ADB ASIAN DEVELOPMENT BANK

Project Number: 56120-001
January 2025

REG: Mainstreaming Nature-Positive Investments for Green, Resilient and Inclusive Recovery

Sustainable Construction Materials Market Analysis - Georgia

Draft report (version 2)

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ABBREVIATIONS

BFS	-	blast furnace slag
GHG	-	greenhouse gases
EPD	-	environmental product declaration
GCCA	-	Global Cement and Concrete Association
CAGR	-	Compound Annual Growth Rate
EU	-	European Union
EN	-	European Standard
SST	-	Georgian Standard
HMA	-	hot mix asphalt
ISO		international standards organization
LEED	-	Leadership in Energy and Environmental Design
PC	-	Portland cement
PCB	-	Portland cement blend
PFA	-	pulverized fuel ash
RAP	-	recycled asphalt planings
SCM	-	supplementary cementitious material
WMA	-	warm mix asphalt

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1. Executive Summary

This technical note supports ADB's initiative to mainstream nature-positive investments in Georgia's construction sector. It presents findings from market analysis and a regulatory questionnaire, identifying opportunities to adopt sustainable materials such as SCMs and RCWMs.

This note presents the findings of a market analysis on sustainable construction materials in Georgia, focusing on cement, concrete, steel (rebar), and asphalt. The study aims to support ADB's initiative to mainstream nature-positive investments by identifying opportunities for resource-efficient and low-carbon materials in Georgia's construction sector.

The construction industry plays a critical role in Georgia's economy, contributing over 7% of GDP, but it is also a major source of greenhouse gas emissions and resource use. As demand for infrastructure and urban development continues to grow, the need for greener and more efficient materials becomes increasingly urgent.

Key findings include:

- **Cement and concrete** dominate the market, with annual cement production exceeding 3 million tons and concrete production over 5 million m^3 in 2024. However, most cement is high-emission CEM I, while lower-carbon blended types are underused due to limited access to supplementary cementitious materials (SCMs).
- **Steel production** is based almost entirely on recycled scrap using electric arc furnaces, resulting in relatively low emissions. Yet declining local scrap supply has increased reliance on imports, reducing self-sufficiency.
- **Asphalt production** is fully domestic and expanding, with limited pilot projects using recycled asphalt pavement (RAP) and additives. Widespread adoption is hindered by unclear standards and lack of carbon benchmarks.
- **Recycling potential** is high, but uptake is low. Recycled aggregates are cheaper than virgin alternatives, yet logistical barriers, weak regulation, and limited recycling facilities prevent wider use.

Georgia has already harmonized its construction material standards with the European Union. However, enforcement remains weak, and there are no binding requirements for recycling, SCM use, or CO_2 reporting. Public procurement represents the most powerful lever for change, as government and donor-funded infrastructure projects account for the majority of demand.

The report concludes that Georgia has a solid industrial base and emerging innovation pilots, but the transition to sustainable materials is still at an early stage. Stronger policy frameworks, investments in recycling and SCM infrastructure, and the integration of sustainability criteria into public procurement are critical to accelerate progress.

Recommendations include:

1. Leverage public procurement to create market demand for green materials.
2. Establish binding targets for SCMs, recycling, and CO_2 disclosure.
3. Invest in recycling plants and alternative material production facilities.
4. Strengthen certification and monitoring systems for green construction materials.
5. Scale up innovation pilots and foster international partnerships for technology transfer.

By taking these steps, Georgia can align its construction sector with international best practices, reduce its reliance on imports, cut emissions, and position itself as a regional leader in sustainable infrastructure development.

2. Introduction

This technical assistance (TA) will foster regional cooperation on nature-positive investments for a green, resilient, and inclusive recovery. It will do this by building the necessary foundation to accelerate action on nature, strengthening environmental sustainability within the Asian Development Bank's (ADB) operations, and promoting innovative knowledge, tools, and capacity building. The goal is to better integrate nature considerations into strategic planning, development, and investment decisions.

The production of construction materials like concrete is responsible for 8% of global emissions, and resource extraction and processing account for an estimated 90% of biodiversity loss. To address this, the Asian Development Bank (ADB) has developed Sustainable Procurement Guidance to help its staff and borrowers (including grant recipients) integrate sustainability into public procurement. This assignment will conduct market analyses in Vietnam, the Philippines, India, Georgia, and Fiji (selected as pilot countries) to identify opportunities for improving resource efficiency in the production of key construction materials: asphalt, cement, concrete, and steel. This report is dedicated to Georgian construction materials.

This technical note presents an initial assessment of the availability and cost structure of sustainable construction material options in Georgia, in line with international and national technical standards. The assessment is based on a detailed country questionnaire and complementary desk research, and responds to the Terms of Reference task of identifying opportunities for the use of supplementary cementitious materials (SCMs), recycled construction materials (RCWMs), and other sustainable alternatives within the Georgian construction sector.

The construction sector is among the top five contributors to the total GDP of Georgia and estimated as 7.6% of the national GDP in 2023 with the value of 4.04 bln USD.[1]

The objective is to support ADB's ongoing infrastructure development engagement in Georgia by identifying actionable, technically viable, and economically justified options for mainstreaming resource-efficient and low-carbon construction materials. This technical note will be shared with ADB and relevant Georgian authorities for review and finalized based on their feedback

[1] Data of National Statistics Office of Georgia (Geostat) for 2023 – GEL 13 mln. equicvalent.

3. Methodology

The assessment applies a multi-source, mixed-methods approach to evaluate the availability, technical compatibility, and indicative pricing of sustainable construction materials in Georgia. Given the construction sector's significant contribution to the national economy—over 7% of GDP—and the key role of materials such as cement, steel, concrete, and asphalt, the analysis focuses on identifying technically feasible and market-available pathways for reducing embodied carbon in infrastructure works.

Due to the lack of a standardized national methodology for sectoral material studies, ADB and the consulting team agreed to center the analysis on the cement market as the most data-rich subsector, while also gathering representative information across other materials.

The methodology consisted of the following key steps:

Literature and Data Review:
A review of publicly available material was conducted, prioritizing official data from the National Statistics Office of Georgia (Geostat), policy reports, and third-party market assessments. Key documents included:

- *Circularity Mapping for Georgia* (2022)
- *Roadmap for Developing Circular Economy Strategy in Georgia* (Dr. Dariusz Prasek)
- Academic and technical papers on low-carbon materials
- Corporate sustainability disclosures from major producers

Stakeholder Consultations and Field Interviews:
In-depth interviews and technical discussions were held with key public agencies and private sector producers to supplement the desk review. Stakeholders included:

- Ministry of Economy and Sustainable Development (Department of Materials)
- Ministry of Environmental Protection and Agriculture (Environmental Policy Department)
- Major producers of cement, concrete, steel rebar, and asphalt (e.g., Hunnewell Cement, Geosteel, Prime Concrete, Black Sea Group)

Questionnaire Deployment and Case Study Identification:
A structured questionnaire was used to guide data collection and ensure coverage of technical standards, production capacity, material substitutions, green practices, and pricing. Case studies of innovative or sustainable practices were compiled where available, with a focus on demonstrating feasibility of reduced-CO_2 alternatives.

Data Validation and Costing Inputs:
Price information was drawn from official statistics where available, supplemented by company interviews and open-source pricing from manufacturer websites. CO_2 emissions data was obtained directly from companies able to provide third-party certification or self-reported lifecycle assessments. No central national registry of CO_2 intensities exists.

The analysis is intended as a practical baseline for dialogue with national stakeholders and development partners, to identify short-term actions and long-term entry points for mainstreaming sustainable materials in public procurement and infrastructure investment.

4. Regulatory and Policy Framework

4.1 Sustainable Legislation

4.1.1 Legislation

The Republic of Georgia has national strategic goals to promote sustainable development and a circular economy, including resource efficiency in the construction sector. These goals are outlined in the "Roadmap for Developing Circularity Strategy in Georgia" (2023), developed under the Governance Reform Fund (GRF) Project.

To enhance compliance with European climate and energy policies, Georgia's Integrated National Energy and Climate Plan (NECP) sets ambitious targets – to increase the share of renewable energy in total final energy consumption by 27.4% by 2030 and to reduce greenhouse gas emissions by 47% compared to 1990 levels.
These are primarily outlined in the EU4Environment “National Waste Management Strategy 2016-20230 and National Waste Management Action Plan 2022-2026“, developed on the basis of Waste Management Code, with further development in the Roadmap for Developing Circularity Strategy in Georgia. Strategic goals don’t name cement, steel, concrete, asphalt separately.

In terms to the resources there are no specific laws that set explicit targets on resource efficiency in the use of critical construction raw materials.

However, there is broader framework which indirectly address issues related to resource efficiency:
Energy Efficiency/Embodied Carbon. Legal acts:
Efficiency Law of Georgia (2015) and Energy Efficiency Action Plan (2019).
Law of Georgia On Energy Efficiency was adopted in May, 2020 with different stages of targets to come into force. The aim is to increase energy savings, energy supply security and energy independence, as well as to maximally eliminate barriers to improving energy efficiency in the energy market.
Law of Georgia On Energy Efficiency of Buildings was adopted in May, 2020 with different stages of targets to come into force. aw is to promote the rational use of energy resources and to improve the energy efficiency of buildings, taking into account the external climate and local conditions of buildings, the demand for indoor climate conditions and cost-effectiveness.
Law of Georgia on Spatial Development and Basis for City-building (2018) regulates the spatial development and the process of city-building , it also mentiones energy efficiency of construction.
Law of Georgia on Energy Labelling (2019). This Regulation lays down a framework that applies to energy-related products placed on the market or put into service. It provides for the labelling of those products and the provision of standard product information regarding energy efficiency, the consumption of energy and of other resources by products during use

and supplementary information concerning products, thereby enabling customers to choose more efficient products in order to reduce their energy consumption.
The national methodology for calculating the energy efficiency of buildings shall take into account the relevant national standard based on the European Standard, the Delegated Regulation No 244/2012 of 16 January 2012 of the European Commission and the legislation of the Energy Community. This implies to use State standard that is based on EU standard: GST ISO 5001:2018/2019 Energy management systems – requirements and guidelines.
b) Water use: Water Resource Management Law (2023): This law regulates the use, conservation, and management of water resources in Georgia. It includes guidelines for the efficient use of water, with a focus on preventing water wastage and contamination, but does not specifically focus on water use in the production of construction materials.
c) Mining of Raw Materials: Mining activities are regulated under the Environmental Protection Law (1996) and Law on Subsoils (1996), focusing on sustainable practices but without specific regulations for raw materials used in construction. Right now there are no targets set for the content of aggregates in the materials.
The sector's main constituent parts are: the extraction of relatively inexpensive construction materials, undertaken by a large number of smaller companies on numerous sites.

4.1.2 Status of construction and demolition (C&D) regulations

Georgia does not have specific laws or regulations mandating the minimum use of construction and demolition (C&D) waste in construction and building projects. Consequently, there are no established targets or minimum rates for the construction sector regarding: landfills and recycling.
In this regards, the National Waste Management Strategy 2016-2030 and National Waste Management Action Plan 2022-2026 outlines several key objectives/targets:
Target 13.1 Improvement of the legal framework and strengthening monitoring capabilities for construction and demolition waste management. Sub-Target 13.1.1 evaluation of the current situation of construction and demolition, waste and develop relevant normative acts. – by IV quarter 2023 – not fulfilled.
Target 13.2 Introduction of modern techniques concerning the collection and recycling of construction and demolition waste. Sub-Target 13.2.3. Development of new standards to facilitate the secondary use of construction and demolition waste in concrete production in accordance with European standards reach by IV quarter of 2025. This target also won't be fulfilled by the planned date. Obviously both C&D targets planned dates will be postponed until EU financing renewal.

As the laws/rules/regulations are under development there are no quantifiable minimums of the C&D or Construction and Demolition Waste (C&DW).

As per older sources of 2021 following targets were set which shall be reviewed as per progress of achievement:

Source Separation[2]: By 2025, Georgia aims to implement source separation for paper, glass, metal, and plastic wastes.
Recycling Targets[3]: The strategy sets national minimum recycling targets for separated waste, aiming for an 80% recycling rate by 2030 for paper, glass, and plastic, and a 90% rate for metal.
In May 2020, the Government of Georgia adopted four technical regulations regarding EPR: waste oils, portable batteries/accumulators, waste from electric/electronic equipment (WEEE) and waste tires.

4.1.3 Incentives for production of Construction materials

It should be noted government policies and programs regarding incentives for construction materials.

The Government of Georgia, along with international partners, offers various economic policies and financial incentives to support the construction materials sector across the country. Key initiatives include:
1. Free Industrial Zones (FIZ): Companies operating within Georgia's Free Industrial Zones benefit from significant tax exemptions, including:
    Corporate Income Tax: 0%
    Dividend Tax: 0%
    Property Tax: 0%
    Import Tax: 0%
    Value Added Tax (VAT): 0%

These incentives are designed to promote manufacturing, processing, and export activities within the zones.
2. Produce in Georgia Program: This program offers subsidies on loan interest payments for over 300 activities, including those related to construction materials. It aims to support local production and enhance competitiveness.
3. Enterprise Georgia Initiatives: The government, through Enterprise Georgia, continues to assist industrial producers and businesses to increase competitiveness. For instance, Nova, a manufacturer of building and repair supplies, expanded its operations with state program support, replacing imports worth GEL120 million and creating export opportunities, especially to the European Union market.
4. Georgian Construction Materials Cluster (GCMC): Supported by the EU and the German government through the "Clusters for Development" project, the GCMC aims to promote sustainable business clusters in the construction sector. This initiative encourages small and medium-sized enterprises to collaborate, enhancing competitiveness and job creation.
5. EU and EBRD Support: The European Union and the European Bank for Reconstruction and Development (EBRD) have assisted Georgian companies in the construction materials sector. For example, GRC, a one of the main producers of building materials, expanded its

[2] Waste Management Policy in Georgia, Irma Gurguliani, Ministry of Environmental Protection and Agriculture of Georgia, 10.03.2021
[3] Solid Waste Management Sector Assessment in Georgia, Silpa Kaza, Tengiz Gogotishvili, WB, 2021

product portfolio with support from the EU4Business-EBRD Credit Line, enhancing local production capabilities.

4.2 Standards for constructing materials

Georgia standard system can be considered as liberal. In view of construction materials this mean that Georgia accepts harmonized European Standards. In case of EU standards, Georgian abbreviature SST is added to EU standards abbreviature “EN”. In addition, Georgia has recognized up to 40 countries standards, which have some minor deviations from Georgian standards, but their standard accreditation is recognized by Georgia.

Georgian Government’s Decree #476 “Approving of Technical Reglament” (2018) which regulates circulation of materials in the local market is an important document. This Decree regulates the terms for construction materials in the market. According to the Decree import of the construction materials shall be as per demands of these Decrees.
Appendix VII of the decree lists 123 construction products naming their Georgina standards. The list does not contain asphalt products and their standards. The list contains 6 products of cement, 1 product of concrete, 6 products of iron and steel. As for rebars for concrete they are separately defined. Appendix IV of Decree defines the standards for steel rebars. There are categories of rebars indicated. The list from appendix VII does not contain asphalt and asphalt’s products.

4.2.1 Cement

Georgian national standards are based on harmonized EN197-1:2011 standard for Portland-cement which implies 27 type of Portland-cement.

Below are given most standards of various types of cements:

Portland Cement Type I, SST EN197-1:2011/2013, contains up to 5% limestone
Portland Blended Cement Type II, SST EN197-1:2011/2013, permits limestone and pozollana up to 20%
Portland Blast Furnace Slag cement type III, SST EN197-1:2011/2013 permits blastfurnace 35-65%.
Supersulphated cement SST EN 15743:2010 +A1:2015/2018, permits Granulated blastfurnace slag >75%, Calcium Sulfate 5-20%
Calcium Aluminate Cement, Al_2O_3 – 35-58%
Calcium Aluminate Cement Clinker
Very low heat special cement, SST EN 14216:2015, VLVIII/B -Clinker 20-34%,Blast Furnace Slag -66-80%
VLVIII/C -Clinker 5-19%,Blast Furnace Slag -81-95%

Name	Standard	Example nomenclature	Permitted blend %
Portland Cement Type I	SST EN197-1:2011/2013	CEM I 52.5R, CEM I 42.5R	Ground limestone up to 5%
Portland Cement Type I – Sulphate Resistant Cement	SST EN197-1:2011	CEM I 42.5N-SR5	Ground limestone up to 5%
Portland Cement Type II - Portland Limestone Cement	SST EN197-1:2011	Kaspi CEM II A-L 42.5R	Clinker 80-94%, limestone 6-20%
Portland Cement Type II – Portland Pozzolanic Cement	SST EN197-1:2011	Kaspi CEM II A-P 42.5R	Clinker 80-94%, Pozzolana 6-20%
Portland Cement Type II – Portland Pozzolanic Cement	SST EN197-1:2011	Kaspi CEM II B-P 32.5N/R	Clinker 65-79%, Pozzolana 36-35%
Blast furnace Cement Type III – Slug Cement	SST EN197-1:2011	CEM III /A 42.5N	Clinker 35-64%, Slug 36-65%
Masonry Cement	SST EN 413-1:2011	MC5	Clinker >25%, other additions 1-60%
Masonry Cement	SST EN 413-1:2011	MC12.5X	Clinker >40%, other additions 1-60%
Masonry Cement	SST EN 413-1:2011	MC22.5X	Clinker >40%, other additions 1-60%
Hydraulic Road Binder	SST EN197-1:2011	HRB E3	
Supersulphated Cement	SST EN 15743:2010 +A1:2015/2018	SSC	Clinker 0-5%, Granulated Blast furnace slag >75%, Calcium Sulfate 5-20%
Calcium Aluminate Cement	SST EN14647:2005/2009 EN14647:2009/AC	CAC	Al2O3 – 35-58% Calcium Aluminate Cement Clinker
Very low heat special cement, VLV III	SST EN 14216:2015	VLV III Blastfurnace cement	VLVIII/B -Clinker 20-34, Blast Furnace Slag -66-80 VLVIII/C -Clinker 5-19, Blast Furnace Slag -81-95

Very low heat special cement, VLH IV	SST EN 14216:2015	VLV IV Pozzolanic cement	VLVIV/A -Clinker 65-89,Pozzolana 11-35% VLVIV/B -Clinker 45-64,Pozzolana 36-55%
Very low heat special cement, VLH V	SST EN 413-1:2011	VLV V Composite cement	VLV V/A -Clinker 40-64, Blast-furnace slag 18-30%,Pozzolana 18-30% VLV V/B -Clinker 20-36, Blast-furnace slag 31-49%, Pozzolana 31-49%

These standards also indicate ratios of additives to cement.

Below are given main systems of international standards of cement types which are in use in Georgia:

	International Standard		
cement types	ASTM C150/150M	EN197-1	GOST 10178
	Type I	CEM I	PC D0
	Type II	CEM I	PC D0
	Type III	CEM I	PC D0
	Type IV	CEM III	SPC D40
	Type V	CEM I SR & CEM III	SSPC D0 & SPC D40

As for strength class the following table shows that

Strength Classes

GOST 10178	Compressive strength after 28 days, kg/cm²	EN 197-1	compressive strength after 28 days, Mpa
M 300	300 (29.4Mpa)	CEM 22.5	22.5 - 42.5
M 400	400 (39.2MPa)	CEM 32.5	32.5 - 52.5
M 500	500 (49.0Mpa)	CEM 42.5	42.5 - 62.5
M 550	550 (53.9MPa)	CEM 52.5	52.5 - ∞
M 600	600 (58.8MPa)		

Source: Hidelbergcement Georgia

Domestic consumption and market volume of PC is around 4 million tons per year.

Georgian national standards for cement and concrete indicate ratios of content of upplementary Cementitious Materials/sustainable materials in the blend.

Portland Cement Type I, SST EN197-1:2011/2013, contains up to 5% limestone
Portland Blended Cement Type II, SST EN197-1:2011/2013, permits limestone and pozollana up to 20%
Portland Blast Furnace Slag cement type III, SST EN197-1:2011/2013 permits blastfurnace 35-65%.
Supersulphated cement SST EN 15743:2010 +A1:2015/2018, permits Granulated blastfurnace slag >75%, Calcium Sulfate 5-20%
Calcium Aluminate Cement, Al_2O_3 – 35-58%
Calcium Aluminate Cement Clinker
Very low heat special cement, SST EN 14216:2015, VLVIII/B -Clinker 20-34%,Blast Furnace Slag -66-80%
VLVIII/C -Clinker 5-19%,Blast Furnace Slag -81-95%

4.2.2 Concrete

Concrete standard SRPS EN 12620:2013 (EN 12620:2002+A1:2008) allows recycled aggregates.

Table 3: Concrete types

Name	Standard	Example nomenclature	Permitted blend %
Concrete	EN206-1:2013	**C8/10 .... C70/85**	

4.2.3 Steel

There are no harmonized standards for steel and rebars.

STANDARD	GRADE/CLASS
GOST 380:2005	ST3KP/ST3SP/ST3PS/ST4KP/ST4PS/ST4SP
BS4449:2005	GRADE B500B
BS4449:2005	GRADE B500C
EN10080:2010	GRADE B500B
DIN 488-2:2009-08	GRADE B500B
ASTM A615/615M	GRADE 60
GOST R52544 :2006	GRADE A500C

GOST 10884:94	At500C
GOST 10884:94	At500C
DSTU 3760 :06	A500C
TS708 :2016	B420C
TS708 :2016	B420B
TS708 :2016	S420
IS 1786:2008	Fe500
IS 1786:2008	Fe500D

Rebars

STANDARD	**GRADE/CLASS**
BS4449:2005	GRADE B500B
EN10080:2010	GRADE B500B
DIN 488-2:2009-08	GRADE B500B
ASTM A615/615M	GRADE 60
GOST R52544 :2006	GRADE A500C
GOST 10884:94	At500C
GOST 10884:94	At500C
DSTU 3760 :06	A500C
TS708 :2016	B420C
TS708 :2016	B420B
TS708 :2016	S420
IS 1786:2008	Fe500
IS 1786:2008	Fe500D

4.2.4 Asphalt

The standards used in Georgia allow use of alternate binding materials. There are Georgian standards equivalent to harmonized EU standards:
SST EN 13108-1:2006/AC:2008/2016 various parts of this standard of bituminous mistures.

— SST EN 13108-1:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 1: Asphalt Concrete
— SST EN 13108-2:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 2: Asphalt Concrete for Very Thin Layers (BBTM)
— SST EN 13108-3:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 3: Soft Asphalt
— SST EN 13108-4:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 4: Hot Rolled Asphalt
— SST EN 13108-5:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 5: Stone Mastic Asphalt

— SST SST EN 13108-6:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 6: Mastic Asphalt
— SST EN 13108-7:2006/AC:2008/2016, Bituminous mixtures — Material specifications — Part 7: Porous Asphalt
The other EU standards, especially EN 13108-8 of the same series do not have Georgian equivalent:
— EN 13108-8, Bituminous mixtures — Material specifications — Part 8: Reclaimed Asphalt
— EN 13108-9, Bituminous mixtures — Material specifications — Part 9: Asphalt for Ultra-Thin Layer
— EN 13108-20, Bituminous mixtures — Material specifications — Part 20: Type Testing
— EN 13108-21, Bituminous mixtures — Material specifications — Part 21: Factory Production Control
As almost 40 countries' standards are allowed in Georgia, including harmonized EU standards, abovementioned standards are valid also.

As Georgian national standards are based on EU harmonized standards, they permit the use of recycled materials. For example, Georgian standard SST EN 12620 : 2010+A1 Aggregates for concrete, does permit the use of Recycled, Co-products, or Waste Materials (RCWMs) such as Reclaimed Asphalt Pavement (RAP), Construction and Demolition (C&D) wastes, Recycled Concrete Aggregate (RCA), Blast Furnace Slag (BFS), Steel Furnace Slag (SFS), Foundry Sand, etc. as replacements for natural coarse and fine aggregates, provided they meet the specified quality requirements. Standards for SCMs and RCWMs are harmonized with EU norms (EN197-1, EN413-1, EN12620).
Standard for asphalt SST EN 13108-21 – Bituminous mixtures – Material specifications – Part 8: Reclaimed Asphalt, Defines requirements for the use of Reclaimed Asphalt Pavement (RAP) in new asphalt mixtures.
But mentioned standards do not indicate allowable percent of use of RCWMs.
There are some co-products which need special order of the Government to be imported, for example fly ash.

5. Market analysis of the construction materials

5.1. Cement

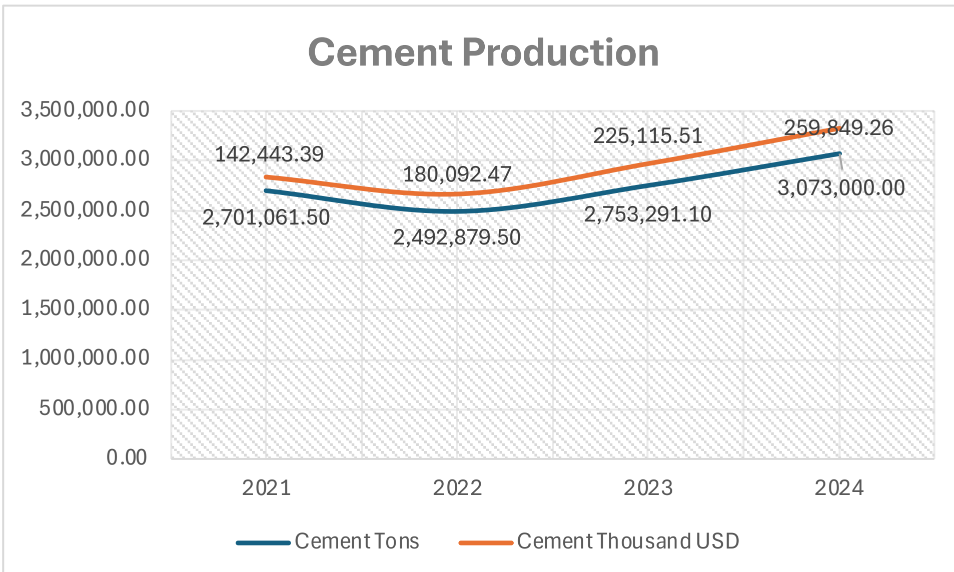
5.1.1 Overview and size of the cement market

Georgia's cement industry has experienced significant developments in recent years, marked by modernization efforts and increased production capacities. As of the latest data, the country boasts a total cement production capacity of approximately 4.187 million tons per annum, distributed across three integrated plants and five grinding plants.

Cement production in Georgia is mainly local, with several large companies dominating the market. Since 2019, Georgia has been annually producing around 94% of cement used in the country. Country market is increasing and in 2024 Georgian production reached more than 3 mln. tons of cement, which is 12% increase relative to previous year.

The status of the cement market in figures is as follows:

Production. In 2023, Georgia produced 2.75 million tons of cement and reached the level of 2021 with the value of $220 mln. In 2024 it produced 3.07 million tons, which indicates growth is in progress.



Source: Geostat

Export. In 2023, Georgia exported 26,345 tons of cement which is decrease from 42,216 tons exported in 2022 but still jump from the negligible amounts of 2021 – 410 tons. The trend to decrease of export peak of 2022 is going on as for 2024 data shows only export of 7,863 tons of cement.

Imports. Import of the cement is not high, cement is imported from Turkey (75.1%) and Azerbaijan (24.9%). Since 2019 import of the cement has been increased from 88 tons in 2019 to 202 tons in 2023 and decreased slightly after that to 183 tons in 2024.
However, a notable portion of clinker (main raw material for the cement) demand is still met through imports. Total imported clinker was from Azerbaijan. Clinker imports in 2018-2023 increased annually by 11%. Clinker imports are steadily increasing and reached 827,000 tons in 2023, it is further iincreased and in 2024 reached 1.170 million tons with the value of US$80 mln.

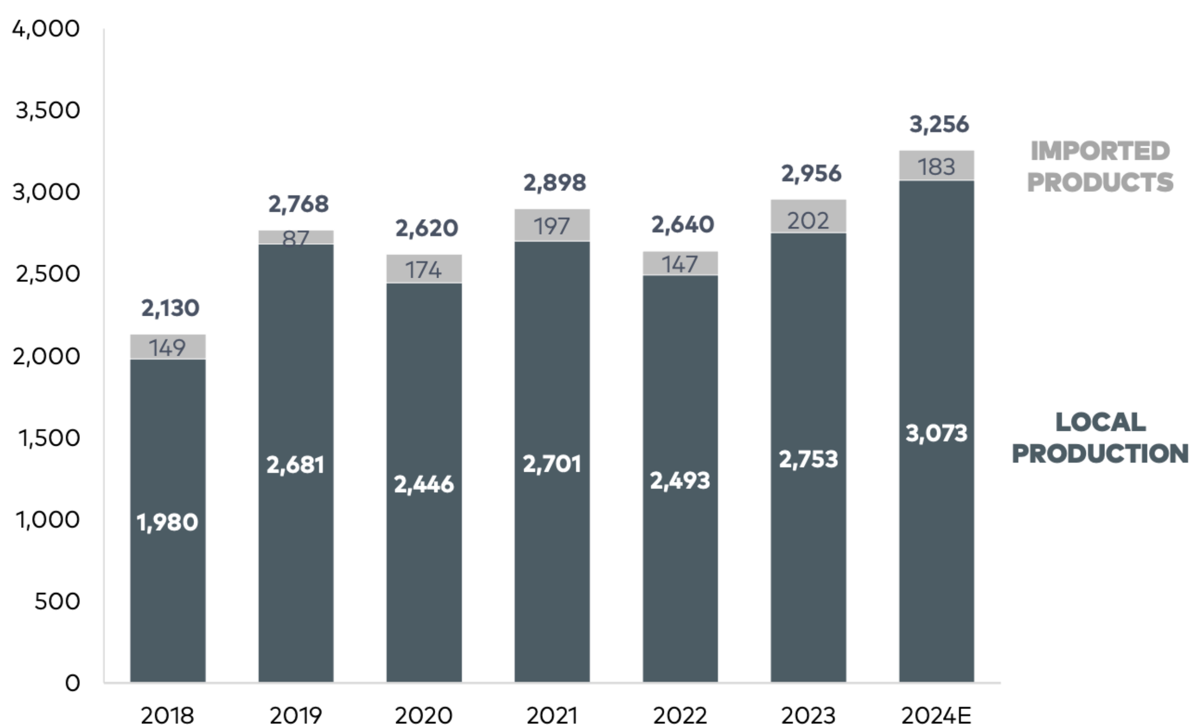
Growth. Total demand (production + imports - exports) for cement steadily grew over 2017-24 – CAGR (Compound Annual Growth Rate) of 5.8% to 3.24 mln. tons in 2024. Notably, demand for cement suffered due to temporary restrictions on construction activity in 2020 (-5.3% y/y). However, rebound was solid in 2021 (+10.6% y/y). Cement demand is almost flat (3.5 mln. tons in 2021 and 3.7 mln. tons in 2023).

Local production met around 94.7% of total demand in 2021 but decreased gradually by 2024 (63.4% in 9 months of 2024). In earlier years cement import was very low and Turkey is a key importer excluding 2017-18, when around half of import was from Azerbaijan. Turkish cement regained share in import since 2019 as it became cheap due to weak Lira and support from the Turkish government for exporting companies. Import has been steadily increasing and in 2021 has reached 1.3 mln tons in comparison to 0.85 mln tons in 2021. The trend is going on as for 9 months of 2024 it reached 1. 35 mln. tons.

All figures are sum of figures for clinker and cement.

Capacity and utilization. Currently, there are 8-10 cement factories within the country with a total capacity of approximately 4.5 million tons per year. Consumption in 2023 was only 3.78 million tons, of which domestic consumption is 3.75 million tons and exports 0.026 million tons.

Cement production and foreign trade in Georgia, '000 tons



Source: Geostat, Galt&Taggart

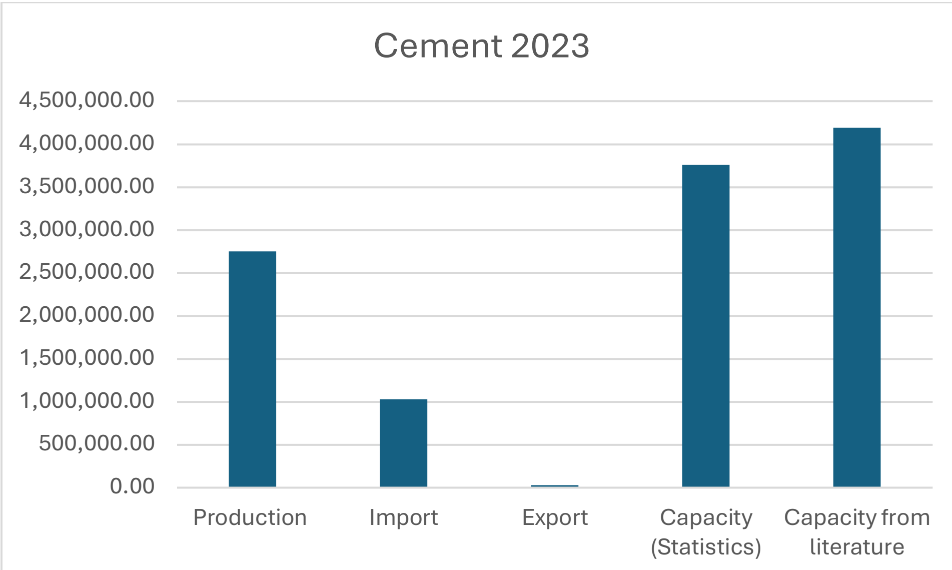
Range of cement products: Georgia accepts around 40 countries standards, including EU standards. There are standards used in Georgian cement production which is basesd on EU harmonized standards:

Table 3: Cement types

Name	**Standard**	**Example nomenclature**	**Permitted blend %**
Portland Cement Type I	EN197-1:2011	**CEM I 52.5R, CEM I 42.5R**	Ground limestone up to 5%
Portland Cement Type I – Sulphate Resistant Cement	EN197-1:2011	**CEM I 42.5N-SR5**	Ground limestone up to 5%
Portland Cement Type II - Portland Limestone Cement	EN197-1:2011	Kaspi CEM II A-L 42.5R	**Clinker 80-94%, limestone 6-20%**
Portland Cement Type II – Portland Pozzolanic Cement	EN197-1:2011	Kaspi CEM II A-P 42.5R	Clinker 80-94%, Pozzolana 6-20%
Portland Cement Type II – Portland Pozzolanic Cement	EN197-1:2011	Kaspi CEM II B-P 32.5N/R	Clinker 65-79%, Pozzolana 36-35%
Blastfurnace Cement Type III – Slug Cement	EN197-1:2011	CEM III /A 42.5N	Clinker 35-64%, Slug 36-65%
Masonic Cement	EN413-1	MC22.5X	Clinker >40%, other additions 1-60%
Hydraulic Road Binder	EN197-1:2011	HRB E3	

Figure 1 illustrates domestic production, export and import of cement. Market assessment of capacity is based on production plus import minus export equals domestic consumption. The data taken from Statistical Department of Georgia SAKSTAT 3.7 million tons annually, somehow varies from the figure from literature about market capacity – 4.2 million tons per year. Export is negligible and figure represents cement and clinker. The capacity of the industry is higher. Data shows that there are prospects of export in neighboring countries.

Figure 1: Cement domestic production and Export/Import



Source: Geostat

5.1.2 Cement market data

Request for Cement statistics data was focused on cement consumption, CO_2 emissions by cement type and blend. In most case CO_2 data is confidential and not available as free resources or published by the companies. Some data was received in discussion and interviews with cement producers.

Around 54 companies are involved in cement production, with few of them controlling about 90% of the market. This concentration highlights the dominance of major players like HeidelbergCement Georgia, recently quit from Georgian market and transited into Hunnewell Cement, which in it's turn merged with other large player: Georgian Cement.

N	Company Name	Production Capacity, Tons
1	Hunnewell Cement	2,000,000
2	Georgian Building Group	200,000
3	Other smaller producers	50-100,000

Based on reports and industry information, there are likely 10 cement production facilities in Georgia. This includes integrated plants (producing clinker and cement) and grinding plants (only grinding imported clinker into cement).

Circular economy concepts are gaining traction, such as HeidelbergCement's (Hannewell Cement) move to alternative fuels and waste reduction

HeidelbergCement Georgia is a prominent player in the market, operating three integrated cement plants in Kaspi and Rustavi, a cement grinding facility in Poti, and a cement terminal in Supsa. The company's annual production capacity exceeds two million tones.

In October 2016, the Georgian Cement Company, in partnership with LafargeHolcim, inaugurated a new cement plant in Poti with an initial annual capacity of 0.25 million tonnes. This strategic move aimed to reduce reliance on imports, particularly from Turkey, and strengthen local production capabilities.

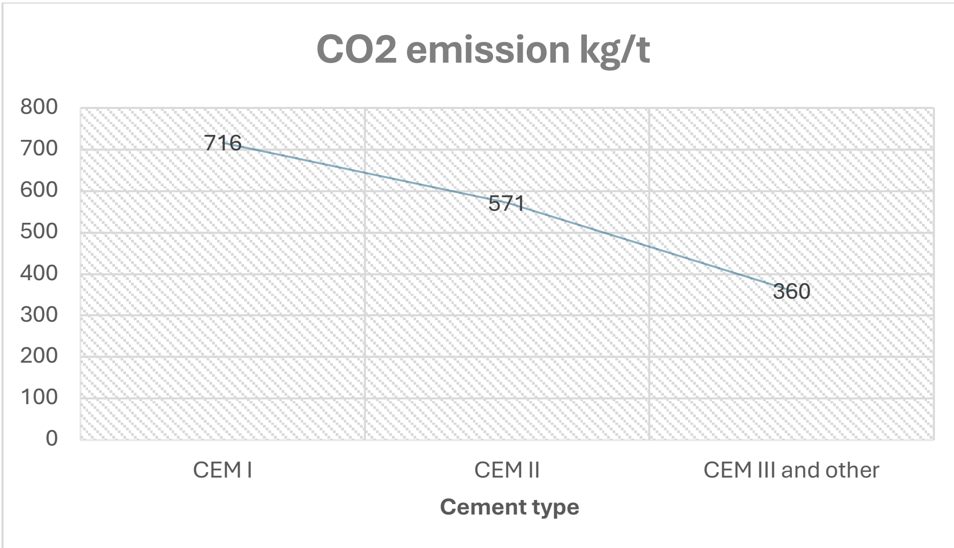
Further HeidelbergCement Georgia and Georgian Cement Company were merged and now the both companies were transformed into Hannewell Cement. Hannewell Cement produces several type of the cement, CEM I share being more than 80% of total production. The company explains this by the demand of this type of the cement.

Furthermore, in October 2019, Pioneer Cement, a subsidiary of Raysut Cement Company, announced plans to construct a greenfield cement plant near Tbilisi with a projected capacity of 1.2 million tonnes per annum. This initiative underscores the industry's response to Georgia's growing infrastructure demands and the regional need for high-quality cement.

These investments and developments reflect a robust trajectory in Georgia's cement industry, positioning it to meet both domestic and regional construction needs effectively.

GBG is one of the significant producers of cement and concrete and locate in Tbilisi. It produces mostly CEM I and CEM II cements and concrete. It purchases cement clinker from Kaspi factory of Hunnewell Cement. During interview they explained that they don’t measure CO_2 emissions and directed to Hannewell Cement as a producer of the clinker. Annual capacity of cement is 200,000 Tons. The factory is using around 30% of it’s cement to produce the concrete, the remained is sold in bulk/bags. The company is producing following types of cement: CEMI42.5; CEMII 32.5; CEMII 32.5a; CEMII/A-P 42.5N; CEMII B-P -32a . The cement with brand of CEMII B-P -32a Puzzolina, where basalt/limestone content is 5-10% can be considered as green alternative.

Figure 2: Cement type/blend and CO_2 emissions



Source: Hannewell Cement

Relationship between cement grade and CO_2 emissions are shown in Figure 3. The figures are based on data from Hannewell Cement (which is limited information), the figures are average for various blend in particular type of cement produced by the factory. However it clearly shows the difference of CO2 emission between CEM I and greener alternatives – from716 to 360 kg.

By current moment more detailed relationship between cement grade and CO2 emissions could not be obtained as this is kept confidentially by the producing companies, however the obtained data shows the effect of greener cement in terms of CO_2.

Figure 3: CO_2 emissions by cement type / grade

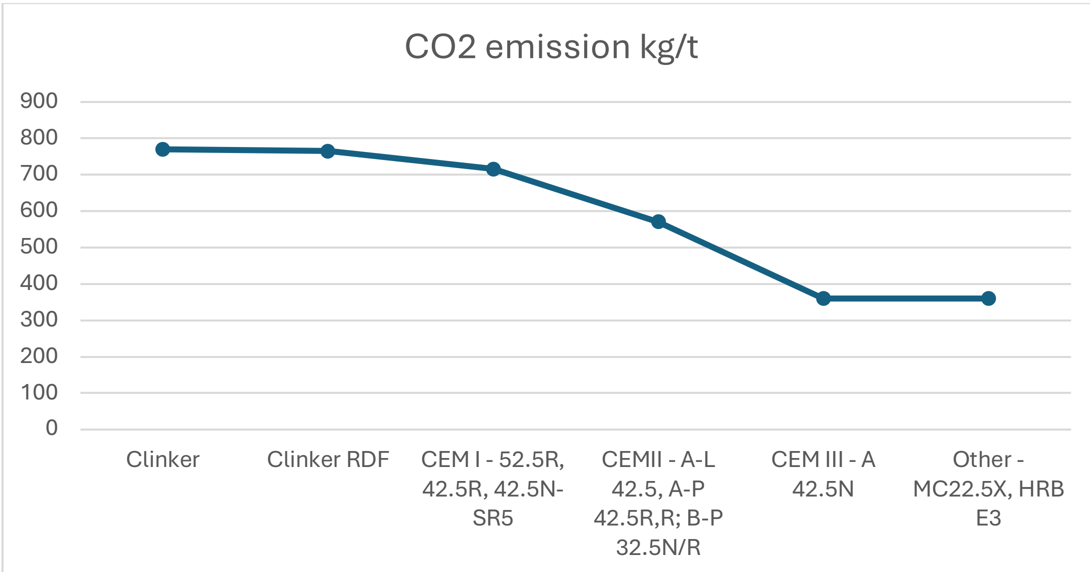


Table 4: cement baseline data

Company	**Type**	**Bag / bulk**	**% blend**	**CO_2 (kg/ton)**	**Product Name**
Reference					
Hunnewell Cement (former Heidelberg Cement)	Clinker	Bulk			Clinker
Hunnewell Cement (former Heidelberg Cement)	CEM I 52.5R	Bulk		716	
Hunnewell Cement (former Heidelberg Cement)	CEM I 42.5R	Bulk		716	
Hunnewell Cement (former Heidelberg Cement)	CEM I 42.5N-SRS	Bulk		716	
Hunnewell Cement (former Heidelberg Cement)	CEM II A-L 42.5R	Bulk			
Hunnewell Cement (former Heidelberg Cement)	CEM III /A 42.5N	Bulk			

Hunnewell Cement (former Heidelberg Cement)	CEM I 42.5R	Bag		716	Heidelberg Cement M500
Hunnewell Cement (former Heidelberg Cement)	CEM II A-P42.5R	Bag	5% Limestone	571	
Hunnewell Cement (former Heidelberg Cement)	CEM II B-P 32.5N	Bag			Heidelberg Cement M400
Hunnewell Cement (former Heidelberg Cement)	MC22.5X	Bag		360	Heidelberg Cement M300
Hunnewell Cement (former Heidelberg Cement)	CEM II A-L 42.5R	Bag		571	
German Cement	CEM II 42.5 R	Bulk			German Cement PC CEM II 42.5
Green Alternative (Blended PCB)					
Hunnewell Cement (former Heidelberg Cement)	CEM II B-P 32.5N	Bag	10% Limestone	571	Heidelberg Cement M400
Hunnewell Cement	CEM II A-L 42.5R	Bag	5% -10% Limestone	571	Heidelberg Cement M500
Georgian Building Group	CEM II B-P 42.5R	Bag	10% Limestone, basalt	571	GBG CEMII B-P42.5

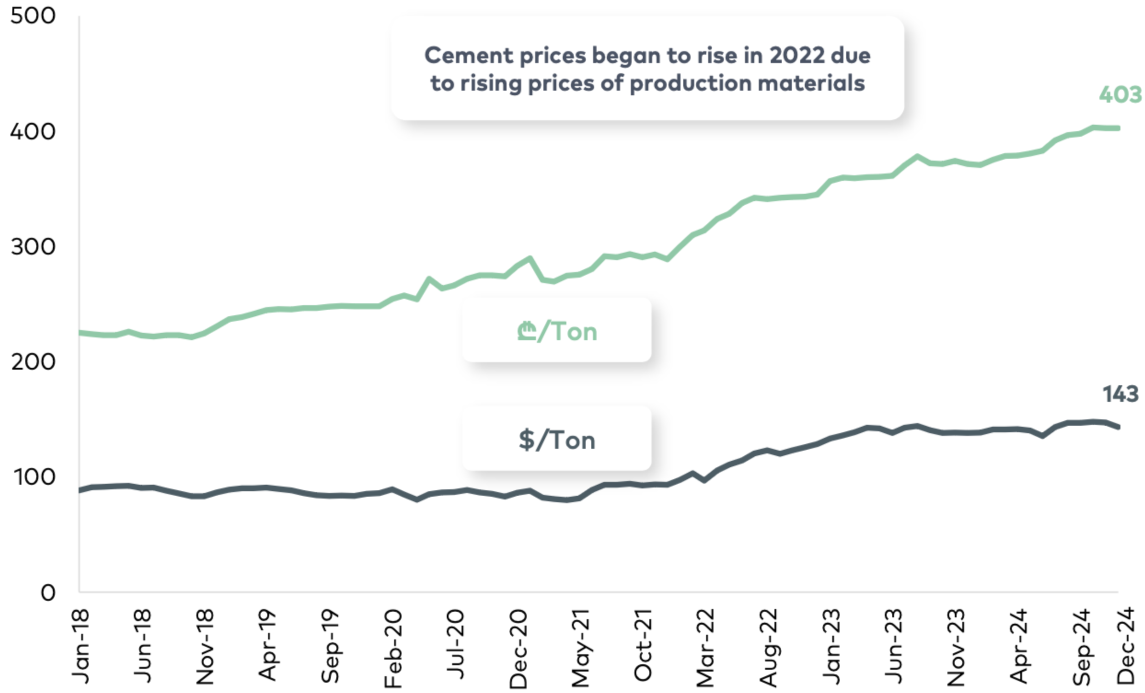
It is estimated that CEM I is prevailing the market as it's most profitable to the producers to produce this type of the cement and highest demand is for this type of cment.

5.1.3 Prices

Cement prices were stable before 2021, but started to rise rapidly, due to increase of prices of production materials – clinker and coal.

The price of clinker has been on an upward trajectory since 2021, rising by 42.1% in US$ terms and 20.1% in GEL over 2021-24.

Cement retail price in Georgia



Source: Geostat, Galt&Taggart

Another source:TBC Capital shows GEL230/mt for the period of Dec 2024. Obviously the prices are related to different type of the cement.

In average by the grade of current cement data is following:

CEM I: $120–140/ton

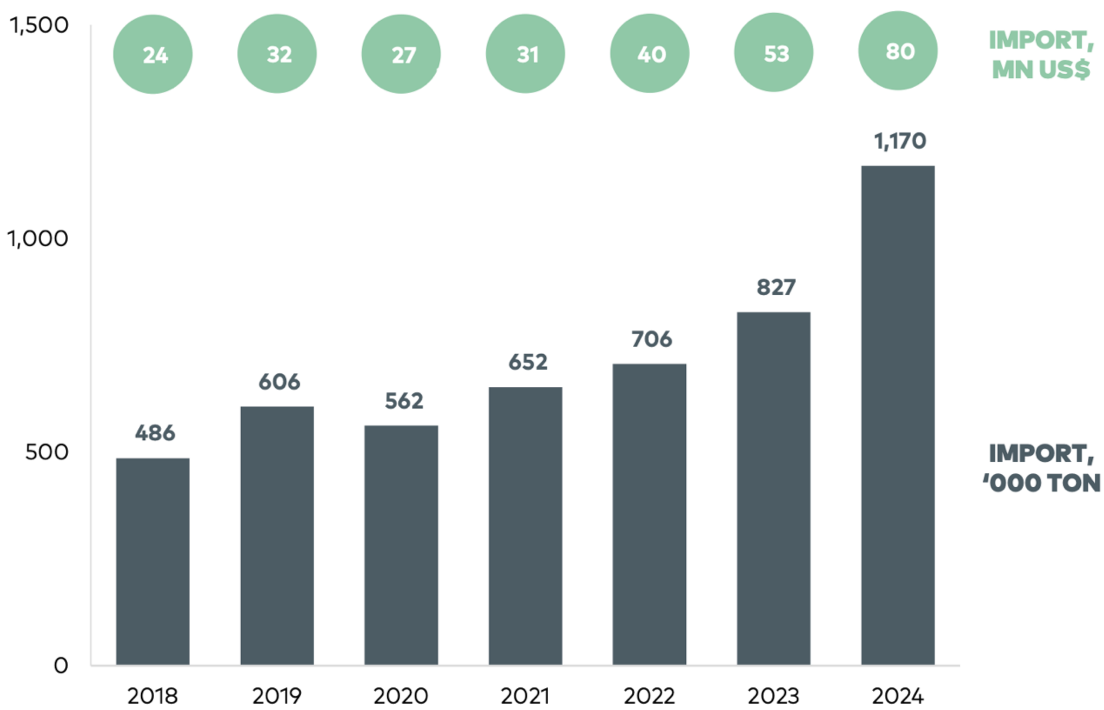
CEM II: $100–130/ton

Cement prices have been rising since 2021, largely due to increased costs for clinker - the main production material.

Clinker imports have increased 15.8% CAGR over 2018-24, driven by the growth in local cement production and limited clinker output domestically. In 2024, Azerbaijan supplied 68.8% of Georgia's clinker imports and Turkey accounted for the remaining 31.2%.

The price of clinker has been on an upward trajectory since 2021, rising by 42.1% in US$ terms and 20.1% in GEL over 2021-24.

Clinker import in Georgia



Source: Galt&Taggart, Geostat

The rising cost of coal - another key input in cement production - has further driven up cement prices, shifting local producers to locally produced coal.
The rising global prices for coal in 2021–22 reduced imports, prompting a shift to domestic alternatives. Local coal remains the main source for cement production in Georgia, despite the price subsidization globally. Notably, local coal production has ranged between 140-146k tons over 2021-23, up from 80k tons in 2020.

Starting from 2021, global coal prices have peaked caused by the supply-demand imbalance and rising gas prices. The Russia-Ukraine war further intensified the price surge, though figures began to decline at the end of 2022. Most recently, reduced demand from China has contributed to lower coal prices in 2025.

Coal price, $/metric ton

Source: Geostat, Bloomberg, Galt&Taggart

Data from International sources

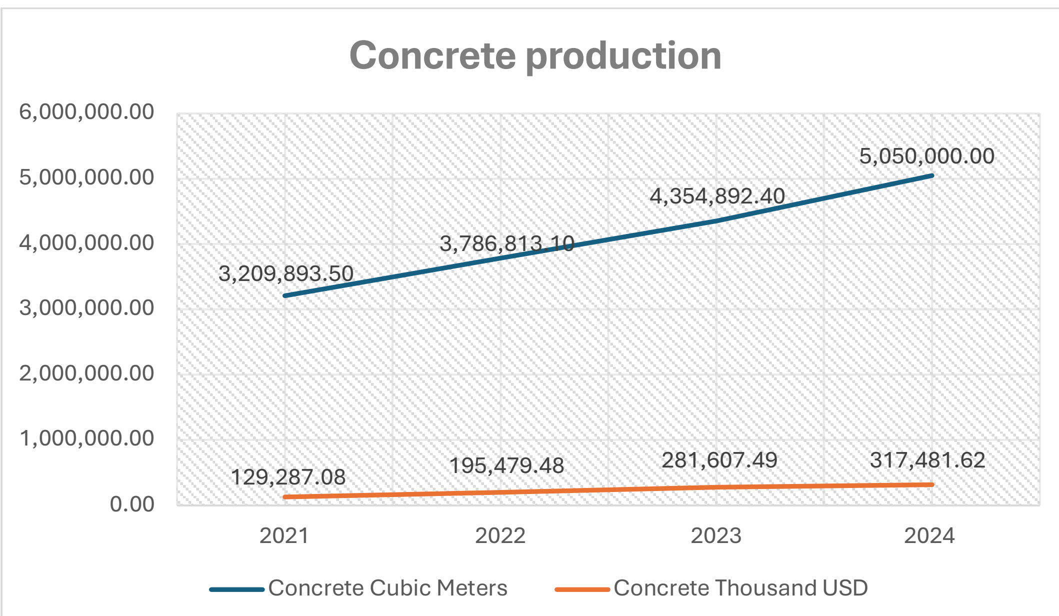
There was attempt to get reference data from the Global Cement and Concrete Association (GCCA). Largest Georgian producer Hannowal Cement reported that for last few years there was no collaboration with GCCA in this matter. Few years ago they were providing figures through their “Getting the Numbers Right (GNR)” reporting and monitoring system.

5.2 Concrete

5.2.1 Concrete market

An overview of the concrete market is as follows:

Production. Domestic consumption consists 4.5 million tons of concrete in 2023[4]. However as production increased to 5 mln m3, this figure is higher. Production types are: i) ready-mixed Concrete; ii) reinforced concrete; iii)lightweight concrete; iv) High strength concrete; iv)self-consolidating concrete. As the ready-mixed concrete is the largest part it is focused during this review. Production of concrete has been on a rising sinc 2021. According to the preliminary data in 2024, 5 mln. cubic meters of concrete was produced in Georgia, which is more than double than 6 years ago and 21% more relative to 2023. Each concrete company produces various types and grade of concrete but most popular grade is B25.



Preliminary data in 2024 shws that the market was valued at 894 mln GEL (USD 317 mln equivalent), which exceeded the 2023 figure by 16%.

[4] As per International Cement Review.

There is no export and import of concrete in the country, as plants can only deliver in the radius up to 70 km. Concrete consumption in 2023 was estimated as 55% for buildings, 25% for industrial, and 20% for infrastructure. [5] Readymix plants can only deliver within a maximum of around 2 hours travel, i.e. around 50 - 80km, and typically for much shorter distances for cost reasons. Production facilities can range from 25m3/hour to over 300m3/hour capacity and having 1 – 8 silos of 40-200 tons each.

5.2.2 Concrete market baseline data

Advice from a specialist green buildings consultancy firm led to introduction to what they considered the leading producer of concretes serving the needs of green building developers.
The Hunnewell Cement is the leader in concrete production

Prime Concrete is interesting in it's attempts to produce green concrete.

Georgia Concrete Companies

N	Company Name	Project Capacity, M^3
1	Hunnewell Cement	1,000,000
2	Mixori	300,000
3	Prime Concrete	40,000
4	Georgian Building Group	250,000
5	Leader Concrete	
6	Orbi Concrete	

Hunnewell Cement is the most significant producer of concrete in Georgia, it runs 14 concrete factories with capacity up to 1 mln tons per year. Concrete is range from C8/10 to C70/85. The company produces the range of concrete quality using it's own cements.
Production of Hannewell Cement:

Product	2024 Volume, Km3	2023 Volume, Km3	2022 Volume, Km3
Concrete	1080	1008	895

GBG is one of the significant producer of cement and concrete and is located in Tbilisi.. During interview company stated that they don't measure CO2 emissions and directed to

[5] Estimate by market research firm, here

Hannewell Cement. Annual production of concrete is around 200,000 M3 per year, more than 50% of it's product is of B-30 (C25/30) with cement content of 15%. Factory capacity of the concrete is 45T/Hour and achieved 228,000 M3 in 2024. The factory is using around 30% of it's own cement to produce the concrete, the remained is sold in bulk/bags. The company stated that they produce concrete in compliance with EN standard for physical and mechanical charasteristics, though they do not operate under GCCA reporting system neither no green certificate obtained. Cement of CEMII 42.5 produces M450 concrete.

Company Mixori is producing around 300,000 M3 in a year (monthly 20-25,000 m3). Uses mostly CEM I -42.5 cement. Produces various types of concrete: Ordinary with M500 mostly B-30, also with B-40 and B-50; reinforced concrete sleepers, precast materials, building blocks. The company is aware about the green concrete, but as the material for green concrete mix is not available, there is no green concrete production. It is largest producer of precast reinforced concrete in Georgia (for irrigation groove LR, railway catenary poles, etc.).

Prime Concrete. Though the production of concrete is not very high (annual production 40,000 M3), in 2022 – 2023 it produced green concrete which was 80% of total concrete produced by the company. The company has 1 concrete factory near Poti city on the Black Sea shore.
The firm is using CEM I and CEM II produced by Hannewell Cement for production of concrete.
The firm is using aggregate from construction demolition waste, however the firm is claiming that transportation costs were high to deliver material from dumps to the grinding plant. Not calculated how increased transportation has influenced CO2 emissions as well energy consulmption.
The firm has obtained third party opinion regarding green concrete but the process to obtain green certificate was not finished, therefore there is no green certificate. However firm supplied with the study findings and this maybe used as case study for the report.

5.3. Steel

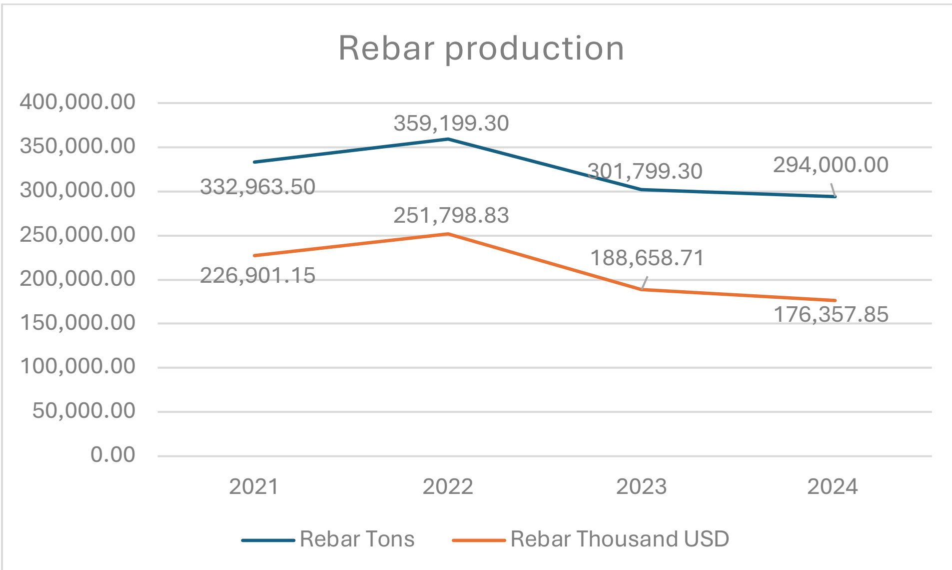
5.3.1 Description of the steel (rebar) market

An overview of the steel market is as follows:

Production
Domestic production of re-bars accounted for 75% of total demand in
Georgia until 2022, but a recent rise in imports dropped the domestic production's share to 43.5% in 2024 from 74.7% in 2021. Rebar production increased significantly from pandemic

period to 332,964 tons (+24.1% y/y) and even stronger in value terms to US$ 226.8mn (+72.2% y/y), due to price growth of re-bars in 2021 after slight drop in 2020. Re-bar production continued growth in 2022, however slight decrease was observed in 2023 and seems the same in 2024.

Geosteel and Rustavi Steel, the two largest companies, produce over 90% of rebar in Georgia.



Export

Export is negligible it changes between 10,596 mt in 2021 to 14,500 mt in 2024.

Import

Rebar imports surged in 2022–24, driven by low prices from two key source markets. To support local producers, the government has set a fee of 420 GEL per ton on imports, effective from January to September 2025 (with a possible extension), excluding rebar from countries with EUR.1 certification.

Consumption

Rebar consumption in Georgia increased by an average of 8.7% in 2018-24, reaching 674,889 tons in 2024.

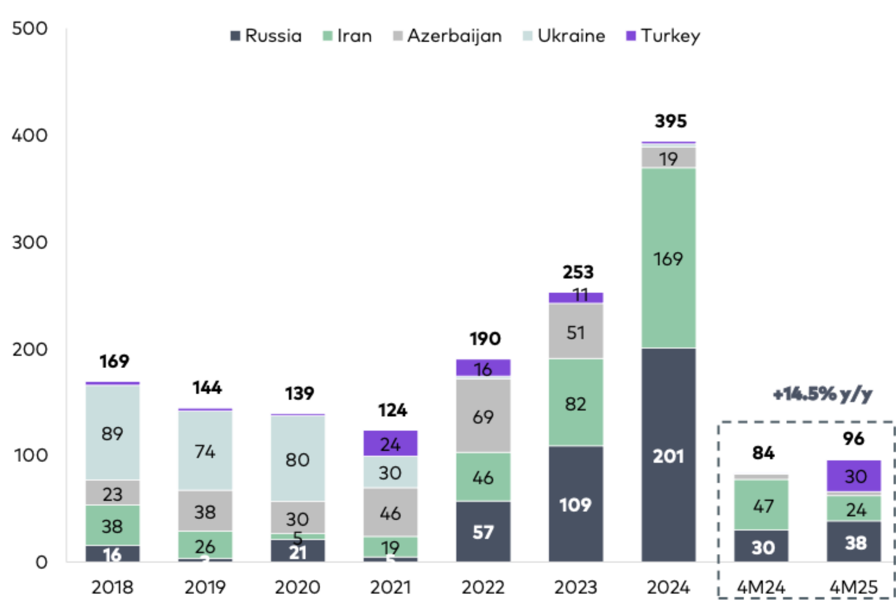
5.3.2 Steel market

In 2019-2020 Ukraine played a central role in supplying George with rebar and the Rods accounting for an average of 59% of Georgia's total imports in this category, however, in 2021 Ukraine share dropped to about 24%, signaling a shift in trade dynamics even before the war begun.

The growth in rebar imports was driven by the low prices on rebar sourced from Russia and Iran. Following the next events in 2022 to 2023, since import of iron bars/rods from Ukraine stopped, the import sources needed to diversifying, therefore. from 2022 and onward Iran and Russia became the main suppliers in Georgia. Import size has been increasing in considerably since 2022, reflecting the significant increase of activity of the real estate market in Georgia. In 2024, around 395,000 tons of iron parts and Roads were imported, exceeding the 2023 level by 56%. Russia and Iran are main importers. Imports from these countries are expected to decline, given the government's imposed tariffs from Jan-25. Meanwhile, the rise in rebar imports in 2025, was driven by the rising shipments from Turkey, which are exempt from the tariff.[6]

Domestic capacity had a bit of a stall in 2024 with production decreasing by 4% annually. Consequently self-sufficiency fell by 10 percentage points, meaning that for the first time is the last 6 years more than half of local demand was met by imported product. This could be explained by the price difference between locally produced and imported products. Another reason can be decrease of scrap availability locally as scrap is used in local production. Scrap deficit is reflected in Geostat scrap export data, which dramatically fell down in 2024.

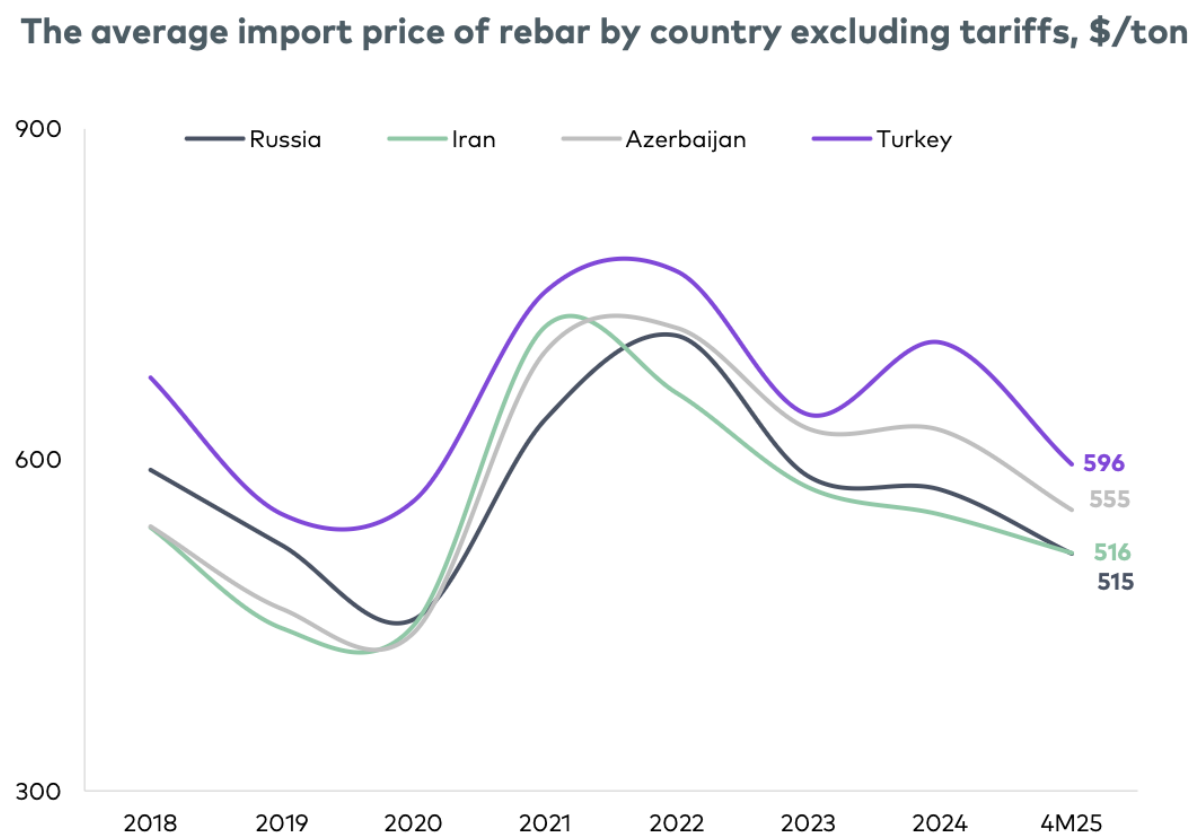
Rebar import by country in Georgia, '000 tons



[6] Source: TBC capital, Geostat

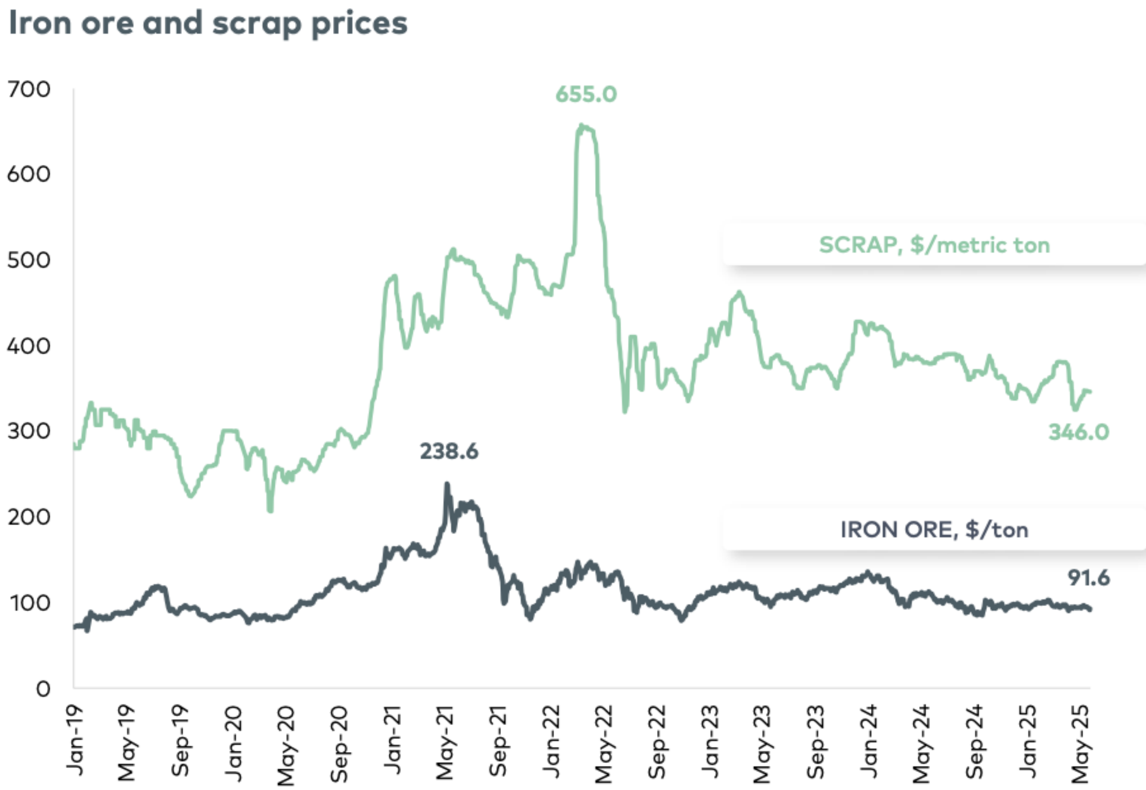
Source: Galt&Taggart

As to prices, after a significant increasing 2021 to 2022 the figures started stabilizing. To support local producers the Government set the fee GEL 420 per tone on the imported iron bars and rods, effective from January to September 2025 (with a possible extension), excluding rebar from countries with EUR.1 certification. It is expected to reduce the imported volume of the product and increase domestic production. The tariffs are expected to increase imported rebar prices from affected countries by c. $150, according to Galt&Taggart estimates.



Scrap and iron ore are the two main input materials for rebar production. Their prices have fluctuated significantly since 2020, driven by supply chain disruptions and the Russia-Ukraine war. The decrease of iron ore and scrap prices is linked to the real estate crisis in China, which reduced demand for steel. The US tariff plans have introduced uncertainty in the market, creating volatility in rebar price expectations.

Iron ore is a key raw material for bars and rods used in projects. As of March 2025, iron ore prices stood at USD103.1 per metric ton, making a 16% decline compared to the Q1 2024 average. The iron ore price forecast for 2025 ia 95.7 $/mt, with prices expected to stabilize at 90$/mt from 2026 onward.[7]



Source: Bloomberg

Case: GeoSteel LLC

GeoSteel LLC is one of the largest direct foreign industrial investments in Georgia. It is a joint venture of JSW Steel Netherlands BV (wholly owned by JSW, India) and Georgian Steel Group Holding Ltd (GSGHL). Company “GeoSteel” LLC, it’s market share is 40-50%. As of today, the annual performance of the metallurgical enterprise of “Geosteel” LLC is 175,000 t/year of rebars with a diameter of 8, 10, 12, 14, 16, 18, 20, 22, 25, 28, 32 mm. Overall capacity annually is 300,000 tons of rebars. GeoSteel is using local scrap metal for the production of construction materials.

The state of the art technology in the form of completely automated oxygen plant, electric arc furnace, ladle refining facilities, continuous caster machine, modern laboratory facilities, and precision control rolling mill has enabled the company to provide construction materials for many important projects such as the Parliament of Georgia in Kutaisi.
Rebars are produced by hot rolling method.
Challenge: availability of scrap in the Georgian market.

[7] Source: TBC capital, Galt&Taggart, Geostat

Green certificate: There is no green certificate obtained but there is second party opinion prepared by DNV Business Assurance Dubai, which identifies: Reducing product CO2 emissions intensity, calculated as tonnes CO2 per tonne of crude steel produced (tCO2/tcs) (Scopes 1 and 2) to 0.14154 tCO2/tcs. The target is 0.12115 tCO2/tcs in 2027 compared to 0.14933 tCO2/tcs in 2022.

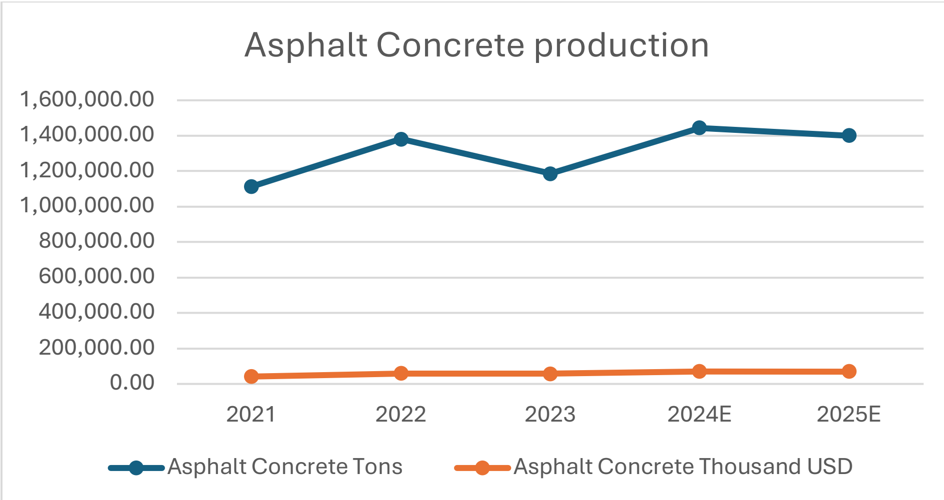
5. 4 Asphalt

5.4.1 Overview and size of Asphalt market

Asphalt is another essential construction material in Georgia, primarily used for road building and maintenance. Over the past five years, demand for asphalt has steadily grown in tandem with large-scale public infrastructure investments. Between 2021 and 2025, asphalt production increased by approximately 40%, reflecting both higher consumption and modest innovations in production methods.

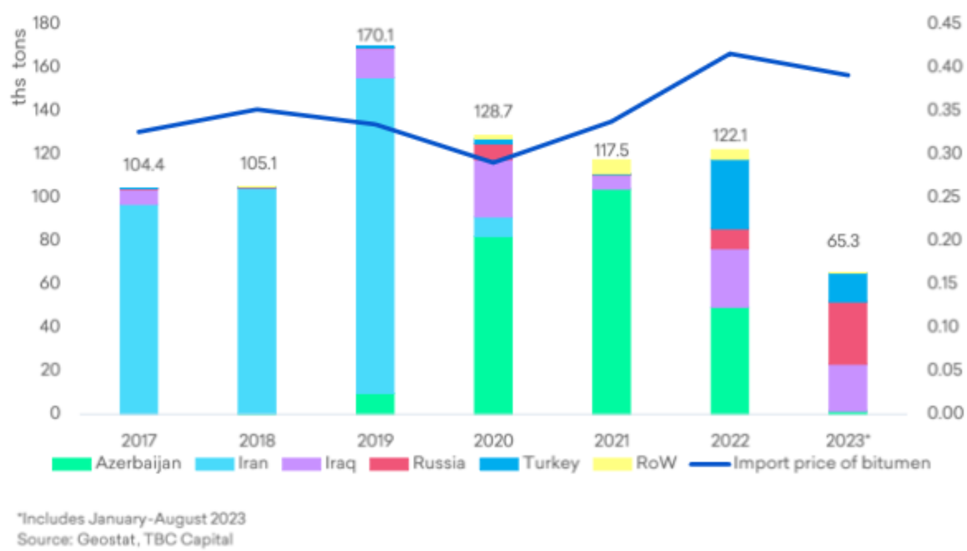
Share of local production of Asphalt is 100% of total demand.

Year	Asphalt Production (tons)	Use of Recycled Materials
2021	1,000,000	Minimal use of RAP or additives
2022	1,150,000	Pilot use of reclaimed asphalt
2023	1,280,000	Fly ash and RAP in limited use
2024	1,350,000	Trials with rejuvenators (e.g. RejuvaSeal)
2025E	1,400,000 (est.)	Gradual uptake of recycled content



Georgia imports petroleum bitumen, which is a primary input for asphalt production. Prior to 2020 Iran was Georgia's main bitumen partner, but after it was sanctioned, by 2022 it let to a significant shift in diversification. As a result Azerbaijan in 2022 accounted for 41%, Turkey for 26% and Iraq for 22% of the total imports.

Import of Bitumen (000 tons) by country and import price fo bitumen per kg($)



Although domestic producers have traditionally relied on virgin bitumen and aggregates, there is a growing interest in more sustainable asphalt mixes. In recent years, some companies—such as Black Sea Group—have initiated pilot projects incorporating fly ash and reclaimed asphalt pavement (RAP), though market-wide adoption remains limited. The use of additives such as rejuvenators is also being tested to improve durability and reduce lifecycle costs.

Despite these advancements, the majority of asphalt produced in Georgia is still based on conventional formulas. There is currently no formal policy requirement or incentive for sustainability performance, which has slowed the transition to greener alternatives. Moreover, data on embodied carbon in asphalt production is scarce, hampering efforts to establish benchmarks for green procurement.

Nevertheless, the asphalt sector represents a promising area for decarbonization. International experience shows that substituting up to 40% of virgin materials with RAP or using warm mix asphalt technologies can significantly lower emissions and reduce material costs. As Georgia prepares for EU-aligned infrastructure reforms, enabling frameworks and incentives for low-carbon asphalt production and procurement will be key.

In summary, Georgia's asphalt market is growing steadily and gradually experimenting with more sustainable practices. However, mainstreaming these innovations will require coordinated efforts across government, industry, and procurement agencies to unlock their full environmental and economic benefits.

6. Sustainable materials

6. 1 Availability and Cost of Sustainable Materials

Sustainable materials can be split as aggregates for blending of construction materials and also as recycled materials.

Blended Cement

Right now statistics for sustainable materials are not published or disclosed, but as per discussion with the main producers estimation of PC Type I is more of 80% of total cement production which indicates of negligible share of sustainable materials in the production.

Above cement prices were given as average for all blends, below are given retail prices from Tbilisi markets of various blends of cement in packs (25-50 kg). The higher clinker content causes higher cement prices.

Cement Type / Grade	Manufacturer	Price per Ton (GEL)	Price per Ton (USD)
CEM I 42.5 R (M500)		400	145.99
CEM II B-M 32.5 N		387.5	141.49
MC 22.5X		340	124.17
CEM I 42.5 R (M500) (Nova.ge)		430	156.86
CEM II A-P 42.5 R		405	147.94
Heidelberg Cement M400	Hannewel	387.5	141.49

Heidelberg Cement M500	Hannewel	400	145.99
CEM I 42.5 M500 (50 kg bags)		299.6	109.34

Sustainable materials for Cement

Limestone is a source to produce clinker, but as well can be used as sustainable aggregate independently of blending of cement. Country has source of limestone resources. Limestone aggregate for producing of cement is abundant in the county, there are large quarries within the country, 79 licenses are issued.

As per data from mining sector, annual production of limestone is 390,520 M3 which is 781,040 tons. The other destination of limestone is for flux, gravel, lime etc. totally annual average production is up to 1 mln. tons. Source: Circularity Mapping for Georgia, 2022. GSNE OKHRIS.

Ground Granulated Blast Furnace Slag (GGBS) is not used currently. It is not produced locally and also there is no import of GGBS. Existing metallurgic factories have old type of cooling system and produce only ordinary Furnace Slag which is not so active as binding component as GGBS in case of cement production.

Pulverized Fly Ash (PFA) has been used once by Hydelbergcement several years ago and did not became viable for the company. PFA is not available in Georgia and special permission is need from the government for it's import. The same can be told about pozzolana.

Average annual production of limestone for cement is estimated as 4,251,000 tons.

As the cement price of Georgian data is limited, regional data was taken to estimate:

Cement Type	Estimated Price per Ton (USD)	Notes
CEM II/B-P 32.5R	$100–$120	Commonly used for general construction purposes.
CEM II/A-L 42.5R	$110–$130	Suitable for structural applications requiring higher strength.
CEM I 52.5N	$120–$140	High-strength cement for specialized structural applications.

Below are found available estimates:

Cement and Concrete

Material Type	Estimated Price per Ton (USD)	Notes

Virgin Coarse Aggregate	$15–$25	Prices can vary based on source and transportation costs.
Virgin Fine Aggregate	$10–$20	Includes natural sands; prices depend on quality and availability.
Recycled Concrete Aggregate (RCA)	$8–$15	Limited availability; prices influenced by processing and demand.
Recycled Asphalt Millings	$10–$18	Availability depends on road maintenance activities and recycling efforts.

Steel.
Georgia's domestic steel production is based predominantly—if not entirely—on recycled content. Georgia does not have domestic iron ore mining. All steel produced in Georgia is recycled, so it can be considered as 100% of total steel produced locally. The country's two main producers — such as Rustavi Metallurgical Plant and Geosteel — operate electric arc furnaces (EAFs), which are typically used to melt scrap metal into new steel products. The steel output from Georgia's firms is typically in the form of rebar, wire rod, and structural steel — all of which can be and commonly are produced from recycled scrap.

In 2025 average price of black metal scrap is around GEL500/ton i.e. $185/ton.

This process is more in increase of scrap metal utilization. Firm Geosteel, with around 30% market share (the company claims 40-50% of market share) and with the rebar production capacity of 300,000 tons per year, production is based on 100% metal scrap using method of Electric Arc Furnace. This method reduces CO_2Emission to 140 kg per ton of steel.

Asphalt – data could not be obtained.
There is not a market for recycled coarse and fine aggregates as input material for concrete or asphalt.

- Blended cement market share: CEM I dominates (80–90%).
- SCMs like GGBS and PFA not locally available; limestone is abundant.

Recycled aggregates
Steel.
Georgia's domestic steel production is based predominantly—if not entirely—on recycled content. Georgia does not have domestic iron ore mining. All steel produced in Georgia is recycled, so it can be considered as 100% of total market. The country's two main producers — such as Rustavi Metallurgical Plant and Geosteel — operate electric arc furnaces (EAFs), which are typically used to melt scrap metal into new steel products. The steel output from

Georgia’s firms is typically in the form of rebar, wire rod, and structural steel — all of which can be and commonly are produced from recycled scrap.
Asphalt – data could not be obtained.
There is not a market for recycled coarse and fine aggregates as input material for concrete or asphalt.

- Recycled aggregates: RCA and RAP used minimally.
- Rustavi Metallurgical Plant’s slag and scrap reprocessing workshop is located on the area of plant’s slag dump that covers hundreds of hectares and current capacity of the slag dump is 8 million tones.
- The slag dump stores “open-hearth” and “blast-furnace” slag. Magnetic separation of the two produces masses of ferrous metals containing 70 per cent iron. These masses are actively used during the steel melting process.
- “Open-hearth” slag is used in road construction. The highest quality of “blast-furnace” slag is used in the production of construction blocks and clinker and for various other construction purposes, whereas lower-quality granulated slag is used for the production of cement.

- Price comparison:
  - Virgin coarse aggregate: $15–25/ton
  - RCA: $8–15/ton
  - CEM I: $120–140/ton
  - CEM II: $100–130/ton

Estimated prices available:

Material Type	Estimated Price per Ton (USD)	Notes
Virgin Coarse Aggregate	$15–$25	Prices can vary based on source and transportation costs.
Virgin Fine Aggregate	$10–$20	Includes natural sands; prices depend on quality and availability.
Recycled Concrete Aggregate (RCA)	$8–$15	Limited availability; prices influenced by processing and demand.
Recycled Asphalt Millings	$10–$18	Availability depends on road maintenance activities and recycling efforts.

7. Innovation and Technological Advancements

Georgia's construction sector is increasingly focusing on technological innovations to enhance the resource efficiency of key materials like asphalt, cement, concrete, and steel. Here are several initiatives and specific examples highlight the country's movement towards more sustainable practices. International partnerships and national strategies are playing a crucial role in driving these advancements.

Cement: The cement industry in Georgia is actively seeking to reduce its energy consumption and carbon footprint. A significant recent advancement is the adoption of alternative fuels in cement production. For instance, Hunnewell Cement (formerly HeidelbergCement Georgia) has launched a project at its Kaspi plant to utilize tyres as an alternative fuel source. This initiative aims to decrease the reliance on traditional fossil fuels like coal and natural gas, leading to lower CO2 emissions and promoting a circular economy approach by repurposing waste materials. The amount of rubber is 13.5 thousand tons per year and it substitutes around 5% of coal. The company also used limestone, furnace blast fuel to reduce content of clinker in cement.
https://www.globalcement.com/news/item/17937-kaspi-cement-plant-in-georgia-to-use-tyres-as-alternative-fuel#:~:text=News%20Kaspi%20cement%20plant%20in%20Georgia%20to%20use%20tyres%20as%20alternative%20fuel

Furthermore, support from international financial institutions like the European Bank for Reconstruction and Development (EBRD) has previously enabled companies such as the Georgian Building Group to upgrade cement mills with new engines and install energy-efficient equipment. These measures have led to quantifiable reductions in energy consumption per tonne of cement produced and a decrease in the use of raw materials.

Concrete: The firm Prime Concrete used furnace slag in producing of concrete.
There is a growing emphasis on **energy-efficient building materials**. Companies like Ytong Caucasus are promoting the use of materials such as **aerated concrete blocks**, which offer better thermal insulation and contribute to the overall energy efficiency of buildings. This aligns with new Georgian legislation that mandates minimum energy efficiency requirements for buildings, indirectly encouraging the use of resource-efficient concrete products.
General trends in the concrete sector globally, such as the incorporation of **Supplementary Cementitious Materials (SCMs)** like fly ash and slag, and the research into **waste-based concrete composites**, are also on the radar in the Caucasus region. The EU4Environment program, active in Georgia, promotes Resource Efficient and Cleaner Production (RECP) among SMEs, which can include optimizing concrete mix designs and reducing waste in precast concrete production.

Steel

Information regarding specific, recent technological innovations solely within Georgia's steel production sector for resource efficiency is less prominent in publicly available records. However, the global steel industry is focused on several key areas that are relevant to the region:

- **Increased scrap metal utilization:** Enhancing the recycling rates of steel is a primary global strategy for resource efficiency.
- **Energy efficiency in production:** Adopting more energy-efficient processes in electric arc furnaces (where applicable) and rolling mills.

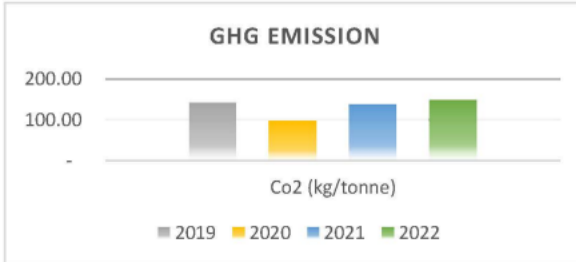
Broader initiatives promoting resource efficiency in Georgian industries, supported by organizations like the EBRD and UNIDO through the EU4Environment program, are likely to influence the steel sector indirectly by encouraging better waste management, energy savings, and overall operational efficiencies.

This process is more in increase of scrap metal utilization. Firm Geosteel, with around 30% market share (the company claims 40-50% of market share) and with the rebar production capacity of 300,000 tons per year, production is based on 100% metal scrap using method of Electric Arc Furnace. This method reduces CO_2Emission to 140 kg per ton of steel.

GeoSteel LLC uses innovative technology; operate electric arc furnaces (EAFs), which are typically used to melt scrap metal into new steel products. The main raw material of the metallurgical enterprise is iron scrap, moreover, there is used hot briquetted iron and/or other colored metal raw materials. The steel production is done by Electric Arc Furnace method using the power of the supplied electricity, which reduces the duration of melting in comparison with other methods. Slag is around 10-14% of the total

The Historical CO2 emission data chart is presented below :

Year	Co2 (kg/tonne)
2019	141.89
2020	97.29
2021	137.97
2022	149.33

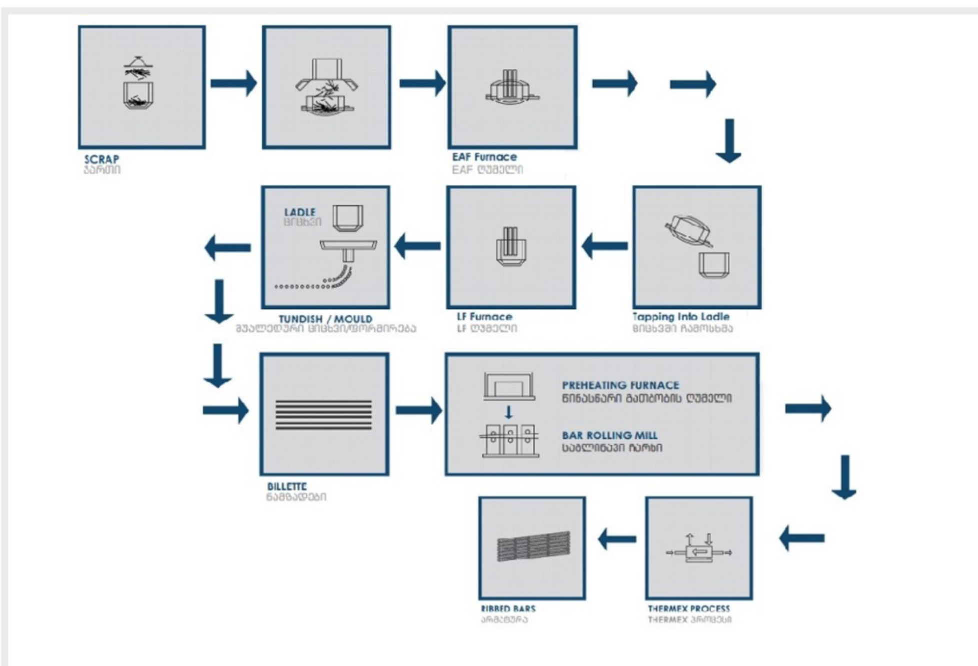


Scrap Procured Historically

	2019	2020	2021	2022
Scrap Purchased (tonnes)	142,176	130,433	172,041	141,055

Projections	2023	2024	2025	2026	2027
Scrap estimate (tonnes)	155,000	156,000	156,000	156,000	156,000

The entity aims slag being converted into raw material for cement manufacturing, sand making and road building.



Source: GeoSteel

Asphalt: Georgia is exploring ways to extend the lifespan of roads and reduce the consumption of virgin materials. A notable recent development involves research into the **use of secondary material slag ash from fuel combustion as a partial replacement for bitumen in asphalt production.** Studies indicate that this approach can improve the mechanical properties and durability of road surfaces, thereby reducing the reliance on traditional, often imported, bitumen and minimizing the environmental footprint associated with its extraction and processing. This innovation also offers a solution for industrial waste management.

Earlier initiatives, such as the experimentation with pavement rejuvenation technologies like RejuvaSeal by the Roads Department of Georgia, aimed to improve asphalt quality and significantly extend its lifecycle, thereby conserving resources by delaying the need for complete repaving.
https://www.georoad.ge/?lang=eng&act=news&func=menu&uid=1400661008

Bitumen: the firm BlackSea Group is using flying ash (according to the company, there are thousand tons of ash from used tires) to reduce bitumen emulsion by 5%.

8. Certification and standards

The Technical Regulations on Construction Materials, enacted on the basis of Resolution No. 476 of the Government of Georgia on October 1, 2018, represents a very important document concerning the operations of the construction materials value chain. Since then, the resolution has been amended several times (the last amendment had been made on 28 March, 2024).
The purpose of the Technical Regulations on Construction Materials is to ensure that products placed on the market meet EU standards, as well as to guarantee fair and equal trade conditions for operators carrying out similar economic activities within the value chain
The Regulations establish specific conditions for the placement of products on the market, defining the rules for determining the main properties of construction materials, as well as their declarations and marking thereof. The Regulations apply to the following five main products: cement, rebar, plasterboard, electric cables, and plastic pipes (CNFEA: 2523, 7214, 8544, and 3917, accordingly).
Resolution No. 476 also establishes the basic principles for declaring and marking essential characteristics of construction materials by relevant economic operators and rules for marking. The obligations specified for operators are applicable to manufacturers and importers, as well as to distributors and authorized representatives.
The Resolution also defines conformity assessment procedures during production; the rights and obligations of relevant economic operators when placing products on the market; obligations to monitor the product and implement necessary corrective measures; and state market surveillance and security measures.
Resolution No 476 of October 1, 2018 adopted the Technical Regulation on Construction Products. Technical Regualtion (Reglament) lists construction products and their standards which are based on harmonized Europian Union standards. These products are under monitoring on the market. The products outside of the list of this reglament are not monitored under this regulation. By the Government Ordinance 50 of 07.03.2013 about 40

countries standards and their accreditation is recognized by Georgia which gives permission for positioning the products of the countries on local market. These standards might have some differences in details from Georgian standards, but are mutually recognized by countries. By the Government Ordinance 270 of 21.08.2024 The European co-operation for Accreditation (EA) is enforced, permitting EU harmonized standards to be in force on the territory of Georgia.

Government regulation is adopted on quality management, there is Decree no.340 of the Chairperson of the State Department of Standardization, Metrology and Certification of Georgia of 10.11.2003 on “Requirements for Quality Management Systems ISO9001:2003”, however hold of this certificate is not obligatory. As an appendix the Decree has the comparison matrix of ISO9001:2003 and ISO14000:1996.

Georgian Standard SST ISO 14001:2015/2017 (registered 12.12.2017) Environment management systems – Requirements with guidance for use.

Green standards not adopted neither for buildings, nor for construction materials. There is only one example of green building: Office building of ProCreditBank with EDGE certificate.

9. Conclusions and Recommendations

9.1 Conclusions

The analysis of Georgia’s construction materials sector highlights both structural challenges and clear opportunities for transitioning toward more resource-efficient and low-carbon practices.

Cement and concrete dominate the sector. Cement production exceeds 3 million tons annually, though over one-third of clinker is imported, increasing both costs and embodied emissions. The market is heavily skewed toward CEM I (~80–90%), with CO_2 emissions averaging 716 kg/t, while blended alternatives (CEM II, CEM III, masonry cements) with lower emission profiles (360–570 kg/t) remain underutilized. Concrete production surpassed 5 million m^3 in 2024, with limited examples of “green concrete” using recycled aggregates, though certification and recognition mechanisms are not yet established.

Steel production, centered on rebar, is based almost entirely on recycled scrap via electric arc furnaces, resulting in relatively low CO_2 intensity (~140 kg/t). However, shrinking domestic scrap availability has reduced self-sufficiency from ~75% in 2021 to ~43% in 2024, leaving the sector increasingly exposed to imports and price volatility.

Asphalt production (~1.35 million tons in 2024) is fully domestic, with pilots in reclaimed asphalt pavement (RAP), additives, and rejuvenators. Yet large-scale adoption is constrained by unclear standards for recycled content and the absence of embodied carbon benchmarks.

Across all materials, recycled aggregates remain underused despite cost advantages (RCA ~$8–15/t versus virgin aggregates at $15–25/t), due to logistical barriers, limited recycling infrastructure, and lack of regulatory drivers.

From a policy perspective, Georgia's standards for cement, concrete, steel, and asphalt are already harmonized with EU norms, but enforcement and uptake are weak. Binding requirements for supplementary cementitious materials (SCMs), recycled construction and demolition waste (C&DW), or CO_2 intensity reporting are absent. This regulatory gap slows market transition.

Public procurement offers the strongest immediate lever. Infrastructure projects account for most demand, and embedding sustainability criteria in ADB- and state-funded tenders could accelerate adoption of blended cements, recycled aggregates, and low-carbon asphalt. Targeted incentives—such as preferential treatment for certified green materials, investment support for recycling facilities, and capacity-building for conformity assessment—would further align the sector with EU and international best practices.

Overall, The push towards resource efficiency in Georgia's construction materials sector is driven by several factors:

- **Environmental Commitments:** Aligning with international agreements on climate change and sustainable development.
- **Economic Benefits:** Reducing reliance on imported raw materials and energy, leading to cost savings.
- **Legislation and Standards:** Introduction of new energy efficiency standards for buildings.
- **International Collaboration:** Support from international bodies providing technical expertise and funding for green initiatives.

While Georgia is making strides, continued investment in research and development, coupled with supportive policies and the adoption of proven international technologies, will be crucial for further enhancing the resource efficiency of its key construction materials.

In conclusion, Georgia's construction materials sector has a solid production base and emerging innovation pilots, but the transition to sustainable practices remains on early stage only. Stronger policy frameworks, strategic investment in recycling and SCM infrastructure, and the integration of sustainability into public procurement are essential to unlock the sector's potential for reducing emissions, improving resource efficiency, and supporting a green, resilient, and inclusive recovery.

8.2 Recommendations

- Leverage Procurement in public projects as a Market Driver: Integrate sustainability criteria (CO_2 intensity, SCM use, recycled aggregates, RAP content) into bidding documents for public infrastructure projects. Pilot “green procurement clauses” in ADB-financed works to demonstrate feasibility and set benchmarks.

- Strengthen Regulatory Frameworks: Introduce minimum targets for the use of supplementary cementitious materials (SCMs) and recycled construction and demolition waste (C&DW) in cement and concrete. Establish national requirements for CO_2 disclosure and Environmental Product Declarations (EPDs) for major construction materials.
- Invest in Recycling and Green Material Infrastructure: Support slag granulation facilities, fly ash import protocols, and C&D waste processing plants. Provide incentives (tax relief, low-interest loans, grants) for companies adopting sustainable production technologies.
- Enhance Standards, Certification, and Monitoring: Build institutional capacity for conformity assessment, green certification, and lifecycle CO_2 monitoring. Align national standards not only with EU technical specifications but also with emerging green certification frameworks (e.g., EDGE, LEED, EPD systems).
- Promote Innovation and Knowledge Transfer: Scale up pilot projects in low-carbon asphalt and green concrete through public-private partnerships. Facilitate international collaboration (ADB, EBRD, EU programs) to bring advanced technologies and technical assistance to local producers.

Appendix 1 - Questionnaire

Ref:

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