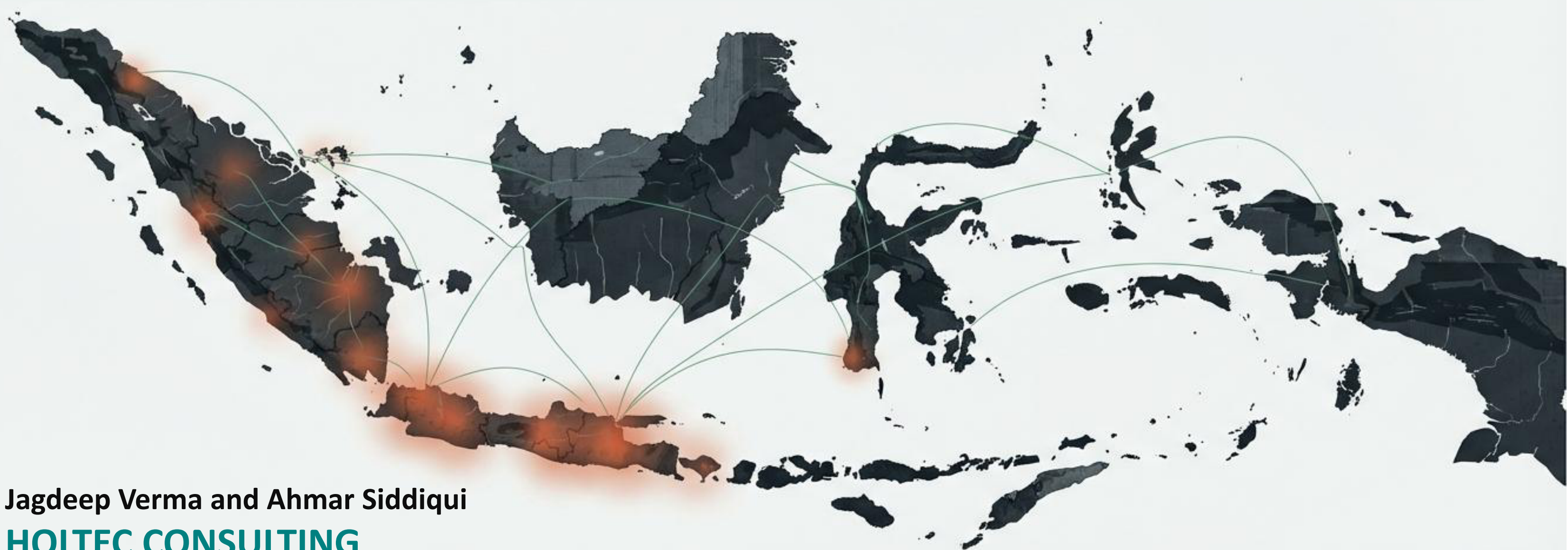


The Strategic Roadmap for SCM in Indonesia's Cement Sector



Jagdeep Verma and Ahmar Siddiqui
HOLTEC CONSULTING

Indonesia represents the 10th largest cement demand globally amidst massive economic scale

14th

Largest Country
(Area: 1,905,000 km²)

4th

in Population
(284 million)

17th

in GDP
(\$1,430 Billion)

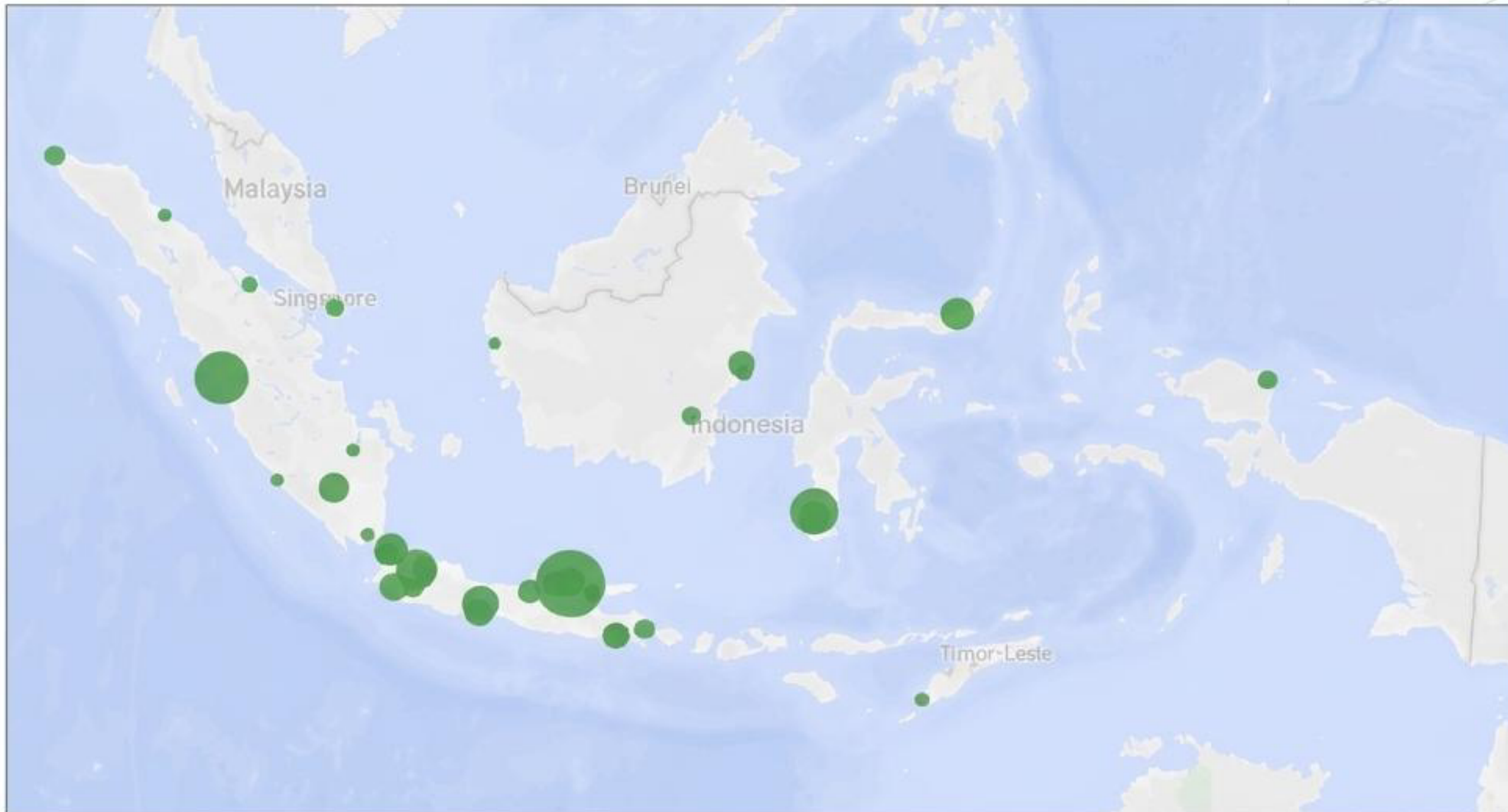
10th

Largest Cement
Demand

Economy, Demography, and Geography

Area (million km ²)	1.9
Population (millions)	284
GDP (Billion USD)	1,430
Per Capita GDP (USD)	5,000

The cement market footprint is heavily concentrated in Java and Sumatra



Key Insight Panel

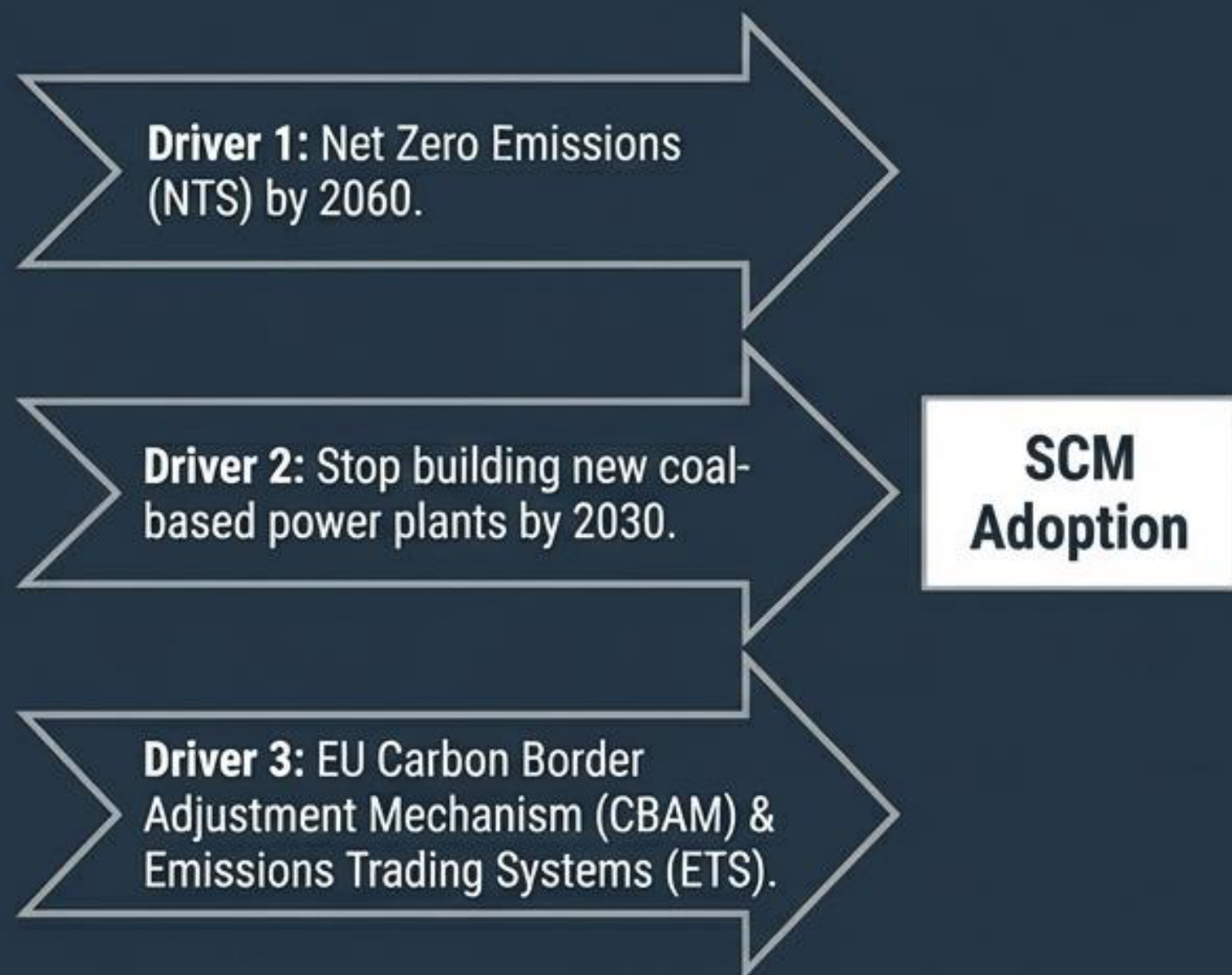
Most cement plants are located in Java, followed by Sumatra.

Demand is structurally tied to these same two islands, creating localized saturation while ignoring archipelagic reach.

JAVA – SUMATRA CORRIDOR

Decarbonization mandates require an immediate pivot to four core Supplementary Cementitious Materials (SCMs)

Imperative Flowchart



SCM Arsenal



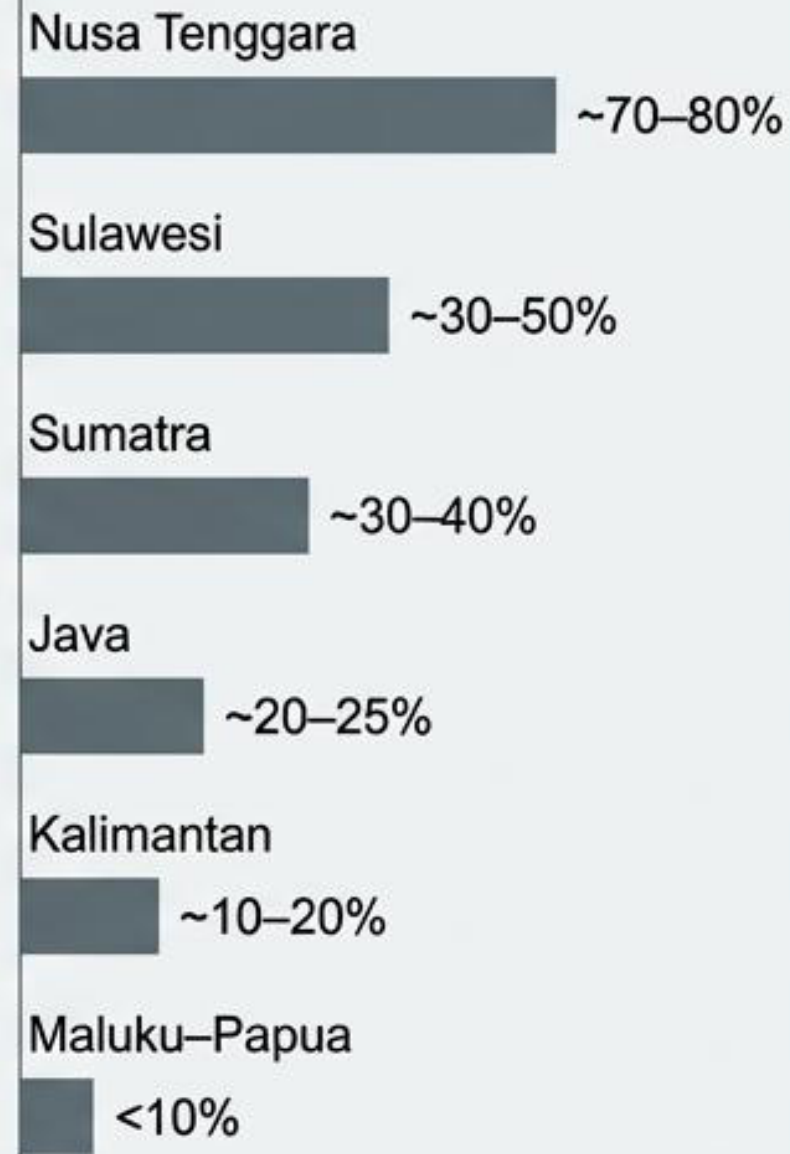
FABA production is robust, but utilization remains fractured across regional lines



10-15 mio tpa Production

Domestic sub-bituminous & lignite (5-7% ash).

Utilization Heatmap



Challenges Radar

- Quality Variability
- Storage & Logistics
- Regulatory hurdles
- Archipelagic Logistics

The FABBA Policy Gap: Indonesia's regulatory enforcement severely lags behind India and China

Harsh Truth Matrix

Policy Vector	Indonesia	India	China
Mandate	● 70% target	● 100% supply obligation	● 100% utilization target
Financial	● Delisting	● Free delivery / GST 0%	● 50% capex grants
Market Pull	● None	● Radius-based priority	● Carbon Credits \$15/t
Enforcement	● Weak	● Landfill bans	● Provincial fines

Ultimate Utilization



Indonesia: 10-20%



India: 75-80%



China: 65-70%

GBFS is heavily monopolized in Java with near-total utilization, constraining broader access



The Monopoly Structure



Property Benchmark Table

- Fineness (cm^2/g)
- Basicity
- Sulfate Content $<2.5\%$

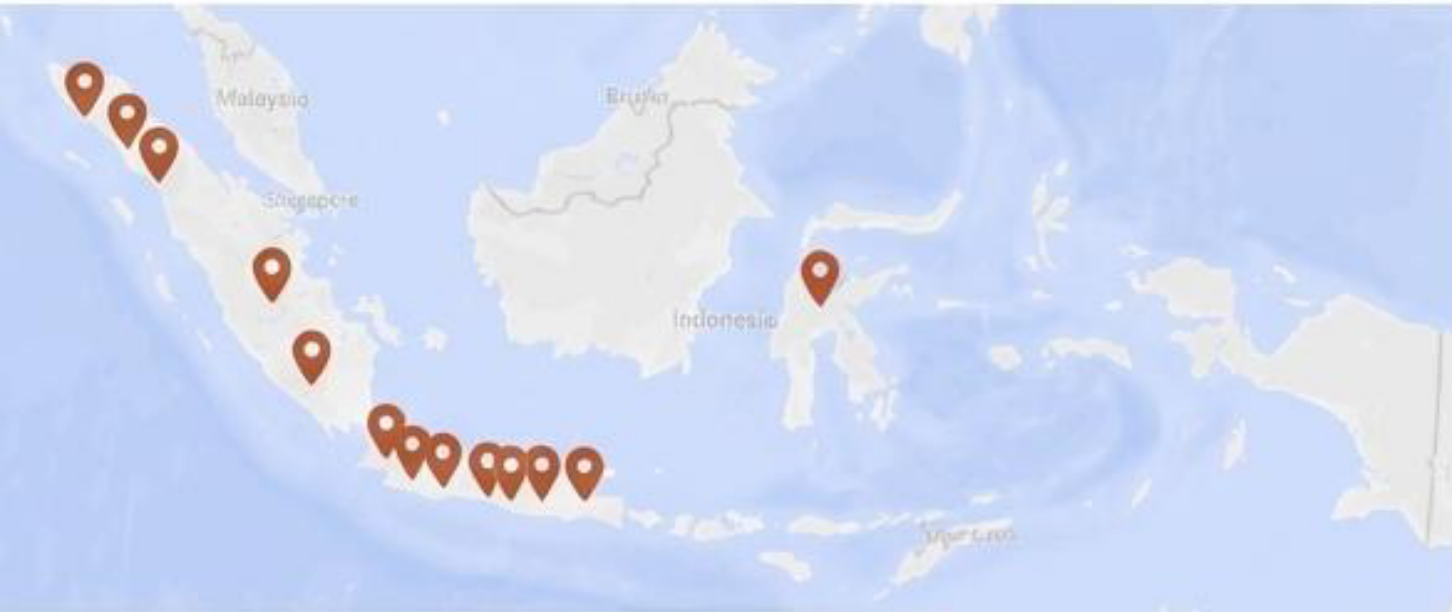
~ 2 mio tpa GBFS Production

>95% Utilization in Java

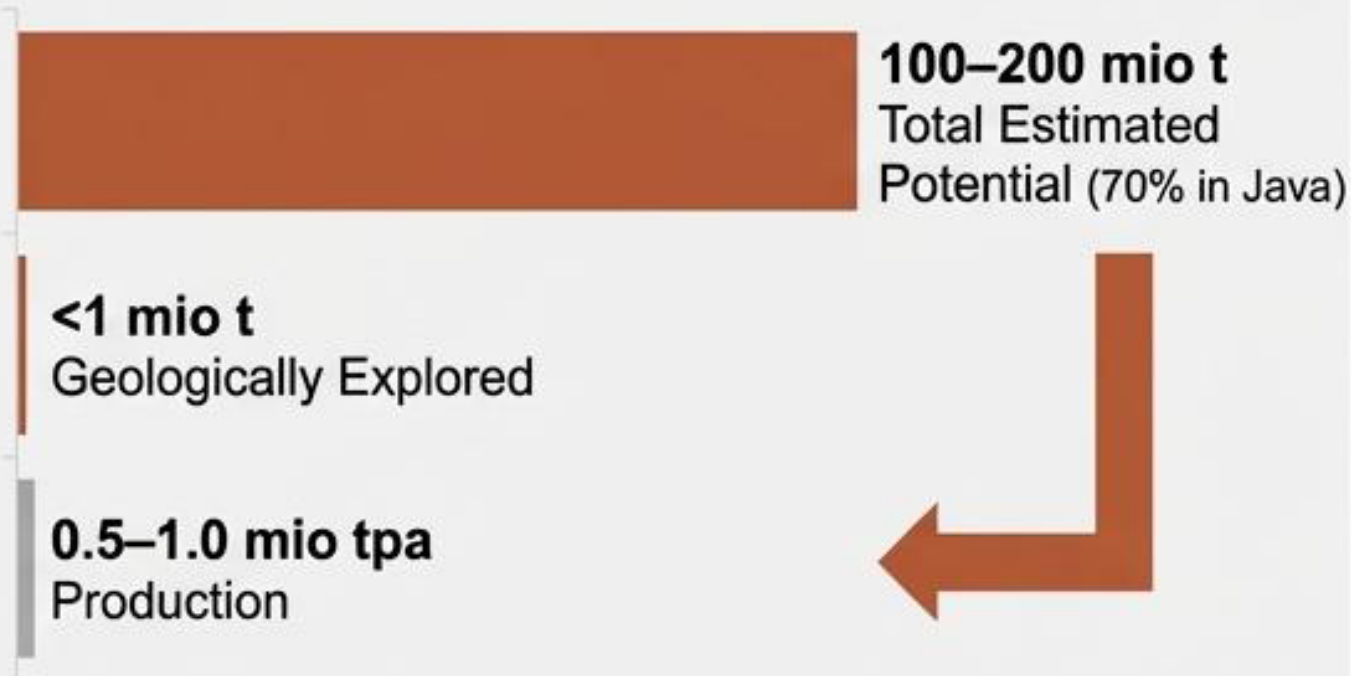


Property	Indonesian	ASTM	EN
Fineness (cm^2/g)	3500-4500	≥ 4500	≥ 2750
Basicity	0.9-1.1	0.9-1.2	0.9-1.2
Sulfate Content	$<2.5\%$	$<2.5\%$	$<2.5\%$
MgO	$<8\%$	$<18\%$	$<12\%$

Trass offers immense geological potential but remains trapped by quality and logistical hurdles



Potential vs. Reality Gap



Regional Availability vs Usage Matrix

Region	Availability / Usage
Java: ✓	High Availability / High Usage
Sumatra: 🇮🇩	Moderate / Low
Sulawesi:	Unknown / Minimal
Kalimantan:	None / Minimal

Property Constraints Table

Property	Trass	FABA	SNI (PPC)
$\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$	70-87%	60-85%	≥70%
Fineness (cm ² /g)	3800-4000 natural	250-450 post-proc.	≥300

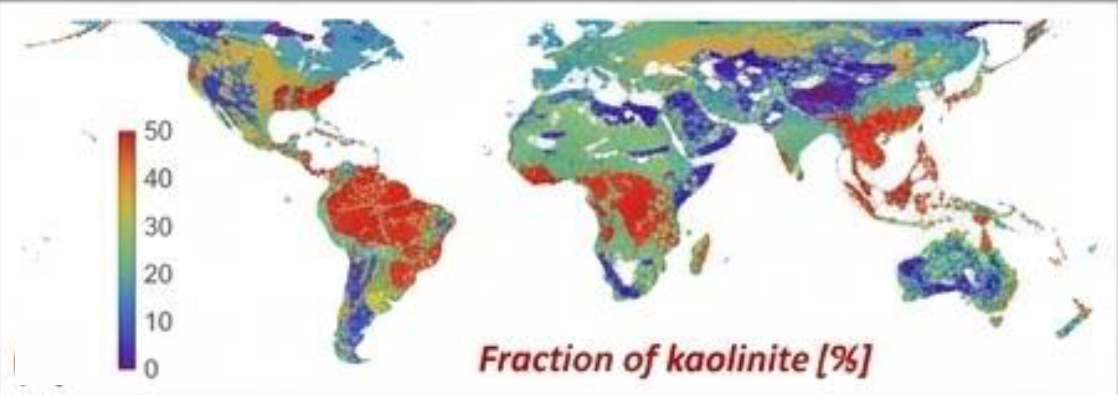
Key Challenges

- 🏆 Quality Variability
- 🚚 Logistics & Costs
- 📄 Regulatory

Kaolinite holds a monumental 800+ million tonne potential, paralyzed by regulatory ambiguity

LC3

Limestone Calcined Clay Cement



Reserves Breakdown Table

Sumatra:	~450 mio t
Bangka-Belitung:	70+ mio t
Kalimantan:	10-30 mio t
Java:	Scattered

The Ambiguity Wall

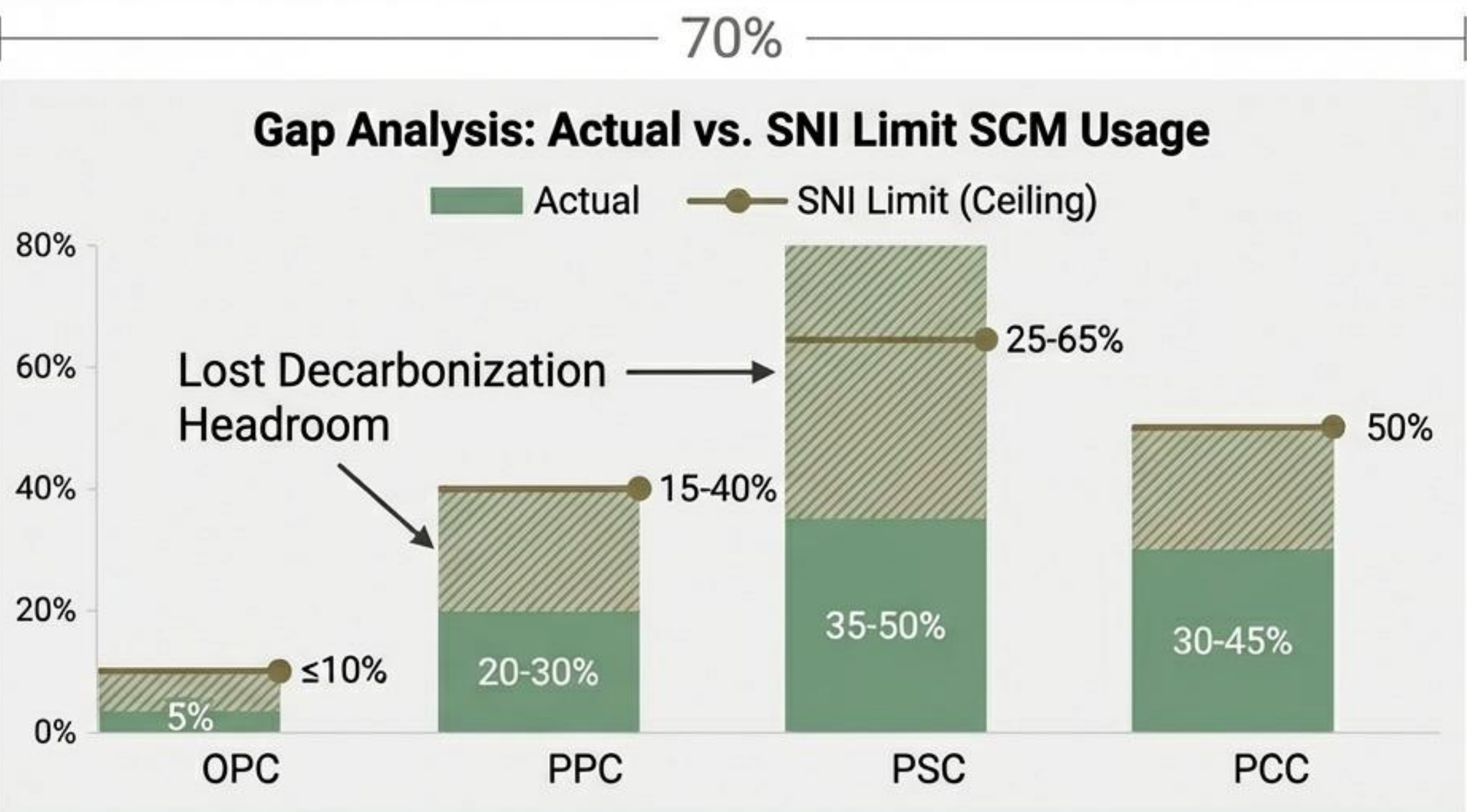


- No Calcined Clay Specs
- Missing Mining Permits
- HS Code Ambiguity
- Remote Deposit Locations

~800-900 mio t
Total Estimated Potential

Current production ~ 0.5-1.0 mio t

Systemic Barrier 1: Institutional inertia suppresses actual SCM usage well below legal and global limits



Global Benchmark Sidebar

- European Standards (EN 197-1):**
 - CEM III allows up to 65% SCM
 - CEM V allows up to 80% SCM
- India Standards (BIS):**
 - PSC allows up to 70% SCM

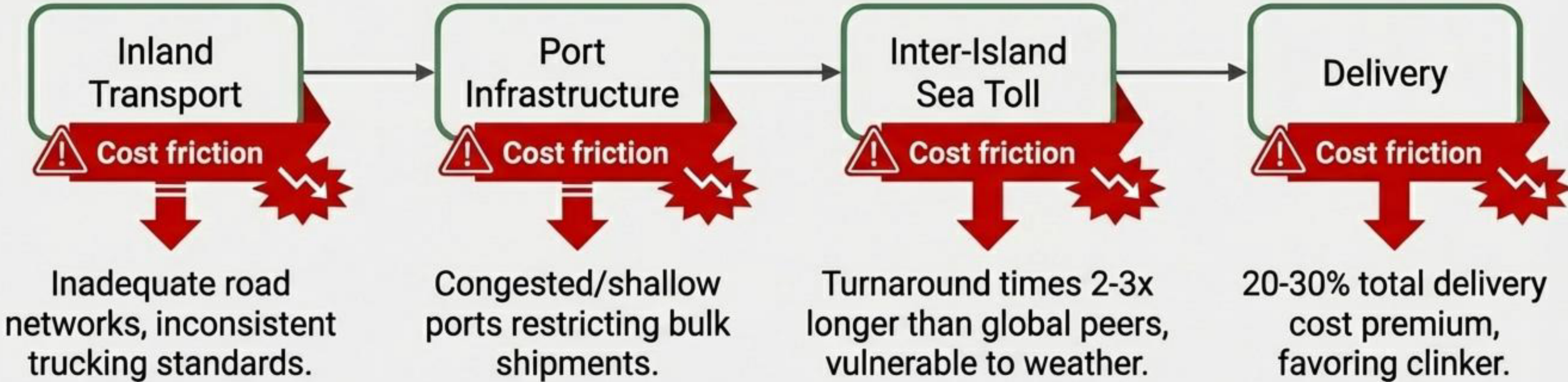
No Dedicated SNI for SCM

Root Causes Box

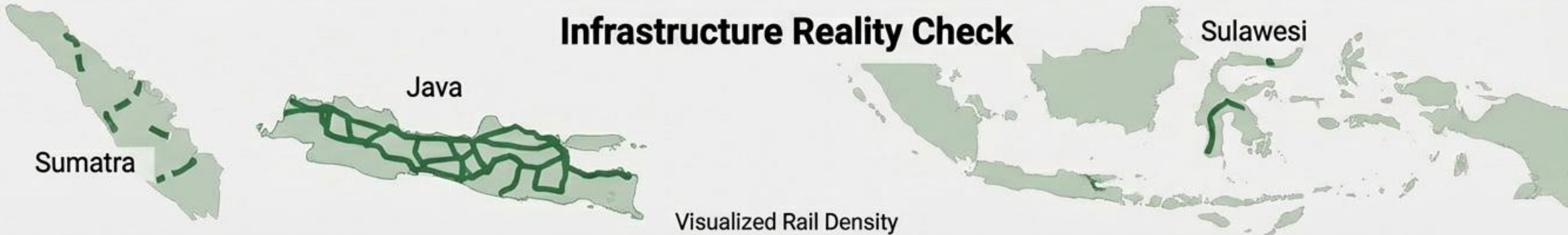
Market practices prioritize **stability** over decarbonization. Resistance is driven by **technical confidence barriers**, variable pozzolan **quality**, and agonizingly **slow standard-revision cycles**.

Systemic Barrier 2: Archipelagic logistics impose a 20-30% cost premium over clinker

Archipelagic Supply Chain Diagram



Infrastructure Reality Check



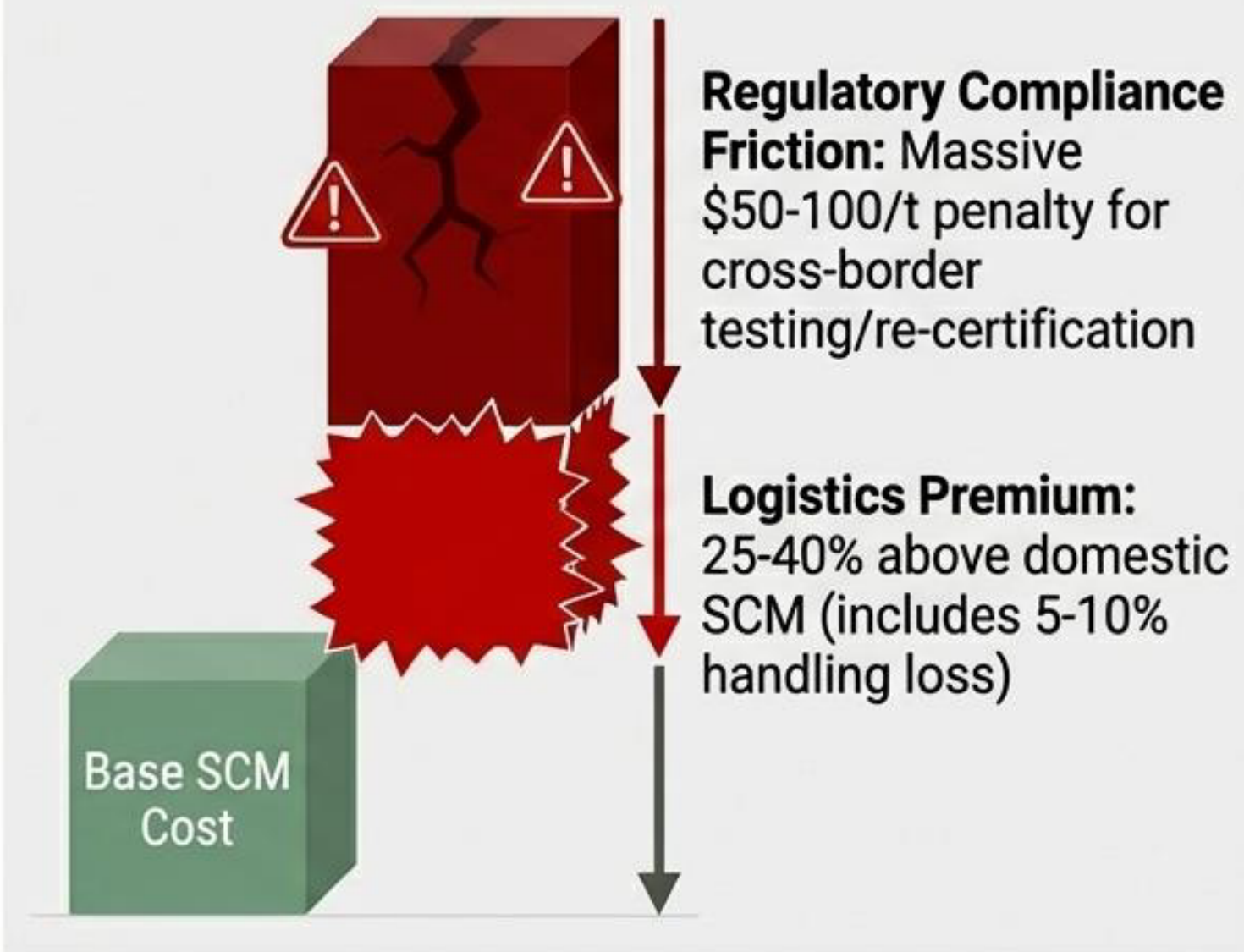
Systemic Barrier 3: Regulatory friction chokes intra-ASEAN SCM trade to less than 10% of its true potential



Regional Flow Map: Constricted Intra-ASEAN SCM Trade

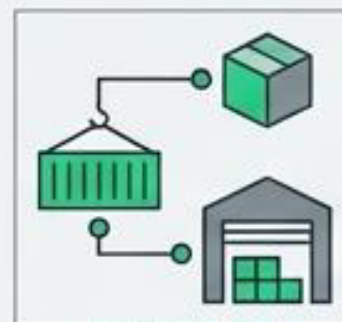


The Cost Bottleneck: Artificial Strangulation



Prescription Box: Harmonize ASEAN SCM specs (EN 197 framework) | Expand ASW to all 10 members | Invest in bulk terminals.

The SCM Ecosystem & Strategic Enablers



Infrastructure & Logistics

SCM Hubs



Financial Support

Subsidized Funding &
Green Projects (IKN, etc.)



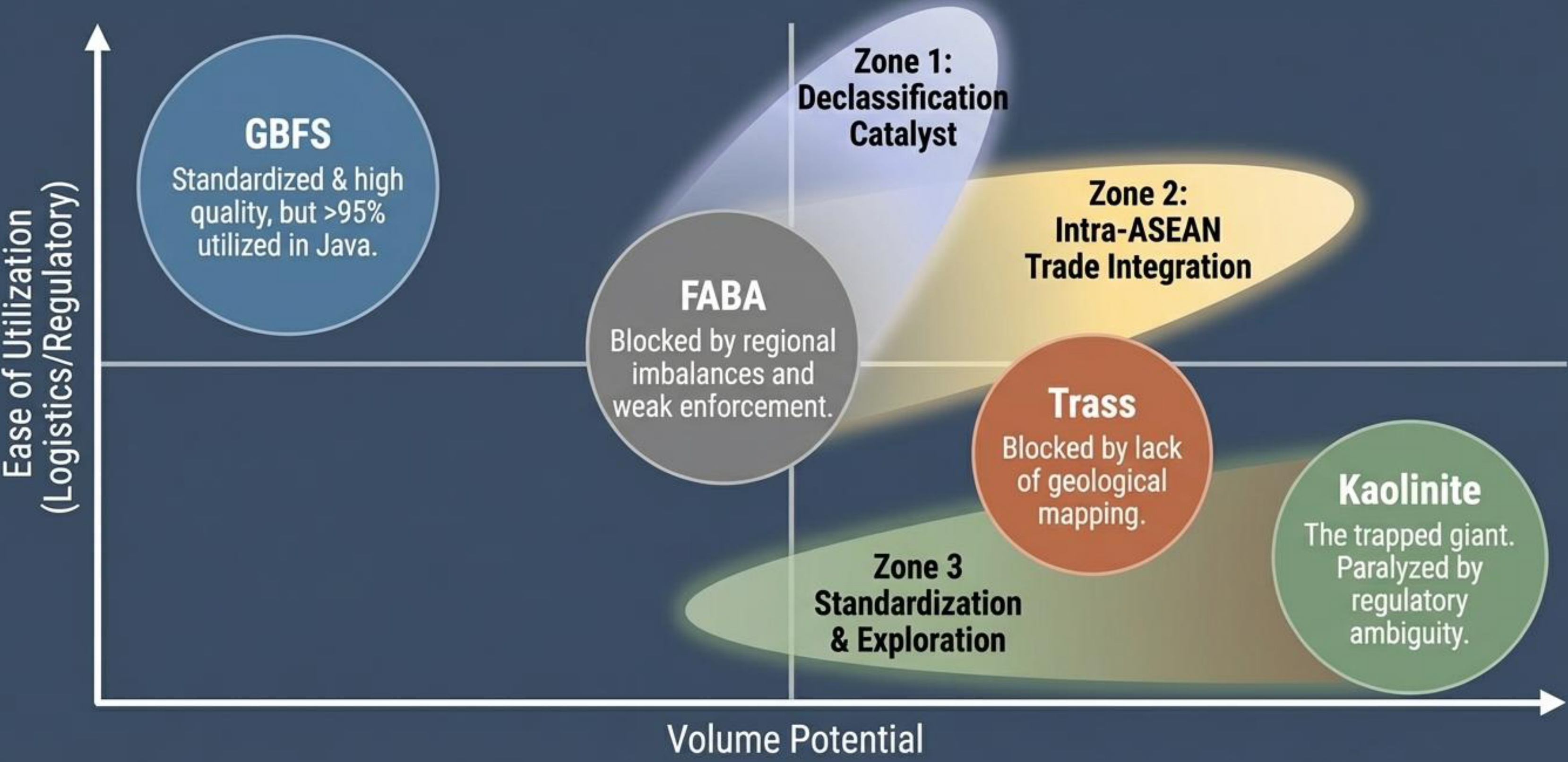
Market & Innovation

SCM Trading Market & SCM
Mining/Trading Startups

Capital Allocation & Impact Matrix

INITIATIVE	CAPEX (USD Bn)	OPEX SAVINGS (%/yr)	CO ₂ SAVINGS (mio t/yr)	PAYBACK (yrs)
Grinding Facilities	1-2	10-20	4-6	3-4
Logistics Upgrades	0.5-1	5-10	1-2	4-6
FABA/Trass Processing	0.5	15-20	3-5	2-4

The SCM Strategic Landscape: Aligning material potential with systemic reforms



The Strategic Roadmap to 2060: Unlocking Unlocking Indonesia's Green Cement Potential

Pillar 1 Incentivization & Market Pull

Incentivize SCM usage
directly for cement
companies

Mandate blended
cement usage for
downstream
construction

Pillar 2 Infrastructure & Logistics

Develop dedicated
infrastructure for SCM
bulk transport

Subsidize SCM logistics
for transporters and
traders to offset the 20-
30% inter-island premium

Pillar 3 Regulatory & Trade Alignment

Align standards and
classification across
ASEAN to eliminate the
\$50-100/t testing
friction

Create exact national
specifications for
Calcined Clay (Kaolinite)

Pillar 4 Exploration & Supply

Drive aggressive
government/private
investment in geological
investigation to map the
800+ mio t of Kaolinite
and 100-200 mio t of Trass

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