within the first 100 MW at Kribi, subject to an agreed allocation; Phases 2 and 3 should follow demonstrated demand; the DR module should be built only when DR-grade concentrate, gas and offtake are contracted. Each step is designed to stand on its own merits; on imported iron units Phase 1 competes behind the tariff and saves little foreign exchange relative to today's re-rollers (White paper 09, Chapters 7 and 9), so its case rests on quality, merchant billets and the option it creates for local iron.

CHAPTER 7

KRIBI IS THE HINGE: WHERE ORE, GAS, POWER AND DEEP WATER MEET

A steel chain lives or dies on the cost of moving bulk materials, and only one place in Cameroon brings together a deep-water port, a producing gas field, a high-voltage connection under construction, an industrial zone with a steel cluster, and the planned terminus of the iron-ore railways. That place is Kribi. Its port is growing fast, its zone is now run by a dedicated company, and its power supply will reach 100 MW for the whole port platform at the end of 2026; the gas, rail and bulk-terminal links needed for the later phases of the chain are planned but not yet secured.

7.1 Location decides the economics of a steel chain

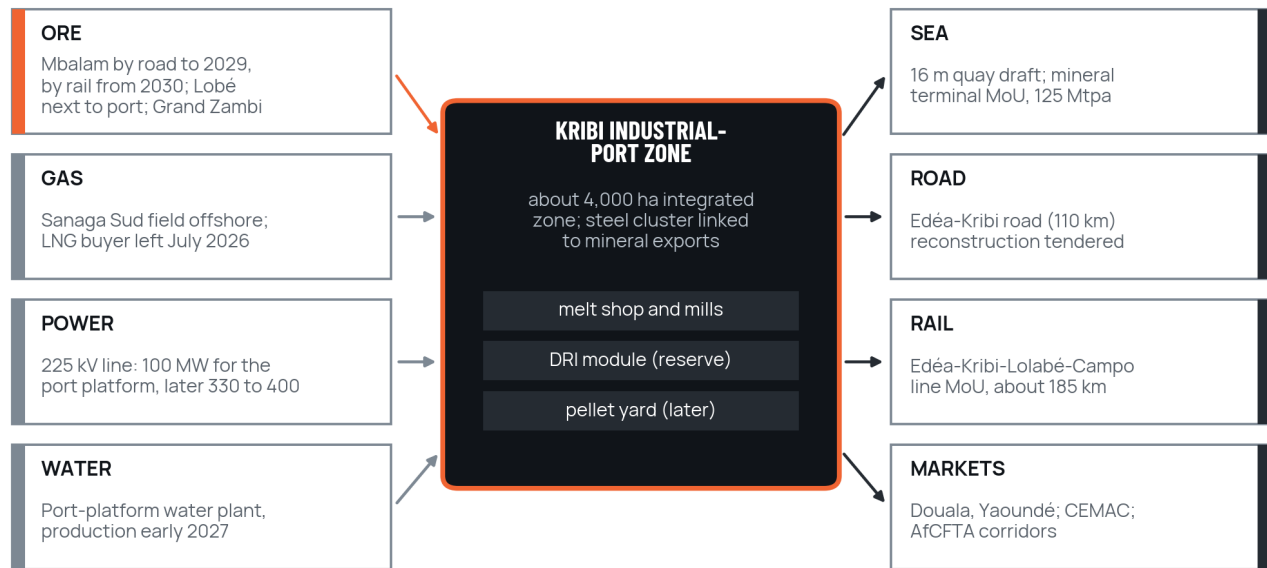
Steelmaking is a business of moving heavy, low-value materials. For each tonne of finished long product made entirely from DRI, about 1.75 t of pellets enter the plant and 1 t of steel leaves it, before counting lime, alloys, electrodes and refractories (Chapter 6). A plant that receives its iron by sea or rail and ships its products by sea or road should sit where those flows meet, to avoid paying twice for handling.

That is why the most instructive plants in Chapter 4 are at ports. Brazil's Pecém slab plant is linked by conveyor to a deep-water port about 10 km away [N07]. Vale's proposed iron and steel hubs in Saudi Arabia, the United Arab Emirates and Oman are all in port industrial zones [N08]. Vietnam's Dung Quat complex is on the coast and imports most of its ore [N13].

In Cameroon, Kribi has all of the elements at once (Figure 7.1). The Kribi-Lobé deposit lies within about 30 km of the port and the Mbale railway is planned to end at Kribi, at Lolabé (Chapter 2); the Sanaga Sud gas field, offshore, and the Kribi gas power plant lie about 30 to 40 km to the north, the plant linked to the port by the 42 km 225 kV line; a 225 kV line is being built to the port; and the Kribi Port Industrial Zone lists "steel linked to mineral exports" among its development clusters [Z4].

Kribi is where ore, gas, power and the sea meet

Inputs and outlets of a steel chain at the Kribi industrial-port zone (schematic)



SOURCED Figure 7.1. Kribi is where the inputs and outlets of a steel chain meet: ore by road and later rail, gas from the adjacent field, a dedicated high-voltage supply and a port-platform water plant on one side; deep water, road, planned rail and regional markets on the other.

Source: Cameroon Steel, schematic from [Z4], [Z5], [O25], [O35], [E09], [Z43], [Z44], [Z52], [Z46], [Z45], [Z80].

7.2 The port: deep water, fast growth, and a mineral terminal in preparation

The deep-water port of Kribi, at Mboro, has a quay depth of 16 m. The port authority's 2020 guide gives a capacity of about 70,000 deadweight tonnes for general-port vessels and up to 350,000 deadweight tonnes for future industrial terminals [Z37]. A second container terminal with a 715 m quay began operations in May 2025, with a capacity of 1.2 million twenty-foot equivalent units (TEU) a year [E43][Z50].

Traffic has grown quickly. The port handled 12.7 Mt in 2025, up 19%, and 555,398 TEU, making it Cameroon's first container port with 37.5% of national container traffic [E44][Z45]. Growth has brought congestion: import containers waited 25.28 days on average and terminal productivity fell 18% to 33 moves an hour in 2026 [E45]. The container terminal operator is investing 21.5 bn FCFA to add 8 ha of yard and raise static capacity from 24,000 to 34,000 TEU by the end of 2027 [Z49].

For a steel chain, the bulk facilities matter more than the container terminal. The multipurpose terminal handles clinker, wheat and other cargo, and was designated to export the first Bipindi-Grand Zambi ore [Z46][Z74]. A dedicated mineral terminal is in preparation: on 4 November 2025 the port authority, the national social insurance fund (CNPS), the Mbalam project consortium and G-Stones signed a memorandum of understanding for a terminal of 125 Mtpa on 330 ha, including 90 ha of storage and a steel cluster, to be phased from a first jetty of about 30 Mtpa, at a reported cost of about US\$2 bn [O31][Z52]. In March 2026 the port authority's Director General said that the mineral and hydrocarbon terminals should be completed within five to six years, in partnership with their developers [Z4]: on that basis, counted from March 2026, a mineral terminal would be completed in about 2031 to 2032.



ILLUSTRATIVE Illustrative view. A deep-water port with bulk handling is the condition for a chain that imports iron units first and exports steel later. Generated image; not a photograph of any project, place or person.

7.3 The zone: an industrial platform with a steel cluster

On 26 February 2026 the port authority created Kribi Port Industrial Zone S.A. (KPIZ), a company owned with Africa Global Logistics, Arise Integrated Industrial Platforms and Belmont Investments, to design, finance, develop, operate and maintain an integrated industrial zone of about 4,000 ha [Z1][Z4]. About 300 ha were already operational, with more than 60 companies installed or installing, in March 2026 [Z4]. The zone is planned to develop by sector clusters: wood processing and logistics; steel linked to mineral exports; petrochemicals; agro-industry; and construction materials [Z4].

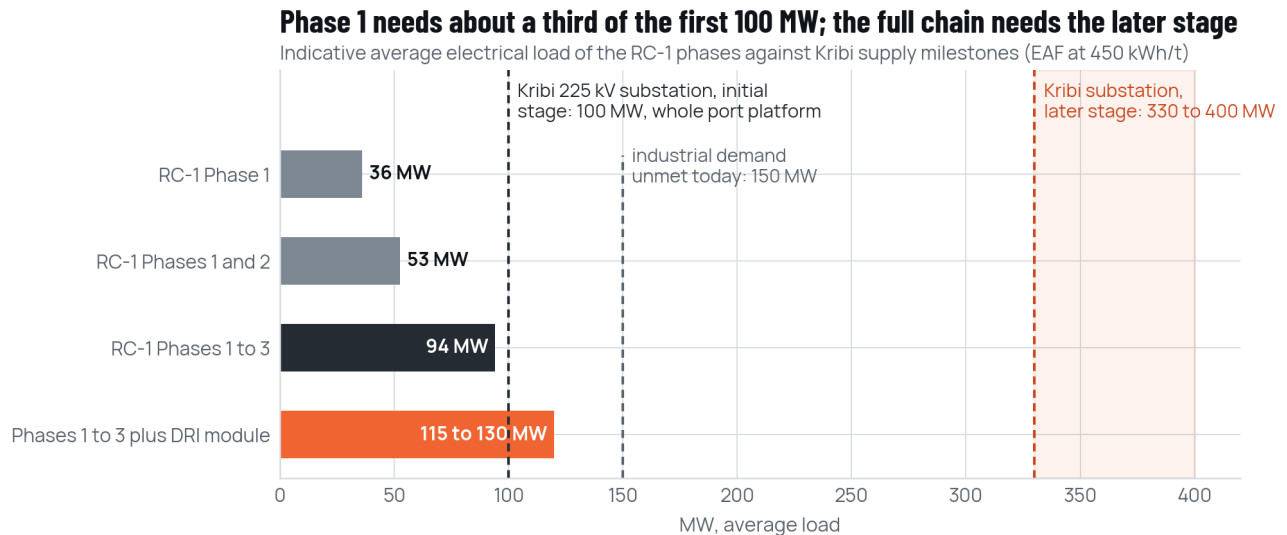
The zone's investment programme is €795 m over 15 years, with a first phase of €400 m, and its planned financiers include the African Development Bank, the European Union's Global Gateway programme and the IFC [Z5]. The AfDB announced in March 2026 that it would mobilise about €411 m of public finance, intended to catalyse about €384 m of private investment [Z13]. The zone offers internal roads, energy, water, sanitation and telecommunications networks and a one-stop shop for investors [Z4][Z12], and its promoters expect up to 150,000 direct and indirect jobs over 15 years [Z4].

Demand for land is strong. As at mid-2025, the port authority had recorded about 150 requests covering 3,883 ha against 48 authorisations covering 196 ha (notice published in January 2026) [Z29]. Heavy industry has started to arrive: a 1 Mtpa cement plant was inaugurated by the Prime Minister in July 2024 [Z54], a bitumen plant with a small refinery received its refining licence in April 2026 [Z55], and in May 2026 the port authority tendered 3.5 bn FCFA of works to service 20 ha at Mboro with a 30 kV network, water, fibre, roads and drainage [Z30]. Kribi port is classified as an economic zone [P10], which under the 2025 investment ordinance extends the operating-phase incentives to seven years [Z39].

7.4 Power: from 100 MW to 400 MW at the port

Electricity is the input that most often stops African steel plants, and Kribi's supply is improving from a low base. In May 2025 only about 13 MW of the local thermal capacity of 176 MW was available to Kribi, the rest feeding the southern grid [Z34]. A 42 km, 225 kV double-circuit line from the Kribi gas power plant to the port, with a 225/30 kV substation of three 60 MVA transformers, will provide **100 MW immediately and 330 to 400 MW at a later stage** for the whole port platform. Works began on 6 August 2025 at a cost of about 35 bn FCFA, commissioning is planned for the end of 2026, and the Minister of Water and Energy inspected progress in August 2026 [Z43] [Z44].

The Kribi gas power plant itself has 216 MW installed under a 330 MW licence; it delivered 559.67 GWh in 2025 against 1,031 GWh planned, a capacity factor of about 30% [E15][E24]. A 114 MW extension was planned in 2020 with AfDB support but has not been built [E25], and the State is buying out the plant's private majority shareholder [E26]. Nationally, Cameroon had 2,033 MW installed against a peak demand of 1,278 MW in 2025, with about 90% of generation from hydropower [E15], but 150 MW of industrial demand was unmet in October 2026 while the 400 kV line from the Nachtigal dam awaited completion, now due in November 2026 [E16]. Cameroon's hydropower potential is estimated at about 115 TWh/yr, about 4% of it developed [E32].



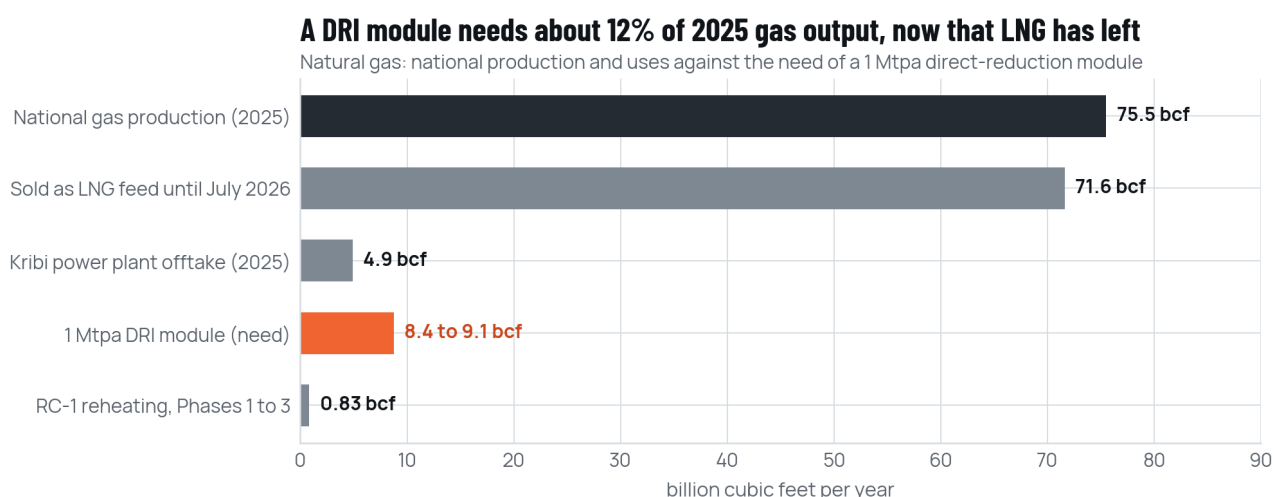
DERIVED **Figure 7.2.** Phase 1's average load is about a third of the first 100 MW at Kribi, which serves the whole port platform; the full chain, and especially a direct-reduction module, needs the later stage of 330 to 400 MW. Loads are indicative averages; peak demand of an electric arc furnace is higher.

Source: RC-1 loads [F01]; DRI module derived from [T09] (Annex A); Kribi substation [Z43], [Z44]; unmet industrial demand [E16]. Status: planned / derived.

Figure 7.2 compares RC-1's indicative average loads with the Kribi supply milestones. Phase 1, at about 36 MW on average (about 38 MW at the upper planning value for a charge with 30% DRI, Annex A), is about a third of the initial 100 MW, even allowing for the higher peak of an arc furnace. That 100 MW, however, serves the whole port platform: the port, a cement plant and more than 60 zone tenants [Z4][Z54]. No allocation to the steelworks has been published, and an arc furnace on a 225/30 kV substation needs power-quality measures (static VAR compensation to contain flicker, and adequate short-circuit capacity at the connection) that remain to be agreed with the grid operator. Phases 1 to 3 at about 94 MW approach the initial limit, and the full chain with a DR module, at about 115 to 130 MW, needs the later stage of the substation. These loads are significant at national scale: 94 MW is about 7% of the 2025 national peak [E15]. The terms matter as much as the megawatts. There is no regulated tariff above 10 MW, so an industrial user negotiates a bilateral high-voltage contract; Cameroon's largest steel producer moved to a high-voltage supply with a dedicated 50 MVA transformer [C31][E15].

7.5 Gas: a field off Kribi that has just lost its main buyer

The Sanaga Sud field, offshore Kribi, produced 74.3 bcf of Cameroon's 75.5 bcf of gas in 2025 [E04]. About 95% of national output was sold as feed to the Hilli Episeyo floating LNG vessel [E04], which left Cameroon in July 2026 for a charter in Argentina [E08][E09]; press reports put the resulting loss of gas revenue at 235 bn FCFA over 2026 and 2027 [E09]. The Kribi power plant continues to receive gas through existing pipelines, but no replacement liquefaction has been arranged [E02][E10].



DERIVED **Figure 7.3.** A 1 Mtpa direct-reduction module would need about 8.4 to 9.1 bcf of gas a year, about 12% of 2025 national production, at a time when the main buyer of that production has left.

Source: production and uses [E04]; LNG departure [E09]; DRI gas need derived from [T09], [T10]; RC-1 reheating from [F01]. Status: sourced / derived.

For a DRI plant, the departure of the LNG buyer is both an opportunity and a warning. It is an opportunity because gas that used to be exported now needs a buyer, and a DR module would be a large, steady, long-term domestic customer: a 1 Mtpa module needs about 9.2 to 10 GJ of gas per tonne of DRI [T09][T10], or 8.4 to 9.1 bcf/yr, about 12% of 2025 output. At the 2025 prices paid by the Kribi power plant (about US\$3.2 per Mscf) and by an industrial buyer (about US\$5.6) [E04], the gas would cost roughly US\$29 to 51 per tonne of DRI (derived, Annex A). It is a warning because the reserves behind that supply are not publicly certified. About 600 bcf had been developed at Sanaga Sud to supply the LNG vessel, in natural decline, and the larger cross-border Yoyo-Yolanda resource of about 2.5 Tcf needs about US\$4 bn of investment and has no final investment decision [E02]. A gas contract for a DR module should therefore rest on an independent reserve audit and include flexibility on volumes.

7.6 Rail, road and water: the links still being built

No railway reaches Kribi today; the line that would link it to the national network at Édéa is at the memorandum stage [Z45]. Two rail projects would change that. A memorandum signed on 4 June 2026 by the Government, Africa Global Logistics and CAMALCO covers the feasibility, design, financing, construction and operation of an Édéa-Kribi-Lolabé-Campo line of about 185 km, which would connect Kribi to the existing metre-gauge network at Édéa [Z45]. The Mbalam-Kribi mineral railway, the subject of a public-private partnership contract signed in February 2022 together with a concession for the mineral terminal [Z53], is now reported as a 659 km corridor costing more than US\$8 bn [O27]; Mbalam's export plan assumes it from 2030 [O25].

By road, the international tender to reconstruct the 110 km Édéa-Kribi road was signed in February 2025 [Z46]. For water, a dedicated intake and treatment plant for the port platform is planned to start production in early 2027 [Z44], which matters for a steel plant whose closed-loop make-up need RC-1 estimates at about 2 m³ per tonne of product [F01].

Table 7.1 Kribi infrastructure readiness for each phase of the chain

Element	Capacity or scope	Status and date	Needed for	Source
Quay depth	16 m; up to 350,000 dwt for future industrial terminals	Operating	All phases	[Z37]
Container terminal	1.2 MTEU/yr; 555,398 TEU handled in 2025	Operating; congested; expansion to end-2027	Phase 1 consumables and exports	[E43] [Z45] [Z49]

Element	Capacity or scope	Status and date	Needed for	Source
Multipurpose terminal	Clinker, wheat, first Grand Zambi ore	Operating	Phase 1 metallics	[Z46] [Z74]
Mineral terminal	125 Mtpa, phased; includes a steel cluster	MoU 4 November 2025; completion expected within five to six years of March 2026	DR module	[O31] [Z52][Z4]
225 kV line and substation	100 MW, later 330 to 400 MW	Commissioning planned end-2026	Phase 1 (share of the 100 MW, to be allocated); DR module (later stage)	[Z43] [Z44]
Kribi gas power plant	216 MW installed, 330 MW licence	Operating at about 30% capacity factor	Power and gas	[E15] [E24]
Natural gas	Sanaga Sud; 75.5 bcf national output in 2025	LNG buyer left July 2026; reserves not public	DR module	[E04] [E09]
Water plant	Port-platform intake and treatment	Production early 2027	All phases	[Z44]
Rail to Édéa, Lolabé and Campo	About 185 km	MoU June 2026	Phases 2 and 3 distribution	[Z45]
Mbalam-Kribi railway	659 km corridor; more than US\$8 bn	PPP contract 2022; rail phase from 2030	DR module ore supply	[Z53] [O27] [O25]
Édéa-Kribi road	110 km reconstruction	Tender signed February 2025	All phases	[Z46]
Industrial land	About 4,000 ha zone; 300 ha operational	KPIZ created February 2026	All phases	[Z4]

Source: Cameroon Steel compilation; port-authority documents are cited by title and date in Annex C.

7.7 What Kribi still needs for the full chain

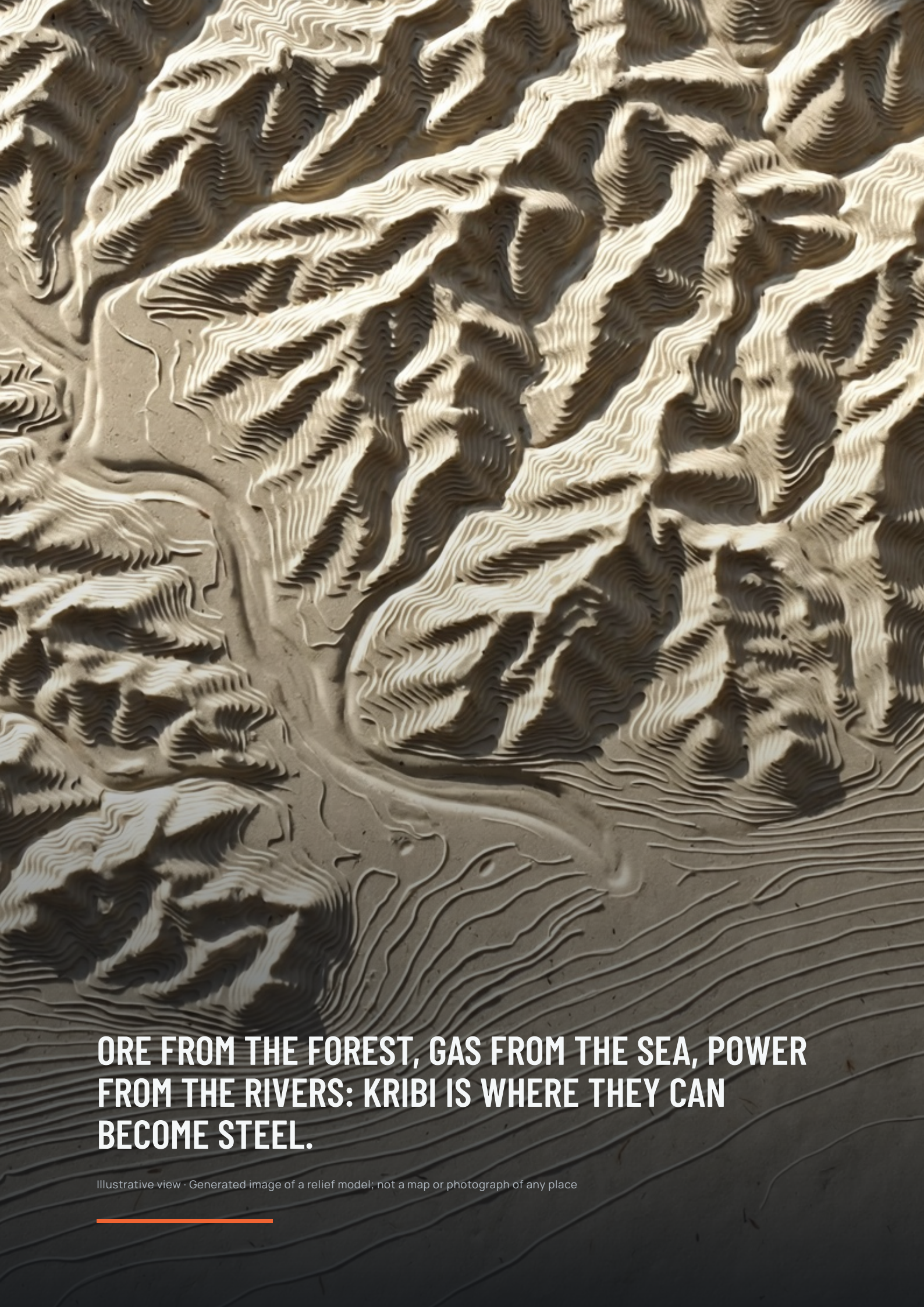
Kribi is ready, or nearly ready, for Phase 1, subject to an allocation of the first 100 MW and agreed power-quality measures. Its quay, its multipurpose terminal, the first 100 MW of the 225 kV supply, the water plant and the zone's serviced land are in place or due by early 2027. The later phases depend on links that are planned but not secured:

- **firm power** at the later stage of the substation, and a bilateral high-voltage contract framework for heavy industry;
- **a long-term gas allocation** for industrial use at Kribi, backed by a reserve audit, now that the LNG offtake has ended;
- **bulk handling** for about 1.5 Mtpa of pellets or concentrate, in the mineral terminal or a dedicated berth within the steel cluster;
- **rail** for ore from Mbalam and for steel products to Édéa and the national network;
- **housing, training and services** for a workforce that RC-1 estimates at about 1,100 direct jobs at full capacity [F01].

None of these is unusual for an industrial port, and several are already in the State's and the zone's programmes; the task is to sequence them with the phases of the chain (Chapter 10).

FINDING

Kribi alone combines ore, gas, power and deep water within a few tens of kilometres. It is nearly ready for a first phase built around a melt shop, subject to a power allocation and power-quality measures; the DR module needs a gas contract, the later 225 kV stage, bulk handling and the Mbalam railway.



**ORE FROM THE FOREST, GAS FROM THE SEA, POWER
FROM THE RIVERS: KRIBI IS WHERE THEY CAN
BECOME STEEL.**

Illustrative view · Generated image of a relief model; not a map or photograph of any place

CHAPTER 8

IRONMAKING IS THE PRIZE; THE MELT SHOP IS THE DOOR TO IT

On dated 2025 and 2026 market prices, ore and ironmaking together account for 64 to 72% of the market value of a tonne of reinforcing bar, rolling for 13 to 22% and melting for 6 to 15%. Cameroon's mills capture today only the rolling step. A melt shop adds the melting step and, more importantly, creates the outlet that makes local ironmaking possible; carried through direct reduction, melting and rolling, each tonne of Cameroonian concentrate would be worth about 3.6 times its value as ore, and about 2.6 times as DRI alone. These figures are illustrative gross price spreads: they describe where value sits, not value added or anyone's profit.

8.1 Method: from dated prices to value per tonne of rebar

There is no single published price chain from Cameroonian ore to Cameroonian rebar, because the intermediate products are not traded in Cameroon. The approach used here is transparent and reproducible:

1. take a dated international price for the main iron-bearing product of each step (ore, iron units, billets, rebar);
2. convert each price into its contribution to one tonne of finished rebar, using the tonnes of each product needed per tonne of rebar;
3. read the difference between successive steps as the market value that step adds.

The difference is a gross spread over the iron-bearing input. It is not value added in the national-accounts sense, which would also deduct energy, consumables and services, and it is not a profit margin, which would also deduct labour, maintenance, depreciation and financing. It shows where in the chain market value is created, which is the question that matters for policy.

Table 8.1 Price inputs used in the value-capture analysis

Product	Basis	Date	Price (US\$/t)	Used	Source
Iron ore, 62% Fe fines	CFR China, annual average	2025	100.2	100	[G31]
Iron ore, 62% Fe fines	CFR China; monthly and weekly	Sep and 3 Oct 2026	97.7; 97	low case 97	[G32] [G34]
Iron ore, forecast	World Bank	2026f; 2027f	97; 95	context	[G33]
Hot-briquetted iron	Libya, CFR Italy and Türkiye	Jan 2026	370	370	[N03]
Hot-briquetted iron	Russia, CFR Türkiye	Jan 2026	below 330	low case 330	[N03]
Pig iron	Brazil, FOB	Aug 2026	475	context	[N04]

Product	Basis	Date	Price (US\$/t)	Used	Source
Heavy melting scrap 1&2 (80:20)	CFR Türkiye	3 Oct 2026	403	context	[G34]
Billet	China, FOB	3 Oct 2026	465 to 470	467.5	[G34]
Billet	ex-CIS, CFR Türkiye	3 Oct 2026	515 to 525	high case 520	[G34]
Rebar	Türkiye, FOB	3 Oct 2026	620 to 630	625	[G34]
Wire rod	Türkiye, FOB	3 Oct 2026	650 to 660	context	[G34]
Rebar, Douala homologated (Ø12 FE500)	Producer price, FCFA	Oct 2023	about 633,000 FCFA/t (about €965)	context	[C44]

Source: as shown. FOB: free on board at the exporting port; CFR: cost and freight to the destination port.

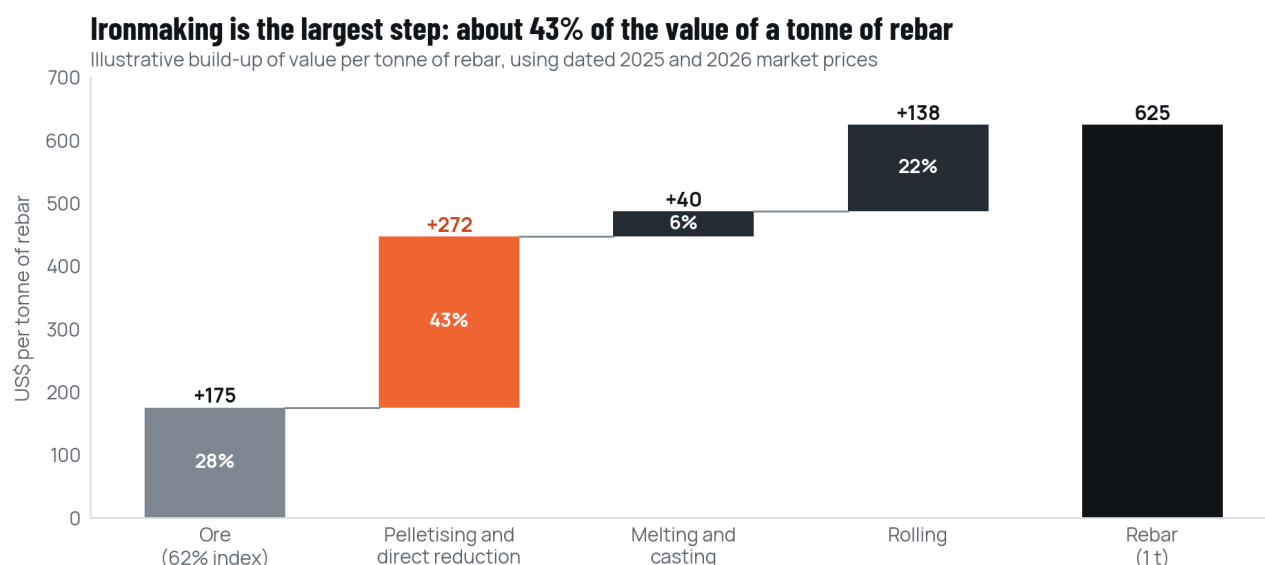
The mass ratios come from RC-1's planning yields and from published industry ratios (Annex A): one tonne of rebar needs about 1.04 t of billets (rolling yield 96%), 1.06 t of liquid steel (casting yield 98%), 1.21 t of iron units (metallic yield 88%) [F01], and, if those iron units are DRI, about 1.75 t of DR-grade pellets at 1.45 t per tonne of DRI [N01].

Three simplifications should be kept in mind. The prices refer to different places and dates between January and October 2026, with the ore price as a 2025 average. The ore is valued at the 62% Fe index although DR-grade pellets carry a premium that is negotiated in quarterly contracts and not publicly reported [N16]; this understates the ore and pelletising step and overstates the reduction step by the same amount, but does not change their sum. And international prices are used throughout, although Cameroonian rebar sells at a regulated domestic price.

8.2 Where the value is made

With the central prices, the value of a tonne of rebar, US\$625, builds up as follows (Figure 8.1):

- **ore:** 1.75 t at US\$100 = about US\$175, or 28%;
- **pelletising and direct reduction:** 1.21 t of iron units at US\$370 = about US\$447, an increment of about US\$272, or 43%;
- **melting and casting:** 1.04 t of billets at US\$467.5 = about US\$487, an increment of about US\$40, or 6%;
- **rolling:** rebar at US\$625, an increment of about US\$138, or 22%.



ILLUSTRATIVE Figure 8.1. Ironmaking is the largest step. Illustrative build-up of the market value of one tonne of rebar, step by step, using dated 2025 and 2026 international prices and RC-1 yields.

Source: Cameroon Steel calculation from [G31], [N03], [G34], RC-1 yields [F01] and pellet ratio [N01]; method in Annex A. Status: illustrative.

The shares move with prices, but the ranking does not. Table 8.2 recalculates the build-up under two alternative cases: a low iron-unit case, with Russian HBI at US\$330/t and ore at US\$97/t, and a high billet case, with billets valued at the delivered ex-CIS price into Türkiye of US\$520/t. In every case, ore and ironmaking together account for 64 to 72% of the value of a tonne of rebar, while melting and rolling together account for 28 to 36%.

Table 8.2 Value per tonne of rebar by step under three price cases (US\$ and share of US\$625)

Step	Central case	Low iron-unit case	High billet case
Ore (1.75 t)	175 (28%)	170 (27%)	175 (28%)
Pelletising and direct reduction	272 (43%)	229 (37%)	272 (43%)
Melting and casting	40 (6%)	88 (14%)	95 (15%)
Rolling	138 (22%)	138 (22%)	83 (13%)
Ore and ironmaking together	447 (72%)	399 (64%)	447 (72%)
Melting and rolling together	178 (28%)	226 (36%)	178 (28%)

Source: Cameroon Steel calculation; inputs in Table 8.1 and Annex A. Shares may not add to 100% because of rounding. Status: illustrative.

The melting step deserves comment, because it is the step that a first-phase melt shop captures. On imported iron units at international prices it is thin: billets made from HBI at US\$370 are worth only about US\$40 more per tonne of rebar than the HBI itself, and billets made from scrap bought at the Turkish import price of US\$403/t [G34] would be worth almost exactly what the scrap cost. That is why Chinese billets at US\$465 to 470/t FOB, a product of overcapacity [G16], are hard to beat with imported feed. A Cameroonian melt shop earns its place in three other ways: by avoiding billet freight and paying duty only on the metallic charge rather than on the billet, since imported scrap, DRI and HBI carry the same 10% as billets [P24]; by gaining access, over time, to cheaper local iron units, first local scrap and later local DRI; and by giving the country the furnace that local iron units need. The melt shop is the door to the ironmaking prize, not the prize itself. White paper 09 (Chapter 7) tests a Kribi melt shop on imported iron units against delivered imports in detail, and White paper 04 (Chapter 8) sets out the series' indicative comparison of the cost of a Kribi billet with a delivered import; this chapter does not restate their cost ranges.

8.3 What Cameroon captures today, and under each configuration

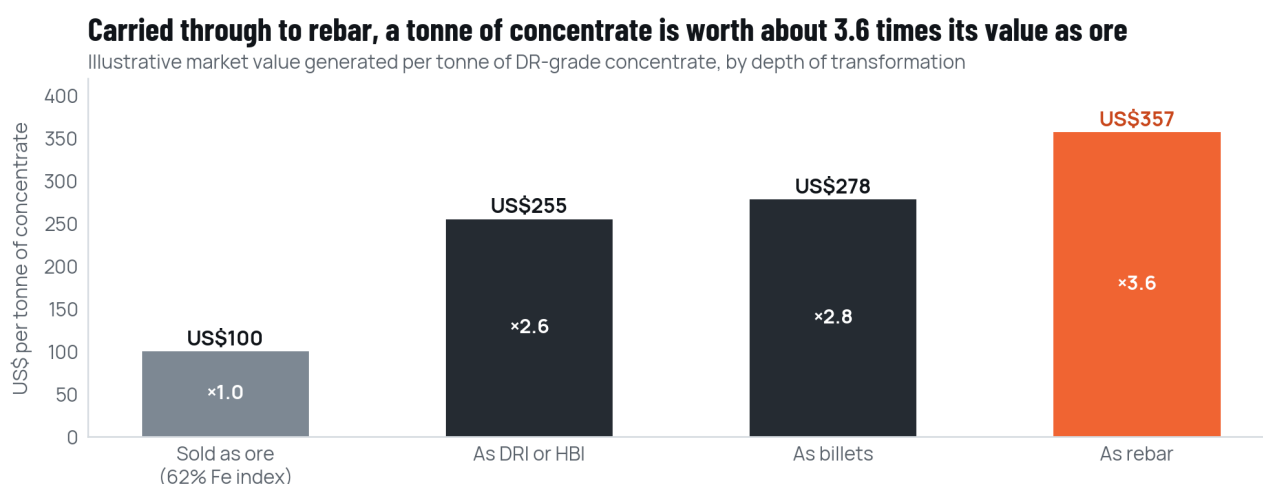
Applying the three price cases to the configurations of Chapter 6 gives the share of the gross price build-up of a tonne of rebar that occurs in Cameroon (Figure ES.1 in the executive summary):

- **today**, with imported billets re-rolled in Douala, about 22%, or 13 to 22% across the price cases;
- with **a melt shop on imported iron units** (Phase 1), about 28%, or 28 to 36%;
- with **direct reduction on imported pellets**, about 72% (72 to 73%), less the pellet premium that would accrue abroad;
- with **the full chain from Cameroonian DR-grade ore**, the whole gross spread by construction and, in practice, most of it once imported electrodes, alloys, refractories, spares and the foreign capital charge are deducted.

These shares measure where the gross price build-up occurs, not value added: each also contains imported consumables and services, and the capital charge of foreign-financed plant, which a national-accounts measure would deduct.

Today's figure understates what Cameroonian mills earn, because the domestic rebar price is protected. In October 2023 the homologated Douala price of a 12 mm FE500 bar implied about 633,000 FCFA/t, roughly €965/t [C44], when Turkish rebar was offered for export at US\$550 to 575/t FOB [G37]. That premium is paid by Cameroonian builders and households through the import ban; it is a transfer within the economy rather than value created by the chain. A phased chain should aim to earn its margin from making iron, not from the ban.

A second way to see the prize is to follow one tonne of DR-grade concentrate (Figure 8.2). Sold as ore at the 62% Fe index, it would fetch about US\$100. Turned into DRI, at 1.45 t of pellets per tonne of DRI, it yields products worth about US\$255; as billets, about US\$278; as rebar, about US\$357, roughly 3.6 times its value as ore.



ILLUSTRATIVE Figure 8.2. Each tonne of DR-grade concentrate is worth about 3.6 times as much carried through to rebar as sold as ore, and about 2.6 times as much as DRI. Illustrative, before conversion costs; the pellet premium over the 62% Fe index is not included.

Source: Cameroon Steel calculation from [G31], [N03], [G34], [F01], [N01]. Status: illustrative.

At the scale of RC-1's DR module, the numbers become national. A 1 Mtpa DRI module would use about 1.45 Mtpa of DR-grade concentrate. Sold as ore at US\$100/t, that concentrate would earn about US\$145 m a year. Reduced to DRI, it would become about US\$370 m of iron units; melted and rolled, about 0.83 Mt of finished long products worth about US\$517 m at the central rebar price. The difference, about US\$370 m a year of additional gross output, is what local transformation of a single DR module's worth of ore can add to the economy before costs. It is not profit, and it requires capital, energy and labour to earn; but it is the order of magnitude that should inform the design of the 15% rule.

8.4 Foreign exchange: the case rests on local iron units

Steel is a large item in Cameroon's external accounts. Chapter 72 imports cost 170.1 bn FCFA, about €259 m, in 2025, and chapters 72 and 73 together accounted for 13.0% of the trade deficit [C05]. Billets alone were about 161 kt in 2023 [C06]; at the October 2026 Chinese export price of about US\$467.5/t they would be worth about US\$75 m, although Comtrade's declared value was about twice that [C06][G34].

The foreign-exchange effect of each step differs sharply.

- **A melt shop on imported iron units** saves the foreign exchange spent on billets but spends most of it again on HBI and imported scrap. Per tonne of rebar, imported iron units cost about US\$447 against about US\$487 for the billets they replace; the net saving is the melting increment, the avoided freight on billets and the domestic electricity, labour and services used in melting.
- **Direct reduction on Cameroonian concentrate** saves almost all of that US\$447 per tonne of rebar, since ore, gas and electricity are domestic. This is where the foreign-exchange case for local ironmaking lies.
- **Merchant billets** reduce the import bill directly only where they replace imported billets in the re-rollers' charge, about 60% of it today [C38]; billets rolled into more domestic rebar displace domestic production rather than imports.
- **Exports** add foreign exchange. At full RC-1 capacity of 1 Mtpa, output would exceed Cameroon's total chapter 72 imports of 412 kt more than twice over [C05], so more than half of the output would be sold abroad. As an illustration only, 0.5 Mtpa sold at the October 2026 Turkish rebar price of US\$620 to 630/t FOB would be worth about US\$310 to 315 m a year [G34]; realised prices in CEMAC markets would differ.

FOREIGN EXCHANGE FOLLOWS IRON UNITS: THE DURABLE SAVING COMES WHEN ORE, GAS AND POWER ARE DOMESTIC AND ONLY STEEL CROSSES THE BORDER.

Chapter 8

White paper 09 reaches the same conclusion with a fuller accounting of imported content, including electrodes, alloys, refractories and spares. On imported scrap and HBI, a Kribi works would retain about US\$47 to 181 of foreign exchange per tonne of rebar, against US\$48 to 170 for today's re-rolling of imported billets, and about US\$545 to 645 with domestic iron units (White paper 09, Chapter 9). Phase 1 on imported iron units therefore saves about what the re-rollers already save; the large saving comes only with domestic iron.

Domestic gas and power also change the balance. At 2025 Cameroonian prices, the gas for a tonne of DRI would cost about US\$29 to 51 (Annex A) [E04], paid to domestic producers rather than to foreign suppliers of HBI or billets.

8.5 Jobs and industrial value added

RC-1 indicates about 500 direct jobs (450 to 550) and about 1,000 indirect jobs (800 to 1,500) for Phase 1, and about 1,100 direct jobs (900 to 1,300) at the full capacity of 1 Mtpa, before any DR module [F01]. These figures sit within the range of comparable plants. Prometal reports about 1,000 direct jobs for about 360 kt/yr of finished steel [C25]; Kenya's ore-based Devki plant at Kwale, 500 kt/yr, reported 2,500 direct and 9,000 indirect jobs at its opening [A23]; and US micro-mills of about 0.39 to 0.45 Mtpa (430,000 to 500,000 tons as announced, read as US short tons, the unit of Commercial Metals Company's reports) employ about 200 to 230 people [T20] [T23].

Indirect employment depends on the depth of local supply chains. Global evidence suggests that every two jobs in steel support thirteen in its supply chain [P01], and the European steel industry reports Type I and Type II employment multipliers of 6.2 and 8.6 [P02]. Applied to Cameroon these are upper bounds, because local suppliers of refractories, spare parts, engineering and logistics are thinner than in Europe. The Mining Code's rule that 95% of non-skilled mining jobs go to Cameroonians [O36] and the investment ordinance's job criterion [Z39] point in the same direction: local transformation is also a strategy for skilled industrial employment.

At the macroeconomic level, manufacturing accounted for about 13.3% of GDP in 2025 [C09] against the SND30 target of 25% by 2030 [P13]. Few single projects can move that ratio; an ore-to-steel chain at the scale of 1 Mtpa is one of them.

READING THESE NUMBERS

The value shares in this chapter are illustrative. They use international prices on different bases and dates; they ignore capital, operating and financing costs; they value ore at the 62% Fe index rather than at a DR-grade pellet price; and they apply international rather than Cameroonian product prices. They are designed to show where market value is created along the chain and how robust that ranking is, not to estimate any plant's revenue or margin.

8.6 What the economics imply for policy and investment

Four conclusions follow.

1. **The value is upstream.** Ore and ironmaking hold about two-thirds or more of a tonne of rebar's market value under every price case tested. Policies that protect only rolling protect a minor share of the chain.
2. **A melt shop is necessary but not sufficient.** On imported iron units it captures a modest increment; its strategic value is as the outlet without which local DRI has no buyer.
3. **The 15% rule should be judged by the iron it creates.** One DR module's worth of concentrate is worth about US\$145 m a year as ore and about US\$517 m as finished long products. A rule satisfied by crushing ore would capture none of that difference.
4. **Foreign exchange follows iron units.** The large and durable saving comes when ore, gas and power are domestic and only the steel crosses the border.

FINDING

Value capture in Cameroon's steel chain is a question of iron, not of rolling. The phased chain moves the share of the gross price build-up of a tonne of rebar that occurs in Cameroon from about one-fifth today to about one-quarter or one-third with a melt shop, and to most of it, before imported consumables and capital service, once Cameroonian concentrate is reduced at home.

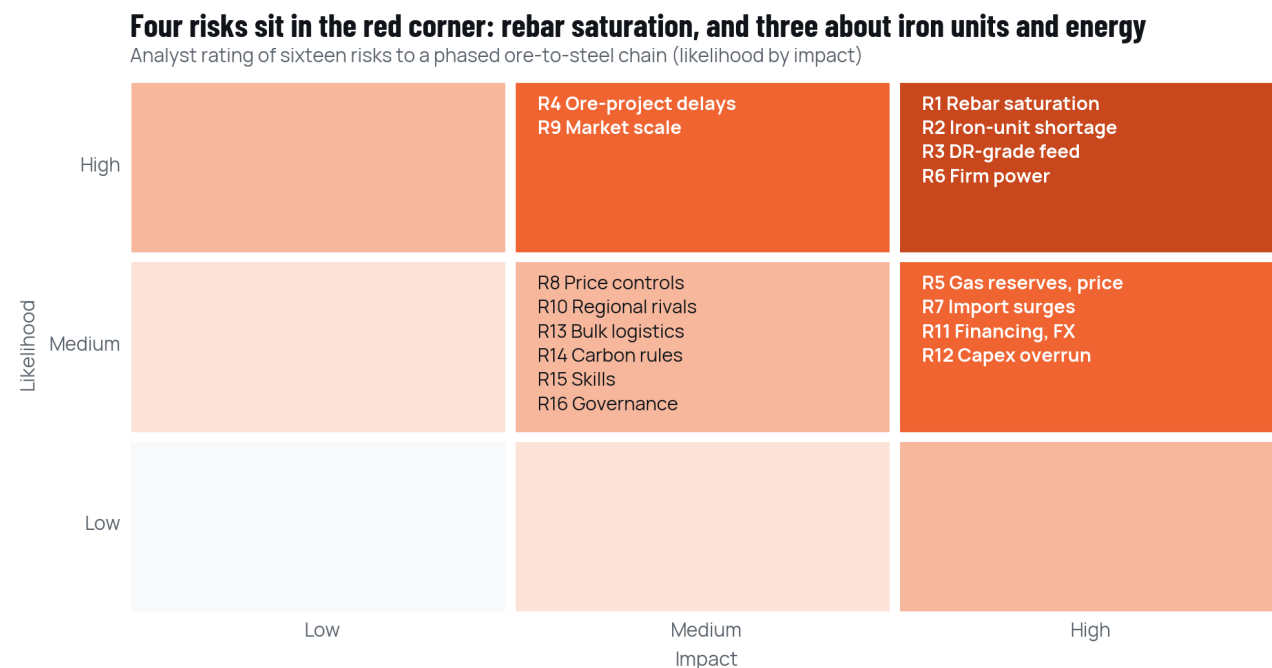
CHAPTER 9

SIXTEEN RISKS, FOUR CRITICAL, AND MOST OF THEM CONCERN IRON UNITS AND ENERGY

An ore-to-steel chain in Cameroon faces sixteen material risks. Four are both likely and severe: saturation of the rebar market, shortage of iron units, the absence so far of DR-grade feed, and firm power. A further four are severe if they occur: gas reserves and pricing, import surges, financing and foreign exchange, and capital-cost overruns. Most can be reduced by the phased design itself, which commits capital one phase at a time, and by a handful of policy measures that cost the budget little.

9.1 How the risks were assessed

The risks below were identified from the evidence in Chapters 1 to 7 and rated by Cameroon Steel's analysts on two scales: the likelihood that the risk materialises over the next decade, and its impact on the chain if it does. Both are judgements, informed by the cited evidence; they are not probabilities. Each risk is paired with mitigations and with the party best placed to lead them. Figure 9.1 places the sixteen risks on a likelihood-impact grid, and Table 9.1 sets out the register.



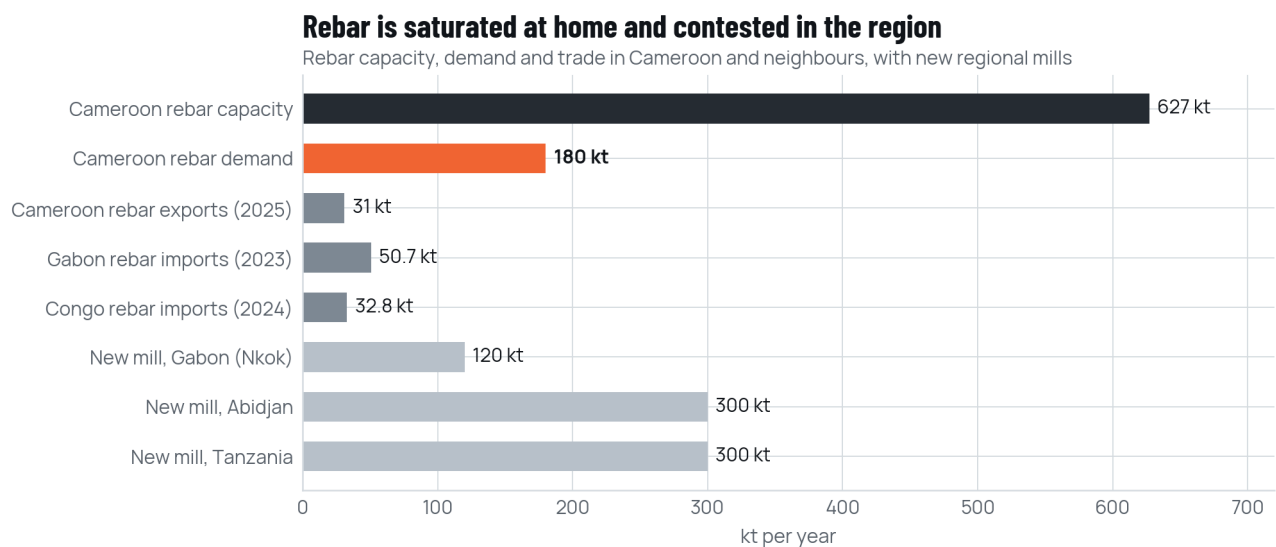
DERIVED **Figure 9.1.** Four risks sit in the high-likelihood, high-impact corner: rebar saturation, and three that concern iron units or energy. Analyst rating of sixteen risks to a phased ore-to-steel chain.

Source: Cameroon Steel risk assessment based on the evidence cited in Table 9.1. Status: derived (analyst judgement).

9.2 The four critical risks

R1. Rebar saturation. Cameroon's rebar capacity of 627 kt/yr is about 3.5 times domestic demand of about 180 kt/yr [C30]; the industry as a whole runs at about 50% [C38][C40] and held more than 30 bn FCFA of unsold stock in September 2026 [C41]. The Prime Minister's committee on mines-metallurgy integration reached the same conclusion in April 2026 [Z79]. The region is filling up too: a 120 kt/yr scrap-based rebar mill is under construction in Gabon, which has cut VAT on local rebar, and 300 kt/yr bar and wire-rod mills were ordered in 2026 for Abidjan and Tanzania [C39][C52][A21][A22]. Any new rolling capacity that adds rebar without adding iron units divides a saturated market further.

Mitigation. Justify Phase 1 by its melt shop, not its rolling mill; compete on certified quality; offer merchant billets to the existing re-rollers, which import about 60% of their charge [C38]; move into medium and heavy sections, which are not produced in Cameroon (Chapter 3); and develop exports under AfCFTA, which the mines-metallurgy committee is already preparing [Z80].



SOURCED Figure 9.2. Rebar is saturated at home and contested in the region. Cameroon's rebar capacity is 3.5 times domestic demand; neighbouring import markets are small and new mills are being built across Africa.

Source: [C30] (capacity and demand), [C05] (exports), [C07] (Gabon and Congo imports), [C39], [A21], [A22] (new mills).

R2. Iron-unit shortage. National scrap arising was last measured at 53,000 to 61,833 t/yr [C42], local scrap covers about 40% of existing mills' needs [C38], scrap prices have risen by about 30% [C40], and the leading producer is borrowing €40 m to import billets [C38]. RC-1 needs 0.36 Mtpa of metallics at Phase 1 and 1.21 Mtpa at full capacity, and assumes only about 30 kt/yr of domestic scrap (0 to 60) [F01]; contracted supply and the delivered cost of the imported HBI, DRI and scrap are not yet established. The global market for DR-grade pellets and merchant iron units is tight and expected to stay so until about 2030 [N01][N02][D12].

Mitigation. Long-term supply contracts for HBI and DRI from several origins; a scrap-collection programme that brings informal collectors into the formal chain; and the direct-reduction module on Cameroonian ore as the durable answer.

R3. DR-grade feed not yet available. Cameroon's only code-compliant reserve is direct-shipping ore at 62.2% Fe [O05]. A 68% Fe concentrate suitable for direct reduction has been produced only in 2014 testwork [O04], and no concentrator or pellet plant producing DR grade is in any published plan.

Mitigation. Pilot-scale concentration, pelletising and reduction tests on Mbalam itabirite and Lobé magnetite; a grade clause in the 15% offtake terms; the DRI-plus-smelter route, which tolerates lower-grade pellets [N01], as a fallback; and imported DR pellets as a bridge.

R6. Firm power. Industrial demand of 150 MW was unmet nationally in October 2026 because of delays to the Nachtigal evacuation line [E16]; the Kribi gas plant ran at about a 30% capacity factor in 2025 [E15]; hydropower, about 90% of generation in 2025, is seasonal [E15]. RC-1 needs about 36 MW on average at Phase 1 and about 94 MW at full capacity, more with a DR module [F01].

Mitigation. Size Phase 1 within the initial 100 MW of the Kribi 225 kV supply, which is designed with N-2 redundancy through the southern grid [Z43], and agree with the grid operator an allocation of that shared supply and power-quality measures for the arc furnace (static VAR compensation, adequate short-circuit capacity); negotiate a high-voltage contract with a capacity charge and indexation; reserve the later 330 to 400 MW stage of the substation for the full chain [Z43]; consider dedicated generation, for example the unbuilt 114 MW extension of the Kribi gas plant [E25].

9.3 Severe risks to manage

R5. Gas reserves and price. Gas production is concentrated in the Sanaga Sud field, where about 600 bcf were developed for the LNG vessel and are in natural decline; certified remaining reserves are not public; and the larger Yoyo-Yolanda resource of about 2.5 Tcf needs about US\$4 bn and has no investment decision [E02]. The applicability of the 70 FCFA/m³ tax on natural gas to gas used as a reductant is unclear [E11].

Mitigation. An independent reserve audit before the DR module; a long-term gas sales agreement with take-or-pay flexibility; a hydrogen-ready shaft furnace; and a modular DR plant that can start below 1 Mtpa.

R7. Import surges and policy reversal. Global excess steel capacity is expected to grow from 640 Mt in 2025 to 745 Mt by 2028 [G16]; Chinese billets traded at US\$465 to 470/t FOB in October 2026 [G34]; and contractors on large public works have sought rebar imports despite the ban, as with the 7,300 t sealed at Kribi in 2020 [C20]. Cameroon has no trade-remedy practice in steel (Chapter 5).

Mitigation. Build anti-dumping and safeguard capacity; apply the national preference of the Finance Law 2025 [P18] explicitly to locally made billets and sections; enforce quality standards on imports as well as local products.

R11. Financing, foreign exchange and sovereign risk. The IMF rates Cameroon at high overall risk of debt distress [P32]; CEMAC foreign reserves fell to 4.2 months of imports at the end of 2025 [P07]; transfers above 50 m FCFA require central-bank authorisation [P10]; and the Finance Law 2026 prohibits payments to foreign suppliers without an effective transfer of funds [P11].

Mitigation. Structure financing with development-finance institutions and export-credit agencies; keep export revenues in offshore accounts where regulations allow; commit capital phase by phase rather than in one tranche; and use regional lenders already active in Cameroonian steel [C38].

R12. Capital-cost overrun and technology. Large steel projects overrun. Sweden's hydrogen-based Stegra project raised €6.5 bn for its first phase in 2024 and has since sought additional funding as costs rose and its start slipped to 2027 [T24][T25][T26]; Nucor raised the estimate for its West Virginia sheet mill to US\$3.1 bn in 2023 [T19]. For DRI-EAF plants, IEA-derived benchmarks span about US\$510 to 1,310 per tonne of capacity in 2019 dollars [T02].

Mitigation. Proven technology from established suppliers; fixed-price contracts with performance guarantees; an independent engineer; and the phased design, which limits the capital at risk at each phase.

9.4 Likely but manageable

R4. Ore-project delays. Mbalam's first exports moved from the first quarter of 2026 towards 2027 [O24][O28]; Kribi-Lobé moved to July 2027 [O35]; Grand Zambi's first export has not been confirmed [O38]; Nkout is blocked by a dispute between investors [O47]. Because the phased chain does not depend on Cameroonian ore until the DR module, these delays affect timing, not viability.

Mitigation. Design Phases 1 to 3 on imported and local scrap and imported iron units; keep the DR module open to several ore sources; align the DR module with the Mbalam rail phase from 2030 [O25].

R9. Market scale. At 1 Mtpa, RC-1 would produce more than twice Cameroon's 2025 chapter 72 imports [C05] and about twice apparent steel use [C40]. Without exports, the later phases would not be absorbed.

Mitigation. Trigger Phases 2 and 3 on evidence of demand; secure CEMAC and AfCFTA customers; consider HBI exports from the DR module into markets short of iron units.

EARLY-WARNING INDICATORS TO MONITOR

Utilisation of domestic rolling capacity and unsold stocks (R1); billet and HBI import volumes and prices (R2, R7); progress of pilot DR-grade concentrate tests (R3); publication of a gas reserve audit and of an industrial gas allocation at Kribi (R5); commissioning of the 225 kV supply and timing of its later stage (R6); first Mbalam and Lobé export cargoes and the rail financing decision (R4); CBAM default values and certificate prices (R14).

9.5 Medium risks

R8. Price controls. Rebar prices are homologated by the Ministry of Commerce and producers accepted reductions in October 2023 [C44]. Mitigation: focus on products outside homologation; agree a transparent, cost-based formula for those within it.

R10. Regional rivals. Gabon's new mills and VAT preference, and new mills in West and East Africa, will compete for the same export markets [C39][C52][A21][A22]. Mitigation: target products the neighbours do not make, such as sections and billets.

R13. Bulk logistics. The mineral terminal is at the memorandum stage, no railway reaches Kribi, and container import dwell times reached about 25 days in 2026 [O31][Z45][E45]. Mitigation: secure berth and storage rights in the planned terminal's steel cluster [O31]; use the multipurpose terminal for Phase 1.

R14. Carbon rules on exports. The EU's CBAM entered its definitive phase on 1 January 2026, certificates go on sale from 1 February 2027, and it covers DRI, billets, rebar, wire rod and pellets [D01][D02][D08]; free allocation for EU producers falls from 97.5% in 2026 to zero in 2034 [D07]; a UK CBAM applies from 1 January 2027 [D10]. Mitigation: measure and verify emissions from the first day; use Cameroon's hydro-based grid; choose hydrogen-ready equipment.

R15. Skills. No Cameroonian institution offers a dedicated ferrous-metallurgy programme, although ENSP Yaoundé, the Ngaoundéré mining schools and IUT Douala provide relevant engineering and technician training [K02][K03][K08]. Mitigation: a training centre with these institutions and supplier training packages, consistent with the local-employment rules of the Mining Code [O36].

R16. Governance and reputation. Cameroon was suspended from EITI in February 2024 [O52], and lenders apply international environmental and social standards. Mitigation: an environmental and social impact assessment to IFC Performance Standards; publication of offtake terms under the 15% rule; transparent reporting.

Table 9.1 Risk register for a phased ore-to-steel chain

ID	Risk	Key evidence	L	I	Main mitigation	Lead
R1	Rebar saturation	627 kt capacity vs 180 kt demand [C30]	H	H	Melt shop first; merchant billets; sections; exports	Investor
R2	Iron-unit shortage	Scrap covers about 40% of needs [C38]	H	H	Long-term HBI/DRI contracts; DR module	Investor
R3	No DR-grade feed yet	DR concentrate in testwork only [O04]	H	H	Pilot tests; grade clause; smelter fallback	Miner, State
R6	Firm power	150 MW industrial demand unmet [E16]	H	H	Allocation; power quality; capacity contract	State, utility
R4	Ore-project delays	Mbalam start may slip to 2027 [O28]	H	M	No phase depends on one mine	Investor
R9	Market scale	1 Mtpa vs 0.45 Mtpa use [C40]	H	M	Phase by demand; exports	Investor
R5	Gas reserves and price	Reserves not certified [E02]	M	H	Reserve audit; flexible contract	State, SNH
R7	Import surges	745 Mt excess capacity by 2028 [G16]	M	H	Trade-remedy capacity	State
R11	Financing, FX	High risk of debt distress [P32]	M	H	DFI and ECA structure; phases	Investor, DFIs
R12	Capex overrun	Large projects overrun [T25][T26]	M	H	Proven technology; fixed-price EPC	Investor
R8	Price controls	Homologated rebar prices [C44]	M	M	Cost-based formula	State
R10	Regional rivals	New mills in Gabon and beyond [C39]	M	M	Differentiated products	Investor
R13	Bulk logistics	Mineral terminal at MoU stage [O31]	M	M	Berth rights in steel cluster	Port, zone
R14	Carbon rules	CBAM certificates from 2027 [D02]	M	M	Measured MRV; hydro power	Investor
R15	Skills	No ferrous-metallurgy programme [K02]	M	M	Training centre	Investor, universities
R16	Governance	EITI suspension, 2024 [O52]	M	M	IFC-standard ESIA; transparency	All

Source: Cameroon Steel analysis. L: likelihood; I: impact; H: high; M: medium. Ratings are analyst judgements.

9.6 The phased design is itself the main mitigation

Most of the critical and severe risks share a cause: they would all bite at once on a project that tried to build the whole chain in one step. A DR plant built before its feed, its gas contract and its market would face R2, R3, R5, R6, R9 and R12 simultaneously. A phased chain spreads them over time and attaches each to a decision point:

- Phase 1 faces R1, R2 and R6, and can manage them with its product mix and merchant billets, supply contracts, and an agreed share of the first 100 MW at Kribi;
- Phases 2 and 3 face R9 and R10, and should be triggered by demand;
- The DR module faces R3, R5 and R12, and should be built only when grade, gas and cost are proven.

This is the lesson of Chapter 4 restated as risk management: the countries that succeeded built in modules behind secure feed; the project that failed tried to do everything at once.

FINDING

Three of the four critical risks concern iron units and energy; the fourth, rebar saturation, is the legacy of rolling without iron. Sequencing manages them: a melt shop first, sections on evidence of demand, and direct reduction only when DR-grade feed, gas and firm power are secured.

CHAPTER 10

RECOMMENDATIONS: MAKE THE 15% RULE PRODUCE IRON

Cameroon has the ore, the port, the gas field and, since 2023, the legal principle of local transformation. To turn ore exports into industrial value it now needs three things: implementing rules that make the 15% obligation a bankable supply of DR-grade feed; energy and trade policies that reward ironmaking rather than rolling; and a chain built in phases, starting with a melt shop at Kribi. The recommendations below are addressed to government, to investors including Cameroon Steel, and to partners; most cost the budget little.

10.1 Principles behind the recommendations

The recommendations follow from four conclusions of this paper.

- The value of Cameroon's steel chain is upstream: ore and ironmaking hold about two-thirds or more of the value of a tonne of rebar on every price case tested (Chapter 8).
- The binding constraints are iron units and energy, not rolling capacity or demand for steel in general (Chapters 3 and 9).
- The 15% rule supplies volume but not grade: a share of direct-shipping ore cannot feed a shaft furnace (Chapters 2 and 6).
- Successful producers built in modules at ports, behind secure feed, and integrated backwards into domestic ore (Chapter 4).

The recommendations are grouped by the party best placed to act, and each carries an indicator by which progress can be judged. Their timing follows the published calendar of the ore, power and port projects and the RC-1.1 planning schedule (Figure 10.2).

10.2 For government

G1. Issue an implementing text for article 40(4) of the Mining Code. The text should answer the five open questions identified in Chapter 5:

- definition: recognise transformation by depth (concentration, agglomeration, reduction, steelmaking), with credit for the deeper steps, so that crushing and screening alone do not satisfy the obligation;
- grade: allow the obligation to be met with a grade-adjusted volume of concentrate, so that a smaller tonnage of DR-grade product counts for more than a larger tonnage of direct-shipping ore;
- price: set a reference price at export parity, the seaborne index adjusted for grade, less the freight and port charges the miner avoids by selling locally;
- timing: define ramp-up, carry-forward and what happens when either the mine or the processor is late;
- transparency: require each convention holder to report volumes, grades and prices supplied for local transformation, and publish the reports.

G2. Give the mines-metallurgy committee a public work programme. The committee created in December 2025 already has the mandate [Z79][Z80]. It should publish an annual report on compliance with the 15% rule, coordinate a pilot programme for DR-grade concentrate with the convention holders, and act as the single interlocutor for steel investors on ore, gas and power.

G3. Make tariffs reward ironmaking. In applying the new CEEAC-CEMAC common external tariff [P23], review the lines for billets, sections and direct-reduced iron so that duties escalate from ore to semi-finished to finished steel, instead of the flat 10% on ore, DRI and billets observed in 2023 [P24]. Apply the national preference of the Finance Law 2025 [P18] explicitly to billets and sections made in Cameroon. Over time, and once domestic iron units are available, replace the rebar import ban [C20] with a tariff and quality-standard regime that protects without freezing the market.

G4. Build trade-remedy capacity. Cameroon has no anti-dumping or safeguard practice in steel, while 62 countries had adopted 207 measures against Chinese steel by October 2025 [G30]. A small investigating unit, using CEMAC and WTO procedures, would allow the State to respond to import surges with targeted, temporary measures rather than bans.

MOST OF THESE MEASURES COST THE BUDGET LITTLE: THEY ARE RULES, CONTRACTS AND SEQUENCING.

Chapter 10

G5. Secure gas for industry at Kribi. Commission an independent audit of the remaining reserves of the Sangha Sud system; publish an allocation of gas for industrial use in the Kribi zone now that the LNG offtake has ended [E09]; clarify whether the tax on natural gas applies to gas used as a reductant [E11]; and prepare a model long-term gas sales agreement for industrial users.

G6. Publish a framework for heavy-industry power contracts. There is no regulated tariff above 10 MW [E15]. A published framework for high-voltage industrial contracts, combining a capacity charge, an energy charge and indexation, would let investors size plants and lenders assess them. Complete the 225 kV supply to the port by the end of 2026, as planned [Z43], publish how its first 100 MW will be allocated among port-platform users and the power-quality terms for arc-furnace loads, and prepare its later 330 to 400 MW stage in step with industrial demand.

G7. Sequence port and rail investments with the chain. Reserve berth and storage capacity for steel inputs and products in the planned mineral terminal's steel cluster [O31]; advance the Édéa-Kribi-Lolabé-Campo railway [Z45]; and deliver the port-platform water plant planned for early 2027 [Z44].

G8. Create a national ferrous-metallurgy programme. With ENSP Yaoundé, the Ngaoundéré mining and minerals schools and IUT Douala [K02][K03][K08], create a degree and technician track in iron and steelmaking, with industrial placements, so that the local-employment provisions of the Mining Code [O36] can be met in skilled as well as unskilled jobs.

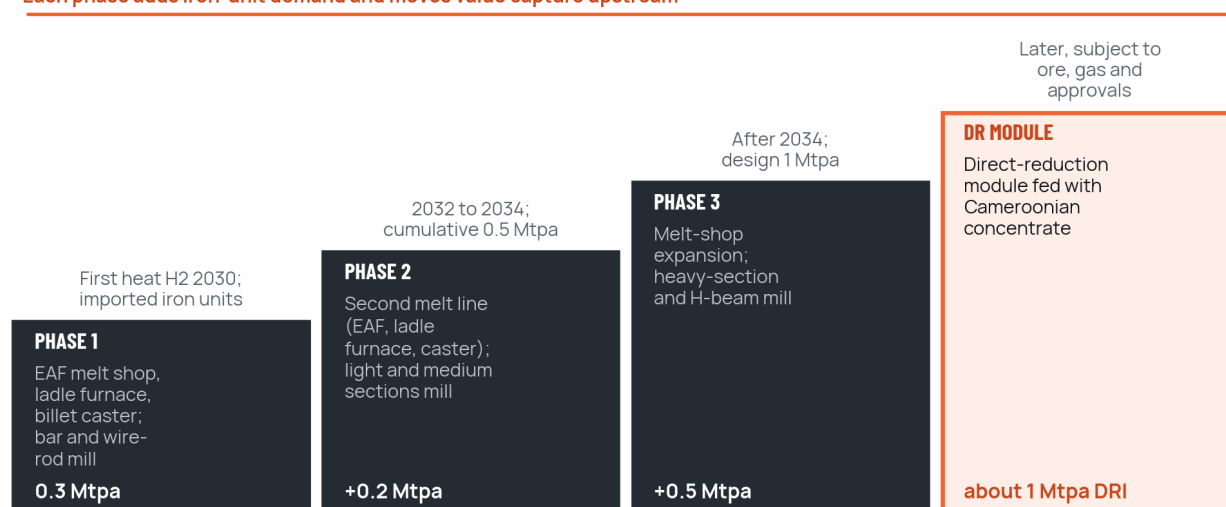
10.3 For investors, including Cameroon Steel

I1. Build the melt shop first. Begin with an electric arc furnace, ladle furnace and billet caster sized within the first 100 MW available at Kribi, as RC-1 Phase 1 does at about 36 MW average load, with an agreed allocation of that shared supply and power-quality measures for the arc furnace [F01][Z43]. The melt shop is the asset the country lacks; it should be the anchor of the first phase, with its output flexible between rolled products and merchant billets.

A chain built from the melt shop back towards the mine

RC-1.1 reference configuration: phases and reserve, finished-product capacity and timing (planned / indicative)

Each phase adds iron-unit demand and moves value capture upstream



ILLUSTRATIVE Figure 10.1. The chain is built from the melt shop back towards the mine. Each phase adds finished capacity and iron-unit demand; the fourth step, the direct-reduction module, is built only when DR-grade concentrate, gas and scale are in place.

Source: Cameroon Steel, RC-1 reference configuration [F01]; design capacity [X04]. Status: planned / indicative.

I2. Secure iron units from several sources. Contract HBI and DRI from more than one origin, organise scrap collection that brings informal collectors into a formal supply chain, and offer merchant billets to the existing re-rollers, which import about 60% of their charge as billets today [C38].

I3. Move beyond rebar on evidence of demand. Trigger the sections and heavy long-product phases when customers in Cameroon, CEMAC and wider AfCFTA markets are identified; medium and heavy sections are not produced in Cameroon and are imported today [C06], and they are not targeted by the new regional rebar mills.

I4. Prepare the DR module now, build it later. Fund pilot-scale concentration, pelletising and reduction tests on Cameroonian ore; agree with the convention holders the grade and price terms of supply under the 15% rule; evaluate whether the pellet plant should sit at the mine or at Kribi; specify hydrogen-ready direct-reduction equipment; and reserve the site and utilities, as RC-1 does [F01].

I5. Measure carbon and meet international standards from the start. Install measurement, reporting and verification for emissions that satisfies the EU's CBAM [D04], and carry out environmental and social assessment to IFC Performance Standards, so that exports and international finance remain open.

10.4 For partners

P1. Development-finance institutions: finance phase by phase. Lenders such as the AfDB, already supporting the Kribi industrial zone [Z13], and Afreximbank, already lending to Cameroonian steel [C38], can match their financing to the phases of the chain: working-capital and equipment finance for Phase 1, project finance for later phases, and guarantees for long-term gas and power contracts that the State alone cannot back.

P2. Miners: invest in grade. Convention holders can meet the 15% obligation in its most valuable form by producing DR-grade concentrate, either for a Cameroonian DR module or for export to a market expected to remain short of DR pellets until about 2030 [N02]. Co-investment in a pellet plant is a natural extension of a mine's business.

P3. Technology suppliers: bring modular, hydrogen-ready equipment and training. Direct-reduction modules from 0.25 Mtpa [T13] and electric arc furnaces suited to a high share of DRI exist and are proven in Africa (Chapter 4). Supplier training packages should be part of every contract.

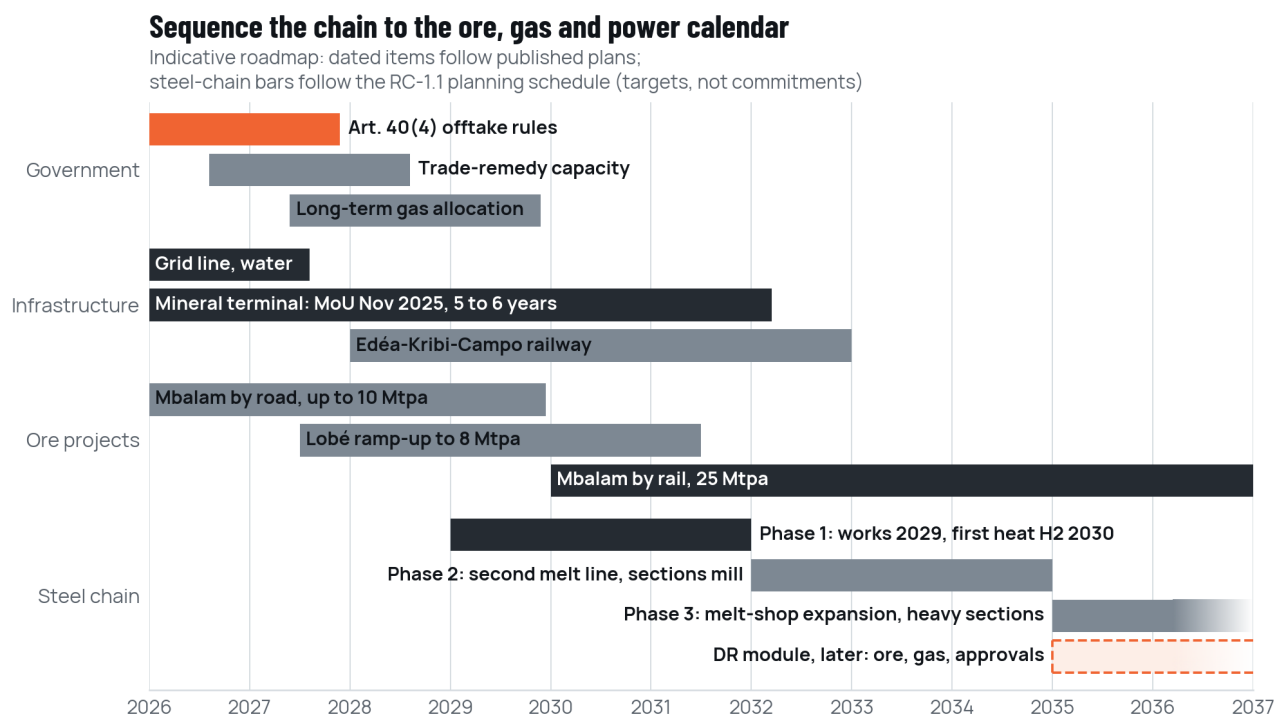
P4. Regional institutions: settle the rules of origin. CEMAC and the AfCFTA Secretariat can clarify how chapter 72 products made from imported iron units qualify for preferential treatment [P31], which will determine whether early phases of the chain can export within the continent.

Table 10.1 Recommendations at a glance

#	Recommendation	Lead	Window	Indicator of success
G1	Implementing text for art. 40(4): definition, grade, export-parity price, timing, reporting	Ministry of Mines; mines-metallurgy committee	2026 to 2027	Text adopted; first offtake contract signed on its terms
G2	Public work programme and annual 15% compliance report	Mines-metallurgy committee	2026 onwards	First report published
G3	Tariff escalation from ore to semis to finished steel; national preference for local billets	Ministry of Finance; Customs	2026 to 2028	Billet and section lines reviewed in the new tariff
G4	Trade-remedy capacity	Ministry of Trade	2026 to 2028	Investigating unit operational
G5	Gas reserve audit and industrial allocation at Kribi	Energy and mines ministries; SNH	2026 to 2028	Audit published; allocation decided
G6	Framework for power contracts above 10 MW; 225 kV supply delivered	Ministry of Water and Energy; regulator	2026 to 2027	Framework published; 100 MW available at the port; steelworks allocation agreed
G7	Berth in the steel cluster; Édéa-Kribi rail; water plant	Port authority; KPIZ; Ministry of Transport	2026 to 2032	Berth allocated; rail financing closed
G8	National ferrous-metallurgy programme	Higher education; universities; industry	2027 onwards	First cohort enrolled
I1	Melt shop first, within the first 100 MW	Investors	Phase 1: works from 2029; first heat targeted H2 2030	Billets cast in Cameroon
I2	Multi-source iron units; scrap collection; merchant billets	Investors	Phase 1 onwards	Contracts with at least two origins
I3	Sections on evidence of demand	Investors	Phase 2, indicatively 2032 to 2034; Phase 3 after 2034	Offtake agreements before investment
I4	Prepare the DR module: pilot tests, grade terms, pellet-plant siting	Investors; miners	Now to 2034; module indicative after 2034	Pilot results; signed grade and price terms
I5	CBAM-grade emissions measurement; IFC-standard ESIA	Investors	Phase 1 onwards	Verified emissions report
P1	Phase-by-phase finance; guarantees for gas and power contracts	DFIs	Each phase	Financing closed for each phase
P2	DR-grade concentrate and pellet co-investment	Miners	2027 onwards	DR-grade product made at pilot scale
P3	Modular, hydrogen-ready equipment; training	Technology suppliers	Each phase	Training hours delivered

#	Recommendation	Lead	Window	Indicator of success
P4	Rules of origin for chapter 72 under AfCFTA	CEMAC; AfCFTA Secretariat	2026 to 2028	Published rules

Source: Cameroon Steel. Windows are indicative and follow the published calendars of the ore, power and port projects and the RC-1.1 planning schedule [F01].



ILLUSTRATIVE Figure 10.2. Sequence the chain to the ore, gas and power calendar. Dated items follow published plans; the steel-chain bars follow the RC-1.1 planning schedule: Phase 1 works from 2029, first heat targeted in the second half of 2030 and ramp-up in 2031; Phase 2 (second melt line and light/medium sections mill) indicatively 2032 to 2034; Phase 3 (melt-shop expansion and heavy-section mill) after 2034; the direct-reduction (DR) module later, subject to ore, gas and approvals. The mineral terminal is shown completed within five to six years of March 2026. Targets and indicative windows, not commitments.

Source: Cameroon Steel; Mbalam export plan [O25]; Lobé ramp-up [O35]; Kribi 225 kV line and water plant [Z43], [Z44]; mineral terminal [O31]; rail MoU [Z45]; DR-pellet market outlook [N02]; RC-1.1 phases and schedule [F01]. Status: illustrative.

10.5 How the recommendations answer the lessons of other producers

Each recommendation responds to one of the seven lessons drawn in Chapter 4, and it is worth making the link explicit, because the same mistakes recur across countries.

- Match the route to the energy. G5 and G6 secure gas and power for a DRI-EAF route, the one that fits Cameroon's gas field and hydro-based grid, rather than a coal-based route the country cannot supply.
- Secure the feed before the furnace. G1, I2, I4 and P2 make sure that each phase has its iron units before it is built: imported and local scrap and HBI for the melt shop, DR-grade concentrate contracted under the 15% rule for the DR module.
- Build in modules. I1, I3 and P1 tie each investment and each financing to a phase, avoiding the single oversized commitment that failed at Ajaokuta.
- Start where the import bill is. I1 targets billets, the largest import, and I3 sections, the next gap among long products.
- Protect intelligently and temporarily. G3 and G4 replace a ban on the most saturated product with tariffs that escalate along the chain and with targeted trade remedies, as Egypt and Vietnam use.

- Bring in anchor partners. P1 and P3 bring finance and proven technology; P2 brings the miners, whose ore is the chain's ultimate source of value.
- Put the plant at the port. G7 sequences berth, rail and water at Kribi with the phases of the chain.

Two cross-cutting points complete the picture. First, coordination matters more than any single instrument: the ore projects, the gas allocation, the power supply and the port terminals are under different ministries and companies, and the mines-metallurgy committee (G2) is the natural place to align them. Second, transparency is itself an industrial policy. Publishing the terms of local supply under the 15% rule, the compliance reports and the gas allocation would reduce the risk premium that lenders apply to Cameroonian projects, in a country whose EITI status is suspended [O52] and whose fiscal room is limited [P32].

10.6 What success would look like by the mid-2030s

If these recommendations are followed, the Cameroonian steel chain in the mid-2030s would look different from today's in four measurable ways:

- **billets cast in Cameroon** would replace a large part of the 161 kt imported in 2023 [C06] in the re-rollers' charge, and the leading re-rollers would no longer need to borrow hard currency to import them;
- **medium and heavy sections** would be made locally and exported within CEMAC, rather than imported;
- **a DR-grade concentrate** from Cameroonian ore would have been produced at pilot scale, its supply under the 15% rule contracted on transparent terms, and a decision on a direct-reduction module taken on evidence;
- **the share of the gross price build-up of a tonne of rebar occurring in Cameroon** would have moved from about one-fifth towards one-third, with a clear path to most of it (Chapter 8).

None of these outcomes requires a large public subsidy. They require rules, contracts and sequencing, which are within the State's and the industry's control.

THE 15% RULE SHOULD BE JUDGED BY THE IRON IT CREATES, NOT BY THE ORE IT RESERVES.

Chapter 10

FINDING

The most valuable single step is an implementing text for article 40(4) that defines transformation by depth, prices local supply at export parity and links the obligation to DR-grade concentrate. Combined with a melt shop at Kribi, a gas allocation and a power-contract framework, it would put Cameroon on a credible path from exporting ore to exporting steel.

CHAPTER 11

EVIDENCE GAPS: WHAT IS NOT YET KNOWN AND HOW IT WILL BE RESOLVED

The conclusions of this paper rest on public evidence that is good on ore reserves, trade flows, prices and policy, and thin on five points: whether Cameroonian ore can make DR-grade feed at industrial scale, how much gas remains for industry at Kribi, what heavy-industry power will cost and how the shared supply at the port will be allocated, what terms will govern supply under the 15% rule, and on what terms the first phase can secure its imported iron units. This chapter lists the gaps, explains why each matters and sets out how it can be closed.

11.1 Why an evidence register matters

A public white paper is only as credible as its weakest number. Throughout this paper, figures that could not be traced to a published source or to Cameroon Steel's reference configuration were left out, and figures that rest on company statements, snippets or dated studies were labelled as such. Some questions, however, cannot be answered from public sources today. Most of them concern the later phases; five (E6, E8, E10, E11 and E18) must be answered before Phase 1. Table 11.1 sets them out, with the party best placed to close each one and a target date.

Table 11.1 Evidence register: open questions, their importance, how they can be resolved, by whom and when

#	What is not known	Why it matters	How it can be resolved	Who	When (target)	Needed before
E1	Whether Mbalam itabirite or Lobé magnetite can yield DR-grade concentrate at industrial scale; the only result is 2014 testwork [O04]	Decides whether the DR module can use Cameroonian ore	Pilot-scale grinding, flotation or magnetic separation, pelletising and reduction tests; independent laboratory	Convention holders with Cameroon Steel; independent laboratory	2027 to 2030	DR module
E2	A certified resource and mine plan for the ore dedicated to local supply	Lenders need code-compliant reserves for the feed of a DR module	JORC or NI 43-101 statement for the relevant itabirite or magnetite blocks	Convention holders; Ministry of Mines	2028 to 2032	DR module
E3	The DR-grade pellet premium and delivered pellet prices; not publicly reported [N16]	Sets the cost of imported pellets and the value of local concentrate	Indicative offers from pellet producers; subscription price data	Cameroon Steel	At each feasibility update	DR module
E4	Remaining certified gas reserves at Sanaga Sud and their decline profile [E02]	Decides whether a 1 Mtpa DR module can be supplied for its life	Independent reserve audit; SNH and operator data	SNH; Ministry of Mines; field operator	2026 to 2028	DR module
E5	Whether the tax on natural gas applies to gas used as a reductant [E11]	Changes the gas cost per tonne of DRI	Ruling from the tax administration	Tax administration	2027	DR module

#	What is not known	Why it matters	How it can be resolved	Who	When (target)	Needed before
E6	Power tariff and terms for loads above 10 MW at Kribi [E15]; the allocation of the first 100 MW, which serves the whole port platform, to the steelworks; power-quality measures for the arc furnace (static VAR compensation, short-circuit capacity)	Determines the operating cost and the connection of every phase	Published framework or negotiated term sheet; allocation agreed with the grid operator; connection study	Ministry of Water and Energy; regulator; grid operator; Cameroon Steel	2027 to 2028, before financing	Phase 1
E7	Timing of the later 330 to 400 MW stage of the Kribi substation [Z43]	Gates the full chain and the DR module	Utility and port investment plan	Ministry of Water and Energy; grid operator; port authority	2028 to 2030	Phases 2 and 3
E8	Current national scrap arising; the only study uses 2006 data [C42]; RC-1.1 assumes about 30 kt/yr for the works (0 to 60) [F01]	Sizes the domestic share of the melt-shop charge	New survey of arising, collection and prices	Ministry of Mines; industry body	2027	Phase 1
E9	Cameroon's import detail for 2024 and 2025 by six-digit HS line; not yet reported to UN Comtrade [C06]	Updates the billet, section and flat-product gaps	Customs data from the DGD or INS	Customs (DGD); INS	2027	Phases 2 and 3
E10	Douala and Yaoundé steel prices for 2024 to 2026, and the current homologated list [C44]	Updates the domestic price premium and margin estimates	Ministry of Commerce lists; market survey	Ministry of Commerce	2027	Phase 1
E11	Steel-line rates in the new CEEAC-CEMAC tariff [P23]; AfCFTA rules of origin for chapter 72 [P31]	Decides protection levels and export eligibility	Customs notices; AfCFTA e-tariff book	Customs; CEMAC; AfCFTA Secretariat	2026 to 2027	Phase 1
E12	Terms of the 15% clauses in the Mbalam and Lobé conventions [O17][O33]	Decides grade, price and timing of local supply	Publication of terms; implementing text for art. 40(4)	Ministry of Mines; convention holders	2027, with the implementing text	DR module
E13	Start date of Mbalam exports and of its rail phase; status after May 2026 [O28]	Sets the earliest date for local ore at scale	Company and ministry reporting	Mbalam convention holder; Ministry of Mines	Continuous reporting	DR module
E14	Status of Bipindi-Grand Zambi exports after mid-2025 [O38]	A possible early source of concentrate near Kribi	Company and port reporting	Project holder; port authority	Continuous reporting	DR module
E15	Capacity and timing of the Kribi mineral terminal: MoU of 4 November 2025, completion expected within five to six years of March 2026 [O31][Z4]	Bulk handling for pellets, concentrate and HBI	Project structuring documents	Port authority; terminal consortium	2026 to 2027 (structuring)	DR module
E16	Capital costs for DR modules, pellet plants and section mills in Africa	Determines bankability; deliberately not estimated in this paper	Supplier quotations; feasibility studies	Cameroon Steel; suppliers	At each feasibility study	Each phase
E17	Final 2026 census population [C14]	Changes per-capita steel use by up to a third	INS publication of final results	INS	2027	Context only
E18	Contracted supply and delivered cost of imported HBI or DRI and scrap for Phase 1; only about 10.8 Mt of DRI was traded worldwide in 2025 [T13]	Sets the cost and security of Phase 1's charge, which is mostly imported	Indicative offers and supply agreements with several origins; delivered-cost model to Kribi	Cameroon Steel	2027 to 2028, during front-end engineering	Phase 1

Source: Cameroon Steel. Sources in square brackets point to the latest public evidence on each question. Target dates are Cameroon Steel's planning targets, tied to the RC-1.1 schedule; dates for public bodies are proposals, not their commitments.

11.2 The five gaps that matter most

Grade (E1, E2). Everything about local ironmaking depends on whether Cameroonian ore can be upgraded economically to about 67.5% Fe with low silica and alumina. The 2014 testwork result of 68% Fe with 1.8% silica and 0.2% alumina [O04] is encouraging but is a laboratory result on a limited sample. A pilot programme should test representative samples from the blocks that would supply local transformation, through every step from grinding to reduction. Its results would decide whether the conventional gas-DRI route is open, or whether the smelter route described in Chapter 2 is the realistic option.

Gas (E4, E5). The departure of the LNG vessel in July 2026 [E09] makes gas available in principle, but the reserves behind it are not publicly certified, and about 600 bcf were developed for the vessel and are in natural decline [E02]. A DR module of 1 Mtpa would need 8.4 to 9.1 bcf a year for perhaps twenty years or more. Without an audit, no lender will finance it.

Power (E6, E7). The first phase can be designed within the initial 100 MW of the Kribi supply, but that supply serves the whole port platform and no allocation to the steelworks has been agreed; the arc furnace also needs power-quality measures at the connection. Its operating cost depends on a high-voltage contract whose framework does not yet exist, and the later phases depend on the timing of the 330 to 400 MW stage of the substation.

Offtake terms (E12). The 15% rule is the legal hook for local ironmaking, but the terms of the clauses in the existing conventions are not public and the Mining Code has not yet been complemented by an implementing text. Until grade, price and timing are known, the value of the rule to a local processor cannot be assessed.

Iron units for Phase 1 (E8, E18). The first phase does not depend on Cameroonian ore, but it does depend on iron units. RC-1.1 assumes only about 30 kt/yr of domestic scrap, within a range of 0 to 60 kt/yr bounded by the 2006 national study [C42][F01]; the rest of a charge of about 0.36 Mtpa must be imported as scrap, DRI or HBI, in a world market where about 10.8 Mt of DRI was traded in 2025 [T13]. Supply agreements with several origins and a delivered-cost model to Kribi are needed before the first phase is financed.

11.3 How these gaps will be closed

Cameroon Steel intends to address the gaps within its control as part of the feasibility work for each phase and to publish what it can in later editions of this series. Several gaps lie with public bodies and convention holders: the gas audit, the power framework, the tariff lines, the rules of origin and the publication of convention terms. Chapter 10 recommends that the Prime Minister's mines-metallurgy committee coordinate them, because they cut across ministries and companies.

Three principles will govern updates of this paper:

1. **Every new figure will carry its source and date**, and figures that change will be shown with their previous value.
2. **Company and official statements will remain labelled** as such until they are supported by code-compliant estimates or published data.
3. **Project figures will remain labelled planned or indicative** until they are confirmed by engineering and financing decisions.

WHAT WOULD CHANGE THE CONCLUSIONS

The central conclusion, that Cameroon's value gap is in ironmaking rather than rolling, rests on trade, capacity and price data that are well documented and robust to the price cases tested in Chapter 8. What could change is the route and timing of the later phases: a negative pilot result on grade would shift the chain towards the smelter route or imported pellets; a negative gas audit would shift it towards imported HBI and, later, hydrogen; a fast Mbalam rail phase would bring the DR module forward. The phased design is meant to absorb exactly these surprises.

STATUS OF THIS REGISTER

This register reflects public evidence available on 10 October 2026. It will be updated in each new edition of the paper, with closed items moved to the method annex and new questions added as the chain progresses.

ANNEX A

METHOD, ASSUMPTIONS AND CONVENTIONS

This annex explains how the figures in this paper were compiled and derived, lists every assumption with its range, and sets out the conventions used for units, currencies and status labels.

A.1 Scope, cut-off and sources

The paper covers the iron and steel value chain in Cameroon, from iron-ore deposits to finished long products, with comparisons to other producers. The data cut-off is 10 October 2026. Evidence was compiled from three bodies of research prepared for the Cameroon Steel white-paper series (market and technology, environment and society, and the Kribi port and zone), from Cameroon Steel's reference configuration RC-1, and from additional public sources consulted in October 2026. Every source cited is listed in Annex C with its title, publisher, date and address. Documents of the Kribi port authority are cited by title and date without a web address.

Where sources disagreed, the paper used the most authoritative and recent value and named it: code-compliant reserve statements over company or ministerial statements; national statistics over press reports; the latest vintage of international data series. Figures that could not be traced to a source were not printed.

A.2 Status labels

Every exhibit carries a status chip, and figures in the text use the same vocabulary:

- **Sourced:** read directly from a cited source.
- **Derived:** arithmetic by Cameroon Steel on sourced inputs, with the method and assumptions given in this annex.
- **Assumed:** a planning assumption with a stated range, not read from a source (for example RC-1.1's domestic scrap of about 30 kt/yr).
- **Illustrative:** a calculation designed to show an order of magnitude or a structure, using simplified assumptions; not a forecast.
- **Planned / indicative:** a figure from Cameroon Steel's reference configuration RC-1. These are engineering planning values based on international benchmarks, not commitments, and will change with detailed design.

A.3 Mass balance of the ore-to-steel chain

The mass flow of Figure 6.1 and the value calculations of Chapter 8 use the following parameters. Central values are used in the text; ranges indicate plausible variation.

Table A.1 Mass-balance parameters

Parameter	Central value	Range	Basis
Rolling yield, billet to finished product	0.96	0.95 to 0.97	Assumed; with the caster yield, reproduces RC-1's combined casting and rolling yield of 0.94 [F01]
Caster yield, liquid steel to billet	0.98	0.97 to 0.99	Assumed (as above)
Metallic yield, metallic charge to liquid steel	0.88	0.85 to 0.91	RC-1 planning value [F01]

Parameter	Central value	Range	Basis
DR pellets per tonne of DRI	1.45	1.40 to 1.50	IIMA planning ratio [N01]
Concentrate per tonne of pellets	1.0	0.97 to 1.0	Assumed; binder and flux additions offset losses on induration
Concentrate mass yield from itabirite	0.45	0.45 to 0.48	Mbalam testwork: 45% for DR grade, 48% for BF grade [O04]
Natural gas per tonne of DRI	10 GJ	9.2 to 10 GJ	Shaft-furnace references [T09][T10]
Electricity per tonne of DRI (DR plant)	73 kWh	60 to 80 kWh	Supplier reference [T09]
Extra EAF electricity per 10 points of DRI in the charge	14.5 kWh/t	n/a	Supplier reference [T09]

Source: as shown.

With these values, one tonne of finished long product requires $1/0.96 = 1.042$ t of billets; $1.042/0.98 = 1.063$ t of liquid steel; $1.063/0.88 = 1.208$ t of metallic charge; and, for an all-DRI charge, $1.208 \times 1.45 = 1.751$ t of pellets, about the same tonnage of concentrate, and $1.751/0.45 = 3.89$ t of itabirite. A DRI module of 1 Mtpa therefore needs about 1.45 Mtpa of pellets and about 3.2 Mtpa of itabirite, and its DRI supports about $1/1.208 = 0.83$ Mtpa of finished product.

Gas for a DR module. At 9.2 to 10 GJ per tonne of DRI, a 1 Mtpa module needs 9.2 to 10 PJ a year. At about 1.094 GJ per thousand standard cubic feet (Mscf), that is 8.4 to 9.1 million Mscf, or 8.4 to 9.1 bcf a year, about 11 to 12% of Cameroon's 2025 production of 75.5 bcf [E04]. At 10 GJ per tonne, the gas per tonne of DRI is about 9.1 Mscf, which costs about US\$29 at the 2025 price paid by the Kribi power plant (about US\$3.2/Mscf) and about US\$51 at the 2025 price paid by an industrial buyer (about US\$5.6/Mscf) [E04].

Electricity with a DR module. RC-1's full-capacity average load of about 94 MW uses the EAF planning value of 450 kWh per tonne of liquid steel [F01]. With 30% DRI or HBI in the charge, the upper planning value is about 490 kWh/t (about 14.5 kWh/t more for each 10 points of DRI [T09]), which adds about 43 GWh a year at full capacity, about 5 MW on average (about 1.5 MW in Phase 1, taking its average load to about 38 MW). Adding a 1 Mtpa DR plant at about 73 kWh per tonne adds about 73 GWh a year, or about 9 MW on average; raising the DRI share of the charge from 30% to 100% adds about $7 \times 14.5 = 102$ kWh per tonne of liquid steel, or about 108 GWh a year for 1.06 Mt of liquid steel, about 13.5 MW on average [T09]. Every average load in this paper is annual energy divided by 8,000 operating hours. With pellet handling and auxiliaries, the full chain's average load is estimated at about 115 to 130 MW. An arc furnace offers schedulable load, since melts can be timed around system peaks, not interruptible load. These are averages; the peak demand of an electric arc furnace is higher and must be met by the grid connection.

A.4 Value-capture calculation

For each step, the value embodied in one tonne of finished rebar is the requirement of that step's iron-bearing product (tonnes per tonne of rebar) multiplied by its price (US\$/t). The increment of a step is the value embodied at that step minus the value embodied at the step before; it is a gross price spread, not value added. Requirements are 1.751 t of pellets (valued at the ore price), 1.208 t of iron units, 1.042 t of billets and 1 t of rebar.

Table A.2 Price cases used in Chapter 8 (US\$/t)

Input	Central case	Low iron-unit case	High billet case	Source
Ore (62% Fe index, used for pellets)	100	97	100	[G31][G34]
Iron units (HBI)	370	330	370	[N03]
Billets	467.5	467.5	520	[G34]
Rebar	625	625	625	[G34]

Source: as shown.

The share of the gross price build-up occurring in Cameroon under each configuration is the sum of the step increments carried out in Cameroon divided by the rebar price: rolling only for today's re-rollers; rolling and melting for a melt shop on imported iron units; rolling, melting and reduction for direct reduction on imported pellets (before deducting any pellet premium, which would accrue abroad); and all steps for a chain using Cameroonian DR-grade ore. Figure ES.1 shows the central case, with whiskers spanning the three price cases: 13 to 22% today, 28 to 36% with a melt shop, 72 to 73% with direct reduction on imported pellets. None of these shares deducts imported consumables, imported services or the capital charge of foreign-financed plant.

Value per tonne of concentrate is the value embodied at each step divided by the concentrate requirement: US\$370/1.45 for DRI, US\$487/1.751 for billets and US\$625/1.751 for rebar.

Limitations. The prices refer to different products, places and dates between 2025 and October 2026; the ore is valued at the 62% Fe index although DR-grade pellets carry an unpublished premium; capital, operating and financing costs are ignored; and international rather than regulated Cameroonian prices are used. The results describe where market value sits in the chain, not the revenue or margin of any plant.

A.5 RC-1 reference configuration

RC-1 is Cameroon Steel's planning configuration for a phased electric-arc-furnace long-products steelworks at Kribi. Its phases, capacities and utility needs are derived from capacities stated in project studies and from international benchmarks applied in a simple model maintained by Cameroon Steel [F01]. The benchmarks are listed below so that readers can reproduce the indicative loads and intensities.

Table A.3 RC-1 benchmarks (planned / indicative)

Parameter	Value	Range	Basis
EAF electricity	450 kWh/t liquid steel; about 490 with 30% DRI or HBI (upper planning value)	347 to 500	IFC EHS Guidelines for integrated steel mills (2007) [F01]; +14.5 kWh/t per 10 points of DRI [T09]
Rolling electricity	110 kWh/t product	70 to 140	IFC EHS Guidelines (2007) [F01]
Auxiliaries (ladle furnace, caster, oxygen, water, air)	70 kWh/t liquid steel	50 to 100	Assumed [F01]
Induction billet heating, Phase 1 line	300 kWh/t of billet, applied to the tonnage rolled	150 to 400	Assumed [F01]
Operating basis for average loads	8,000 hours a year	n/a	Assumed [F01]
Reheating fuel (Phases 2 and 3)	1.3 GJ/t product	1.1 to 1.6	Assumed [F01]
Water make-up	2.0 m ³ /t product	1.5 to 3.0	Closed-loop target [F01]
Grid emission factor	226 g CO ₂ /kWh	200 to 300	Cameroon grid, 2024 average [E56]; kept as a conservative planning value [F01]
Direct (Scope 1) emissions of the melt shop	0.10 tCO ₂ /t liquid steel	0.06 to 0.15	Assumed [F01]
Upstream emissions of imported DRI or HBI	0.7 tCO ₂ /t	0.5 to 0.9	Assumed [F01]

Parameter	Value	Range	Basis
Share of DRI or HBI in the charge	30%	20 to 50%	Assumed planning value [F01]
Direct jobs, Phase 1	500	450 to 550	Project studies [F01]
Direct jobs, full capacity	1,100	900 to 1,300	Scaled from Phase 1 [F01]
Phase 1 output	0.3 Mtpa nameplate; 270 to 300 kt/yr sustained	250 to 300 kt nameplate	One furnace of the 40 t class at 90 to 100% of nameplate (285 kt at 95%) [F01]
Domestic scrap available to the works	about 30 kt/yr	0 to 60 kt/yr	Assumed; bounded by the only national study, 53,000 to 61,833 t/yr in 2006 [C42][F01]
Port inbound, Phase 1	about 351 kt/yr	n/a	Imported metallics and about 6% consumables [F01]
Schedule	Phase 1 works from Q1 2029; first heat H2 2030; ramp-up 2031	Phase 2: 2032 to 2034; Phase 3: after 2034; DR module later, subject to ore, gas and approvals	Targets and indicative windows [F01]

Source: Cameroon Steel reference configuration RC-1 (planning estimate), edition RC-1.1, 10 October 2026 [F01].

Worked example, Phase 1. Electricity: $0.319 \text{ Mt of liquid steel} (0.3 \text{ Mt} \div 0.94) \times (450 + 70) \text{ kWh/t} + 0.3 \text{ Mt rolled} \times (110 + 300) \text{ kWh/t} = 289 \text{ GWh a year}$; divided by 8,000 operating hours, that is an average load of about 36 MW. Emissions: $289 \text{ GWh} \times 226 \text{ g/kWh} + 0.319 \text{ Mt} \times 0.10 \text{ t} = \text{about } 97 \text{ kt of CO}_2 \text{ a year}$, or about 0.32 t per tonne of finished steel; adding 0.109 Mt of imported DRI or HBI (30% of a metallic charge of 0.363 Mt) $\times 0.7 \text{ t} = 76 \text{ kt}$ gives about 0.58 t per tonne.

RC-1 does not include, and this paper does not state, investment amounts or financial returns for the project.

A.6 Risk ratings

Risks in Chapter 9 were rated on a three-point scale for likelihood over the next decade and for impact on the chain. Ratings are analyst judgements informed by the evidence cited for each risk, not probabilities. A risk is critical when both ratings are high.

A.7 Units, currencies and conventions

- **Tonnes** are metric (1 t = 1,000 kg). kt: thousand tonnes; Mt: million tonnes; Mtpa: million tonnes a year; dmt: dry metric tonne. 1 short ton = 0.907 t.
- **Gas:** 1 Mscf = one thousand standard cubic feet, about 28.3 m³ and about 1.094 GJ; bcf = billion cubic feet; Tcf = trillion cubic feet; 1 Gcal = 4.1868 GJ.
- **Currencies:** the CFA franc (FCFA) is pegged at 655.957 FCFA per euro. US dollar conversions of market figures use the market rate of the period of the source and are approximate (SNH used rates from 624.9 to 561.0 FCFA per dollar during 2025 [E04]; the 2026 to 2030 iron-ore programme is converted at about 565). Project figures use RC-1's planning rate of 600 FCFA per dollar, with a range of 560 to 650 [F01]; at that rate, the dollar equivalents of FCFA market figures in this paper would move by about 5%.
- **Prices** are in nominal US dollars per tonne on the basis stated (FOB, CFR) and dated.
- **Rebar mass:** a 12 mm bar weighs 0.888 kg per metre, or about 10.66 kg per 12 m bar.
- **Apparent steel use** is production plus imports minus exports of finished steel, as defined by worldsteel [G05]. Cameroon's per-capita figure is derived from the industry estimate of apparent use and population estimates.
- **HS codes:** chapter 72 covers iron and steel; chapter 73 articles of iron and steel. Four- and six-digit lines are cited where relevant (7207 billets, 7213 wire rod, 7214 rebar and bars, 7216 sections).
- **Typography:** ranges are written with "to"; compound place names are joined by hyphens (for example Mbalam-Nabeba).

ANNEX B

GLOSSARY AND ABBREVIATIONS

Terms are defined as they are used in this paper. Abbreviations of institutions follow their usual form in Cameroon, in French where that is the common usage.

Term	Meaning
AfCFTA	African Continental Free Trade Area, the continental trade agreement ratified by Cameroon in 2020
AfDB	African Development Bank
Agglomeration	Turning fine ore or concentrate into lumps a furnace can use, mainly by pelletising or sintering
Alumina (Al ₂ O ₃)	Aluminium oxide, an impurity in iron ore that forms part of the gangue
ANOR	Agence des Normes et de la Qualité, Cameroon's standards and quality agency
Apparent steel use	Production plus imports minus exports of finished steel products
ARSEL	Agence de Régulation du Secteur de l'Électricité, the electricity regulator
BEAC	Banque des États de l'Afrique Centrale, the central bank of the CEMAC countries
BF	Blast furnace: a shaft furnace that melts iron-bearing materials with coke to make liquid pig iron
BF-BOF	The integrated route: blast furnace followed by a basic oxygen furnace
Billet	A semi-finished steel product of square section, cast from liquid steel and rolled into long products
CBAM	Carbon Border Adjustment Mechanism of the European Union, charging for emissions embedded in imports
CEEAC	Communauté Économique des États de l'Afrique Centrale (Economic Community of Central African States)
CEMAC	Communauté Économique et Monétaire de l'Afrique Centrale (Central African Economic and Monetary Community)
CET	Common external tariff
CFR	Cost and freight: a price that includes sea freight to the destination port
Chapter 72, chapter 73	Harmonised System chapters for iron and steel (72) and articles of iron and steel (73)
CMC	Cameroon Mining Company, holder of the Mbalam exploitation permit
Concentrate	Ore that has been ground and upgraded to a higher iron content by removing gangue
Continuous caster	Equipment that solidifies liquid steel into billets, blooms or slabs
DFI	Development-finance institution
DR grade	Iron ore or pellets pure enough for gas-based direct reduction; assessed on a basis of 67.5% Fe, 1.5% silica and 0.5% alumina
DRI	Direct-reduced iron: iron ore reduced in the solid state by a gas, also called sponge iron
DSO	Direct-shipping ore: ore rich enough to be sold after crushing and screening only
EAF	Electric arc furnace: a furnace that melts scrap, DRI or HBI with electricity
EITI	Extractive Industries Transparency Initiative
ESF	Electric smelting furnace: a furnace that melts DRI and separates gangue as slag before steelmaking
Export parity	The price a local buyer would pay to match what the seller earns by exporting, net of freight and port costs
FCFA	CFA franc of Central Africa, pegged to the euro at 655.957 FCFA per euro
Fe	Iron; ore grades are expressed as per cent of iron by weight
FOB	Free on board: a price at the exporting port, excluding sea freight
Gangue	The non-iron minerals in ore, mainly silica and alumina
Gated	Said of an investment that is made only once stated conditions are met; in this paper, the direct-reduction module, which RC-1 holds in reserve

Term	Meaning
H-beam	A heavy steel section with an H-shaped profile, used in structures
HBI	Hot-briquetted iron: DRI compacted while hot into dense briquettes that can be shipped safely
HS	Harmonised System of tariff nomenclature
IIMA	International Iron Metallurgy Association
INS	Institut National de la Statistique, Cameroon's national statistics institute
Iron units	The iron-bearing charge of a steel furnace: scrap, DRI, HBI or pig iron
Itabirite	A banded iron formation of iron oxide and quartz, typically 30 to 40% Fe, which must be concentrated
JORC	The Australasian code for reporting mineral resources and ore reserves
KPDC	Kribi Power Development Corporation, operator of the Kribi gas power plant
KPIZ	Kribi Port Industrial Zone S.A., the company that develops and manages the Kribi integrated industrial zone
Ladle furnace	Equipment that reheats and refines liquid steel in the ladle before casting
LNG	Liquefied natural gas
Long products	Rebar, wire rod, merchant bars and sections, rolled from billets or blooms
Melt shop	The part of a steelworks that melts iron units and casts liquid steel
Merchant billet	A billet sold to another company for rolling, rather than rolled by the steelworks that cast it
Mscf, bcf, Tcf	Thousand, billion and trillion standard cubic feet of gas
Mtpa	Million tonnes per annum (a year)
NI 43-101	Canadian standard for disclosure of mineral projects
PAK	Port Autonome de Kribi, the Kribi port authority
Pellet	A hardened ball of iron-ore concentrate used as furnace feed
Phase	One of the three investment phases of RC-1: Phase 1 (melt shop, bar and wire-rod mill, 0.3 Mtpa), Phase 2 (second melt line and light and medium sections mill), Phase 3 (melt-shop expansion and heavy-section mill, to 1 Mtpa); the direct-reduction module is held in reserve
RC-1	Cameroon Steel's reference configuration, a planning basis for the phased steelworks at Kribi
Rebar	Reinforcing bar for concrete
Shaft furnace	A vertical reactor in which ore pellets descend against a rising reducing gas to make DRI
Silica (SiO ₂)	Silicon dioxide, the main gangue mineral in iron ore
SND30	Stratégie Nationale de Développement 2020-2030, Cameroon's national development strategy
SNH	Société Nationale des Hydrocarbures, the national hydrocarbons company
Static VAR compensation	Fast reactive-power equipment that limits the voltage flicker an arc furnace causes on the grid
Wire rod	A hot-rolled long product of small round section, coiled, used for wire and mesh

ANNEX C

SOURCES

Every source cited in this paper is listed below with its identifier, title, publisher, date and address. Identifiers are those used in the square-bracket markers of the text and exhibits. Web sources were accessed in October 2026 unless another date is shown. Documents of the Kribi port authority are cited by title and date without a web address. Company and ministerial statements are cited as such and are not code-compliant resource estimates. One press report that names an importer in connection with a customs seizure is listed without its headline or address [C20].

C.1 Global steel, prices, technology and carbon

Table C.1 Global steel, prices, technology and carbon: sources cited

ID	Title	Publisher	Date	Address
D01	Carbon Border Adjustment Mechanism	European Commission (DG TAXUD)	n.d.	https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en
D02	EU adopts CBAM Omnibus Regulation	EY	22 Oct 2025	https://www.ey.com/en_gl/technical/tax-alerts/eu-adopts-cbam-omnibus-regulation
D04	CBAM legislation and guidance	European Commission	n.d.	https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/cbam-legislation-and-guidance_en
D05	Price of CBAM certificates	European Commission	5 Oct 2026 (latest)	https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism/price-cbam-certificates_en
D07	Directive (EU) 2023/959 (EU ETS revision)	EUR-Lex (OJ L 130)	16 May 2023	https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023L0959
D08	Regulation (EU) 2023/956 (CBAM), Annex I	EUR-Lex (OJ L 130)	16 May 2023	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0956
D10	Check if you'll need to register for CBAM; Prepare for CBAM	HMRC / GOV.UK	upd. Jul-Sep 2026	https://www.gov.uk/government/collections/carbon-border-adjustment-mechanism
D12	15 Insights on the Global Steel Transformation	Agora Industry	15 Jun 2023	https://www.agora-industry.org/publications/15-insights-on-the-global-steel-transformation
D14	Global Gateway: Namibia becomes pioneer for Africa's green transition	European Commission (INTPA)	11 Apr 2025	https://international-partnerships.ec.europa.eu/news-and-events/news/global-gateway-namibia-becomes-pioneer-africas-green-transition-2025-04-11_en
G01	December 2025 crude steel production and 2025 global totals	worldsteel	23 Jan 2026	https://worldsteel.org/media/press-releases/2026/december-2025-crude-steel-production-2025-global-crude-steel-production/
G04	August 2026 crude steel production	worldsteel	24 Sep 2026	https://worldsteel.org/media/press-releases/2026/august-2026-crude-steel-production/

ID	Title	Publisher	Date	Address
G05	World Steel in Figures 2026 (page and PDF)	worldsteel	4 Jun 2026	https://worldsteel.org/data/world-steel-in-figures/world-steel-in-figures-2026/
G06	World Steel in Figures 2025	worldsteel	Jun 2025	https://worldsteel.org/data/world-steel-in-figures/world-steel-in-figures-2025/
G09	worldsteel Short Range Outlook April 2026 (release + Table 1)	worldsteel	14 Apr 2026	https://worldsteel.org/media/press-releases/2026/worldsteel-short-range-outlook-april-2026/
G16	OECD: global steel excess capacity set to reach 745 million mt by 2028	EUROMETAL (Platts)	5 Jun 2026	https://eurometal.net/oecd-global-steel-excess-capacity-set-to-reach-745-million-mt-by-2028/
G18	Pedal to the Metal 2026	Global Energy Monitor	May 2026	https://globalenergymonitor.org/sites/default/files/2026-05/Pedal%20to%20the%20Metal%202026.pdf
G19	China increased steel exports by 7.5% y/y in 2025	GMK Center	14 Jan 2026	https://gmk.center/en/news/china-increased-steel-exports-by-7-5-y-y-in-2025/
G20	China's rapidly growing steel exports will lose momentum from 2026 onwards	GMK Center	24 Dec 2025	https://gmk.center/en/infographic/china-s-rapidly-growing-steel-exports-will-lose-momentum-from-2026-onwards/
G27	Vietnam revises provisional anti-dumping duties on hot-rolled steel from China	GMK Center	13 May 2025	https://gmk.center/en/news/vietnam-revises-provisional-anti-dumping-duties-on-hot-rolled-steel-from-china/
G29	Brazil introduces import quotas on 11 types of steel products	GMK Center	24 Apr 2024	https://gmk.center/en/news/brazil-introduces-import-quotas-on-11-types-of-steel-products/
G30	62 countries implemented 207 restrictions against steel products from China	GMK Center	13 Oct 2025	https://gmk.center/en/infographic/62-countries-implemented-207-restrictions-against-steel-products-from-china/
G31	Commodity Markets Outlook, Historical Data, Annual (xlsx)	World Bank	2 Sep 2026	https://thedocs.worldbank.org/en/doc/74e8be41ceb20fa0da750cda2f6b9e4e-0050012026/related/CMO-Historical-Data-Annual.xlsx
G32	Pink Sheet, October 2026	World Bank	2 Oct 2026	https://thedocs.worldbank.org/en/doc/74e8be41ceb20fa0da750cda2f6b9e4e-0050012026/related/CMO-Pink-Sheet-October-2026.pdf
G33	Commodity Markets Outlook April 2026, Forecasts (Table 1)	World Bank	Apr 2026	https://thedocs.worldbank.org/en/doc/f3138644a1e8e2bb631399ae11d6c408-0050012026/related/CMO-April-2026-Forecasts.pdf
G34	Weekly steel prices (archive 40468)	Arab Iron & Steel Union (AISU)	3 Oct 2026	https://aisusteel.org/en/archives/40468
G35	Weekly steel prices (archive 36573)	AISU	18 Oct 2025	https://aisusteel.org/en/archives/36573
G36	Weekly steel prices (archive 30176)	AISU	5 Nov 2024	https://aisusteel.org/en/archives/30176
G37	Weekly steel prices (archive 23160)	AISU	22 Oct 2023	https://aisusteel.org/en/archives/23160
G38	Weekly steel prices (archive 29546)	AISU	6 Oct 2024	https://aisusteel.org/en/archives/29546
T01	Sustainability Indicators 2025 report	worldsteel	Nov 2025 (upd. Feb 2026)	https://worldsteel.org/wider-sustainability/sustainability-indicators/sustainability-indicators-report-2025/
T02	Iron and Steel Technology Roadmap	IEA	Oct 2020	https://iea.blob.core.windows.net/assets/eb0c8ec1-3665-4959-97d0-187ceca189a8/Iron_and_Steel_Technology_Roadmap.pdf

ID	Title	Publisher	Date	Address
T04	Making Net-Zero Steel Possible	Mission Possible Partnership	Sep 2022	https://missionpossiblepartnership.org/wp-content/uploads/2026/10/Making-Net-Zero-Steel-possible-steel.pdf
T09	ENERGIRON technology (DRI-EAF with natural gas or H ₂)	EC ICIT	ref. 12 Feb 2026	https://innovation-centre-for-industrial-transformation.ec.europa.eu/innovative-techniques/energiron-technology-drieaf-production-route-using-natural-gas-or-h2
T10	Suez Steel sets new benchmark in energy consumption for DRI production	Danieli	16 Apr 2026	https://www.danieli.com/en/news-media/news/suez-steel-sets-new-benchmark-energy-consumption-dri-production_37_1051.htm
T13	2025 World Direct Reduction Statistics	Midrex Technologies	Sep 2026	https://www.midrex.com/world-dri-statistics/world-dri-production-reaches-151-0-mt-in-2025/Midrex-STATS-book-2025-FINAL.pdf
T19	Nucor ups estimate for W.Va. sheet mill to \$3.1B	Steel Market Update	23 Feb 2023	https://www.steelmarketupdate.com/2023/02/23/nucor-ups-estimate-for-w-va-sheet-mill-to-3-1b
T20	Nucor to build new rebar micro mill in North Carolina	Nucor Corp.	7 Apr 2022	https://nucor.com/news-release/nucor-to-build-new-rebar-micro-mill-in-north-carolina-122541
T21	Commercial Metals Company to invest \$300 million in its third micro mill	Steel Technology	n.d.	https://www.steel-technology.com/projects/commercial-metals-company-to-invest-300-million-inits-third-micro-mil
T23	Rebar manufacturing facility coming to Eastern Panhandle	West Virginia Public Broadcasting	8 Dec 2022	https://wvpublic.org/story/economy/rebar-manufacturing-facility-coming-to-eastern-panhandle/
T24	H2 Green Steel secures EUR 6.5 billion	North Sweden Business	22 Jan 2024	https://northswedenbusiness.com/news/2024/januari/h2-green-steel-secures-eur-6-5-billion/
T25	Stegra scrambles for 10 billion as steel project costs spiral	Norran	14 Oct 2025	https://www.norran.se/english/engelska/artikel/stegra-scrambles-for-10-billion-as-steel-project-costs-spiral/rggm9epr
T26	Stegra requires additional funding for the construction of a green plant	GMK Center	1 Oct 2026	https://gmk.center/en/news/stegra-requires-additional-funding-for-the-construction-of-a-green-plant/

C.2 Africa and comparator countries

Table C.2 Africa and comparator countries: sources cited

ID	Title	Publisher	Date	Address
A03	Protecting the steel market: how it's done in North Africa	GMK Center	2 Sep 2026	https://gmk.center/en/posts/protecting-the-steel-market-how-it-s-done-in-north-africa/
A04	Algeria's steel industry: why is it growing	GMK Center	28 Jul 2026	https://gmk.center/en/posts/algeria-s-steel-industry-why-is-it-growing/
A06	Egypt has imposed a temporary duty on imports of HRC at 13.6%	GMK Center	15 Sep 2025	https://gmk.center/en/news/egypt-has-imposed-a-temporary-duty-on-imports-of-hot-rolled-steel-at-13-6/
A07	Egypt's steel industry: protection from within	GMK Center	23 Jul 2026	https://gmk.center/en/posts/egypt-s-steel-industry-protection-from-within/
A10	Simandou partners celebrate start of operations	Rio Tinto	11 Nov 2025	https://www.riotinto.com/en/news/releases/2025/simandou-partners-celebrate-start-of-operations

ID	Title	Publisher	Date	Address
A16	China's Stellar Steel invests \$450 million in a new steel plant in Nigeria	GMK Center	27 Oct 2025	https://gmk.center/en/news/china-s-stellar-steel-invests-450-million-in-a-new-steel-plant-in-nigeria/
A19	North African green steel will soon be in demand in the EU, an overview	GMK Center	25 Aug 2025	https://gmk.center/en/posts/north-african-green-steel-will-soon-be-in-demand-in-the-eu-an-overview/
A21	GSM Tanzania selects Danieli for new rebar and wire-rod mill	Danieli	14 Sep 2026	https://www.danieli.com/en/GSM-Tanzania-selects-Danieli-for-new-rebar-and-wirerod-mill_37_1098.htm
A22	B5Plus Group awards Danieli bar and wire-rod mill project	Danieli	23 Sep 2026	https://www.danieli.com/en/B5Plus-Group-awards-Danieli-bar-and-wirerod-mill-project_37_1099.htm
A23	Devki opens Sh50bn steel plant in Kwale	Capital FM Kenya	20 Nov 2022	https://capitalfm.africa/devki-opens-sh50bn-steel-plant-in-kwale/
A26	Le turc Tosyali va construire un nouveau complexe sidérurgique en Algérie	Managers.tn	27 Apr 2026	https://managers.tn/2026/04/27/lalgerie-attire-les-grands-le-turc-tosyali-va-y-construire-un-nouveau-complexes-siderurgiques/
N01	Iron ore supply for direct reduction: outlook and challenges (J. Atherton), Arab Steel Summit presentation	International Iron Metallics Association (IIMA)	Oct 2024	https://2024.aisusteel.org/wp-content/uploads/2024/10/Dr-John-Atherton_IIMA.pdf
N02	MENA will need an additional 30-40 million tons of DR pellets in the near future	GMK Center	24 Nov 2025	https://gmk.center/en/news/mena-will-need-an-additional-30-40-million-tons-of-dr-pellets-in-the-near-future/
N03	BPI and HBI prices on the rise in Europe	SteelOrbis	23 Jan 2026	https://www.steelorbis.com/steel-prices/steel-prices-market-analyses/scrap-and-raw-materials/bpi-and-hbi-prices-on-the-rise-in-europe-1431544.htm
N04	Prices for Brazilian pig iron stabilised at \$475 per tonne in August	GMK Center	7 Sep 2026	https://gmk.center/en/news/prices-for-brazilian-pig-iron-stabilised-at-475-per-tonne-in-august/
N05	Brazil's iron-ore exports hit annual record in 2025 (Reuters, citing the Ministry of Development, Industry, Trade and Services)	Engineering News	7 Jan 2026	https://www.engineeringnews.co.za/article/brazils-iron-ore-exports-hit-annual-record-in-2025-2026-01-07
N06	Produção de aço bruto cai 1,1% em Minas Gerais e 1,6% no Brasil em 2025 (Instituto Aço Brasil data)	Diário do Comércio	20 Jan 2026	https://diariodocomercio.com.br/economia/producao-aco-minas-gerais-brasil-2/
N07	ArcelorMittal takes ownership of Brazilian slab plant	AIST	Mar 2023	https://www.aist.org/arcelormittal-takes-ownership-of-brazilian-slab-plant
N08	Vale signs agreements to develop Mega Hubs in the Middle East and provide decarbonization solutions for steelmaking	Vale	Oct 2022	https://vale.com/w/vale-signs-agreements-to-develop-mega-hubs-in-the-middle-east-and-provide-decarbonization-solutions-for-steelmaking-1
N09	Guinea takes first step toward processing Simandou iron ore at home	Ecofin Agency	19 Jun 2026	https://www.ecofinagency.com/news-industry/1906-56609-guinea-takes-first-step-toward-processing-simandou-iron-ore-at-home
N10	National Steel Policy (NSP) 2017	Government of India, Ministry of Steel	May 2017	https://steel.gov.in/node/84
N11	2022 export duty withdrawal (iron ore and pellets), policies database	International Energy Agency	2022	https://www.iea.org/policies/18745-2022-export-duty-withdrawal-iron-ore-and-pellets
N12	Vietnam's 2025 crude steel output hits 5-year high (Vietnam Steel Association data)	The Investor	10 Feb 2026	https://theinvestor.vn/vietnams-2025-crude-steel-output-hits-5-year-high-d18352.html
N13	Hòa Phát Group proposes development of Thạch Khê iron ore mine	AIST	27 May 2026	https://www.aist.org/hoa-phat-group-proposes-development-of-thach-khe-iron-ore-mine

ID	Title	Publisher	Date	Address
N14	Mr. President, it's time to make final decision on Ajaokuta Steel, NIOMCO	ThisDay	15 Jul 2026	https://www.thisdaylive.com/2026/07/15/mr-president-its-time-to-make-final-decision-on-ajaokuta-steel-niomco/
N15	Algeria has opened a railway line for the development of the Gara Djebilet deposit	GMK Center	2 Feb 2026	https://gmk.center/en/news/algeria-has-opened-a-railway-line-for-the-development-of-the-gara-djebilet-deposit/
N16	Launch of DR-grade iron ore pellet premium weekly indicator	Fastmarkets	1 Dec 2022	https://www.fastmarkets.com/insights/launch-of-dr-grade-iron-ore-pellet-premium-weekly-indicator

C.3 Cameroon and CEMAC steel market

Table C.3 Cameroon and CEMAC steel market: sources cited

ID	Title	Publisher	Date	Address
C01	Commerce extérieur du Cameroun en 2020	INS Cameroun	Jul 2021	https://ins-cameroun.cm/wp-content/uploads/2025/07/Note-Commerce-exterieur-2020_VF-4.pdf
C02	Note sur le commerce extérieur 2022	INS Cameroun	Dec 2023 (rev. 13 Feb 2024)	https://ins-cameroun.cm/wp-content/uploads/2025/07/Note-sur-le-Commerce-Exterieur-2022_VF-du-13-fev-2024-Rev-DG-1.pdf
C03	Commerce extérieur du Cameroun en 2023	INS Cameroun	Apr 2024	https://ins-cameroun.cm/wp-content/uploads/2025/07/Note-sur-le-Commerce-Exterieur-2023-c-1.pdf
C04	Évolution du commerce extérieur en 2024	INS Cameroun	Aug 2025	https://ins-cameroun.cm/wp-content/uploads/2025/12/Commext_2024_FR_Edite-final-1.pdf
C05	Évolution du commerce extérieur en 2025 (version provisoire)	INS Cameroun	Feb 2026 (posted 1 Apr 2026)	https://ins-cameroun.cm/wp-content/uploads/2026/04/Note-sur-le-commerce-exterieur-en-2025-version-provisoire_FR.pdf
C06	UN Comtrade public API, Cameroon (reporter 120), HS 72/73 and 6-digit lines, 2019-2023	UN Statistics Division	acc. 10 Oct 2026	https://comtradeapi.un.org/public/v1/preview/C/A/HS?reporterCode=120&period=2023&partnerCode=0&flowCode=M&cmdCode=72,73,7207,7208,7209,7210,7213,7214,7216,7217,7304,7305,7306,7308
C07	UN Comtrade public API, CEMAC & Nigeria (reporters 266 Gabon, 178 Congo, 140 CAR, 566 Nigeria; mirror partners 148 Chad, 226 Eq. Guinea)	UN Statistics Division	acc. 10 Oct 2026	https://comtradeapi.un.org/public/v1/preview/C/A/HS?reporterCode=266&period=2023&partnerCode=0&flowCode=M&cmdCode=72,73,7214,7213
C09	Les Comptes Nationaux de 2025	INS Cameroun	Aug 2026 (posted 2 Sep 2026)	https://ins-cameroun.cm/wp-content/uploads/2026/09/Comptes_Nationaux_2025_FR_VF.pdf
C13	WDI API: SP.POP.TOTL; SP.URB.TOTL.IN.ZS (CMR)	World Bank	updated 8 Oct 2026	https://api.worldbank.org/v2/country/CMR/indicator/SP.POP.TOTL?format=json
C14	Cameroon: bouclage du 4e RGPH, 22,7 millions d'habitants recensés	Journal du Cameroun	5 Oct 2026	https://fr.journalducameroun.com/cameroon-bouclage-du-4e-rgph-22-7-millions-dhabitants-recenses-en-mode-digital/
C15	2024 Housing Finance Yearbook, Cameroon profile	Centre for Affordable Housing Finance in Africa (CAHF)	Jan 2024 (PDF Mar 2025)	https://housingfinanceafrica.org/wp-content/uploads/2025/03/CAMEROON.pdf

ID	Title	Publisher	Date	Address
C16	Budget 2026-8 816,4 milliards FCFA...	MINFI	26 Nov 2025	https://minfi.gov.cm/budget-2026-8-8164-milliards-fcfa-pour-consolider-la-stabilite-et-acceler-le-developpement-du-cameroun/
C20	Press report of the sealing by customs of more than 7,300 t of imported reinforcing bar, December 2020 (headline and address not reproduced: they name the importer)	Business in Cameroon	16 Dec 2020	businessincameroon.com
C21	Métallurgie: les importations du fer à béton interdites jusqu'à nouvel ordre	EcoMatin	10 Apr 2023	https://ecomatin.net/metallurgie-les-importations-du-fer-a-beton-interdites-jusqua-nouvel-ordre
C25	Prometal inaugure deux usines évaluées à 57 milliards F	Journal du Cameroun	19 Jan 2024	https://fr.journalducameroun.com/prometal-inaugure-deux-usines-evaluees-a-57-milliards-f-ce-jour-a-douala/
C26	Cameroun: Prometal (Hayssam El Jammal) se dote de deux nouvelles usines de production d'aciers	EcoMatin	19 Jan 2024	https://ecomatin.net/cameroun-prometal-hayssam-el-jammal-se-dote-de-deux-nouvelles-usines-de-production-d-aciers
C27	Matériaux de construction: l'offensive locale	Cameroon Tribune	24 Apr 2023	https://www.cameroon-tribune.cm/article.html/56766/en.html/details_2
C29	Métallurgie: les industriels dénoncent la présence du fer à béton contrefait	EcoMatin	22 Jun 2023	https://ecomatin.net/metallurgie-les-industriels-du-secteur-denoncent-la-presence-du-fer-a-beton-contrefait-sur-le-marche-camerounais
C30	Production: les acteurs en présence	Cameroon Tribune	11 May 2026	https://cameroon-tribune.cm/article.html/76600/fr.html/details_2
C31	Prometal, Acero Metal, Acieries du Cameroun... qui est le plus gros consommateur d'électricité de la métallurgie camerounaise	EcoMatin	15 Jul 2026	https://ecomatin.net/prometal-acero-metal-acieries-du-cameroun-qui-est-le-plus-gros-consommateur-delectricite-de-la-metallurgie-camerounaise
C34	Cameroon rejects fresh push to revise rebar standard	Business in Cameroon	26 Jan 2026	https://www.businessincameroon.com/construction/2601-15657-cameroon-rejects-fresh-push-to-revise-rebar-standard
C35	Cameroun: le gouvernement rejette une demande de révision de la norme du fer à béton	EcoMatin	5 Feb 2026	https://ecomatin.net/cameroun-le-gouvernement-rejette-une-demande-de-revision-de-la-norme-du-fer-a-beton
C36	Cameroun: Quifeuou obtient un prêt de 9 milliards FCFA pour une usine de fer à béton à Douala	EcoMatin	26 Aug 2025	https://ecomatin.net/cameroun-quifeuou-obtient-un-pret-de-9-milliards-fcfa-pour-implanter-une-usine-de-fer-a-beton-a-douala
C38	Cameroun: le groupe Prometal décroche 26 milliards FCFA auprès d'Afreximbank...	Sikafinance	30 Sep 2026	https://www.sikafinance.com/marches/cameroun-le-groupe-prometal-decroche-26-milliards-fcfa-aupres-dafreximbank-pour-renforcer-sa-production-dacier-et-conquerir-de-nouveaux-marches_64623
C39	Prometal obtient 26 milliards FCFA d'Afreximbank pour soutenir son expansion industrielle	EcoMatin	30 Sep 2026	https://ecomatin.net/prometal-obtient-26-milliards-fcfa-dafreximbank-pour-soutenir-son-expansion-industrielle
C40	Cameroun: Prometal décroche 26,2 milliards FCFA d'Afreximbank	Camer.be	1 Oct 2026	https://www.camer.be/actualites/economie/cameroun-prometal-decroche-262-milliards-fcfa-dafreximbank.html
C41	40 millions d'euros d'Afreximbank: Prometal sécurise ses billettes d'acier alors que la ferraille camerounaise s'épuise	Cameroun24	10 Oct 2026	https://cameroun24.net/article/76267-40-millions-d-euros-d-afreximbank-prometal-securise-ses-billettes-d-acier-alors-que-la-ferraille-camerounaise-s-epuise.html

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C42	Bidoun J., Fomethé A., Yantio G., Melo U., La récupération et le recyclage des déchets ferromagnétiques: analyse de la situation au Cameroun (Déchets, Revue francophone d'écologie industrielle n°48)	ENSP Yaoundé / MIPROMALO	Q4 2007	https://eid.episciences.org/7942/pdf
C44	Fer à béton: les producteurs acceptent une baisse des prix	EcoMatin	23 Oct 2023	https://ecomatin.net/fer-a-beton-les-producteurs-acceptent-une-baisse-des-prix
C45	Métallurgie: les locaux battent le fer chaud	Cameroon Tribune	17 Aug 2023	https://cameroon-tribune.cm/article.html/59491/fr.html/details_2
C52	Le Gabon réduit la TVA sur le fer à béton local	EcoMatin	4 Aug 2026	https://ecomatin.net/le-gabon-reduit-la-tva-sur-le-fer-a-beton-local-pour-stimuler-son-industrie-siderurgique
C53	Gabon: le groupe Fokou lance une nouvelle unité d'acier à Port-Gentil	EcoMatin	18 Sep 2026	https://ecomatin.net/gabon-le-groupe-fokou-lance-une-nouvelle-unite-dacier-a-port-gentil
C58	Lutte contre la vie chère: le Cameroun limite les exportations de certains produits	EcoMatin	27 Apr 2022	https://ecomatin.net/lutte-contre-la-vie-chere-le-cameroun-limite-les-exportations-de-certains-produits-pour-satisfaire-la-demande-nationale

C.4 Iron ore in Cameroon

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O01	Mbalam Iron Ore Project: Stage 1 definitive feasibility study and Stage 2 pre-feasibility study (ASX release)	Former holder of the Mbalam-Nabeba project (ASX-listed)	6 Apr 2011	https://sdl.live.irmau.com/irm/PDF/2074_0/SDLDeliversPositiveFeasibilityStudies
O04	Mbalam-Nabeba project presentation, Mining Indaba 2014 (itabirite testwork)	Former holder of the Mbalam-Nabeba project (ASX-listed)	Feb 2014	https://sdl.live.irmau.com/irm/PDF/2752_0/PresentationMiningIndaba2014
O05	Mbalam-Nabeba resources and reserves statement as at 20 May 2015 (JORC)	Former holder of the Mbalam-Nabeba project (ASX-listed)	2015	https://sdl.live.irmau.com/irm/content/resources-reserves.aspx?RID=236
O17	Cameroon Mining Company confirme l'entrée du projet Mbalam dans sa phase irréversible d'exécution	Camer.be via AllAfrica	12 Dec 2025	https://fr.allafrica.com/stories/202512120475.html
O24	Cameroun: les premières exportations du fer de Mbalam repoussées au 1er trimestre 2026	EcoMatin	4 Dec 2025	https://ecomatin.net/cameroun-les-premieres-exportations-du-fer-de-mbalam-repoussees-au-1er-trimestre-2026
O25	Mbalam iron ore mine delays first exports to early 2026	Business in Cameroon	13 Dec 2025	https://www.businessincameroon.com/public-management/1312-15495-mbalam-iron-ore-mine-delays-first-exports-to-early-2026
O27	Mbalam-Nabeba: production de fer lancée, exportations retardées en 2026	Afrik.com	7 Apr 2026	https://www.afrik.com/mbalam-nabeba-production-de-fer-lancee-exportations-retardees-en-2026-au-cameroun-congo
O28	Exploitations: la revue des gisements	Cameroon Tribune	11 May 2026	https://www.cameroon-tribune.cm/articles/11125/fr/details_2
O29	Cameroon plans \$3.1B iron ore push starting 2026	Daba Finance (republished by AllAfrica)	14 Feb 2026	https://dabafinance.com/en/news/cameroon-mining-investment-2026-2030

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O31	CNPS, G-Stones join Kribi port mineral terminal project	Business in Cameroon	7 Nov 2025	https://www.businessincameroon.com/mining/0711-15312-cnps-g-stones-join-kribi-port-mineral-terminal-project
O32	Cameroon signs iron ore deal with Sinosteel (citing Reuters)	Mining Technology	23 May 2022	https://www.mining-technology.com/news/sinosteel-deal-iron-cameroon/
O33	Fer de Lobé: l'État octroie le permis d'exploitation à Sinosteel	EcoMatin	7 Sep 2022	https://ecomatin.net/fer-de-lobe-malgre-des-contestations-letat-octroie-le-permis-dexploitation-au-chinois-sinosteel
O34	Le Cameroun signe avec une société chinoise une convention minière de plus de 700 millions de dollars	Le360 Afrique (MAP)	7 May 2022	https://afrique.le360.ma/autres-pays/economie/2022/05/07/37953-le-cameroun-signe-avec-une-societe-chinoise-une-convention-miniere-de-plus-de-700-millions
O35	Sinosteel reporte les exportations du fer de Kribi-Lobé à 2027 malgré 120 milliards FCFA déjà investis	EcoMatin	11 Mar 2026	https://ecomatin.net/cameroun-sinosteel-reporte-les-exportations-du-fer-de-kribi-lobe-a-2027-malgre-120-milliards-fcfa-deja-investis
O36	Mining 2026, Cameroon (Chazai Wamba)	Chambers Global Practice Guides	updated 27 Jan 2026	https://practiceguides.chambers.com/practice-guides/mining-2026/cameroon
O37	Grand Zambi iron ore: G-Stones reportedly ready to start exploitation in the next few months	Business in Cameroon	30 Aug 2023	https://www.businessincameroon.com/mining/3008-13380-grand-zambi-iron-ore-g-stones-reportedly-ready-to-start-exploitation-in-the-next-few-months
O38	Grand Zambi iron ore project now targets first exports in August 2025	Business in Cameroon	3 Jun 2025	https://www.businessincameroon.com/mining/0306-14716-grand-zambi-iron-ore-project-now-targets-first-exports-in-august-2025
O40	Five banks back CFA41bn financing for Grand Zambi iron project	Business in Cameroon	17 Feb 2026	https://www.businessincameroon.com/mining/1702-15775-five-banks-back-cfa41bn-financing-for-grand-zambi-iron-project
O41	Cameroon turns to BEAC's special window to back Grand Zambi iron project	Ecofin Agency	18 Feb 2026	https://www.ecofinagency.com/news-industry/1802-53042-cameroon-turns-to-beac-s-special-window-to-back-grand-zambi-iron-project
O42	Afferro Mining Inc., publication of Q3 results	Afferro (newswire.ca)	19 Nov 2013	https://newswire.ca/news-releases/afferro-mining-inc--publication-of-q3-results-513262111.html
O43	Afferro more than doubles Cameroon iron-ore resource	Engineering News (Creamer Media)	30 May 2013	https://www.engineeringnews.co.za/article/afferro-more-than-doubles-cameroon-iron-ore-resource-2013-05-30
O44	Gisements de fer: la Libyan Foreign Bank réactive Nkout et Ntem avec des partenaires émiratis	EcoMatin	27 May 2025	https://ecomatin.net/cameroun-gisements-de-fer-la-libyan-foreign-bank-reactive-nkout-et-ntem-avec-des-partenaires-emiratis
O47	Une bataille entre investisseurs bloque l'exploitation du fer de Nkout	EcoMatin	9 Sep 2026	https://ecomatin.net/cameroun-une-bataille-entre-investisseurs-bloque-lexploitation-du-fer-de-nkout
O49	Jindal Steel races to secure Cameroon iron mine amid environmental concerns	Business in Cameroon	2 Sep 2024	https://www.businessincameroon.com/public-management/0209-14108-jindal-steel-races-to-secure-cameroon-iron-mine-amid-environmental-concerns
O50	Indian Jindal Steel & Power seeks tax and customs incentives for Ngovayang	Business in Cameroon	30 Apr 2019	https://www.businessincameroon.com/mining/3004-9084-cameroon-indian-jindal-steel-power-seeks-tax-and-customs-incentives-for-ngovayang-iron-ore-project-operation
O52	Cameroon, country page (Validation, reports, Mining Code reference)	EITI International Secretariat	acc. Oct 2026	https://eiti.org/countries/cameroon

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O55	Interview: « Lorsque l'industrie minière atteindra le niveau que nous visons... », Fuh Calistus Gentry, Minister of Mines	EcoMatin	9 Oct 2024	https://ecomatin.net/cameroun-lorsque-lindustrie-mini%C3%A9re-atteindra-le-niveau-que-nous-visons-elle-depassera-la-contribution-du-secteur-p%C3%A9trolier-fuh-calistus-gentry-ministre-des-mines

C.5 Energy, ports and logistics

Table C.5 Energy, ports and logistics: sources cited

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E02	Cameroon's SNH eyes Yoyo-Yolanda and new exploration blocks to sustain gas growth	Business in Cameroon	6 Jul 2026	https://www.businessincameroon.com/energy/0607-16422-cameroon-s-snh-eyes-yoyo-yolanda-and-new-exploration-blocks-to-sustain-gas-growth
E04	Données pétrolières 2025	SNH	posted Jun 2026	https://snh.cm/wp-content/uploads/2026/06/Donnees-petrolieres-2025.pdf
E08	Golar, partners approve first vessel in Argentine gas export project	Rigzone	6 May 2025	https://www.rigzone.com/news/golar_partners_approve_first_vessel_in_argentine_gas_export_project-06-may-2025-180446-article/
E09	Le navire usine quitte le Cameroun, le gaz s'arrête	Camer.be	9 Jul 2026	https://www.camer.be/93911/12:1/le-navire-usine-quitte-le-cameroun-le-gaz-sarrete-cameroon.html
E10	Cameroon: SNH, huit ans de location, zéro infrastructure	AllAfrica (Camer.be)	1 Jun 2026	https://fr.allafrica.com/stories/202606010513.html
E11	Industrial gas: Cameroon suspends GDC's 20% price hiking plan	Business in Cameroon	18 Jul 2023	https://www.businessincameroon.com/energy/1807-13291-industrial-gas-cameroon-suspends-gdc-s-20-price-hiking-plan
E15	Rapport d'activités 2025 de l'ARSEL	ARSEL (electricity regulator)	7 Sep 2026	https://arsel-cm.org/wp-content/uploads/2026/09/Rapport-ARSEL-2025.pdf
E16	Nachtigal power line delays leave 150 MW of industrial demand unmet	Business in Cameroon	9 Oct 2026	https://www.businessincameroon.com/public-management/0910-16939-nachtigal-power-line-delays-leave-150-mw-of-industrial-demand-unmet
E17	Décision fixant le montant de la RMA ENEO au titre de l'exercice 2025 (réajustée)	ARSEL	19 Dec 2025	http://arsel-cm.org/wp-content/uploads/2026/01/Decision-fixant-le-Montant-de-le-RMA-Eneo-au-titre-de-lexercice-2025-du-19-12-2025.pdf
E24	Kribi Power Development Corporation	MIGA (World Bank Group)	2014	https://www.miga.org/project/kribi-power-development-corporation-0
E25	The AfDB praises the impacts of the planned extension of the Kribi gas-fired power plant	Business in Cameroon	1 Jul 2020	https://www.businessincameroon.com/energy/0107-10486-the-afdb-praises-the-impacts-of-the-planned-extension-of-the-kribi-gas-fired-power-plant
E26	Au Cameroun, l'État veut reprendre les centrales de Kribi et Dibamba à Globeleq	Forbes Afrique	11 Aug 2026	https://forbesafrique.com/au-cameroun-letat-veut-reprendre-les-centrales-de-kribi-et-dibamba-a-globeleq/
E32	Cameroon, Energy (Country Commercial Guide)	US International Trade Administration	13 Apr 2026	https://www.trade.gov/country-commercial-guides/cameroon-energy
E37	Tableaux tarifaires, Décision ARSEL N°00000427 (MT 2023-2025)	ARSEL	uploaded Jan 2026	http://arsel-cm.org/wp-content/uploads/2026/01/TABLEAUX-TARIFAIRES-decision-MT-2023-2025.pdf
E43	La Lettre du PAK n°254	Port Autonome de Kribi	May 2025	Port authority document cited by title and date; web address not given

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E44	Au Cameroun, le port de Kribi revendique la place de premier terminal à conteneurs	EcoMatin	22 Apr 2026	https://ecomatin.net/au-cameroun-le-port-de-kribi-revendique-la-place-de-premier-terminal-a-conteneurs
E45	Port de Kribi: l'explosion du trafic commence à saturer le terminal à conteneurs	EcoMatin	5 Oct 2026	https://ecomatin.net/port-de-kribi-lexplosion-du-traffic-commence-a-saturer-le-terminal-a-conteneurs
E56	Carbon intensity of electricity generation (Ember data), Cameroon	Our World in Data	acc. Oct 2026	https://ourworldindata.org/grapher/carbon-intensity-electricity
E57	Electricity production by source (Ember and Energy Institute data), Cameroon	Our World in Data	acc. Oct 2026	https://ourworldindata.org/grapher/electricity-prod-source-stacked

C.6 Kribi port and industrial zone

Table C.6 Kribi port and industrial zone: sources cited

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Z4	Zone industrielo-portuaire de Kribi (KPIZ): jusqu'à +8 points de croissance et 150 000 emplois...	Investir au Cameroun	4 Mar 2026	https://www.investiraucameroun.com/gestion-publique/0403-23163-zone-industrialo-portuaire-de-kribi-kpiz-jusqu-a-8-points-de-croissance-et-150-000-emplois-attendus-sur-15-ans
Z5	Port de Kribi: AGL, Arise IIP et Belmont s'allient au PAK pour une zone industrielle de 521 milliards FCFA sur 4 000 ha	Investir au Cameroun	20 Feb 2026	https://www.investiraucameroun.com/gestion-publique/2002-23123-port-de-kribi-agl-arise-iip-et-belmont-s-allient-au-pak-pour-une-zone-industrielle-de-521-milliards-fcfa-sur-15-000-ha
Z12	KPIZ officially launched: a new economic hub for Cameroon and CEMAC	AGL (press release)	n.d. (Feb-Mar 2026)	https://aglgroupp.com/en/News/lancement-KPIZ
Z13	Cameroon: AfDB Group supports development of integrated industrial zone at the Port of Kribi	AfDB via AllAfrica (AfDB page returned 403)	2 Mar 2026	https://allafrica.com/stories/202603100682.html
Z29	AMI n°013/AMI/PAK/2026 (Port Workers' City / KPCiZ)	ARMP	30 Jan 2026	https://www.armp.cm/details?type_publication=AMI&id_publication=6073
Z30	Le port de Kribi engage 3,5 milliards FCFA pour préparer l'arrivée de nouveaux industriels	Ecomatin (L. Onguene)	11 May 2026	https://ecomatin.net/cameroun-le-port-de-kribi-engage-35-milliards-fcfa-pour-preparer-larrivee-de-nouveaux-industriels
Z34	Zone industrielle Kribi: 400 milliards FCFA investis et 53 entreprises autorisées à s'implanter depuis 2018	Investir au Cameroun	20 May 2025	https://www.investiraucameroun.com/gestion-publique/2005-22033-zone-industrielle-kribi-400-milliards-fcfa-investis-et-53-entreprises-autorisees-a-s-implanter-depuis-2018
Z37	Guide du Port de Kribi	PAK (PDF)	Aug 2020	Port authority document cited by title and date; web address not given
Z39	Ordonnance n° 2025/002 du 18 juillet 2025 fixant les incitations à l'investissement	Presidency (copy on GECAM)	18 Jul 2025	https://legecam.cm/wp-content/uploads/2025/08/ordonnance_n_2025_002_du_18_07_2025.pdf

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Z40	L'API lance la sensibilisation autour de l'ordonnance de 2025...	Droit Médias Finance	13 May 2026	https://droitmediasfinance.com/index.php/actualites/droit-ohada-affaires/1260-cameroun-lagence-de-promotion-des-investissements-lance-la-sensibilisation-autour-de-lordonnance-de-2025-portant-promotion-des-investissements
Z41	Investing In... 2026: Cameroon	Chambers & Partners	2026	https://gpg-pdf.chambers.com/investing-in-2026/107/
Z42	Loi n° 2023/014 du 19 décembre 2023 portant Code minier, Article 40(4) (official text, mirror)	Rural-info (copy of the official text)	19 Dec 2023	http://rural-info.net/wp-content/uploads/2024/11/Loi-N°2023-014-du-19-decembre-2023-portant-Code-Minier.pdf
Z43	Kribi franchit la ligne électrique 225 kV	PAK	6 Aug 2025	Port authority document cited by title and date; web address not given
Z44	Énergie et infrastructures: un nouvel élan pour la compétitivité du Port de Kribi	PAK	19 Aug 2026	Port authority document cited by title and date; web address not given
Z45	Ligne ferroviaire Édéa-Kribi-Lolabé-Campo: une nouvelle étape...	PAK	4 Jun 2026	Port authority document cited by title and date; web address not given
Z46	Bilan et perspectives, Les voyants sont au vert	PAK	13 Mar 2025	Port authority document cited by title and date; web address not given
Z49	Port de Kribi: 21,5 milliards de FCFA pour accroître de 30% les capacités du terminal à conteneurs	Investir au Cameroun	8 Oct 2026	https://www.investiraucameroun.com/infrastructures/0810-23934-port-de-kribi-21-5-milliards-de-fcfa-pour-accroitre-de-30-les-capacites-du-terminal-a-conteneurs
Z50	Kribi Port's net profit exceeds CFA4 billion after strong year for cargo traffic	Business in Cameroon	29 Jun 2026	https://www.businessincameroon.com/transport/2906-16378-kribi-port-s-net-profit-exceeds-cfa4-billion-after-strong-year-for-cargo-traffic
Z52	Kribi Deep Sea Port, investors partner to construct 125-million-tonne mineral terminal worth \$2 billion	Business in Cameroon	5 Nov 2025	https://www.businessincameroon.com/transport/0511-15300-kribi-deep-sea-port-investors-partner-to-construct-125-million-tonne-mineral-terminal-worth-2-billion
Z53	Chemin de fer Mbalam-Kribi et terminal minéralier: un tournant pour l'intégration régionale	PAK	25 Feb 2022	Port authority document cited by title and date; web address not given
Z54	La ZIPK rayonne avec l'inauguration de la cimenterie CIMPOR!	PAK	19 Jul 2024	Port authority document cited by title and date; web address not given
Z55	Cameroon speeds up Kribi bitumen plant with tax breaks and refining license	Business in Cameroon	10 Jun 2026	https://www.businessincameroon.com/public-management/1006-16302-cameroon-speeds-up-kribi-bitumen-plant-with-tax-breaks-and-refining-license
Z69	Cameroon initiates Mbalam iron ore mine construction amidst funding uncertainty	Business in Cameroon	21 Dec 2023	https://www.businessincameroon.com/mining/2112-13576-cameroon-initiates-mbalam-iron-ore-mine-construction-amidst-funding-uncertainty
Z74	Grand Zambi: le fer de Bipindi au service de l'essor du Port de Kribi	PAK	17 Jan 2025	Port authority document cited by title and date; web address not given
Z79	Cameroon reviews metals industry to address supply and energy constraints	Business in Cameroon	29 Apr 2026	https://www.businessincameroon.com/public-management/2904-16094-cameroon-reviews-metals-industry-to-address-supply-and-energy-constraints

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Z80	Le Cameroun prépare l'exportation de son acier vers les marchés de la ZLECAf	Ecomatin (V. Bagal)	16 Apr 2026	https://ecomatin.net/le-cameroun-prepare-exportation-de-son-acier-vers-les-marches-de-la-zlecaf

C.7 Policy, macroeconomics and skills

Table C.7 Policy, macroeconomics and skills: sources cited

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K03	EGEM, fiche d'identification	Université de Ngaoundéré	n.d.	https://www.univ-ndere.cm/fr/etablisements/egem/
K04	EGCIM, fiche	Université de Ngaoundéré	n.d.	https://www.univ-ndere.cm/fr/etablisements/egcim/
K08	ISTD / IUT Douala (homepage)	iut-dla.cm	n.d.	https://www.iut-dla.cm/
P01	Economic and social impact of the global steel industry (infographic)	worldsteel / Oxford Economics	May 2019	https://worldsteel.org/wp-content/uploads/Steel-social-and-economic-impact.pdf
P02	European Steel in Figures 2025	EUROFER	Jun 2025	https://www.eurofer.eu/assets/publications/brochures-booklets-and-factsheets/european-steel-in-figures-2025/EUROFER_European-Steel-in-Figures-2025.pdf
P05	Ajaokuta Steel Complex to create 500,000 jobs, others	Nairametrics	9 Oct 2023	https://nairametrics.com/2023/10/09/ajaokuta-steel-complex-to-create-500000-jobs-others/
P07	Zone Cémac: la BEAC annonce un ralentissement de croissance à 2,4%	AllAfrica (Les Dépêches de Brazzaville)	17 Dec 2025	https://fr.allafrica.com/stories/202512170629.html
P09	IMF Executive Board concludes 2026 Article IV consultation with Cameroon (PR 26/096)	IMF	30 Mar 2026	https://www.imf.org/en/news/articles/2026/03/30/pr-26096-cameroon-imf-executive-board-concludes-2026-article-iv-consultation
P10	2024 Investment Climate Statements: Cameroon	US Department of State	2024	https://www.state.gov/reports/2024-investment-climate-statements/cameroon/
P11	Cameroon: les principales innovations de la loi de finances pour 2026	Deloitte Société d'Avocats	24 Mar 2026	https://blog.avocats.deloitte.fr/cameroon-les-principales-innovations-de-la-loi-de-finances-pour-2026/
P13	Stratégie Nationale de Développement 2020-2030 (SND30)	Republic of Cameroon / MINEPAT (hosted by FAOLEX)	2020	https://faolex.fao.org/docs/pdf/cmr211554.pdf
P14	Le Cameroun se dote d'un nouveau Plan directeur d'industrialisation	Le360 Afrique	4 Apr 2017	https://afrique.le360.ma/autres-pays/economie/2017/04/04/10804-le-cameroun-se-dote-dun-nouveau-plan-directeur-dindustrialisation-10804/
P15	« Des actions concrètes pour renforcer les infrastructures industrielles » (MINMIDT)	Cameroon Tribune	1 Nov 2024	https://cameroon-tribune.cm/article.html/67712/fr.html/details_2
P18	Innovations douanières de la Loi de Finances 2025	MINFI, Direction Générale des Douanes	Jan 2025	https://minfi.gov.cm/wp-content/uploads/2025/01/EXPOSE_DGD_LF_2025.pdf
P19	Cameroon, Republic of: Corporate, Other taxes	PwC Worldwide Tax Summaries	reviewed 14 Aug 2026	https://taxsummaries.pwc.com/republic-of-cameroon/corporate/other-taxes

ID	Title	Publisher	Date	Address
P23	Cameroon applies CEEAC common external tariff from January 1, 2026	Business in Cameroon	12 Jan 2026	https://www.businessincameroon.com/public-management/1201-15594-cameroon-applies-ceeac-common-external-tariff-from-january-1-2026
P24	WITS TRAINS API, Cameroon reported MFN tariffs by HS6 (2023)	World Bank / UNCTAD	acc. 10 Oct 2026	https://wits.worldbank.org/API/V1/SDMX/V21/datasource/TRN/reporter/120/partner/000/product/721420/year/2023/datatype/reported
P26	Tariff profile: Cameroon	WTO	n.d.	https://www.wto.org/english/res_e/statis_e/daily_update_e/tariff_profiles/CM_e.pdf
P27	List of countries which have signed, ratified/acceded to the AfCFTA Agreement	African Union Commission	22 May 2026	https://au.int/sites/default/files/treaties/36437-sl-AGREEMENT_ESTABLISHING_THE_AFRICAN_CONTINENTAL_FREE_TRADE_AREA_1.pdf
P31	AfCFTA e-Tariff Book	AfCFTA Secretariat	n.d.	https://au-afcfta.org/etariff/
P32	IMF staff concludes Post-Financing Assessment mission to Cameroon (PR 26/314)	IMF	1 Oct 2026	https://www.imf.org/en/news/articles/2026/10/01/pr26314-imf-staff-concludes- assesment-cameroon

C.8 Cameroon Steel project record

Table C.8 Cameroon Steel project record: sources cited

ID	Title	Publisher	Date	Address
F01	Cameroon Steel reference configuration RC-1 (planning estimate), edition 10 October 2026 (RC-1.1)	Cameroon Steel	10 Oct 2026	Planning figures, not commitments. Not published as a separate document; the figures used are set out in this paper
X01	Kribi: le Premier ministre, chef du gouvernement est là	Cameroon Tribune	30 Dec 2024	https://cameroon-tribune.cm/article.html/68499/fr.html/details_2
X04	Industrialisation: la voie royale de l'émergence	Cameroon Tribune	2 Jan 2025	https://cameroon-tribune.cm/article.html/68558/fr.html/details_2

Source: Cameroon Steel; 200 sources cited.

ANNEX D

DATA TABLES

This annex gives, for every chart, map and diagram in the paper, the values it plots, with their units, status and sources. It makes every exhibit checkable and reproducible, and readable without the graphic. The values are those of the data files published with the web edition of this paper, one file per exhibit; derived values are rounded for display, and percentages may not add up exactly because of rounding. Source identifiers refer to Annex C; methods and assumptions for derived and illustrative values are in Annex A.

Executive summary

Table D.1 Data for Figure ES.1: Most of the value in a tonne of rebar is made before the rolling mill

Configuration of the chain	Share of the gross price build-up occurring in Cameroon, central case (%)	Range across three price cases (%)
Today: imported billets re-rolled in Douala	22.1	13.3 to 22.1
Melt shop on imported iron units (Phase 1)	28.5	28.5 to 36.2
Direct reduction on imported pellets	72.0	72.0 to 72.8
Full chain from Cameroonian DR-grade ore	100.0	100.0 to 100.0

Source: [G31], [N03], [G34], [F01], [N01]. Status: illustrative. Gross price spreads, before imported consumables and capital service; not value added. Inputs and yields as in the data for Figure 8.1; price cases as in Table 8.2.

Chapter 1: the value-chain gap

Table D.2 Data for Figure 1.1: Cameroon's chain has its ends but not its middle

Step	Main output	Status in Cameroon, October 2026
Mine	ore, DSO	Projects starting; exports pending
Beneficiation	concentrate	Crushing at Mbalam; Lobé plant under way
Pelletising	pellets	None
Reduction	DRI, HBI	None
Melt shop	billets	One EAF, about 0.2 Mtpa, scrap-fed
Rolling	bars, rod, sections	About 1.2 Mtpa, about half used
Use	buildings, works	About 0.45 Mtpa apparent use

Source: [C06], [C27], [C38], [C40], [O24], [O35]. Status: sourced.

Table D.3 Data for Figure 1.2: The chain narrows to nothing at ironmaking

Step of the chain	Capacity or volume (Mtpa)	Label on the chart
Iron-ore mine capacity in development	64	64 Mtpa (9% of world pipeline)
Ironmaking (DRI or pig iron)	0	none
Electric-arc melting (largest disclosed unit)	0.2	about 0.2 Mtpa
Billet imports (2023)	0.161	0.16 Mt
Rolling and transformation installed	1.2	about 1.2 Mtpa
Apparent steel use	0.45	about 0.45 Mtpa

Source: [G18], [T13], [C27], [C06], [C38], [C40]. Status: sourced.

Chapter 2: ore endowment and grade

Table D.4 Data for Figure 2.1: Cameroon's iron-ore deposits cluster in the south, between 30 km and about 600 km by planned rail from the deep-water port of Kribi

Place	Type	Longitude (° E)	Latitude (° N)
Douala	town	9.70	4.05
Edéa	town	10.13	3.80
Yaoundé	town	11.52	3.87
Ebolowa	town	11.15	2.90
Kribi	town	9.91	2.94
Campo	town	9.82	2.37
Mbalam (CMC)	iron-ore deposit or project	13.80	2.20
Nabeba (Congo)	iron-ore deposit or project	13.95	1.95
Kribi-Lobé	iron-ore deposit or project	10.02	2.78
Bipindi-Grand Zambi	iron-ore deposit or project	10.42	3.08
Ngovayang	iron-ore deposit or project	10.65	3.30
Nkout (Djoum)	iron-ore deposit or project	12.70	2.62
Ntem	iron-ore deposit or project	12.30	2.35

Source: [O05], [O32], [O37], [O42], [O44], [O49], [O01], [Z45], [E24]. Status: sourced. Approximate positions used to draw the schematic map; not survey coordinates.

Table D.5 Data for Figure 2.2: Cameroon has billions of tonnes of low-grade rock and one high-grade reserve

Deposit or product	Tonnage (Mt)	Grade (% Fe)	Basis
Mbalam-Nabeba DSO reserve (JORC)	517	62.2	code-compliant estimate
Mbalam-Nabeba hematite resource (JORC)	805.7	57.3	code-compliant estimate
Mbalam-Nabeba itabirite resource (JORC)	5,638	33.4	code-compliant estimate
Nkout indicated (NI 43-101)	1,600	33.3	code-compliant estimate
Nkout DSO	64.3	54.5	code-compliant estimate
Kribi-Lobé (company)	632.8	33.0	company or official statement
Bipindi-Grand Zambi (company)	150	29.45	company or official statement
Ntem (company)	98.8	35.3	company or official statement
Mbalam DR concentrate, testwork	n/a	68.0	concentrate grade (product)
Mbalam BF concentrate, testwork	n/a	66.6	concentrate grade (product)
Nkout gravity concentrate	n/a	65.0	concentrate grade (product)
Lobé concentrate, planned (minimum)	n/a	60.0	concentrate grade (product)
DR-grade pellet basis (1.5% SiO ₂ , 0.5% Al ₂ O ₃)	n/a	67.5	price-reporter basis

Source: [O05], [O04], [O42], [O32], [O35], [O38], [O44], [N16]. Status: sourced.

Table D.6 Data for Figure 2.3: Grade-to-route matrix

Feed	SiO ₂ + Al ₂ O ₃	Seaborne export	Gas shaft DRI to EAF	DRI plus electric smelter	Blast furnace in Cameroon
Mbalam DSO, 62.2% Fe	7.3%	suited	not suited	possible	possible
Mbalam hematite, 57.3% Fe	n/a	possible	not suited	possible	possible
Lobé concentrate, >60% Fe	n/a	suited	not suited	possible	possible
Nkout gravity concentrate, 65% Fe	n/a	suited	possible	suited	possible
Mbalam BF concentrate, 66.6% Fe	3.8%	suited	possible	suited	possible
Mbalam DR concentrate, 68% Fe	2.0%	suited	suited	suited	possible
Imported DR pellets, 67.5% Fe	2.0%	not suited	suited	suited	not suited

Source: [O05], [O04], [O42], [O35], [N16], [N01], [T02]. Status: derived.

Chapter 3: consumption and imports

Table D.7 Data for Figure 3.1: Chapter 72 import tonnage rose 33% in 2025 while the average unit value fell to 413 FCFA/kg

Year	Chapter 72 imports (t)	Chapter 73 imports (t)	Chapter 72 unit value (FCFA/kg)
2019	182,890	72,253	509
2020	278,981	56,700	617
2021	297,633	58,717	733
2022	283,589	65,719	783
2023	304,062	74,040	614
2024	309,682	80,583	443
2025 (provisional)	412,049	84,008	413

Source: [C01], [C02], [C03], [C04], [C05]. Status: sourced.

Table D.8 Data for Figure 3.2 (left panel): Billets are half of the chapter 72 import bill, and four-fifths of them came from one country

Product (HS heading)	Chapter 72 imports, 2023 (US\$ m)
Billets and semis (7207)	151.7
Flat products (7208 to 7210)	102.5
Sections (7216)	26.3
Other chapter 72	13.4
Wire rod (7213)	8.1
Wire (7217)	5.1
Rebar and bars (7214)	3.3
Total chapter 72	310.4

Source: [C06]. Status: sourced.

Table D.9 Data for Figure 3.2 (right panel): Billets are half of the chapter 72 import bill, and four-fifths of them came from one country

Origin	Billet imports, 2023 (kt)
Indonesia	125.5
Qatar	20.8
South Africa	9.8
UAE	3.0
Rep. of Congo	2.3

Source: [C06]. Status: sourced. UN Comtrade; Cameroon has not reported 2024 and 2025 data.

Chapter 4: lessons from other producers

Table D.10 Data for Figure 4.1: Gas-based ironmaking changed what North Africa imports

Indicator	2021	2025
Algeria: imports as a share of steel use (%)	35	16
Algeria: net steel trade (Mt; negative = deficit)	-1	+1
Egypt: semi-finished share of steel imports (%)	5	45

Source: [A03], [A04], [A07]. Status: sourced.

Table D.11 Data for Figure 4.2: Ore leaves, steel comes back

Region	Indicator	Value (Mt)
Brazil	Iron-ore exports, 2025	416.4
Brazil	Crude steel output, 2025	33.3
Africa	Iron-ore exports, 2024	88.3
Africa	Steel imports, 2025	32.9
Africa	Crude steel output, 2025	29.8
Africa	DRI output, 2025	16.3
Africa	DRI output, Sub-Saharan	0.09

Source: [N05], [N06], [G05], [T13]. Status: sourced.

Chapter 5: beneficiation policy

Table D.12 Data for Figure 5.1: From protecting rolling mills to requiring local transformation

Date	Milestone	Beneficiation or integration measure
May 2016	Rebar imports suspended by the Prime Minister's office	no
2020	SND30 names mines, metallurgy and steel among nine priority industrial sub-sectors	no
May 2022	Kribi-Lobé mining convention: 15% of production for the local market	yes
Aug 2022	Mbalam exploitation permit granted to Cameroon Mining Company (CMC)	no
Apr 2023	Customs reaffirms the rebar import ban "until further notice"	no
Dec 2023	Mining Code, art. 40(4): conventions set a minimum 15% for local transformation	yes
Dec 2024	Foundation stone of the Kribi steel complex laid at Mboro	no
Jul 2025	Investment ordinance: 50% national natural-resource inputs among eligibility criteria	yes
Dec 2025	Prime Minister sets up a strategic committee on mines-metallurgy integration	yes
Jan 2026	CEEAC-CEMAC common external tariff applies; environmental tax on rebar	no
Feb 2026	2026 to 2030 iron-ore programme of 1,748 bn FCFA (Lobé, Mbalam, Grand Zambi)	no
Apr 2026	Committee review: steel capacity exceeds local demand; AfCFTA exports prepared	yes

Source: [C20], [P13], [O33], [Z69], [C21], [Z42], [X01], [Z39], [Z79], [P23], [P19], [O29], [Z80]. Status: sourced.

Table D.13 Data for Figure 5.2: The applied tariff does not escalate from iron-bearing inputs to semi-finished steel

HS line	Product	Step	Applied MFN duty (%)
2601.11	Iron ore	iron-bearing input	10
7203.10	DRI	iron-bearing input	10
7204.29	Ferrous scrap	iron-bearing input	10
7207.11	Billets	semi-finished	10
7213.91	Wire rod	finished product	5
7214.20	Rebar and bars	finished product	20
7216.10	Sections	finished product	10
7208.27	Hot-rolled coil	finished product	10
7210.49	Galvanised sheet	finished product	30

Source: [P24], [P23]. Status: sourced. 2023 schedule (WITS); the CEEAC-CEMAC tariff in force since 1 January 2026 had not published steel-line rates at the cut-off date.

Chapter 6: a phased chain

Table D.14 Data for Figure 6.1: One tonne of finished steel made entirely from DRI needs about 1.21 t of DRI

Material	Tonnes per tonne of finished long product
Itabirite run-of-mine ore	3.89
DR-grade concentrate	1.75
DR pellets	1.75
DRI / HBI (iron units)	1.21
Liquid steel	1.06
Billets	1.04
Finished long products	1.00

Source: [F01], [N01], [O04]. Status: derived.

Table D.15 Data for Figure 6.1 (assumptions): One tonne of finished steel made entirely from DRI needs about 1.21 t of DRI

Parameter	Value
Rolling yield (billet to finished product)	0.96
Caster yield (liquid steel to billet)	0.98
Metallic yield (charge to liquid steel)	0.88
DR pellets per tonne of DRI (t)	1.45
Mass yield, itabirite to concentrate	0.45

Source: [F01], [N01], [O04]. Status: derived. Assumptions behind the mass flow; ranges in Annex A.

Table D.16 Data for Figure 6.2 (left panel): Volume is there; grade and reduction capacity are not

RC-1 configuration	Metallics needed (Mtpa)
Phase 1	0.363
Phases 1 and 2	0.604
Phases 1 to 3	1.209
National scrap arising (2006 study)	0.053 to 0.062
RC-1.1 domestic scrap assumption (central; range 0 to 0.06)	0.030

Source: [F01], [C42]. Status: derived.

Table D.17 Data for Figure 6.2 (right panel): Volume is there; grade and reduction capacity are not

Item	Mtpa
Mbalam road phase (15% of up to 10 Mtpa)	1.50
Mbalam rail phase (15% of 25 Mtpa)	3.75
Lobé, 2028 plan (15% of 4 Mtpa)	0.60
DR pellets needed by a 1 Mtpa DRI module	1.45

Source: [O25], [Z42], [O33], [O35], [N01]. Status: derived. Mbalam and Lobé tonnages are direct-shipping ore or concentrate above 60% Fe, not DR grade.

Chapter 7: Kribi

Table D.18 Data for Figure 7.1: Kribi is where the inputs and outlets of a steel chain meet

Side	Item	Description
Input	Ore	Mbalam by road to 2029, by rail from 2030; Lobé next to port; Grand Zambi
Input	Gas	Sanaga Sud field offshore; LNG buyer left July 2026
Input	Power	225 kV line: 100 MW for the port platform, later 330 to 400
Input	Water	Port-platform water plant, production early 2027
Outlet	Sea	16 m quay draft; mineral terminal MoU, 125 Mtpa
Outlet	Road	Edéa-Kribi road (110 km) reconstruction tendered
Outlet	Rail	Edéa-Kribi-Lolabé-Campo line MoU, about 185 km
Outlet	Markets	Douala, Yaoundé; CEMAC; AfCFTA corridors

Source: [Z4], [Z5], [O25], [O35], [E09], [Z43], [Z44], [Z52], [Z46], [Z45], [Z80]. Status: sourced.

Table D.19 Data for Figure 7.2: Phase 1's average load is about a third of the first 100 MW at Kribi, which serves the whole port platform

Load or supply milestone	Type	MW
RC-1 Phase 1	average load (planned / derived)	36.1
RC-1 Phases 1 and 2	average load (planned / derived)	52.7
RC-1 Phases 1 to 3	average load (planned / derived)	94.1
Phases 1 to 3 plus DRI module (range 115 to 130)	average load (planned / derived)	120.0
Kribi 225 kV substation, initial stage (whole port platform)	supply (sourced)	100
Kribi substation, later stage	supply (sourced)	330 to 400
Industrial demand unmet today	demand (sourced)	150

Source: [F01], [Z43], [Z44], [E16], [E15], [T09]. Status: planned / derived. Loads use the EAF planning value of 450 kWh/t; with 30% DRI in the charge (about 490 kWh/t) add about 1.5 MW in Phase 1 and 5 MW at full capacity (Annex A).

Table D.20 Data for Figure 7.3: A 1 Mtpa direct-reduction module would need about 8.4 to 9.1 bcf of gas a year

Use or need	bcf per year
National gas production (2025)	75.5
Sold as LNG feed until July 2026	71.6
Kribi power plant offtake (2025)	4.9
1 Mtpa DRI module (need; range 8.4 to 9.1)	8.75
RC-1 reheating, Phases 1 to 3	0.83

Source: [E04], [E09], [T09], [T10], [F01]. Status: sourced / derived.

Chapter 8: economics of value capture

Table D.21 Data for Figure 8.1: Ironmaking is the largest step

Step	US\$ per tonne of rebar	Share of rebar value (%)
Ore (62% index)	175	28.0
Pelletising and direct reduction	272	43.5
Melting and casting	40	6.4
Rolling	138	22.1
Rebar (1 t)	625	100.0

Source: [G31], [N03], [G34], [F01], [N01]. Status: illustrative.

Table D.22 Data for Figure 8.1 (price inputs): Ironmaking is the largest step

Price input	US\$ per tonne	Source
Iron ore, 62% Fe fines, CFR China, 2025 average	100.0	[G31]
HBI, delivered Italy and Türkiye, January 2026	370.0	[N03]
Billets, China FOB, 3 October 2026 (mid-point)	467.5	[G34]
Rebar, Türkiye FOB, October 2026 (mid-point)	625.0	[G34]

Source: [G31], [N03], [G34], [F01], [N01]. Status: illustrative. Tonnes of each material per tonne of rebar as in the data for Figure 6.1.

Table D.23 Data for Figure 8.2: Each tonne of DR-grade concentrate is worth about 3.6 times as much carried through to rebar as sold as ore

Depth of transformation	US\$ per tonne of concentrate	Multiple of value as ore
Sold as ore (62% Fe index)	100.0	×1.0
As DRI or HBI	255.2	×2.6
As billets	278.0	×2.8
As rebar	356.9	×3.6

Source: [G31], [N03], [G34], [F01], [N01]. Status: illustrative. Pellet premium over the 62% index not included.

Chapter 9: risks

Table D.24 Data for Figure 9.1: Four risks sit in the high-likelihood, high-impact corner

Risk	Likelihood	Impact
R1 Rebar saturation	High	High
R2 Iron-unit shortage	High	High
R3 DR-grade feed	High	High
R4 Ore-project delays	High	Medium
R5 Gas reserves, price	Medium	High
R6 Firm power	High	High
R7 Import surges	Medium	High
R8 Price controls	Medium	Medium
R9 Market scale	High	Medium
R10 Regional rivals	Medium	Medium
R11 Financing, FX	Medium	High
R12 Capex overrun	Medium	High
R13 Bulk logistics	Medium	Medium
R14 Carbon rules	Medium	Medium
R15 Skills	Medium	Medium
R16 Governance	Medium	Medium

Source: Cameroon Steel. Status: derived. Analyst judgement; risk register in Table 9.1.

Table D.25 Data for Figure 9.2: Rebar is saturated at home and contested in the region

Item	kt per year
Cameroon rebar capacity	627
Cameroon rebar demand	180
Cameroon rebar exports (2025)	31
Gabon rebar imports (2023)	50.7
Congo rebar imports (2024)	32.8
New mill, Gabon (Nkok)	120
New mill, Abidjan	300
New mill, Tanzania	300

Source: [C30], [C05], [C07], [C39], [A21], [A22]. Status: sourced.

Chapter 10: recommendations

Table D.26 Data for Figure 10.1: The chain is built from the melt shop back towards the mine

Phase	Scope	Capacity	Note
Phase 1	EAF melt shop, ladle furnace, billet caster; bar and wire-rod mill	0.3 Mtpa	First heat H2 2030; imported iron units
Phase 2	Second melt line (EAF, ladle furnace, caster); light and medium sections mill	+0.2 Mtpa	2032 to 2034; cumulative 0.5 Mtpa
Phase 3	Melt-shop expansion; heavy-section and H-beam mill	+0.5 Mtpa	After 2034; design 1 Mtpa
DR module	Direct-reduction module fed with Cameroonian concentrate	about 1 Mtpa DRI	Later, subject to ore, gas and approvals

Source: [F01], [X04]. Status: planned / indicative.

Table D.27 Data for Figure 10.2: Sequence the chain to the ore, gas and power calendar

Lane	Item	Window
Government	Art. 40(4) offtake rules	Q1 2026 to Q4 2027
Government	Trade-remedy capacity	Q3 2026 to Q3 2028
Government	Long-term gas allocation	Q2 2027 to Q4 2029
Infrastructure	Grid line, water	Q1 2026 to Q3 2027
Infrastructure	Mineral terminal: MoU Nov 2025, 5 to 6 years	Q4 2025 to Q1 2032
Infrastructure	Edéa-Kribi-Campo railway	Q1 2028 to Q4 2032
Ore projects	Mbalam by road, up to 10 Mtpa	Q1 2026 to Q4 2029
Ore projects	Lobé ramp-up to 8 Mtpa	Q3 2027 to Q2 2031
Ore projects	Mbalam by rail, 25 Mtpa	from Q1 2030
Steel chain	Phase 1: works 2029, first heat H2 2030	Q1 2029 to Q4 2031
Steel chain	Phase 2: second melt line, sections mill	Q1 2032 to Q4 2034
Steel chain	Phase 3: melt-shop expansion, heavy sections	after 2034
Steel chain	DR module, later: ore, gas, approvals	later, subject to ore, gas and approvals

Source: [O25], [O35], [Z43], [Z44], [O31], [Z4], [Z45], [N02], [F01]. Status: illustrative. Dated items follow published plans; mineral terminal completion within five to six years of March 2026; steel-chain windows follow the RC-11 planning schedule (targets and indicative windows, not commitments).

CAMEROON STEEL

FROM MINERAL RESOURCE TO INDUSTRIAL VALUE

Cameroon Steel is developing a phased steel complex at Mboro, in the Kribi industrial-port zone, to make steel in Cameroon from Cameroonian resources. This paper is published for information and does not constitute an offer or a commitment.