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# Comprehensive Green Public Procurement System

A mechanism for implementing the  
Waste Management Concept of the  
Republic of Kazakhstan for 2026-2030

## **Acknowledgements**

This Policy Paper was developed to support the implementation of the Concept for Management of All Types of Waste in the Republic of Kazakhstan for 2026–2030 (Government Resolution No. 1201 of 31.12.2025) with regard to developing secondary raw materials markets through green public procurement. The document contains proposals for establishing a comprehensive green public procurement system for construction materials from recycled waste.

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The Appendix D builds upon the foundational materials standards framework developed by Dr Ferhat Karaca.

## **The SWITCH-Asia Programme**

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# Table of Contents

<b>Executive Summary</b> .....	<b>10</b>
<b>Section 1. Legal Framework</b> .....	<b>12</b>
1.1. Alignment with the Waste Management Concept.....	12
1.2. Legal framework of the GPP system.....	13
1.3. Detailed breakdown of concept requirements.....	13
1.4. Compliance with the Concept Action Plan.....	14
1.5. SWITCH-Asia Programme .....	14
<b>Section 2. The Problem: Waste as ‘Dead Capital’</b> .....	<b>15</b>
2.1. Scale of accumulated waste.....	15
2.2. ‘Valley of Death’: Barriers for waste recycling enterprises.....	16
2.3. The systemic barrier in public procurement .....	16
<b>Section 3. The Solution: A Comprehensive System</b> .....	<b>18</b>
3.1. Solution architecture: Three Pillars.....	18
3.2. Pillar 1: L2 Environmental Preference and Discount in RPS .....	19
3.3. Pillar 2: Green Regulatory Sandbox (pre-commercial procurement).....	21
3.4. Pillar 3: Cascading verification and ROP/EPR integration .....	24
3.5. Closed Loop: Integration of the Three Pillars.....	26
3.6. Implementation of the Waste Management Concept 2026–2030.....	27
<b>Section 4. Application: The Construction Sector</b> .....	<b>30</b>
4.1. Scale and strategic significance of the Construction Sector.....	30
4.2. The ‘Green Gap’ problem: Regulatory disconnect.....	31
4.3. The Solution: Green Value Share (GVS).....	32
4.4. Environmental Discount Mechanism in the RPS .....	34
4.5. Target subcategories of construction materials .....	35
4.6. Verification criteria and ecodesign technical regulation.....	37
<b>Section 5. Contribution to Achieving Concept Objectives</b> .....	<b>39</b>
5.1. Contributing to the Concept Target Indicators.....	39
5.2. Alignment with Core Principles of the Concept.....	40
5.3. Expected outcomes by implementation phase .....	41
5.4. Note on Quantitative Indicators .....	42
<b>Section 6. Recommendations</b> .....	<b>43</b>
6.1. Preparatory Actions (first 6 months).....	43
6.2. Regulatory Actions (months 6–18; synchronised with the Concept Action Plan, GD No. 1201 of 31.12.2025) .....	44
6.3. Scaling (month 18–2030) .....	44
6.4. Recommendation Implementation Targets .....	45
6.5. Important notes .....	45
6.6. Complementary Measures: Communication, Training, and Change Management.....	46
<b>List of Regulatory Legal Acts Referenced</b> .....	<b>48</b>
I. Codes of the Republic of Kazakhstan.....	48
II. Laws of the Republic of Kazakhstan .....	48
III. Decrees of the Government of the Republic of Kazakhstan .....	48
IV. Orders of Ministries of the Republic of Kazakhstan .....	48
V. International Regulatory Documents and Standards.....	49

<b>Appendix A. Recommendations for Amending Article 130 of the Environmental Code of the RK</b> .....	<b>50</b>
A.1. Justification for Legislative Changes.....	50
A.2. Legal Grounds for Developing the Draft Law.....	50
A.3. Recommended Subject of Amendment.....	51
A.4. Recommended New Provisions.....	51
A.5. Three-Tier Registry System Architecture.....	53
A.6. Comparative Table: Current and Recommended Versions.....	54
A.7. Recommended Accompanying Subordinate Regulations.....	55
A.8. Objectives and Expected Outcomes.....	55
A.9. Recommended Adoption Procedure.....	56
<b>Appendix B. Recommendations for integrating the environmental discount into the rating-point system of public procurement</b> .....	<b>57</b>
B.1. Problem: Absence of an environmental parameter in the RPS Formula.....	57
B.2. Legal grounds for amendments.....	57
B.3. Recommended modification of the Notional Price Formula.....	58
B.4. Recommended Methodology for Calculating the Environmental Discount.....	58
B.5. Recommended Automation Algorithm.....	59
B.6. Illustrative calculation example.....	60
B.7. Linkage to other GPP system elements.....	60
B.8. Adoption Recommendations.....	61
<b>Appendix C. Recommendations for Developing a Standard Guaranteed Off-take Contract</b> .....	<b>62</b>
C.1. The ‘Valley of Death’ Problem and the Purpose of the Contract.....	62
C.2. Pre-commercial Procurement (PCP) mechanism as the contract origin.....	62
C.3. Recommended Legal Framework for the Contract.....	63
C.4. Recommended Key Contract Mechanisms.....	63
C.5. Recommended Standard Contract Structure.....	65
C.6. Participant Interaction Scheme: From PCP Competition to Contract Execution.....	66
C.7. Priority Production and Consumption Waste.....	66
C.8. Recommendations for Development and Approval.....	67
C.9. Alignment with the Waste Management Concept.....	68
<b>Appendix D. Construction materials for Green Public Procurement</b> .....	<b>69</b>
D.1. Classification of Materials by Category.....	69
D.2. Base materials substitutable with recycled analogues.....	72
D.3. Construction Materials from Industrial Waste (Items 42–44).....	73
D.4. Linkages with other Appendices.....	76
<b>Appendix E. Institutional Architecture</b> .....	<b>77</b>
E.1. IGTPC Single-Operator Model.....	77
E.2. Cascading Verification L1 → L2 → L3.....	78
E.3. Four-level Organisational Architecture.....	79
E.4. Roles and Responsibilities of Participants.....	80
E.5. RACI Matrix of Key Processes.....	81
E.6. Cross-References with other Policy Paper Appendices.....	82
<b>Appendix F. Scenario Analysis of the Green Public Procurement System of the Republic of Kazakhstan</b>	<b>84</b>
F.1. Methodology and Analysis Structure.....	85
F.2. Identifying and Assessing Factors of Change.....	86
F.3. Basic Scenario Matrices.....	88
F.4. Four Scenarios: What could happen.....	89
F.5. GPP System Risk Matrix.....	95

F.6. Summary Scenario and Action Table.....	96
F.7. Conclusions and link to the Main Document.....	97
<b>Appendix G. Stakeholder Map.....</b>	<b>99</b>
<b>Appendix H. International Experience .....</b>	<b>101</b>
List of Sources for Appendix H (International Experience). The numbering [1]–[78] pertains only to this Appendix and does not overlap with the numbering of Appendix D. ....	105

## List of Tables

Table 1. Components of the comprehensive Green Public Procurement System for construction materials.....	10
Table 2. Alignment with waste management concept provisions.....	12
Table 3. Legal Framework of the comprehensive GPP system .....	13
Table 4. Detailed breakdown of concept requirements.....	14
Table 5. Compliance with the Concept Action Plan.....	14
Table 6. The scale of accumulated waste in the Republic of Kazakhstan.....	15
Table 7. The ‘Valley of Death’: Barriers for waste recycling enterprises .....	16
Table 8. Lack of an environmental parameter in the RK rating-point system (RPS).....	17
Table 9. Three Pillars of the comprehensive GPP system .....	18
Table 10. L2 Registry verification criteria .....	19
Table 11. The advantages of L2 environmental preference.....	20
Table 12. The SME ‘Valley of Death’ .....	22
Table 13. The three phases of the Green Regulatory Sandbox.....	22
Table 14. Principle of separating funding sources and distributing risks across three institutions .....	23
Table 15. Budget protection.....	24
Table 16. IGTIPC Three-tier registry system.....	25
Table 17. Rules for obligations of producers/importers .....	26
Table 18. Step-by-step integration: from innovative enterprise to public procurement .....	26
Table 19. GPP system alignment with concept provisions.....	27
Table 20. Quantitative concept targets implemented through GPP.....	28
Table 21. Scale of the Construction Sector in RK Public Procurement.....	30
Table 22. Unique prerequisites in Kazakhstan to facilitate the creation of an automated GPP system .....	30
Table 23. ‘Green Gap’ regulatory disconnect .....	31
Table 24. Existing integration pathways and their limitations .....	31
Table 25. Reference Model: Domestic Value Share (DVS).....	32
Table 26. Adaptation for GPP: the GVS indicator .....	32
Table 27. The proposed GVS instrument.....	33
Table 28. Environmental discount scale.....	34
Table 29. Protection against price manipulation.....	34
Table 30. Structure of Appendix D.....	35
Table 31. Three priority categories of construction materials from industrial waste .....	36
Table 32. Verification criteria for construction materials for L2 registry .....	37
Table 33. Application of circularity criteria through the cascading system.....	37
Table 34. Levels of regulatory architecture.....	38
Table 35. Groups of construction products .....	38
Table 36. Contribution to Concept Target Indicators.....	39

Table 37. Alignment with the 7 Concept Principles.....	40
Table 38. Expected Outcomes: Short-term (2026–2027) .....	41
Table 39. Expected Outcomes: Medium-Term (2028–2030).....	42
Table 40. Preparatory Actions (first 6 months).....	43
Table 41. Regulatory Actions (months 6–18).....	44
Table 42. Scaling (month 18–2030) .....	44
Table 43. Implementation targets.....	45
Table 44. Current structure of Article 130.....	51
Table 45. Criteria for inclusion in the L3 registry for design works (PSD) .....	52
Table 46. Cascading verification examples .....	54
Table 47. Analytical comparative table (regarding Article 130).....	54
Table 48. Subordinate normative legal acts.....	55
Table 49. Comparison of current and recommended formulas .....	58
Table 50. Recommended Environmental Discount Scale .....	59
Table 51. Recommended Automation Algorithm .....	59
Table 52. Sample calculation, comparison of two tender participants.....	60
Table 53. Links to other GPP system elements in Policy Paper 1 .....	60
Table 54. Pre-commercial procurement mechanism .....	62
Table 55. Recommended parameters for Take-or-Pay mechanism .....	64
Table 56. Recommended sanctions for greenwashing.....	65
Table 57. Recommended standard contract structure.....	66
Table 58. Industrial waste (Category I–II facilities).....	67
Table 59. Consumer waste (MSW) .....	67
Table 60. Mechanism for alignment with the Waste Management Concept.....	68
Table 61. Full classification of construction materials across 20 categories .....	69
Table 62. Complete Construction Materials Registry (Items 1–49).....	71
Table 63. Base materials substitutable with recycled analogues .....	73
Table 64. Material 42, Road-construction materials from industrial waste (coal ash/slag asphalt, Superpave (high-performance asphalt concrete design system), RAP (reclaimed asphalt pavement), rubber-modified asphalt).....	73
Table 65. Material 43, Aggregates, Crushed Stone, and Backfill Materials from Overburden Rock and Technogenic Sources .....	74
Table 66. Material 44, Gypsum Binders and Construction Materials from Phosphogypsum and Synthetic Industrial Gypsum.....	75
Table 67. Links among Appendices A, B, C, E, F, G, and H.....	76
Table 68. Advantages of the centralised model .....	77
Table 69. The structure of the cascading registries .....	78
Table 70. Key properties of the cascading system.....	78
Table 71. Comparative Rationale: BAT Model and Registry System .....	79
Table 72. Level 1, Strategic governance .....	79
Table 73. Level 2, Operational management, IGTIPC .....	79
Table 74. Level 3, Technical working groups (TWGs).....	80
Table 75. Level 4, External verification (Hybrid Model) .....	80
Table 76. Detailed functions of participants .....	81
Table 77. Extended RACI Matrix.....	81
Table 78. Cross-references with other Policy Paper appendices (in Policy Paper 1).....	82
Table 79. Operational Implementation Plan.....	84
Table 80. Change factors, full list .....	86

Table 81. Factors of change: Importance x Uncertainty matrix.....	87
Table 82. Selection of critical factor pairs.....	87
Table 83. Basic scenario, Pair 1: Political Will x SME Market Readiness.....	88
Table 84. Basic scenario, Pair 2: Pace of Art. 130 Adoption x API Integration.....	88
Table 85. Basic scenario, Pair 3: Primary Raw Material Prices x EPR Financing Availability .....	89
Table 86. F.4.1. Scenario 1: Early warning signals.....	90
Table 87. F.4.1. Scenario 1: What each party should do.....	91
Table 88. F.4.2. Scenario 2: Early warning signals.....	92
Table 89. F.4.2. Scenario 2: What each party should do.....	92
Table 90. F.4.3. Scenario 3: Early warning signals.....	93
Table 91. F.4.4. Scenario 4: Early warning signals.....	94
Table 92. F.4.4. Scenario 4: What each party should do.....	95
Table 93. GPP System Summary Risk Matrix (probability x aggregate impact).....	95
Table 94. F.5.1. Priority risk descriptions .....	96
Table 95. Summary scenario and action table.....	97
Table 96. Stakeholder map.....	99
Table 97. International GPP experience for safe construction materials from industrial and consumer waste.....	101

## Abbreviations and Acronyms

<b>API</b>	Application Programming Interface
<b>BAT</b>	Best available techniques
<b>CAO</b>	Code of Administrative Offences of the Republic of Kazakhstan
<b>CBAM</b>	Carbon Border Adjustment Mechanism (EU Regulation 2023/956)
<b>CC</b>	Civil Code (of the Republic of Kazakhstan)
<b>CDW</b>	Construction and Demolition Waste
<b>CEF</b>	JSC 'Centre for Electronic Finance'
<b>CHP</b>	Combined Heat and Power
<b>CIW</b>	Construction and Installation Works
<b>CSBs</b>	Central State Bodies
<b>DED</b>	Design and Estimate Documentation
<b>DPP</b>	Digital Product Passport
<b>EC</b>	Environmental Code
<b>EoL</b>	End of Life (demolition/disposal)
<b>EPD</b>	Environmental Product Declaration
<b>EPR</b>	Extended Producer Responsibility
<b>ERG</b>	Eurasian Resources Group
<b>ESPR</b>	Ecodesign for Sustainable Products Regulation
<b>EU</b>	European Union
<b>FSC</b>	Forest Stewardship Council
<b>GD</b>	Government Decree
<b>GDP</b>	Gross Domestic Product
<b>GEN</b>	Global Ecolabelling Network
<b>GGBS</b>	Ground Granulated Blast-furnace Slag
<b>GOST</b>	Gosudarstvenny standart (Inter-State Standard, CIS)

<b>GPP</b>	Green Public Procurement
<b>GR</b>	Government Resolution
<b>GVS</b>	Green Value Share
<b>GWP</b>	Global Warming Potential
<b>GWS</b>	Goods, works and services
<b>IEP</b>	Integrated Environmental Permit
<b>IGTIPC</b>	NJSC 'International Green Technologies and Investment Projects Center'
<b>ILPI</b>	Institute of Legislation and Legal Information of RK
<b>ISO</b>	International Organization for Standardization
<b>KEITI</b>	Korea Environmental Industry & Technology Institute
<b>KONEPS</b>	Korea ON-line E-Procurement System
<b>KSP</b>	KSP Steel (a Kazakhstani steel producer)
<b>KZT</b>	Kazakhstan Tenge (national currency)
<b>L1</b>	Level 1: Green Technology Registry
<b>L2</b>	Level 2: Green Product Registry
<b>L3</b>	Level 3: Green Services and Works Registry
<b>LCA</b>	Life Cycle Assessment
<b>LCC</b>	Life Cycle Costing
<b>LEBs</b>	Local Executive Bodies
<b>MEAT</b>	Most Economically Advantageous Tender
<b>MENR</b>	Ministry of Ecology and Natural Resources of RK
<b>MIC</b>	Ministry of Industry and Construction of RK
<b>MNE</b>	Ministry of National Economy of RK
<b>MF</b>	Ministry of Finance of RK
<b>MoJ</b>	Ministry of Justice of RK
<b>MSW</b>	Municipal Solid Waste
<b>MTI</b>	Ministry of Trade and Integration of the Republic of Kazakhstan
<b>NCE</b>	National Chamber of Entrepreneurs 'Atameken'
<b>NJSC</b>	Non-commercial Joint-Stock Company
<b>NLA</b>	Normative Legal Act
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PCP</b>	Pre-Commercial Procurement (referred to in these documents as 'pilot regulatory regime'; for details see Policy Paper 1, Section 3.3)
<b>PSD</b>	Project (Estimate) Documentation (from Russian 'PSD')
<b>RK</b>	Republic of Kazakhstan
<b>ROP</b>	Russian: Rasshirennaya Otvetstvennost' Proizvoditelya (= Extended Producer Responsibility, EPR)
<b>RPCD</b>	Regulatory Policy Consultation Document
<b>RPS</b>	Rating and Points System (notional price formula in public procurement)
<b>SAC</b>	Supreme Audit Chamber of RK
<b>SDGs</b>	Sustainable Development Goals
<b>SMB</b>	Small and Medium Business
<b>SME</b>	Small and Medium-sized Enterprise (singular form of SMEs)
<b>SMEs</b>	Small and Medium-sized Enterprises
<b>SPP</b>	Sustainable Public Procurement
<b>ST RK</b>	National Standard of the Republic of Kazakhstan
<b>TMF</b>	Technogenic Mineral Formations
<b>UN</b>	United Nations

<b>UNC GWS</b>	Unified Nomenclature of Goods, Works and Services
<b>UNEP</b>	United Nations Environment Programme
<b>VCF</b>	Ventilated Curtain Façade
<b>WEEE</b>	Waste Electrical and Electronic Equipment

# Executive Summary

## The Problem

The Republic of Kazakhstan has accumulated – and continues to generate annually – significant volumes of waste that represent ‘dead capital’: resources not integrated into economic circulation:

- Technogenic mineral formations (TMF): 53.6 billion tonnes (ownership rights for 67.7% unallocated)
- Coal ash and slag from the thermal energy sector: 1–1.5 million tonnes/year
- Phosphogypsum from the chemical industry: significant volumes accumulated (Zhambyl Region)
- Construction and demolition waste (CDW): systematic tracking is at the formation stage, landfilling prohibited since 2021
- Municipal solid waste (MSW): 4.5–5 million tonnes/year (only 25.9% recycled)

## The Solution

This Policy Paper contains proposals for establishing a comprehensive green public procurement (GPP) system aimed at implementing the key provision of Section 5 of the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (Government Decree No. 1201 of 31.12.2025): ‘to develop markets for products, secondary raw materials, and materials derived from secondary raw materials – through ‘green’ public procurement, demand generation, incentivising the substitution of primary resources with secondary ones, and creating secondary resource markets.’

The proposed system generates guaranteed demand through public procurement for construction materials made from recycled waste: technogenic mineral formations (TMF), metallurgical slag, coal ash and slag, phosphogypsum, construction waste, and selected fractions of MSW.

**Table 1. Components of the comprehensive Green Public Procurement System for construction materials**

System Element	Instrument	Function
<b>DEMAND GENERATION</b>	Green Public Procurement	Incentivising the use of construction materials from recycled waste through an environmental discount of up to 5% in public procurement of construction works
<b>SUPPLY GENERATION</b>	Innovation support programme: pre-commercial procurement (funded by JSC (Joint-Stock Company) ‘Zhasyl Damu’) + guaranteed off-take contracts with local executive bodies (akimats)	Supporting innovative waste-to-construction-materials enterprises and their entry into the public procurement market
<b>COMPLIANCE ASSURANCE</b>	IGTIPC (International Green Technologies and Investment Projects Centre) three-tier registry system (technologies → goods → services and works)	Verifying compliance of construction materials from recycled waste with established requirements and protecting against greenwashing

The three system elements presented in the Table are interconnected: green public procurement generates demand for construction materials from recycled waste, the Innovation Support Programme ensures the emergence of manufacturers of such materials, and the IGTIPC three-tier registry system guarantees their compliance with established requirements. Together, they form a closed loop – from an innovative enterprise to participation in the public procurement system.

This Policy Paper 1 is part of a package of two complementary analytical documents prepared under the EU SWITCH-Asia PSC programme. Analytical Document 2 'Legislative Recognition of Public Procurement as an Instrument of Environmental Policy' contains the legal basis and a package of amendments to five legislative acts and the Public Procurement Rules, ensuring legislative consolidation of the three-tier system for verifying the environmental status of technologies, goods, and services and the integration of environmental criteria for evaluating tender proposals. This Policy Paper 1 demonstrates the practical application of this system to the construction sector as the priority segment of public procurement.

## **Phased implementation approach**

The system implementation envisages three sequential stages: preparatory (approximately 6 months for legislative analysis and development of the regulatory framework), regulatory (approximately 12–18 months for adoption of amendments and system launch), and scaling (approximately 3 years for pilot regions and nationwide replication). The proposed stages are aligned with the Action Plan for the Waste Management Concept (Government Decree No. 1201 of 31.12.2025). A detailed description of the stages is provided in Section 6.

## **Legal basis**

This Policy Paper has been developed to facilitate the implementation of Section 5 of the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (Government Decree of the RK No. 1201 of 31.12.2025), which provides for the development of secondary raw materials markets through green public procurement.

## **Expected outcomes by 2030 (contribution to achieving concept objectives)**

- Contributing to reducing the share of industrial waste not integrated into secondary circulation (Target Indicator 3 of the Concept)
- Contributing to reducing the share of waste sent to MSW landfills (Target Indicator 2 of the Concept)
- Developing secondary raw materials markets through green public procurement (Section 5 of the Concept)

## **Recommendations**

Specific recommendations for implementing the comprehensive green public procurement system are presented in Section 6 of this document.

# Section 1. Legal Framework

## 1.1. Alignment with the Waste Management Concept

This Policy Paper has been developed to facilitate the implementation of the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030, approved by Government Decree of the RK No. 1201 of 31 December 2025.

The Concept identifies the transition to a circular economy as a strategic priority and states the key barrier: ‘the absence of stable markets for secondary products is the main barrier to broad integration of industrial waste into economic circulation’ (Section 5).

The proposed comprehensive green public procurement system is directly linked to the following provisions of the Concept:

**Table 2. Alignment with waste management concept provisions**

Concept Section	Provision	GPP System Component
<b>Section 4 (Vision), Principle 1</b>	‘Transition to a circular economy: reducing waste generation, reusing materials, maximising integration of waste into secondary circulation’	Cascading verification L1→L2→L3 with ROP/EPR integration closes the product life cycle (Section 3.4)
<b>Section 4 (Vision), Principle 4</b>	‘Green business development: supporting SMEs (Small and Medium Enterprises) in waste management, creating jobs and attracting investment in clean technologies’	Green regulatory sandbox PCP (Pre-Commercial Procurement): 3 phases of EPR grants + off-take contract with akimat (Section 3.3)
<b>Section 5</b>	‘To develop markets for secondary raw material products through ‘green’ public procurement, demand generation, and incentivising substitution of primary resources with secondary ones’	L2 environmental preference and environmental discount (up to 5%) in the RPS (Rating and Points System) notional price formula generate guaranteed demand for ‘green’ construction materials (Sections 3.2 and 4.4)
<b>Section 6 (Indicator 2)</b>	Minimising waste landfilling: reducing the share of waste sent to landfills by 2030	Off-take contracts within PCP incentivise recycling over landfilling; 8 categories of waste-derived construction materials (3 developing N–P + 5 emerging R–V) (Section 4.5, Appendix D)
<b>Section 6 (Indicator 3)</b>	Reducing the share of unrecycled industrial waste: ↓10% by 2030	The IGTIPC three-tier registry system verifies products from TMF, slag, coal ash, and phosphogypsum (Section 3.4, Appendix E)
<b>Section 2.14 (Economic instruments)</b>	‘Extended producer and importer responsibility’ (EPR)	ROP as a source of R&D funding (Art. 388(9) of the Environmental Code of the RK); ROP/EPR obligations in GPP contracts (Section 3.4)

*Note: the tables in this section use designations of the proposed system elements described in detail in Section 3: L1 – green technologies registry (operational since 2022); L2 – green products registry (proposed); L3 – green services and works registry (proposed); GVS (Green Value Share) – the share of verified green materials in the total cost of contract materials; PCP – Pre-Commercial Procurement programme; EPR/ROP – Extended Producer Responsibility (obligations of producers/importers); RPS – Rating and Points System (a method of conducting a public procurement tender); greenwashing – misleading environmental claims (unsubstantiated claims about the environmental performance of products).*

The Ministry of Ecology and Natural Resources of the Republic of Kazakhstan has been designated as responsible for the Concept implementation (paragraph 5 of the Decree).

## 1.2. Legal framework of the GPP system

Section 5 of the Concept, ‘Core Principles and Approaches to Development,’ contains a direct instruction:

It is also important to develop markets for products, secondary raw materials, and materials derived from secondary raw materials – through ‘green’ public procurement, demand generation, incentivising the substitution of primary resources with secondary ones, and creating secondary resource markets.

The proposed GPP system is grounded in the current legislation of the Republic of Kazakhstan. Key legal acts are presented in Table 2.

**Table 3. Legal Framework of the comprehensive GPP system**

Legal Act	Relevant Provisions	Role in the GPP System
<b>Law ‘On Public Procurement’ dated 01.07.2024 No. 106-VIII LRK</b>	Art. 5(1)(8) – principle of ‘sustainable public procurement development’; Art. 16(3)(43) – single-source procurement for goods subject to off-take contracts	Legal basis for introducing the environmental discount in the RPS and off-take contracts (Sections 3.2, 3.3, 4.4)
<b>Public Procurement Rules (Order of the MF of the RK No. 687 of 09.10.2024, as amended by Order of MF RK No. 321 of 24.06.2025)</b>	Paragraph 13 (para. 217) – criteria affecting competitive price offers (subject of amendment); Chapter 10 – RPS procedure; Appendix 16 – list of goods, works, services for RPS	Target regulatory act for introducing the environmental discount (Appendix B)
<b>Environmental Code of the RK</b>	Art. 130 – registry of green technologies and projects (basis for L1, effective since 2022); Art. 388(9) – R&D funding through the EPR Operator (ROP)	Foundation for L1→L2→L3 cascading verification and PCP funding (Sections 3.3, 3.4)
<b>Civil Code of the RK</b>	Art. 150 – conditional transactions (condition precedent)	Off-take contract structure: akimat obligations arise only after IGTIPC certification (Section 3.3)
<b>Waste Management Concept 2026–2030 (GD of the RK of 31.12.2025 No. 1201)</b>	7 principles; 3 directions; target indicators (reducing landfilling, ↓10% unrecycled industrial waste)	Strategic mandate for the entire GPP system (Section 3.6)

*Detailed legal analysis: ‘Green Gap’ regulatory disconnect – Section 4.2; 6 recommended provisions for Art. 130 of the Environmental Code – Appendix A.*

## 1.3. Detailed breakdown of concept requirements

The key provision of Section 5 of the Concept contains four elements, each implemented by a specific system component (see Table 4).

**Table 4. Detailed breakdown of concept requirements**

Concept Provision	GPP System Component	Policy Paper Section
'Green public procurement'	L2 verification + GVS (Green Value Share – the share of verified green materials in the total cost of contract materials) as aggregated 'greenness' indicator for contracts + environmental discount (up to 5%) in RPS notional price formula	Section 3.2 (L2 preference); Section 4.3 (GVS); Section 4.4 (discount); Appendix B (methodology)
'Demand generation'	Green regulatory sandbox (PCP) with off-take contracts: the state acts as an innovation driver, guaranteeing market access through a transaction with a condition precedent (Art. 150 CC RK)	Section 3.3 (PCP); Appendix C (programme)
'Incentivising substitution of primary resources with secondary ones'	20 categories of construction materials (49 items), including 3 developing categories from industrial waste (N–P) and 5 emerging categories from consumer waste (R–V), with circularity criteria (Appendix D, section D.3 for items 42–44; Appendix C, section C.7 for items 45–49)	Section 4.5 (subcategories); Appendix D (Handbook)
'Creating secondary resource markets'	L1→L2→L3 cascading verification through a single operator (IGTIPC): structural barrier against greenwashing + ROP/EPR integration for closing the life cycle	Section 3.4 (verification); Appendix E (institutional architecture)

## 1.4. Compliance with the Concept Action Plan

This Policy Paper has been developed to facilitate the implementation of the following measures from the Concept Action Plan, presented in Table 5.

**Table 5. Compliance with the Concept Action Plan**

Nº	Action Plan Measure	Deadline	Policy Paper Section
3	Improving legislation in the field of waste management	H1 2027	Section 4.2 ('Green Gap' regulatory disconnect); Appendix B (amendments to Rules No. 687); Appendix A (6 provisions for Art. 130 of the EC of the RK)
7	Developing support measures for enterprises using secondary resources in finished product manufacturing	H1 2027	Section 3.2 (L2 preference/discount); Section 3.3 (PCP/off-take); Section 4.4 (discount mechanism in RPS)
8	Attracting investors for projects on integrating unused industrial waste into secondary circulation	2028–2030	Section 3.3 (off-take as collateral for investments); Section 3.5 (closed loop); Appendix C (innovation support programme)

## 1.5. SWITCH-Asia Programme

This Policy Paper has been prepared under the EU SWITCH-Asia Policy Support Component programme (2024–2026), which supports Kazakhstan's transition to sustainable consumption and production through the development of green economy regulatory mechanisms.

## Section 2. The Problem: Waste as ‘Dead Capital’

### 2.1. Scale of accumulated waste

The Republic of Kazakhstan has accumulated significant volumes of industrial and municipal waste that constitute ‘dead capital’ – resources not integrated into economic circulation. The Waste Management Concept for 2026–2030 states: ‘the predominance of industrial waste landfilling over its beneficial use persists. The reasons include the absence of technical standards, high logistics costs, and low motivation to use secondary materials.’

**Table 6. The scale of accumulated waste in the Republic of Kazakhstan**

Waste Type	Volume	Status	Construction Potential
<b>Technogenic mineral formations (TMF)</b>	53.6 billion t (1,630 sites)	67.7% – ownership rights unallocated; 450 sites near populated areas (Pavlodar, Karaganda, Zhambyl, East Kazakhstan regions)	Crushed stone, backfill, metal recovery; recycling profitability 20–30%
<b>Metallurgical slag (GGBFS)</b>	Annual generation	Karaganda, Temirtau – Qarmet, KSP Steel, ERG	Cements, concretes, panels, blocks;
<b>CHP (Combined Heat and Power) coal ash and slag</b>	1–1.5 million t/year	Predominantly sent to ash dumps; Pavlodar, Ekibastuz	Road construction, precast elements; recycling forecast up to 10 million t/year
<b>Phosphogypsum (Kazphosphate)</b>	Over 17 million t (Kazphosphate stockpiles)	Zhambyl Region (Taraz, Karatau); virtually unused	Gypsum blends, cement industry, land reclamation;
<b>Municipal solid waste (MSW)</b>	4.5–5 million t/year	Only 25.9% recycled; food waste – approximately 30% of MSW volume	Recycled plastic (panels, insulation), glass powder (cement substitute), rubber crumb (asphalt)
<b>Construction and demolition waste (CDW)</b>	No data available	Landfilling prohibited since 01.07.2021; establishment of the construction waste tracking and monitoring system is envisaged by the Concept as a priority task	Recycled concrete aggregate (RCA), road bases, non-structural elements

*Scale of Lost Economic Benefit.* According to estimates by the Ministry of Industry and Construction of the RK and the Waste Management Concept, integrating industrial waste into economic circulation will: reduce metallurgical waste landfilling by 25%; save KZT (Kazakhstan Tenge) 50–100 billion annually through substitution of natural aggregate materials; integrate up to 10% of accumulated TMF into economic circulation by 2030; integrate 15–20 million tonnes of secondary resources into industrial circulation annually.

International experience confirms the feasibility of these targets: in Czechia and Poland, up to 70% of ash and slag is used in construction and road works thanks to national standards and economic incentives (EU Directive 2006/21/EC).

*Source: Concept for Management of All Types of Waste in the Republic of Kazakhstan for 2026–2030 (Government Resolution of the RK dated 31.12.2025 No. 1201), sections 2.1–2.2 (industrial waste), 2.3 (municipal waste), 2.6*

(construction waste).

Despite the scale of the resource base and demonstrated economic viability, waste recycling into construction materials remains limited. The causes lie in systemic barriers that block both the emergence of new products from secondary raw materials and the formation of sustainable demand for them.

## 2.2. 'Valley of Death': Barriers for waste recycling enterprises

Enterprises ready to process waste into construction materials face a systemic market failure – the so-called 'valley of death' that prevents the emergence of new secondary raw material products (see Table 7).

**Table 7. The 'Valley of Death': Barriers for waste recycling enterprises**

Nº	Barrier	Description	Consequence
1	<b>Limited access to raw materials</b>	Material flows from landfills are de facto concentrated under municipal enterprises, limiting innovative startups' access to a stable resource base	SMEs cannot guarantee production continuity
2	<b>High R&amp;D risks</b>	The banking sector does not finance experimental developments; venture capital for Deep Tech (advanced recycling technologies) is virtually absent in Kazakhstan	Startups cannot get past the prototype stage
3	<b>Public procurement entry barriers</b>	Procuring entities (akimats) cannot purchase innovative products without a confirmed supply history due to budget constraints and official liability risks	The absence of a first buyer blocks scaling
4	<b>Absence of secondary materials standards</b>	The Concept states the need for 'development and approval of national standards for secondary materials derived from production waste'	Secondary raw material products cannot be formally authorised for use in construction

The cumulative effect of these four barriers means that waste recycling into construction materials cannot reach sustainable volumes despite the availability of raw materials (53.6 billion t of TMF), technologies (international experience), and economic viability (profitability of 20–30%). The solution is the comprehensive system proposed in Section 3.

Sources: expert analysis based on the Concept for Management of All Types of Waste (Government Resolution of the RK dated 31.12.2025 No. 1201), sections 2.1 (recycling barriers) and 5 (Principle 4: SME support).

## 2.3. The systemic barrier in public procurement

The rating-point system (RPS), introduced on 1 January 2025, represents significant progress in procurement automation: reduction of tender procedure timelines from 60 to 5 working days (per Vice-Minister of Finance D. Kenbeyl, MIA Kazinform, 28.01.2026, <https://www.inform.kz/ru/reforma-gozakupok-obem-dogovorov-s-kazahstanskimi-proizvoditelyami-viros-na-23-5572d1>), enhanced transparency through algorithmic decision-making, and reduced corruption vulnerability through elimination of tender committees.

However, the RPS formula lacks an environmental parameter, as shown in Table 8.

**Table 8. Lack of an environmental parameter in the RK rating-point system (RPS)**

Provision	Content
<b>Article 5(1)(8) of the Law 'On Public Procurement' (dated 01.07.2024, No. 106-VIII)</b>	Establishes the principle of 'sustainable public procurement development' as the foundation of public procurement policy
<b>Paragraph 13 (Clause 217) of the Public Procurement Rules (Order of MF of the RK No. 687 of 09.10.2024, as amended by Order of MF RK No. 321 of 24.06.2025)</b>	The conditional price formula (para. 217) accounts for price, qualification, and reputation criteria. No environmental parameter is provided in the formula

Result: a contractor using 100% verified 'green' materials and a contractor using no verified materials receive the same notional price in the automated system. Environmental superiority provides no competitive advantage.

'Window of opportunity': the RPS, introduced on 01.01.2025, is at its formative stage, when a system's architecture typically remains most adaptable to additions. Introducing the environmental discount (up to 5%) into the notional price formula requires an amendment to paragraph 217 of Rules No. 687, a subordinate regulation that does not require a parliamentary procedure. As the RPS architecture consolidates and its application practices take shape, integration of additional parameters may require more significant regulatory and technical efforts.

*Detailed analysis of the 'Green Gap' regulatory disconnect, three existing integration pathways and their limitations – see Section 4.2. Proposed solution (GVS and environmental discount) – see Sections 3.2 and 4.3–4.4.*

## Section 3. The Solution: A Comprehensive System

The proposed solution is aimed at implementing a provision of the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (Government Decree No. 1201 of 31.12.2025) which, among measures for sustainable sector financing, envisages: ‘to develop markets for products, secondary raw materials, and materials derived from secondary raw materials – through ‘green’ public procurement, demand generation, incentivising the substitution of primary resources with secondary ones, and creating secondary resource markets.’ (Section 5, Direction 1).

The system is built on three mutually complementary pillars that jointly address three key challenges: the absence of a mechanism for verifying environmental product characteristics, the absence of demand for ‘green’ goods in the automated public procurement system, and the absence of supply of innovative secondary raw material products. These challenges are interlinked: each exacerbates the others, which warrants a comprehensive rather than piecemeal approach.

### 3.1. Solution architecture: Three Pillars

**Table 9. Three Pillars of the comprehensive GPP system**

Nº	Pillar	Mechanism	Challenge Addressed
1	<b>DEMAND-GENERATING: L2 Environmental Preference and Discount in RPS</b>	Verification in L2 registry of IGTIPC (cascading linkage with L1, compliance with safety standards, circularity criteria) + Green Value Share (GVS) indicator – share of verified L2 materials in total contract materials cost + proposed environmental discount (up to 5%) in the competitive tender notional price formula (Clause 217 of MF RK Rules No. 687 as amended by Order of MF RK No. 321 of 24.06.2025)	Absence of competitive differentiation based on environmental performance in the automated public procurement system
2	<b>SUPPLY-GENERATING: Green Regulatory Sandbox (PCP)</b>	Public procurement of solution development (Pre-Commercial Procurement, PCP model): the state procures not a finished product but a solution development: 3 phases (concept → prototype → pilot) with risk-sharing between EPR Operator (R&D, Art. 388(9) of the Environmental Code of the RK), IGTIPC (verification), and akimats (off-take contract, Art. 16(3)(43) of the Law on PP)	‘Valley of death’ for SMEs: high R&D risks, absence of venture capital for Deep Tech, impossibility of public procurement without delivery track record
3	<b>COMPLIANCE-ASSURING: Cascading Verification L1→L2→L3</b>	IGTIPC three-tier registry system (Art. 130 of the EC of the RK) (technologies → products → services) with ROP/ EPR (extended producer obligations) integration, providing a structural barrier against greenwashing through mandatory inter-level linkage	Risk of misleading environmental claims: 53.3% of environmental claims in the EU found to be vague, misleading, or unsubstantiated (European Commission, 2020); need for coordinated verification across agencies

The distinguishing feature of the proposed approach compared to existing international GPP models is that all three pillars are integrated into a unified system with a single operator (IGTIPC), a single verification mechanism (L2/GVS), and a single legal basis, eliminating inter-agency fragmentation, which is the typical problem that GPP programmes face in international practice. The pillars are numbered in the order of their market impact; operationally, the system unfolds in reverse: from verification (Pillar 3) through supply generation (Pillar 2) to demand creation (Pillar 1).

## 3.2. Pillar 1: L2 Environmental Preference and Discount in RPS

The current RK public procurement system, including the Rating Point System (RPS), does not incorporate environmental evaluation criteria, which does not allow the environmental advantages of ‘green’ goods to be taken into account: despite verified environmental advantages (secondary raw material content, recyclability, origin from a verified L1 technology), they receive no competitive advantage in the notional price formula (Clause 217 of the Public Procurement Rules of the MF RK No. 687, as amended by Order No. 321 of 24.06.2025).

The legal basis for overcoming this barrier is provided by Art. 3(23) and Art. 5(8) of the RK Law ‘On Public Procurement’ (as amended by Law No. 188-VII of 19.05.2025), establishing the principle of development of **sustainable public procurement** and directly incorporating the ecological dimension into their definition. A legal precedent for the mechanism is provided by Clause 271-1 of the same Rules No. 687: a notional discount of 3% is already established for suppliers listed in the Kazakh manufacturers registry – the proposed environmental discount replicates the same logic applied to the environmental status of goods.

To overcome this barrier, introduction of environmental preference based on product verification in the IGTIPC green products registry (L2) (to be established under an amendment to Art. 130 of the Environmental Code of the RK – Appendix A, Provision 1) and an environmental discount in the RPS formula is proposed.

### 3.2.1. L2 Registry Verification Criteria

The environmental preference in the GPP system is based on product inclusion in the IGTIPC green products registry (L2). Inclusion in the L2 registry confirms that the product has a verified environmental advantage over its conventional counterpart.

For inclusion in the L2 registry, a product must meet three groups of criteria as shown in Table 10.

**Table 10. L2 Registry verification criteria**

No.	Criteria Group	Content	Justification
1	Cascading linkage with L1	Product manufactured using technology registered in the green technologies registry (L1) under Art. 130 of the Environmental Code of the RK	Structural barrier against greenwashing: product environmental status is traceable to verified production technology
2	Compliance with safety standards	Compliance with GOST, ST RK, sanitary-hygienic norms (Art. 12(3) of the Public Procurement Law, Art. 35(1) of the Construction Code of RK); absence of substances with hazardous properties HP6 (acute toxicity), HP7 (carcinogenicity), HP11 (mutagenicity), C16 (POPs) under Art. 342 of the Environmental Code of RK; exclusion of radiation and chemical hazards (Clause 40 of the Technical Regulation on Construction Materials Safety); for coal ash and phosphogypsum – radioactivity class I (Clause 25(8) of the Technical Regulation)	Ensures environmental status is not achieved at the expense of product safety. Complements the mandatory technology safety criterion in L1 (GD No. 576, Clause 10) – extending verification from process to finished product level. Hazardous substance list approved by MENR under L2 Registry Rules in accordance with EAEU technical regulations

No.	Criteria Group	Content	Justification
3	Circularity criteria	Secondary raw material content $\geq 20\%$ (threshold aligns with end-of-waste criteria under Art. 333 of the Environmental Code of RK); end-of-life recyclability (Art. 33(1) and Art. 1(54) of the Construction Code of RK; Clause 42 of the Technical Regulation on Construction Materials Safety); availability of EoL (End-of-Life – end-of-life-cycle disposal technology) technology in L1 registry (during the 2025–2027 transition period, submission of a verified EoL technology L1 registration plan is permitted – see Appendix A, Provision 5)	Ensures closed loop. The $\geq 20\%$ threshold aligns with end-of-waste criteria (Art. 333 of Environmental Code of RK). Recyclability requirement aligns with post-utilisation under the Construction Code of RK (Art. 33(1), Art. 1(54)) and the obligation to recycle construction waste (Clause 42 of the Technical Regulation)

Specific parameters and threshold values for each product category are approved by the MENR under the L2 Registry Rules (Appendix A, Provision 5) and calibrated based on pilot testing results. Recommended indicative thresholds for three pilot categories: (a) GGBS (ground granulated blast-furnace slag) – slag content  $\geq 30\%$  in cement, compliance with ST RK EN 197-1 and ST RK EN 15167-1; (b) CHP coal ash – compliance with ST RK EN 450-1 (fly ash for concrete), radioactivity class I; (c) phosphogypsum – compliance with ST RK for strength, radionuclide content within permissible limits, phosphate and fluoride restrictions.

The selection of three pilot categories is grounded in Art. 130(2)(7) of the Environmental Code of the RK, which explicitly classifies the production of construction materials free of toxic and carcinogenic substances using production waste as ‘green’ technologies. Standards for all three pilot categories are included in Appendix 2 of the Technical Regulation ‘On Safety of Buildings, Structures, Construction Materials and Products’ (Clause 39): ST RK EN 197-1-2017 (cement), ST RK EN 450-1-2020 (fly ash), ST RK EN 15167-1-2017 (ground granulated blast furnace slag). Application of EN-based standards is explicitly permitted by Clause 47 of the Technical Regulation (as amended by Order No. 99 of 26.03.2025). Thus, L2 verification criteria for pilot categories are embedded in the existing technical regulation framework and do not require development of new standards. L2 criteria for construction materials may be incorporated into state normative documents under Art. 41(1)(6) of the Construction Code of the RK without the need for a separate law.

The L2 verification criteria comply with the measurability requirement of Art. 12(4) of the Public Procurement Law: they are **quantitatively measurable** (binary registry status + numerical GVS indicator) and **administrable** (verified automatically via web portal API integration with the IGTIPC registry).

The verified L2 status is published in the open IGTIPC registry and is available to all procurers through API integration with goszakup.gov.kz.

For manufacturers whose technology is not yet included in the L1 registry: the green technology recognition procedure takes up to 30 calendar days (Government Decree No. 576, Clause 20, as amended by GD No. 919 of 04.11.2024). L1 inclusion is a prerequisite for L2 application.

### 3.2.2. Advantages of L2 environmental preference

**Table 11. The advantages of L2 environmental preference**

Advantage	Description
<b>Goal alignment</b>	L2 verification aligns economic incentives (competitive advantage in procurement) with environmental objectives (secondary raw material content, recyclability, cascading linkage with verified technology)
<b>Distributed verification</b>	The manufacturer applies for L2 inclusion once, IGTIPC verifies compliance with criteria. Verified L2 status is published in the registry and available to all procuring entities

Advantage	Description
<b>Scalability</b>	Verification is conducted once per product, not per individual procurement – ensuring readiness for scale
<b>Legal precedent</b>	A notional discount for registry inclusion is already established by Clause 271-1 of Rules No. 687 (3% discount for the Kazakh manufacturers registry). The L2 environmental discount replicates the same legal logic applied to the environmental status of goods
<b>Triple synergy for domestic producers</b>	For Kazakh producers of ‘green’ construction materials (GGBS, coal ash, phosphogypsum), the L2 environmental discount is cumulative with the 3% discount for inclusion in the Kazakh manufacturers registry (Clause 271-1 of Rules No. 687). Priority use of Kazakh-origin materials is enshrined as a state objective (Art. 3(2)(7) Construction Code of RK), a developer obligation (Clause 11, sub-clause 10) of the Developer Activity Rules: control over use of Kazakh-origin materials), and a price incentive (Clause 271-1 of Rules No. 687)

### 3.2.3. GVS as aggregated contract greenness indicator

For construction procurements where individual environmental assessment of each contract is impractical, the Green Value Share (GVS) indicator is proposed – an ‘aggregated greenness indicator’ that measures the share of verified ‘green’ materials (L2 registry) in the total cost of contract materials. The environmental discount is calculated based on GVS and incorporated into the RPS notional price formula as a notional discount of up to 5% of the notional bid price (for parameter justification and calculation formula see Section 4.4 and Appendix B; the range is consistent with existing criteria under Clause 222 of Rules No. 687).

#### Justification for GVS validity

GVS is a structural indicator of contract environmental performance. Its validity is based on two-step logic:

(1) Preliminary product-level verification: every good included in the L2 registry has undergone cascading verification – produced using a technology from L1, complies with safety standards, and meets circularity criteria (Section 3.2.1, Table 10). Thus, L2 inclusion guarantees that the good has a confirmed environmental advantage over its conventional counterpart.

(2) Contract-level aggregation: GVS measures the share of contract materials cost covered by goods with verified L2 environmental status. The higher the GVS, the greater the share of the contract backed by verified green materials.

Therefore, GVS aggregates the results of preliminary L2 verification, shifting the burden from each procurement to a one-time product verification in the IGTPC L2 registry. GVS calculation is operationally embedded in the existing state construction procurement system: the developer is already required to publish a consolidated statement of key construction materials requirements indicating Kazakh content (Clause 10(6) of the Developer Activity Rules). Implementing GVS requires adding a single ‘IGTPC L2 status’ column to the existing statement form – without developing new accounting infrastructure. This approach lends itself to full automation: GVS is calculated automatically on goszakup.gov.kz using IGTPC API data.

*Detailed GVS methodology, notional price formula with environmental discount, and manipulation safeguards – see Section 4 and Appendix B.*

## 3.3. Pillar 2: Green Regulatory Sandbox (pre-commercial procurement)

### 3.3.1. The Problem: SME ‘Valley of Death’

Unlike large industrial enterprises (Category I facilities) with resources to implement best available technologies (BAT), the consumer and industrial waste recycling sector is predominantly represented by small and medium-sized enterprises (SMEs). This segment faces a systemic market failure – the ‘valley of death’ described in Section 2.2 (barriers 1–3: limited access to raw materials, high R&D risks, public procurement entry barriers).

**Table 12. The SME 'Valley of Death'**

Nº	Barrier	Description	Consequence
1	<b>Limited access to raw materials</b>	Material flows from landfills are de facto concentrated under municipal enterprises, limiting innovative startups' access to a stable resource base	SMEs cannot guarantee production continuity
2	<b>High R&amp;D risks</b>	The banking sector does not finance experimental developments; venture capital for Deep Tech (advanced recycling technologies) is virtually absent in Kazakhstan	Startups cannot get past the prototype stage
3	<b>Public procurement entry barriers</b>	Procuring entities (akimats) cannot purchase innovative products without a confirmed delivery track record due to budget constraints and liability risks	The absence of a first buyer blocks scaling
4	<b>Absence of secondary materials standards</b>	The Concept states the need for 'development and approval of national standards for secondary materials derived from production waste'	Secondary raw material products cannot be formally authorised for use in construction

### 3.3.2. The Solution: Pre-commercial Procurement (PCP)

The PCP mechanism transforms the procurement process: the state procures not a finished product but a solution development. The state acts not as a passive buyer but as an innovation initiator, sharing risks with the private sector through existing institutional frameworks.

The PCP 'sandbox' is a mechanism for implementing Task 7 of Section 4 of the Waste Management Concept 2026–2030 (Government Decree No. 1201 of 31.12.2025): integrating science and business through state support for domestic R&D in waste recycling in accordance with Art. 388(9) of the Environmental Code of the RK.

The legal basis for the PCP contract structure is provided by Art. 380(2) of the Civil Code of the RK (right of parties to conclude a contract not provided for by legislation) and Art. 381 of the Civil Code of the RK (mixed contract combining elements of an R&D contract and a transaction subject to a condition precedent under Art. 150 of the Civil Code of the RK). Pilot project status is ensured by Art. 17 of the Budget Code of the RK, permitting the implementation of innovative pilot projects through quasi-public sector entities – including through IGTIPC (Art. 17(3) of the Budget Code of the RK).

**Table 13. The three phases of the Green Regulatory Sandbox**

Nº	Phase	Content	Participants
1	<b>Concept</b>	Feasibility study (FS) development	10–15 competitively selected participants
2	<b>Prototype</b>	Developing prototype products from secondary raw materials	3–5 Phase 1 finalists
3	<b>Pilot</b>	Pilot deployment at an urban infrastructure facility (e.g., public space improvement using small architectural forms made from recycled plastic)	Phase 2 winners

### 3.3.3. Funding architecture and risk distribution

The distinguishing feature of the model is the principle of separating funding sources and distributing risks across three institutions; see Table 14.

**Table 14. Principle of separating funding sources and distributing risks across three institutions**

Nº	Source / Institution	Function	Legal Basis
A1	<b>Phase 1 → EPR Operator (JSC 'Zhasyl Damu')</b>	Funding FS development and high-risk R&D (Phase 1). Reclassifies expenditures from 'venture investment' to 'targeted EPR obligation fulfilment' – reducing administrative risks for officials in the event of individual startup failures. Phases 2 and 3: see rows A2/A3 below	Art. 388(9) of the Environmental Code of the RK: EPR operator funding of R&D. Form – commercialisation grant (Art. 46 of the Law on Science of RK; contract with Science Fund, up to 5 years). Basic financing form (Art. 34(2)(1) of the Law on Science of RK)
A2	<b>Phase 2 → EPR Operator + private SME co-financing</b>	Funding of pilot production and prototype. Risk-sharing model: EPR Operator covers technological risks; SME contributes private co-financing.	Art. 388(5) of the Environmental Code of the RK: payments to waste recycling entities. Art. 37(11) of the RK Law on Science: applied research with a private SME partner. Grant form (Art. 34(2)(2) of the Law on Science).
A3	<b>Phase 3 → EPR Operator: returnable financing</b>	Funding of pilot implementation and scaling. The Operator finances SME facility construction; returnable co-financing is possible.	Art. 388(10) of the Environmental Code: implementation of recycling technologies, facility construction. Art. 388(13): returnable co-financing for waste disposal facilities. Programme-target form (Art. 34(2)(3) Law on Science); development budget programme (Art. 14(8) Budget Code of the RK).
B	<b>Verification → 'Innovation Voucher' (IGTIPC verification)</b>	The grant budget includes a dedicated verification line item. Funds are directed by the grantee to pay for IGTIPC technical expertise and field testing. Ensures IGTIPC financial sustainability without burdening akimat budgets	Ensures IGTIPC financial sustainability and technical assessment independence without burdening akimat budgets. Voluntary conformity assessment through accredited OCA (Clauses 6–7, Conformity Assessment Rules of MTI RK). L2 registry as voluntary certification system (Art. 35 of the Law on Technical Regulation of RK)
C	<b>Market → Off-take contract with akimat</b>	The programme winner enters into a long-term guaranteed off-take contract with the akimat, serving as collateral for attracting scale-up investments	Art. 16(3)(43) of the Law 'On Public Procurement': single-source procurement for goods subject to off-take contracts. Art. 14(8) of the Budget Code of RK: scale-up expenditures – budget development programme

Condition for applicability of commercialisation grants: in accordance with Art. 1(10) of the RK Law on Science, grants are provided within priority economic sectors. To ensure SME access in the waste recycling sector to this instrument, it is necessary to include 'technologies for recycling industrial and municipal waste' in the list of priority sectors, or to confirm their current status (Appendix A, Provision X).

### 3.3.4. Budget protection: Off-take contract as a transaction subject to a condition precedent

The key innovation: the off-take contract is structured as a transaction subject to a condition precedent (a ‘suspensive condition’ under Article 150 of the Civil Code of the RK). The akimat’s obligations to purchase and pay for products arise only after fulfilment of the condition precedent – the supplier obtaining a compliance certificate from IGTIPC following successful pilot operation. PCP programme operator functions are carried out by IGTIPC as a quasi-public sector entity (Art. 17(3) of the Budget Code of the RK).

Additional protection is provided by Art. 150(3) of the Civil Code of the RK: if the party for whom the condition is unfavourable **in bad faith prevents** its occurrence (SME conceals commercial success) – the condition is deemed to have **occurred**; if the party for whom the condition is favourable **in bad faith facilitates** its occurrence (state artificially creates the buyout trigger) – the condition is deemed **not to have occurred**. This is a bilateral protection mechanism against abuse by either party.

**Table 15. Budget protection**

Protection Mechanism	Description
<b>No advance payments</b>	The akimat makes no payments during the development period. Budget funds are expended only after product viability and safety are confirmed (functional risk is covered by EPR funds)
<b>Standard guarantees</b>	Upon contract activation, standard performance assurance instruments (bank guarantees, insurance) and warranty periods apply in accordance with Public Procurement Rules

*Detailed Innovation Support Programme scheme – see Appendix C.*

*Alternative structure:* the state’s right to licence the technology may also be formalised as a **preliminary contract** (Art. 390 of the Civil Code of the RK) with a fixed term and execution price – for cases where the buyout mechanism requires more rigid legal formalisation.

## 3.4. Pillar 3: Cascading verification and ROP/EPR integration

Effective GPP implementation is impossible without a reliable mechanism for verifying environmental claims. A European Commission study (2020) showed that 53.3% of environmental claims in the EU are vague, misleading, or unsubstantiated, and 40% are entirely unverified. These findings underpinned the adoption of Directive (EU) 2024/825 on Empowering Consumers for the Green Transition and the development of the draft Green Claims Directive (withdrawn by the European Commission in June 2025 due to disproportionate burden on small businesses). A three-tier ‘cascading’ verification system is proposed for systemic elimination of greenwashing.

The cascading verification principle implements the legally established objective of technical regulation – **ensuring traceability of products or products and related processes** (Art. 4(1)(2) of the RK Law ‘On Technical Regulation’). Traceability across the full chain L1 (technology) → L2 (goods) → L3 (services and works) is the normative mechanism for preventing purchasers from being misled about the environmental characteristics of products (greenwashing). The principle of reliability and traceability of conformity assessment procedures is also enshrined in Art. 4(2)(16) of the Law on Technical Regulation.

### 3.4.1. Cascading registry structure

The cascading verification principle: each subsequent level is possible only upon confirmation of the previous one. This creates a structural (rather than procedural) barrier against greenwashing, since falsifying environmental claims requires sequential verification across multiple interlinked levels (see Table 16).

**Table 16. IGTIPC Three-tier registry system**

Level	Registry	What It Verifies	Key Indicator
L1	<b>Green Technologies</b>	Production processes and technological protocols (tangible and intangible). Effective since 2022 pursuant to Art. 130 of the Environmental Code of the RK and Government Decree No. 576	Assessment across three groups: low-carbon development, circular economy, ecosystem preservation
L2	<b>Green Products</b>	Products at the use and operation stage. Cascading linkage: a product can enter L2 only if produced using a technology from L1. By legal nature, the L2 registry is a <b>voluntary certification system</b> (Art. 35(4) of the Law on Technical Regulation of the RK) established by IGTIPC. Inclusion in L2 is a voluntary procedure (Clause 6 of the Conformity Assessment Rules of MTI RK); it does not replace mandatory conformity assessment under technical regulations (Clause 5 of the Conformity Assessment Rules).	Verification by three criteria groups (Section 3.2.1, Table10): (1) cascading linkage with L1 – product manufactured using verified technology; (2) compliance with safety standards (GOST/ST RK, sanitary-hygienic norms); (3) circularity criteria (secondary raw material content $\geq 20\%$ , recyclability, availability of EoL technology in L1). Specific parameters are approved by the MENR under the L2 Registry Rules (Appendix A, Provision 5) and calibrated based on pilot testing results.
L3	<b>Green Services</b>	Services using L2 products and L1 protocols. Dual cascading linkage: (a) share of consumables from L2 $\geq 50\%$ (recommended initial threshold, subject to phased increase as L2 registry matures); (b) application of L1 protocols. Conformity assessment of services is conducted through voluntary certification under Art. 37 of the Conformity Assessment Rules of MTI RK. Traceability of service conformity assessment procedures is ensured by Art. 4(2)(16) of the Law on Technical Regulation of the RK.	GVS (Green Value Share): share of verified 'green' components in total contract value

### 3.4.2. Integration of Extended Producer Obligations (ROP/EPR)

The system closes the product life cycle through integration of **extended obligations of producers (importers)** (EPR), the official RK term for Extended Producer Responsibility (Art. 332, Art. 386 of the Environmental Code of the RK; Rules for Implementation of Extended Obligations of Producers (Importers), Government Decree No. 763 of 25.10.2021).

**Table 17. Rules for obligations of producers/importers**

ROP/EPR mechanism	Description
<b>Dual certification</b>	The product's end-of-life (EoL) disposal technology must also be registered in the L1 registry. This ensures that the product's environmental status accounts for its full life cycle. The normative basis is Clause 7 of the Product Recall Rules of MTI RK No. 373-NQ: recalled products with an irremediable non-conformity are subject to recycling or disposal in compliance with environmental legislation. Recycled products may be placed on the market only after repeated conformity assessment (Clause 13 of the Recall Rules), completing the EoL→L1 cycle.
<b>Contractual obligations</b>	Public procurement contracts include EPR obligations: the supplier commits to accepting and recycling products at end of service life using the registered EoL technology (L1 registry). Fulfilment is evidenced by a certificate of utilisation payment to the EPR operator or by application of the supplier's own collection and recycling system (Clauses 2(2) and 5 of the EPR Rules, Government Decree No. 763).

### 3.4.3. System Operator: IGTIPC Single Operator Model

Unlike models with distributed responsibility where multiple institutions (standardisation, procurement, verification) create coordination problems, Kazakhstan implements a single operator model. IGTIPC manages all three cascading registries, ensuring seamless integration, consistency of decisions, a single point of contact for manufacturers, and consistency of verification procedures. The legal basis for IGTIPC establishing the L2 voluntary certification system is Art. 35(4) of the Law on Technical Regulation of the RK, which permits a legal entity to create such a system and independently determine the list of objects for certification and their characteristics. Verification is conducted by an accredited conformity assessment body (OCA) in accordance with Clauses 7–8 of the Conformity Assessment Rules of MTI RK.

*Detailed cascading verification architecture, including the four-level organisational model, participant roles, and RACI (Responsible, Accountable, Consulted, Informed) matrix – see Appendix E.*

### 3.5. Closed Loop: Integration of the Three Pillars

The three system pillars are integrated into a closed loop where each element reinforces the others, as described in Table 18.

**Table 18. Step-by-step integration: from innovative enterprise to public procurement**

Step	Action	Responsible institution	Outcome
1	R&D: innovative enterprise receives a grant for developing products from secondary raw materials	EPR Operator (JSC 'Zhasyl Damu'): funding Phase 1 from EPR funds (Art. 388(9) of the Environmental Code of the RK), Phase 2 (Art. 388(5)), Phase 3 (Art. 388(10))	Startup develops products from secondary raw materials with minimal financial risk
2	Verification: technology and product undergo cascading verification	IGTIPC: expertise and field testing (paid through 'Innovation Voucher' – IGTIPC verification)	Technology included in L1, product in L2 with verified environmental status
3	Off-take: enterprise enters into a guaranteed off-take contract with the akimat	Akimat: transaction subject to a condition precedent (Art. 150 of the CC of the RK); obligations arise only after IGTIPC certification. IGTIPC acts as programme operator as a quasi-public sector entity (Art. 17(3) of the Budget Code of the RK)	Enterprise receives a guaranteed sales market and collateral for attracting investments

Step	Action	Responsible institution	Outcome
4	GPP: product participates in public procurement through the environmental discount in the RPS	Portal goszakup.gov.kz: automatic GVS calculation based on L2/L3 registry data; notional discount of up to 5% of notional bid price (Clause 222 of MF RK Rules No. 687)	Contractors using L2 products gain a competitive advantage (discount of up to 5%)
5	EPR (ROP): products are returned to the manufacturer for recycling using the registered EoL technology. Extended producer obligations are fulfilled through utilisation payment or the producer's own collection and recycling system (Art. 332, Art. 386 of the Environmental Code of the RK; EPR Rules, Government Decree No. 763)	Manufacturer (EPR/ROP obligation in contract, Art. 386 of the Environmental Code of the RK) + IGTIPC (L1 compliance monitoring)	Life cycle closure; secondary raw materials return to the production cycle

Result: the mechanism combines the EPR Operator's resources (R&D, pilot production and scale-up funding per Art. 388(5)/(9)/(10) of the Environmental Code of the RK), IGTIPC's expertise (verification and conformity assessment via accredited OCA), akimats' needs (guaranteed demand through off-take contract, Art. 150 of the CC of the RK), and the automated public procurement system (goszakup.gov.kz, Clause 222 of Rules No. 687), forming a closed loop of innovation support without creating new government structures.

### 3.6. Implementation of the Waste Management Concept 2026–2030

The proposed GPP system is a concrete instrument for implementing the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (approved by Government Decree of the RK No. 1201 of 31.12.2025). Each system element directly implements the Concept's provisions; see Tables 19 & 20.

**Table 19. GPP system alignment with concept provisions**

Concept Provision / Principle	GPP System Element
<b>'To develop markets for products, secondary raw materials, and materials derived from secondary raw materials – through 'green' public procurement, demand generation, incentivising the substitution of primary resources with secondary ones, and creating secondary resource markets'</b>	Environmental discount in the RPS (Pillar 1) creates guaranteed demand for secondary raw material products through the largest public procurement segment – construction (39.1%, ~KZT 3.8 trillion)
<b>Principle 1: 'Transition to a circular economy: creating conditions for reducing waste generation, reusing materials, and maximising integration of waste into secondary circulation'</b>	Cascading verification L1→L2→L3 (Pillar 3) with EPR/ROP (extended producer obligations) integration closes the product life cycle; the Appendix D covers all priority industrial waste categories of the Concept
<b>Principle 4: 'Green business development: supporting SMEs in waste management, creating jobs and attracting investment in clean technologies'</b>	Green regulatory sandbox PCP (Pillar 2): three phases of EPR funding (Art. 388(5)/388(9)/388(10) of the Environmental Code of the RK) + off-take contract as collateral for investments → direct SME support in waste recycling

Concept Provision / Principle	GPP System Element
<b>'Blended financial models, especially for SMEs'</b>	Risk sharing: EPR (R&D, Phases 1–3 per Art. 388(5)/(9)/(10) of the Environmental Code of the RK) + 'Innovation Voucher' (IGTIPC verification) + akimat (off-take) – three sources, none bearing full risk
<b>'Kazakhstan is actively developing the green technologies registry... it is planned to update this registry'</b>	Expanding IGTIPC's mandate: from the existing L1 registry (green technologies, since 2022) to the three-tier L1→L2→L3 system (technologies → goods → services and works)
<b>'Enshrining green procurement in legislation' (section 2.2 – petroleum waste)</b>	6 recommended provisions for Art. 130 of the Environmental Code (Appendix A) operationalise the 'sustainable procurement' principle (Art. 5(1)(8) of the Law 'On Public Procurement') through concrete mechanisms
<b>Economic instruments: 'extended producer and importer responsibility' (Section 2.14 – Economic instruments)</b>	ROP/EPR (extended producer obligations) integration in GPP contracts (Pillar 3): obligations to accept and recycle products using EoL technology from the L1 registry (Art. 332, Art. 386 of the Environmental Code of the RK; EPR Rules, Government Decree No. 763 of 25.10.2021)
<b>'Environmental levies and 'green' certificates – instruments aimed at reducing landfill volumes and developing recycling' (Section 4 of the Concept)</b>	The IGTIPC L2 registry (Pillar 1) implements the 'green certificates' instrument envisaged by the Concept: voluntary certification of secondary raw material products creates a verifiable 'green' status conferring a competitive advantage in public procurement (Art. 35 of the Law on Technical Regulation of the RK)

**Table 20. Quantitative concept targets implemented through GPP**

Concept Target Indicator	Current Status	GPP System Contribution
<b>Minimising waste landfilling: reducing the share of waste sent to landfills by 2030 (Principle 3)</b>	25.9% MSW recycling rate	Generating demand for MSW-derived products (recycled plastic, glass powder, rubber crumb) through the environmental discount
<b>Reducing unrecycled industrial waste: ↓10% by 2030</b>	53.6 billion t accumulated; 67.7% – ownership rights unallocated	3 developing construction material categories from industrial waste (N–P) + 5 emerging categories from consumer waste (R–V) (Appendix D, section D.3 for items 42–44; Appendix C, section C.7 for items 45–49): coal ash/slag, metallurgical slag, phosphogypsum, CDW
<b>Coal ash/slag recycling in road construction: up to 10 million t/year</b>	Predominantly sent to ash dumps	Target subcategory 2 (Section 4.5): CHP coal ash/slag in precast and modular elements
<b>Saving KZT 50–100 billion annually through natural materials substitution</b>	Substitution is minimal	GVS incentivises contractors to use secondary materials instead of natural ones: competitive advantage of up to 5% in the notional price formula

Concept Target Indicator	Current Status	GPP System Contribution
<b>Integrating 15–20 million t of secondary resources into industrial circulation annually</b>	Recycling volumes are limited	Closed loop (3.5): R&D → verification → off-take → GPP → ROP creates sustainable demand for secondary resources

### 3.6.1. 'Window of Opportunity': Initial RPS Implementation Phase

The rating-point system (RPS), introduced on January 1, 2025, is at its formative stage, when a system's architecture typically remains most adaptable to improvements. As the RPS architecture consolidates and its application practices take shape, integration of additional parameters may require more significant regulatory and technical effort.

Integrating the environmental discount into the RPS notional price formula requires an amendment to paragraph 217 of Rules No. 687 – a subordinate regulation that does not require a parliamentary procedure – while leveraging existing infrastructure ([goszakup.gov.kz](http://goszakup.gov.kz), IGTIPC registries) for maximum impact.

Sources: *Waste Management Concept of the Republic of Kazakhstan for 2026–2030 (Government Decree of the RK No. 1201 of 31.12.2025).*

## Section 4. Application: The Construction Sector

### 4.1. Scale and strategic significance of the Construction Sector

The public procurement system for construction works was selected as the primary GPP implementation mechanism. The construction sector is pivotal to Kazakhstan's economy and the largest consumer of natural materials that can be substituted with secondary resources from waste; its significance in public procurement is decisive:

**Table 21. Scale of the Construction Sector in RK Public Procurement**

Indicator	Value
<b>Share of construction in RK public procurement (2025)</b>	39.1% of total volume – the largest segment
<b>RK public procurement volume (2025)</b>	KZT 9.6 trillion (total, 2025 results), of which ~KZT 3.8 trillion – construction
<b>Price corridor in construction tenders</b>	Anti-dumping rules for CW: deviation from DED not more than 2% (para. 85 of Rules No. 687), blocking price manipulation
<b>RPS – automated system (since 01.01.2025)</b>	Automatic notional price calculation, elimination of tender committees, reduction of tender procedure timelines from 60 to 5 working days
<b>Materials consumption</b>	Maximum range of materials that can be manufactured from recycled waste (coal ash/slag, metallurgical slag, phosphogypsum, construction and demolition waste – CDW)

There are four unique prerequisites in Kazakhstan for creating an automated GPP system; see Table 22.

**Table 22. Unique prerequisites in Kazakhstan to facilitate the creation of an automated GPP system**

Nº	Prerequisite	Regulatory Basis
1	<b>Legislatively established requirement to use construction materials from the Kazakh manufacturers registry</b>	Rules for organizing procuring entity activities (Order of MNE No. 229), paragraph 10 (design assignment): requirement to use materials from the Kazakh manufacturers registry
2	<b>Procuring entity obligation to monitor use of materials from registries</b>	Rules for organizing procuring entity activities, subparagraph 10) of paragraph 11
3	<b>Existing electronic information system for construction</b>	Rules for organizing procuring entity activities, subparagraph 9-1) of paragraph 11 (as amended by Order of MCI RK No. 465 of 30.10.2025): maintenance of executive documentation in electronic form in the IS for state-funded construction projects
4	<b>Fully automated procurement system (RPS)</b>	Order of MF No. 687, para. 217 (criteria), Chapter 10 (RPS procedure), Appendix 16 (list of GWS); since 01.01.2025 – mandatory application

*Strategic conclusion: implementing the environmental discount in the RPS positions Kazakhstan as potentially the first country in the world with a fully automated green public procurement system for construction works, integrating cascading verification with a tender evaluation formula.*

## 4.2. The ‘Green Gap’ problem: Regulatory disconnect

Analysis has revealed a fundamental regulatory disconnect (‘Green Gap’) obstructing GPP implementation in construction: environmental requirements exist at the design stage but are not yet integrated at the procurement stage.

### 4.2.1. Untapped potential

Article 5, paragraph 1, subparagraph 8 of the Law of the Republic of Kazakhstan ‘On Public Procurement’ (dated July 1, 2024 No. 106-VIII, as amended by Law No. 188-VII of 19.05.2025) establishes the principle of ‘sustainable public procurement development.’ However, the rating-point system, operationalised in Rules No. 687, contains no instruments for implementing this principle.

**Table 23. ‘Green Gap’ regulatory disconnect**

Parameter	Design Stage (DED)	Procurement Stage (RPS)
<b>Environmental requirements</b>	✓ Present: Environmental Code and relevant regulations; ‘Environmental Protection’ section is mandatory in DED	✗ Absent: RPS notional price formula does not account for environmental characteristics
<b>Carbon footprint</b>	✓ Can be considered when developing DED for Category I–II facilities	✗ Does not affect bid evaluation
<b>ISO 14001 certification</b>	✓ Can be considered	✗ Does not affect notional price
<b>Circular economy criteria</b>	✓ Through materials requirements	✗ Absent from the formula
<b>Verification of environmental status of materials</b>	✓ Can be calculated (not mandatory)	✗ Not applied

### 4.2.2. Three existing integration pathways and their limitations

Within the current regulatory framework, three possible pathways exist for integrating environmental criteria into construction procurement. All three have significant limitations, as shown in Table 24.

**Table 24. Existing integration pathways and their limitations**

Nº	Integration Pathway	Mechanism	Limitation
1	<b>Mandatory technical requirements</b>	Including GPP criteria in technical specifications as mandatory conditions (pass/fail)	All participants face identical requirements; superior environmental performance provides no competitive advantage
2	<b>Contract execution monitoring</b>	Certificate verification by technical supervision; penalties for non-compliance	Ensures ex post enforcement, not ex ante competitive differentiation
3	<b>Qualification requirements</b>	Environmental criteria as qualifications: experience with eco-technologies, ISO 14001	Ensures access control but does not affect notional price calculation

**Conclusion: none of the three existing pathways provides competitive differentiation based on environmental performance. A fourth pathway is needed – introducing the environmental discount directly into the RPS notional price formula (Clause 217 of Rules No. 687 as amended by Order of MF RK No. 321 of 24.06.2025).**

### 4.3. The Solution: Green Value Share (GVS)

To overcome the ‘Green Gap’, an adaptation of a proven industrial policy mechanism – the ‘Domestic Value Share’ (DVS) – is proposed for evaluating the ‘greenness’ of construction company and EPC (Engineering, Procurement, and Construction) contractor bids in public tenders.

#### 4.3.1. Reference Model: Domestic Value Share (DVS)

**Table 25. Reference Model: Domestic Value Share (DVS)**

Parameter	Description
<b>Objective</b>	Supporting the national economy
<b>Mechanism</b>	Preferences for goods with ‘Kazakhstani’ status upon meeting the sufficient processing criterion
<b>Formula</b>	$DVS = 100\% - (\text{Cost of imported materials} / \text{Product cost}) \times 100\%$ (simplified formula for goods; for works/services, the share of Kazakh personnel payroll is additionally considered)
<b>Threshold</b>	$DVS \geq 50\%$ for recognition of products as Kazakhstani
<b>Outcome</b>	Manufacturer undergoes examination, obtains CT-KZ (Certificate of Origin – Kazakhstan) certificate, gains competitive advantage in public procurement (notional discount of 3% per Clause 271-1 of Rules No. 687)

#### 4.3.2. Adaptation for GPP: the GVS Indicator

Key advantage: the existing DVS mechanism is used, replacing the economic attribute (‘domestic’) with an environmental attribute (‘green’) while preserving the transparent percentage-based methodology and centralised verification. The legal precedent for the GVS mechanism is Clause 271-1 of Rules No. 687 (as amended by Order of MF RK No. 321 of 24.06.2025): a notional discount of 3% for inclusion in the Kazakh manufacturers registry – the proposed environmental discount replicates the same legal logic applied to the environmental status of goods (L2 IGTIPC registry instead of the Kazakh manufacturers registry). Both mechanisms implement one of the 7 criteria of Clause 217 of Rules No. 687.

**Table 26. Adaptation for GPP: the GVS indicator**

Parameter	DVS (current model)	GVS (proposed model)
<b>Objective</b>	Supporting the national economy	Support for the green economy (resource-efficient, circular)
<b>Mechanism</b>	Preferences for goods with ‘Kazakh’ status	Preferences for contracts with a high share of verified ‘green’ components
<b>Verification</b>	Expertise → CT-KZ certificate	Product/service verification by IGTIPC → inclusion in L2/L3 registries
<b>Formula</b>	$DVS = 100\% - (\text{Import} / \text{Value}) \times 100\%$ (for goods)	$GVS = (\sum \text{Value of L2 Registry materials} / \text{Total value of ALL contract materials}) \times 100\%$
<b>Outcome</b>	Competitive advantage in public procurement	Contractors using L2/L3 registry products automatically receive a high GVS score on goszakup.gov.kz → decisive competitive advantage

### 4.3.3. GVS as the Fourth Model in the International Context

Analysis of international GPP practice in construction (cf. JRC 2024, SEI reports, practices in the Netherlands, France, Norway, and a number of Asian countries) has revealed a significant global gap: while extensive Technical Specifications exist for ‘green’ construction materials, established methodologies for applying Award Criteria to compare competing construction bids by environmental performance are absent from global practice. The only operational example is the Dutch DuboCalc/MKI system (Rijkswaterstaat, since 2012), which uses monetised environmental impact based on LCA as an award criterion with a weight of up to 40% under MEAT. However, this system remained largely confined to Rijkswaterstaat infrastructure tenders for over a decade, primarily due to high LCA competence requirements on both the contractor and procurer side. Kazakhstan’s system follows the same global pattern: contracting authorities include an ‘Environmental Protection’ section in the design estimate documentation as part of tender requirements, but this functions as a technical specification (pass/fail) and does not provide a mechanism for comparing and ranking bids by environmental performance. GVS proposes a different architecture, shifting complexity from the contracting authority to the IGTIPC registry system and simplifying tender-stage evaluation to a single indicator – the share of verified ‘green’ materials from the L2 registry in the contract value, calculated automatically on goszakup.gov.kz.

The proposed GVS instrument fills a methodological gap in existing international GPP models, which do not provide comparable assessment of environmental components in tender submissions at the level of an individual contract; see Table 27.

**Table 27. The proposed GVS instrument**

Nº	Model	Description	Limitation
1	«Compliance» (Pass/Fail)	Mandatory minimum requirements (e.g., eco-label for key products)	Binary approach does not allow differentiation of bids by level of environmental performance
2	«Market Share» (High-Level Target)	Target share of ‘green’ products in annual procurement (Japan, Republic of Korea)	An aggregated retrospective monitoring instrument, not designed for evaluating specific tender proposals
3	‘Full LCC/TCO’ (academic)	Full life-cycle cost methodology as tender evaluation criterion (EU Directive 2014/24/EU)	High analytical complexity and need for specialised data make the method impractical for mass procurement
4	MKI/DuboCalc (Netherlands)	Monetisation of environmental damage (€) across 19 impact categories (EN 15804+A2); application as fictitious MEAT discount in infrastructure tenders (85% of GWW contracts worth €1.1 billion)	Requires full EPD for each material; high dependence on the national NMD database; does not provide cascading technology→product→service verification
5	GVS (proposed)	Transparent percentage indicator + centralised verification in L2 registry with burden transferred to a specialised body (IGTIPC)	Dependence on the completeness and currency of the L2 registry; absence of quantitative measurement of environmental impact (unlike the LCA approach of DuboCalc); requires creation of new institutional infrastructure (L2/L3 registries, API integration)

Detailed GVS formula and environmental discount De scale – see Appendix B.

## 4.4. Environmental Discount Mechanism in the RPS

The environmental discount (De) is introduced as an additional component of the rating-point system notional price formula (Clause 217 of Rules No. 687 as amended by Order of MF RK No. 321 of 24.06.2025):

**Notional price formula (with environmental discount):**

$$NP = BP \times (100 - \Sigma \text{ conditional discounts} - De) / 100$$

where  $\Sigma$  notional discounts – the sum of discounts for work experience (up to 5% for contracts  $\leq$  200,000 MCI, up to 10% for contracts  $>$  200,000 MCI – Clauses 222 and 224 of Rules No. 687), tax payment indicator, territorial criteria, audited financial statements, Kazakh manufacturers registry, etc. (Clauses 226–271-1 of Rules No. 687); De – environmental discount (up to 5% of notional bid price), determined based on the GVS indicator (range consistent with Clause 222 of Rules No. 687).

**Table 28. Environmental discount scale**

GVS Score	Discount De	Justification
GVS < 20%	0%	Minimum threshold below which the contract's 'greenness' is statistically insignificant
GVS 20–39%	1%	Basic level: corresponds to the initial stage of traditional materials substitution
GVS 40–59%	2%	Medium level: contractor deliberately builds a 'green' product range
GVS 60–79%	3%	Advanced level: significant share of construction materials from the L2 registry
GVS 80–89%	4%	High level: contractor is systematically oriented toward 'green' materials
GVS $\geq$ 90%	5%	Maximum level: virtually complete transition to L2 registry materials and technologies

### 4.4.1. Protection against price manipulation

Kazakhstan's anti-dumping rules provide structural protection against GVS manipulation; see Table 29.

**Table 29. Protection against price manipulation**

Protection Mechanism	Description
<b>Strict alignment with DED (Design Estimate Documentation)</b>	The construction works price bid cannot exceed the DED price. The contractor cannot artificially inflate the total contract value and fund expensive 'green' materials through price inflation.
<b>Price corridor of 2%</b>	Deviation from DED no more than 2% downward (Clause 85 of Rules No. 687). Example: DED = KZT 100 million $\rightarrow$ range KZT 98–100 million. All participants compete within a narrow corridor, making non-price criteria (GVS) the decisive factor.
<b>Automatic calculation</b>	GVS is calculated automatically on the goszakup.gov.kz portal based on L2/L3 registry data, eliminating the possibility of declarative indicator inflation.

#### 4.4.2. Economic justification of the environmental discount

The environmental discount (De) is notional (virtual) – it reduces the notional price for bid ranking purposes but does not decrease the actual payment to the contractor. It creates no direct budget expenditure.

Indirect budget impact: a contractor with more expensive ‘green’ materials may win a tender over a contractor with cheaper conventional materials. However, the anti-dumping rule (2% price corridor per Clause 85 of Rules No. 687) limits the maximum price deviation, and compensating effects include: (a) savings of KZT 50–100 billion annually through substitution of natural materials with secondary ones (Concept, Section 2.2); (b) reduction of ash pond and landfill reclamation costs; (c) creation of a tax base in the new waste recycling sector.

Comparability with existing RPS discounts: the environmental discount (up to 5%) falls within the range of existing notional discounts under Rules No. 687 – work experience (up to 5% for contracts ≤ 200,000 MCI and up to 10% for contracts > 200,000 MCI, Clauses 222 and 224 of Rules No. 687), Kazakh manufacturers registry (3%, Clause 271-1), tax payment indicator (up to 3%), audited financial statements (up to 2%), territorial criteria (up to 2%). The maximum of 5% was chosen as sufficient to create a competitive advantage within the 2% price corridor, while not exceeding the experience discount for medium-scale contracts (5%), which is the primary differentiating criterion.

International context: EU Directive 2014/24/EU allows environmental criteria to be assigned a weight of up to 30–50% in the MEAT formula. The Dutch DuboCalc/MKI system uses an environmental weight of up to 40% in infrastructure tenders. The proposed discount of up to 5% is substantially below international analogues, reflecting a phased approach to implementation.

*Detailed GVS calculation methodology, including justification of the formula denominator and expanded discount scale, is provided in Appendix B.*

#### 4.5. Target subcategories of construction materials

For pilot GPP implementation in the construction sector, Appendix D has been developed, comprising 20 categories (49 items): 12 established categories (41 materials) + 3 developing categories from industrial waste (3 materials) + 5 emerging categories from consumer waste (5 materials), organised into two complementary groups; see Table 30. The detailed profiles are distributed across: items 1–41 (12 established categories) in the GPP Handbook; items 42–44 (3 developing categories from industrial waste) in Appendix D, section D.3; items 45–49 (5 emerging categories from consumer waste) in Appendix C, section C.7.

**Table 30. Structure of Appendix D**

Group	Categories A–M (12 cat.): Standard ‘Green’ Materials	Categories N–V (8 cat.): Materials from Kazakhstan Industrial and Consumer Waste
<b>Number</b>	41 materials in 12 categories (A–M): timber, concrete/cement/mortars, steel, insulation/waterproofing, facades/glazing, flooring, ceramics/gypsum/plaster, paints and coatings, engineering systems, RES, landscape/geotechnical, specialty	3 materials in 3 developing categories (N–P): road materials from industrial waste, aggregates from technogenic raw materials, gypsum from phosphogypsum; + 5 materials in 5 emerging categories (R–V): plastic, glass, cellulose, rubber, textile
<b>Focus</b>	International green construction standards (EN, ISO, JIS, ASTM); 528 bibliographic references	National priorities for industrial waste recycling (Waste Management Concept of the RK 2026–2030, Government Decree No. 1201 of 31.12.2025)
<b>Concept Coverage</b>	Partial coverage: coal ash/slag and metallurgical slag – as part of concrete and cement	Full coverage of all priority industrial waste categories per the Waste Management Concept of the RK 2026–2030

Group	Categories A–M (12 cat.): Standard 'Green' Materials	Categories N–V (8 cat.): Materials from Kazakhstan Industrial and Consumer Waste
<b>Conclusion</b>	<b>Combined</b> 20 categories (12 established + 3 developing + 5 emerging) = Kazakhstan's first comprehensive GPP system, simultaneously meeting international standards AND addressing national priorities	

#### 4.5.1. Three priority categories of construction materials from industrial waste

Three priority categories of construction materials from industrial waste (items 42–44 of Appendix D) have been identified based on the list of 'Proposed Measures' of the Waste Management Concept (Government Resolution No. 1201, Section 5). Each category is linked to specific waste types listed in Section C.7 of this document; see Table 31.

**Table 31. Three priority categories of construction materials from industrial waste**

Nº	Category (Appendix D item)	Waste types and sources (C.7)	Application	Environmental benefit
	Road construction materials from industrial waste (item 42)	CHP coal ash (high-ash Ekibastuz coal, 40–43% ash content; 1–1.5 mln tonnes of ash per year); metallurgical slag; grey sludge from ERG, Qarmet, KSP Steel; reclaimed asphalt pavement (RAP); crumb rubber from tyres	Production of road surface materials (Superpave class): asphalt concrete and road base layers	<i>Projected outcomes per Concept:</i> Diversion of coal ash from landfilling; reduction of ash dump areas; reduction of dust and methane emissions involvement of metallurgical slag in road construction, reduction of ecological damage by 5–7%
<b>2</b>	Aggregates from overburden rock and technogenic sources (item 43)	Overburden and mine development rock – 45.4 bln tonnes (part of total TMO stock of 53.6 bln tonnes across 1,630 facilities, Geology Committee data, July 2025); technogenic soils	Backfill material in mining; rubble stone and crushed stone for construction ( <i>subject to compliance with applicable standards</i> )	<i>Projected outcomes per Concept:</i> Involvement of up to 10% of accumulated TMF in economic circulation by 2030 Formation of production clusters in mono-cities
<b>3</b>	Gypsum materials from phosphogypsum and synthetic industrial gypsum (item 44)	Phosphogypsum (over 17 mln tonnes accumulated at Kazphosphate stockpiles); synthetic industrial gypsum from chemical industry waste streams	<i>Pilot project applications:</i> Construction materials; Reclamation of disturbed land; Melioration of saline soils; Remediation of petroleum contamination; Cement industry	<i>Projected outcomes of pilot programmes per Concept:</i> Diversion of phosphogypsum from landfilling; Reduction of gypsum waste storage by 20–25%; Improvement of saline soil fertility; Reduction of disturbed land areas

Aggregate economic and environmental impact (**projected outcomes per the Waste Management Concept, Section 2.2 ‘Mining and Metallurgical Industry Waste’**): full implementation of the Concept’s industrial waste measures is *expected to enable* a reduction of metallurgical waste landfilling by 25%; annual savings of KZT 50–100 billion through substitution of natural aggregate materials; involvement of up to 10% of accumulated TMF in economic circulation by 2030; and, *per the forecast of the Ministry of Industry and Construction (MIC)*, recycling of up to 10 million tonnes of coal ash and slag in road construction.

Full table of 49 items – see Appendix D.

#### 4.6. Verification criteria and ecodesign technical regulation

For objective verification of the ‘green’ status of construction materials, a unified criteria framework based on circularity principles in accordance with Principle 1 of the Waste Management Concept; see Tables 32 & 33.

**Table 32. Verification criteria for construction materials for L2 registry**

Principle	Content	Measurable parameters for the L2 registry
<b>Circular economy</b>	Preserving material value, reducing material intensity, extending service life	Durability and repairability; upgradability and reuse; share of recycled materials (≥20%, threshold aligns with end-of-waste criteria under Art. 333 of the Environmental Code of RK); disassembly and recycling potential; resource efficiency; absence of substances with hazardous properties HP6 (acute toxicity), HP7 (carcinogenicity), HP11 (mutagenicity), C16 (POPs) under Art. 342 of the Environmental Code of RK

**Table 33. Application of circularity criteria through the cascading system**

Cascade Level	LCA Application Focus
<b>L1 (technologies)</b>	Assessment of production processes and technological operations: energy intensity, emissions, waste management
<b>L2 (products)</b>	Structural, operational, and environmental product requirements with emphasis on use and disposal stages: circularity criteria, compliance with safety standards
<b>L3 (services and works)</b>	Requirements for input materials (‘green’ products from L2) and service delivery process: service ecodesign, operational practices, KPIs for consumption reduction

##### 4.6.1. Four-level regulatory architecture

To create a sustainable regulatory basis for recognising products as ‘green,’ the development of a national ecodesign technical regulation is proposed as a linking mechanism between mandatory product requirements, ecodesign methodology, and practical application of environmental criteria in GPP. The legal basis for development is Art. 6 of the Law on Technical Regulation of the RK, which vests the Government of the RK with authority to develop and approve technical regulations, subject to requirements corresponding to the level of scientific and technological development of the state (Art. 4(2)(11) of the same Law). International ecodesign standards (ISO 14006, EU Regulation 2024/1781) may serve as the basis for development under Art. 20(4) of the Law on Technical Regulation (not to be confused with the four-level organisational governance architecture – see Appendix E.3); see Table 34.

**Table 34. Levels of regulatory architecture**

Nº	Level	Function
1	<b>Ecodesign technical regulation</b>	Mandatory minimum requirements for ecological design at the production stage: durability, reparability, absence of hazardous substances, share of recycled materials, disassembly potential. Legal basis for development: Art. 6 + Art. 4(2)(11) + Art. 20(4) of the Law on Technical Regulation of the RK
2	<b>ISO 14006</b>	Methodological foundation: integration of ecodesign principles into production processes and environmental management systems (EMS)
3	<b>EU Regulation 2024/1781 (ESPR)</b>	International benchmark: requirements for durability, reparability, circularity, and digital product passport
4	<b>L2 Registry</b>	Practical GPP instrument: implementing ecodesign requirements through public procurement – assessing product categories against parameters embedded in design and verified by measurable criteria (LCA/LCC, testing, EPD)
5	<b>ISO 20400:2017 (Sustainable procurement)</b>	International standard for sustainable procurement (Sustainable procurement – Guidance). Contains guidance on integrating TCO/LCC into procurement procedures, including accounting for environmental externalities and life cycle assessment principles. Provides normative linkage of the GPP methodology to the international sustainable development context (Principle 7 of the Waste Management Concept of RK 2026–2030)

#### 4.6.2. Classification: active and passive products

For correct application of LCA criteria, construction products are divided into two groups; see Table 35.

**Table 35. Groups of construction products**

Parameter	Active products	Passive products
<b>Definition</b>	Consumes energy during operation: pumps, air conditioners, fans, lighting fixtures, elevator equipment, BMS systems	Does not consume energy during operation: construction materials, roofing materials, facade panels, pipes, insulation
<b>Criteria priority</b>	Energy efficiency, operational emissions and noise, durability, software updatability (for smart devices), component reuse	Material environmental safety (absence of toxic substances, recycled content), wear resistance and durability, suitability for reuse or recycling

*This classification structures the technical regulation, allows for the application of different assessment methodologies, and simplifies the L2 registry logic while maintaining transparency.*

## Section 5. Contribution to Achieving Concept Objectives

This section demonstrates how the comprehensive green public procurement (GPP) system, proposed in Sections 3–4 and detailed in Appendices A–H, contributes to achieving the objectives of the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (GD of the RK of 31.12.2025 No. 1201). The analysis is conducted at three levels: target indicators (quantitative contribution), core principles (systemic alignment), and expected outcomes (theory of change).

### 5.1. Contributing to the Concept Target Indicators

The Concept establishes 5 target indicators grouped into 3 directions. The GPP system directly contributes to Indicators 2 and 3 (Direction 2: creating conditions for increasing the recycling share) and indirectly to Indicators 1 and 5 (Directions 1 and 3). The table below shows the logical chain for each indicator: GPP system mechanism → intermediate outcome → contribution to indicator.

**Table 36. Contribution to Concept Target Indicators**

Target Indicator	Target by 2030	GPP System Mechanism	Intermediate Outcome	Section / Appendix
<b>Indicator 2. Reducing the share of waste sent to MSW landfills (Direction 2)</b>	↓10% by 2030	PCP: EPR grants → pilot production facilities from MSW fractions (plastic, glass, cellulose); off-take contract guarantees sales	Creation of 3–5 SMEs for recycling MSW fractions into construction materials (Appendix C, section C.7 – items 45–49); redirecting MSW flows from landfills to recycling	Section 3.3 (PCP); Appendix C (off-take); Appendix C, section C.7 (items 45–49); Appendix C, section C.8 (pilot – Astana/Almaty)
<b>Indicator 3. Reducing the share of unrecycled industrial waste (Direction 2)</b>	↓10% by 2030	Environmental discount (up to 5%) in the RPS formula creates a price advantage for materials from industrial waste; cascading verification L1→L2 confirms status	Incentivising the use of coal ash/slag (1–1.5 million t/year generation, Pavlodar Region), metallurgical slag GGBS (Karaganda Region), phosphogypsum (17 million t accumulated, Zhambyl Region) in construction public procurement	Section 3.2 (L2 preference); Section 4.4 (discount); Appendix B (GVS methodology); Appendix D (items 42–44); Appendix F (3 pilot regions)
<b>Indicator 1. Inventory of all waste types (Direction 1)</b>	100% by 2028	API integration goszakup.gov.kz ↔ IGTPC: each ‘green’ procurement records the type and volume of waste used via the eco-passport (Form A-4)	Building an analytical database on secondary raw material flows in the construction sector; supplementing the National Waste Management Center (NWMC)	Section 3.4 (cascading verification); Appendix A, Provision 4 (API); Appendix C, section C.4.4; Appendix E (CEF role)
<b>Indicator 5. Share of TOP-50 with ESG (Environmental, Social, and Governance) reporting (Direction 3)</b>	100% by 2030	L1–L2 registries require waste-generating enterprises (Category I facilities) to disclose data on secondary raw material transfers to recyclers	Enterprises ERG, Qarmet, KSP Steel, Kazphosphate receive structured data for ESG reports on waste management	Section 3.4 (ROP/EPR); Appendix C, section C.7 (priority waste); Appendix E (MNE role)

Green-highlighted indicators receive direct GPP system contribution; yellow-highlighted – indirect contribution. Indicator 4 (environmental education) is outside the scope of this Policy Paper.

## 5.2. Alignment with Core Principles of the Concept

Section 5 of the Concept establishes 7 core principles for waste management development. The table below shows how each principle is implemented through specific GPP system components.

**Table 37. Alignment with the 7 Concept Principles**

Nº	Concept Principle	Implementation in the GPP System	Section / Appendix
1	Transition to a circular economy: reducing waste generation, reuse, maximising integration into secondary circulation	Cascading verification L1→L2→L3 closes the life cycle: production (L1) → operation (L2) → services (L3) → end of service life (ROP/EPR) → return to L1. 20 categories of construction materials (49 items), including 3 developing categories from industrial waste (N–P) + 5 emerging categories from consumer waste (R–V)	Sections 3.4, 3.5 (cascade, ROP/EPR, closed loop); Appendix D (items 1–44) + Appendix C, section C.7 (items 45–49); Appendix A, Provision 3 (legislative consolidation)
2	Modern infrastructure: construction and modernisation of recycling facilities using advanced technologies	Green regulatory sandbox (PCP) funds the creation of pilot production facilities through EPR Operator grants (Art. 388(9) of the EC of the RK). The 'Innovation Voucher' (IGTIPC verification) ensures independent technical expertise	Section 3.3 (PCP, 3 phases); Appendix C (off-take); Appendix F (3 pilot regions: Pavlodar, Zhambyl, Karaganda)
3	Minimising waste landfilling: reducing the share of waste sent to landfills by increasing recycling	Environmental discount (up to 5%) in the RPS creates an economic incentive for contractors to use waste-derived materials instead of primary raw materials. Off-take contracts guarantee sales, reducing investment risks for recyclers	Sections 3.2 (L2 preference), 4.4 (discount); Appendix B (GVS methodology); Appendix C (take-or-pay)
4	Green business development: SME support, job creation, attracting investment in clean technologies	PCP – a targeted SME support mechanism: from feasibility study (Phase 1) through prototype (Phase 2) to pilot (Phase 3). The off-take contract serves as collateral for attracting bank financing. Transaction with a condition precedent (Art. 150 CC RK) protects the budget	Section 3.3 (PCP, 'valley of death'); Appendix C (off-take, Art. 16(3)(43)); Section 2.2 (SME barrier analysis)
5	Digitalisation and transparency: implementing digital platforms for waste flow monitoring	API integration goszakup.gov.kz ↔ IGTIPC: real-time automatic 'green' status verification; public L1–L3 registries; analytical database of 'green' procurement volumes; anti-corruption effect through full automation of discount calculation	Sections 3.4 (API integration, cascading verification), 4.4 (automated discount calculation); Appendix A, Provision 4 (API); Appendix B, section B.5 (algorithm); Appendix E (CEF role)

Nº	Concept Principle	Implementation in the GPP System	Section / Appendix
6	Education and waste management culture: improving environmental literacy	Indirect contribution: public L2 registries (green products) and open GVS database create an information environment for conscious consumption; pilot projects in 3 regions create a demonstration effect	Appendix E (public registries); Appendix F (regional pilots)
7	Compliance with international obligations: Paris Agreement, Basel Convention	Ecodesign technical regulation harmonised with EU ESPR 2024/1781. GPP methodology complies with standards ISO 14024, ISO 20400:2017 (sustainable procurement). Appendix D covers all priority categories of industrial waste under the Concept	Section 4.6 (verification criteria); Appendix D (Handbook); Appendix H (international experience: 8 jurisdictions)

### 5.3. Expected outcomes by implementation phase

Expected outcomes are linked to implementation phases (Section 6) and formulated according to the theory of change principle: mechanism → intermediate outcome → contribution to Concept indicator.

**Table 38. Expected Outcomes: Short-term (2026–2027)**

Outcome	Quantitative Assessment	Data Source / Section
Adoption of amendments to Art. 130 of the Environmental Code: establishing the legal basis for L2 and L3 registries	6 new provisions (L2, L3 registries; cascading verification; API; rules; expanded definitions)	Appendix A (6 provisions, A.4); Section 6.1–6.2 (timeline: H1 2027)
Introduction of environmental discount De into the RPS notional price formula	Scale: 0–5% across 6 GVS levels; coverage: all construction works tenders (construction = 39.1% of procurement volume, ~KZT 3.8 trillion, Section 4.1)	Appendix B (methodology); Section 4.3–4.4 (GVS, discount)
Launch of API integration goszakup.gov.kz ↔ IGTIPC	Automatic L2 status verification upon bid submission; public registry of 'green' goods	Appendix A, Provision 4; Appendix E (CEF role); Section 6.2
Development of the Construction Appendix D for the L2 registry	49 items in 20 categories: 12 established + 3 developing + 5 emerging, 528 bibliographic references	Appendix D (Handbook); Section 4.5 (subcategories)
Launch of the first PCP competition (Pavlodar Region: coal ash/slag → road materials)	10–15 applications → 3–5 finalists → 1–2 winners; funding through EPR Operator (Art. 388(5)/(9)/(10) of the Environmental Code of the RK)	Appendix C (PCP); Appendix F (scaling scenario)

**Table 39. Expected Outcomes: Medium-Term (2028–2030)**

Outcome	Quantitative Assessment	Contribution to Concept Indicators
Pilot off-take contracts in 3 regions	Pavlodar Region (coal ash/slag, 2028), Zhambyl Region (phosphogypsum, 2028–2029), Karaganda Region (GGBS slag, 2029)	Indicator 3: industrial waste integration; recycling potential up to 15–20 million t/year of secondary resources (Section 2.1)
Budget savings through substitution of natural materials with secondary ones	KZT 50–100 billion/year (Concept, Section 2.1); cost of waste-derived materials 5–40% lower than primary (Appendix D, items 42–44)	Section 2.1; Appendix D (cost analysis: items 42–44)
Scaling the GPP system to construction public procurement (>KZT 1 trillion/year)	Construction = 39.1% of procurement volume (Section 4.1). Target coverage: 3–5 regions by 2030	Indicators 2, 3; Section 4.1 (construction sector scale); Appendix F (scenario)
Verification of first ‘green’ goods in the IGTIPC L2 registry	Items 42–44 (industrial waste) + items 45–49 (MSW) based on PCP results; IGTIPC L2 compliance certificate for each verified product	Indicator 3; Section 3.4 (cascade); Appendix C, section C.4.2 (circularity criteria)

#### 5.4. Note on Quantitative Indicators

Quantitative estimates presented in Tables 38-39 are based on data from the Waste Management Concept (Section 2.1), cost analysis of construction materials (Appendix D, items 42–44; Appendix C, section C.7 for items 45–49), PCP competition architecture (Appendix C), scaling scenario (Appendix F), and international experience (Appendix H). Detailed metrics – off-take contract volumes, number of verified L2 products, specific regional savings figures – are recommended for development by IGTIPC (Appendix E, Level 2) and approval by the Green Procurement Council (Appendix E, Level 1) during Phase 1 (2026–2027, Sections 6.1–6.2), taking into account current data and coordination with responsible government bodies (MENR, MF, MIC, pilot region akimats).

## Section 6. Recommendations

**Note:** This section contains recommendations for implementing the comprehensive green public procurement system, synchronised with the Waste Management Concept Action Plan (Table 4).

### 6.1. Preparatory Actions (first 6 months)

**Phase objective:** Establishing the regulatory framework for implementing the comprehensive green public procurement system.

**Table 40. Preparatory Actions (first 6 months)**

Responsible Entity	Action	Deadline / Note
<b>MENR</b>	Initiate development of amendments to Art. 130 of the Environmental Code of the RK (definition of 'green' goods, cascading verification principle L1→L2→L3)	month 1–3 (preparation of amendment concept)
	Develop draft Rules for maintaining the 'Green' Products Registry (L2) and 'Green' Services Registry (L3)	month 4–6
<b>MF</b>	Conduct analysis of the feasibility of introducing the environmental discount in Clause 217 of Rules No. 687 (as amended by Order of MF RK No. 321 of 24.06.2025)	month 1–3
	Agree on requirements for API integration of goszakup.gov.kz with IGTIPC registries	month 4–6
<b>CEF</b>	Assess the technical readiness of goszakup.gov.kz IT infrastructure; develop terms of reference for API integration with IGTIPC registries	month 1–6
<b>MIC</b>	Establish a working group for developing industry criteria for 'green' construction materials	month 1–3
<b>JSC 'Zhasyl Damu'</b>	Develop the Innovation Support Programme Regulation (grant funding for R&D on recycling waste into construction materials)	month 4–6
<b>IGTIPC</b>	Develop the framework methodology for cascading verification L1→L2→L3 (admission criteria, eco-passport format, Form A-4); prepare technical specifications for API integration with goszakup.gov.kz	month 1–6
<b>MENR</b>	Initiate the creation of an inter-agency Green Procurement Council (MENR, MF, MIC, MNE) for coordinating GPP system implementation (Appendix E, Level 1)	month 4–6

## 6.2. Regulatory Actions (months 6–18; synchronised with the Concept Action Plan, GD No. 1201 of 31.12.2025)

**Phase objective:** Adoption of regulatory acts and launch of pilot projects. Timelines are synchronised with the Waste Management Concept Action Plan (Government Decree No. 1201 of 31.12.2025); target deadline for legislative amendments – H1 2027.

**Table 41. Regulatory Actions (months 6–18)**

Responsible Entity	Action	Deadline
<b>Government of the RK</b>	Approve IGTPC mandate for maintaining L2 and L3 registries (following Environmental Code amendments)	H1 2027
<b>Parliament of the RK</b>	Consider amendments to Art. 130 of the Environmental Code of the RK	H1 2027
<b>MF</b>	Approve amendments to Clause 217 of Rules No. 687 (as amended by Order of MF RK No. 321 of 24.06.2025) – environmental discount up to 5%	H1 2027
<b>CEF</b>	Implement API integration of goszakup.gov.kz with IGTPC registries (L2, L3)	month 10–15
<b>JSC ‘Zhasyl Damu’</b>	Prepare competition documentation for the Innovation Support Programme (pilot: coal ash/slag → road materials, Pavlodar Region)	month 7–12
<b>Akimats (pilot regions)</b>	Prepare conditions for concluding pilot guaranteed off-take contracts (Pavlodar Region)	H1 2027
<b>IGTPC</b>	Provide technical support for API deployment; prepare verification documentation for the pilot product (PP1 Annex D.3, item 42: road materials from coal ash/slag, Pavlodar Region) for PCP competition launch (H2 2027, Appendix F)	month 10–18

## 6.3. Scaling (month 18–2030)

**Phase objective:** System scaling and achieving Waste Management Concept target indicators.

**Table 42. Scaling (month 18–2030)**

Responsible Entity	Action	Deadline
<b>MENR</b>	Expand the list of ‘green’ product categories in the L2 registry: activation of emerging categories R–V (items 45–49) in the L2 registry; specific construction products from consumer waste (Appendix C, section C.7) – based on PCP competition results (Appendix F)	2028
<b>JSC ‘Zhasyl Damu’</b>	Conduct 3–5 PCP competitions in priority areas: coal ash/slag → road materials (Pavlodar Region), phosphogypsum → gypsum board (Zhambyl Region), GGBS slag → cements (Karaganda Region); attract investments for scaling successful projects	H2 2027 – 2030

Responsible Entity	Action	Deadline
<b>Akimats</b> of pilot regions (3–5 by 2030)	Conclude pilot guaranteed off-take contracts (Pavlodar Region – 2028, Zhambyl Region – 2028–2029, Karaganda Region – 2029; Appendix F); scale the application of GPP criteria in construction works public procurement	2028-2030
<b>IGTIPC</b>	Conduct verification of first pilot products under the L1→L2 cascading scheme; ensure verification of the expanded product list	2028-2030
<b>MNE</b>	Conduct assessment of the GPP system economic effect; prepare proposals for adjusting Concept target indicators	2029-2030

## 6.4. Recommendation Implementation Targets

**Note:** Indicators are formulated as contributions to achieving the Waste Management Concept target indicators. Detailed quantitative metrics will be refined during the pilot project preparation phase.

**Table 43. Implementation targets**

Indicator	Target Value by 2030	Link to Concept
Number of verified 'green' products in the L2 registry	≥20 verified items (out of 49 items in the Registry: 41 from the Technical Handbook + 8 from waste streams)	Concept Section 5: 'creating secondary resource markets'
Number of concluded guaranteed off-take contracts	≥3 contracts (Pavlodar, Zhambyl, Karaganda regions)	Target Indicator 3: industrial waste integration
Number of regions with an operational construction works GPP system	3–5 regions	Concept Section 5: 'demand generation'
Number of SME recyclers gaining access to the public procurement system	3–5 SMEs (Section 5.1, Indicator 2; Appendix C)	Concept Section 4, Principle 4: 'green business development: SME support'

## 6.5. Important notes

### 6.5.1. On the Logical Sequence of Actions

Recommendations are structured according to the principle of legal sequencing: first, the legislative foundation is established (Environmental Code amendments), then subordinate regulations are adopted (Rules, Orders), after which operator mandates are approved and pilot projects are launched.

### 6.5.2. On Funding

The Innovation Support Programme funding amount will be determined during the development of the Programme Regulation (JSC 'Zhasyl Damu,' month 4–6) based on needs analysis and capabilities of the extended producer obligations (ROP/EPR) mechanism (Art. 332, Art. 386 of the Environmental Code of the RK; EPR Rules, Government Decree No. 763 of 25.10.2021).

## 6.6. Complementary Measures: Communication, Training, and Change Management

### 6.6.1. Scope Boundary

The recommendations in Sections 6.1–6.3 and the implementation targets in Section 6.4 are focused on regulatory instruments and their measurable outcomes. However, international experience in GPP implementation – particularly in EU Member States – suggests that regulatory reforms are most effective when accompanied by capacity-building, communication, and institutional change management measures. Key implementation risks are systematised in Section F.5 (GPP System Risk Matrix); the stakeholder map and engagement strategies are presented in Appendix G. The measures outlined below are identified as essential enabling conditions for successful implementation of the proposed GPP system.

### 6.6.2. Training for procurement officers

Procuring entities (akimats and central government bodies) will require targeted training to apply the new instruments effectively. Recommended training areas include:

- (a) practical application of the Appendix D: interpreting green criteria and procurement clauses for construction works tender documentation;
- (b) working with the environmental discount mechanism in the RPS: calculating the Green Value Share (GVS) indicator and interpreting L2/L3 registry data on the goszakup.gov.kz portal;
- (c) working with the IGTIPC cascading verification system: understanding the automated verification of supplier ‘green’ status via the goszakup.gov.kz ↔ IGTIPC API, interpreting eco-passport data, and applying the condition precedent mechanism in off-take contracts. (Art. 150 of the Civil Code of the RK)

Training programmes are recommended to be developed jointly by IGTIPC (substantive content) and the Ministry of Finance (procurement procedures), with pilot delivery in the three target regions (Pavlodar, Zhambyl, Karaganda) ahead of the GPP system launch.

### 6.6.3. Communication strategy

To ensure awareness and buy-in from both procuring entities and suppliers, a targeted communication strategy is recommended, covering:

- (a) information campaign for procuring entities: explaining the benefits of the environmental discount mechanism, the legal basis for its application, and the absence of additional budget burden (the discount is a notional price adjustment, not a subsidy);
- (b) supplier outreach: informing construction materials manufacturers about the L2 registry inclusion process, the competitive advantages of ‘green’ status in public procurement, and the Innovation Support Programme (PCP) opportunities for SMEs;
- (c) publication of methodological guidance: practical step-by-step guides for procuring entities on incorporating Appendix D criteria into tender documentation, accessible through the goszakup.gov.kz portal.

### 6.6.4. Institutional readiness

Successful deployment of the GPP system requires institutional preparation beyond regulatory changes:

- a. provision of organisational and technical support (secretariat) for the inter-agency Green Procurement Council (Appendix E, Level 1) within MENR to coordinate day-to-day interaction between ministries and pilot regions;
- b. development of a monitoring and reporting framework for tracking GPP uptake (share of ‘green’ procurement in total construction procurement by region);
- c. establishment of a feedback mechanism allowing procuring entities and suppliers to report practical difficulties, enabling iterative refinement of criteria and procedures during the pilot phase.

### **6.6.5. Follow-up Technical Assistance**

Implementation of the complementary measures described above will require specialised technical assistance. Potential areas include: development and delivery of training programmes for procurement officers, design of the communication strategy, and provision of advisory services during the pilot phase in target regions. Engaging international expertise at this stage would allow drawing on accumulated GPP implementation experience in EU Member States and adapting best practices to Kazakhstan's conditions.

# List of Regulatory Legal Acts Referenced

## I. Codes of the Republic of Kazakhstan

1. Environmental Code of the Republic of Kazakhstan of 2 January 2021 No. 400-VI LRK (as amended).
2. Construction Code of the Republic of Kazakhstan of 9 January 2026 No. 253-VIII LRK.
3. Budget Code of the Republic of Kazakhstan of 15 March 2025 No. 171-VIII (as amended).
4. Civil Code of the Republic of Kazakhstan (General and Special Parts) of 27 December 1994 No. 268-XIII (as amended).

## II. Laws of the Republic of Kazakhstan

5. Law of the Republic of Kazakhstan 'On Public Procurement' of 1 July 2024 No. 106-VIII LRK (as amended by Law No. 188-VII of 19.05.2025).
6. Law of the Republic of Kazakhstan 'On Technical Regulation' of 30 December 2020 No. 396-VI LRK (as amended).
7. Law of the Republic of Kazakhstan 'On Science and Technological Activities' of 1 July 2024 No. 103-VIII LRK (as amended).

## III. Decrees of the Government of the Republic of Kazakhstan

8. Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030. Approved by Government Decree of the Republic of Kazakhstan of 31 December 2025 No. 1201.
9. Rules for Recognition of Technologies as 'Green' Technologies. Approved by Government Decree of the Republic of Kazakhstan of 18 August 2022 No. 576 (as amended by Government Decree of 04.11.2024 No. 919).
10. Rules for Implementation of Extended Obligations of Producers (Importers). Approved by Government Decree of the Republic of Kazakhstan of 25 October 2021 No. 763 (as amended).

## IV. Orders of Ministries of the Republic of Kazakhstan

11. Public Procurement Rules. Approved by Order of the Minister of Finance of the Republic of Kazakhstan of 9 October 2024 No. 687 (as amended by Order of MF RK of 24.06.2025 No. 321). Registered with the Ministry of Justice of the Republic of Kazakhstan on 9 October 2024 No. 35238.
12. Rules for Organizing the Activities and Performing the Functions of the Procuring Entity (Developer). Approved by Order of the Minister of National Economy of the Republic of Kazakhstan of 19 March 2015 No. 229 (as amended by Order of MCI RK of 30.10.2025 No. 465). Registered with the Ministry of Justice of the Republic of Kazakhstan on 24 April 2015 No. 10795.
13. Technical Regulation 'On the Safety of Buildings, Structures, Construction Materials and Products'. Approved by Order of the Minister of Industry and Infrastructure Development of the Republic of Kazakhstan of 9 June 2023 No. 435 (as amended by Order of 26.03.2025 No. 99). Registered with the Ministry of Justice of the Republic of Kazakhstan on 14 June 2023 No. 32783.
14. Rules for Formation, Maintenance and Support of the Registry of the State Technical Regulation System. Approved by Order of the Minister of Trade and Integration of the Republic of Kazakhstan of 30 June 2021 No. 437-NQ. Registered with the Ministry of Justice of the Republic of Kazakhstan on 8 July 2021 No. 23362.
15. Rules for Recall of Products that Do Not Comply with Technical Regulation Requirements. Approved by Order of the Minister of Trade and Integration of the Republic of Kazakhstan of 29 May 2021 No. 373-NQ. Registered with the Ministry of Justice of the Republic of Kazakhstan on 1 June 2021 No. 22884.

16. Conformity Assessment Rules. Approved by Order of the Acting Minister of Trade and Integration of the Republic of Kazakhstan of 29 June 2021 No. 433-NQ. Registered with the Ministry of Justice of the Republic of Kazakhstan on 8 July 2021 No. 23364.

## **V. International Regulatory Documents and Standards**

17. Directive (EU) 2024/825 of the European Parliament and of the Council of 28 February 2024 on empowering consumers for the green transition.

18. Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products (ESPR).

19. Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement.

20. ISO 20400:2017. Sustainable procurement – Guidance. International Organization for Standardization, Geneva, 2017.

21. ISO 14006:2020. Environmental management systems – Guidelines for incorporating ecodesign. International Organization for Standardization, Geneva, 2020.

*All regulatory legal acts of the Republic of Kazakhstan are cited in the editions in force as of the date of preparation of this Policy Paper (March 2026).*

# Appendix A. Recommendations for Amending Article 130 of the Environmental Code of the RK

## A.1. Justification for Legislative Changes

The current version of Article 130 of the Environmental Code of the RK ('Economic Incentives for Environmental Protection Activities') creates a legal basis for the 'green' technologies registry (L1), but does not establish a mechanism for transforming verified technologies into specific goods (L2), services and works (L3) for the public procurement system. This creates a systemic gap:

**Gap 1: 'Technology without product.'** An enterprise can register a waste recycling technology in the IGTIPC L1 registry, but the product manufactured using it has no formal 'green' status. The procuring entity cannot distinguish a verified product from a conventional one when conducting public procurement.

**Gap 2: 'Product without procurement.'** Even if a product is environmentally superior to its counterparts, without a 'green' products registry (L2) there is no legal basis for applying the environmental discount in the tender evaluation formula (RPS). The sustainable procurement principle (Art. 5(1)(8) of the Law 'On Public Procurement' No. 106-VIII of 01.07.2024, as amended by Law No. 188-VII of 19.05.2025) has not yet received an operational implementation mechanism.

**Gap 3: 'Procurement without verification.'** The absence of a cascading L1→L2→L3 link opens opportunities for greenwashing: any product can be positioned as 'green' without confirming a link to a verified technology; any service or works can be claimed as environmentally responsible without verified L2 materials and L1 technologies.

**Gap 4: 'Designer without incentive.'** The absence of a 'green' services and works registry (L3) deprives design organisations of any economic incentive to apply life cycle cost (LCC) assessment methodologies (ISO 15686-5 / ST RK ISO 15686-5-2020) and circular design standards (ISO 20887-2023) when developing project estimate documentation (PSD). Without preferences in tenders for design works procurement (sub-clause 1) of Clause 54 of the Public Procurement Rules, Order of MF of the RK No. 687 of 09.10.2024, as amended by Order No. 321 of 24.06.2025), a designer has no motivation to specify L2 materials in the PSD, and the construction contractor receives a zero GVS indicator. The L3→PSD→GVS chain is not activated.

These gaps block the implementation of the strategic goals of the Concept for transitioning to a 'green economy' (Presidential Decree of the RK of 30.05.2013 No. 577 as amended by Decree of 10.06.2024 No. 568) and the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (Government Decree of the RK of 31.12.2025 No. 1201), which directly provides for 'developing the market for secondary raw material products through green public procurement' and 'updating the green technologies registry.'

## A.2. Legal Grounds for Developing the Draft Law

According to the Law of the RK 'On Legal Acts' (of 6 April 2016, No. 480-V), the right of legislative initiative belongs exclusively to the President of the RK, Members of Parliament of the RK, and the Government of the RK (Art. 29, para. 1, in accordance with para. 1 of Art. 61 of the Constitution of the RK). Developers of draft laws are central executive bodies (Art. 17, para. 3).

In this regard, this Appendix does not contain a draft legislative act but presents an analytical justification and recommendations on the content of amendments that can be used by the authorised body in the field of environmental protection (Ministry of Ecology and Natural Resources of the RK) in preparing the corresponding draft law through the established procedure.

**Recommended developer:** Ministry of Ecology and Natural Resources of the RK as the authorised body in the field of environmental protection (Art. 17, para. 3 of the Law 'On Legal Acts').

**Recommended procedure:** legislative initiative of the Government of the RK (Art. 17-1 of the Law ‘On Legal Acts’ No. 480-V) with mandatory prior development of a Regulatory Policy Consultation Document (RPCD) in the form of Appendix 1 to the Rules on Legislative Work of the Government of the RK (GD No. 907 of 29.12.2016, form introduced by GD No. 1082 of 28.12.2022) and subsequent inclusion in the Government Legislative Plan (Art. 16, para. 4-1 – submission of proposals to the Ministry of Justice; para. 5 – Plan approval; as amended by Law of the RK No. 157-VIII of 13.01.2025). The detailed step-by-step procedure is set out in section A.9 of this Appendix.

**Alternative procedure:** other bodies, organisations, and citizens may submit proposals for draft law development or refer such initiative drafts for review by central government bodies (Art. 17-1, para. 2 of the Law ‘On Legal Acts’). This Policy Paper may be used as an analytical basis for such a proposal.

### A.3. Recommended Subject of Amendment

Amendments are recommended to Article 130 of the Environmental Code of the Republic of Kazakhstan of January 2, 2021, No. 400-VI (as amended by Law of the RK No. 179-VIII of 09.04.2025; ‘Economic Incentives for Environmental Protection Activities’). Note: Article 130 has not been amended since the adoption of the Environmental Code in 2021 – the edition cited is the current edition of the Code as a whole. The choice of this article is determined by the fact that it establishes the legal basis for ‘green’ technologies, and extending its scope to ‘green’ goods, services and works is a logical development of the existing provision.

The current structure of Article 130 is shown in Table 44.

**Table 44. Current structure of Article 130**

Paragraph	Content	Status
para. 1	List of economic incentive mechanisms (5 sub-paragraphs)	Active, no changes recommended
para. 2	Definition of ‘green’ technologies and 7 directions, including sub. 7 (construction materials from waste)	Active; expansion recommended
para. 2, sub- paras. 3–5	Service operator, recognition rules, green investments	Active; supplementation recommended
para. 3	Definition of ‘green’ financing	Active, no changes recommended

### A.4. Recommended New Provisions

Below are six new provisions recommended for inclusion in Article 130 of the Environmental Code. For each provision, its purpose within the GPP system and linkage to other Policy Paper elements are indicated.

#### **Provision 1. ‘Green’ Products Registry (L2)**

**Essence:** it is recommended to establish that goods produced using ‘green’ technologies registered in the L1 registry and meeting circularity criteria shall be recognised as ‘green’ goods and shall be subject to inclusion in the ‘green’ products registry (L2).

**Purpose in the GPP system:** creates the formal ‘green’ product status required for applying the environmental discount in competitive procurement (see Appendix B) and for concluding off-take contracts (see Appendix C).

**Circularity criteria** are recommended to be defined as requirements confirming: a) secondary material content (recycled content) of at least 20% by weight; b) compliance with safety requirements when using production and consumption waste; c) suitability for reuse or recycling at end of life cycle.

### Provision 2. 'Green' Services and Works Registry (L3)

**Essence:** it is recommended to establish that the L3 registry covers two classes of procurement objects (pursuant to the Public Procurement Rules, Order of MF of the RK No. 687 of 09.10.2024, as amended by Order No. 321 of 24.06.2025): (a) **services** – provided using green technologies from L1 and/or green goods from L2 (cleaning, facility management, engineering supervision services); (b) **works for the development of design (project estimate) documentation** – performed by design organisations applying green methodologies (LCC, circular design) and specifying L2 materials in the design documentation (sub-clause 1) of Clause 54 of Rules No. 687). Both procurement object classes shall be recognised as 'green' and subject to inclusion in the L3 registry.

**Purpose in the GPP system:** completes the cascading chain via two parallel pathways: (1) **Services pathway:** an organisation providing services using L2 green goods is included in the L3 registry and receives a conditional discount in the tender for the relevant services; (2) **Design works pathway:** a design organisation performing works for the development of design documentation (PSD) applying LCC methodologies (ISO 15686-5 / ST RK ISO 15686-5-2020), circular construction standards (ISO 20887-2023 / ST RK ISO 20887-2023) and specifying L2 materials in the PSD is included in the L3 registry and receives a conditional discount in the tender for design works (sub-clause 1) of Clause 54 of Rules No. 687). Inclusion of design works in L3 is critically important: a designer registered in L3 who specifies L2 materials in the PSD creates conditions for a high GVS indicator for the construction contractor, launching the L3→PSD→GVS chain. Without this link, there is no economic incentive to apply LCC and circular design methodologies.

**Criteria for inclusion in the L3 registry for design works (PSD).** A design organisation is included in the L3 registry upon meeting the following verifiable criteria:

**Table 45. Criteria for inclusion in the L3 registry for design works (PSD)**

Criterion	Verification instrument
≥X% of materials from the IGTIPC L2 registry specified in the PSD (specific threshold established by the L3 registry maintenance Rules)	Materials specification of PSD via API goszakup.gov.kz ↔ IGTIPC
LCC calculation for the building pursuant to ISO 15686-5 / ST RK ISO 15686-5-2020 (life cycle cost)	Annex to PSD with LCC calculation; verified by IGTIPC upon application for inclusion in L3
Application of the circular construction standard ISO 20887-2023 / ST RK ISO 20887-2023 (design for disassembly and re-use)	Designer's declaration of ISO 20887 application; IGTIPC verification of the 'Life Cycle Management' PSD section
Eco-passport of the project with data on GWP (global warming potential) and material flows (secondary raw materials, construction waste)	PSD section 'Project Eco-Passport'; GWP data calculated pursuant to EN 15804 / ISO 21930; verified by IGTIPC

*Note: specific threshold values (% of L2 materials in PSD) shall be established by the authorised environmental body (MENR) in the L3 Registry Maintenance Rules – a subordinate normative act adopted in implementation of these amendments to Article 130 of the Environmental Code of the RK. Methodological references: EU GPP Criteria for Buildings (2023), EN 15978 (building sustainability assessment), ISO 14044 (LCA).*

### Provision 3. Cascading Verification Principle

**Essence:** it is recommended to establish that registries L1, L2, L3 operate based on the cascading verification principle: a) a product may be included in the L2 registry only upon confirmed linkage with a technology from the L1 registry; b) a service or work may be included in the L3 registry only upon linkage with a 'green' technology and/or the use of 'green' products from the L2 registry.

**Purpose in the GPP system:** this is the central anti-greenwashing mechanism. The cascading L1→L2→L3 link means that 'green' status cannot be obtained without a verified technological foundation. This excludes the formal assignment of environmental status to products that have not undergone technological review.

#### **Provision 4. API Integration of Registries with the Public Procurement Portal**

**Essence:** it is recommended to establish that L2 and L3 registries shall be integrated with the public procurement web portal (goszakup.gov.kz) through information exchange.

**Purpose in the GPP system:** ensures automatic 'green' status verification upon submission of tender bids, prevents application of the environmental discount to products excluded from the L2 registry, and creates an analytical base for monitoring 'green' procurement volumes.

**Note:** separate amendments to the Law 'On Public Procurement' are not required. The Law is framework-based, and specific environmental assessment criteria are established by subordinate regulations – the Public Procurement Rules (Order of MF of the RK of October 9, 2024, No. 687, as amended by Order of MF RK No. 321 of 24.06.2025). Article 5, paragraph 1, sub-paragraph 8 of the Law 'On Public Procurement' No. 106-VIII of 01.07.2024 (as amended by Law No. 188-VII of 19.05.2025) establishes the principle of 'developing sustainable public procurement,' which constitutes sufficient legal basis for the environmental discount (see Appendix B).

#### **Provision 5. Registry Management Rules**

**Essence:** it is recommended to establish delegation of authority: a) rules for maintaining the 'green' products registry (L2) and product inclusion criteria – to be approved by the authorised body in the field of environmental protection; b) analogous provision for the 'green' services and works registry (L3).

**Purpose in the GPP system:** creates a legal basis for a subordinate normative legal act – a MENR order approving the rules for maintaining L2 and L3 registries. This allows for prompt adjustment of registry inclusion criteria without amending the Environmental Code.

*L2 Registry Rules Content.* Specifically, the L2 Registry Rules should include: (a) methodology for verifying cascading linkage with L1 for each product category; (b) criteria and threshold values for circularity (secondary raw material content, recyclability, EoL technology in L1); (c) requirements for compliance with safety standards (GOST/ST RK, sanitary-hygienic norms); (d) frequency of verification parameter review. Recommended international benchmarks: EU ESPR 2024/1781 (product circularity requirements), ISO 14024 (eco-labelling), ISO 20400:2017 (sustainable procurement).

#### **Provision 6. Expanding the Definition of 'Green' Technologies**

**Essence:** in paragraph 2 of Article 130 (definition of 'green' technologies), it is recommended either to expand sub-paragraph 7 ('production of construction materials not containing toxic and carcinogenic substances, using production and consumption waste'), or to supplement the list with a new sub-paragraph covering technologies for processing consumer waste (MSW) into products for urban infrastructure.

**Purpose in the GPP system:** ensures coverage of SME products from consumer waste (MSW) – polymer-sand tiles, foam glass, cellulose insulation, rubber tiles, textile insulation – which is the key condition for the PCP mechanism and 'Green Regulatory Sandbox' (Pillar 2). Construction materials from industrial waste (items 42–44) are covered by Pillar 1 (environmental discount) and do not require PCP support (see Appendix C, section C.2).

### **A.5. Three-Tier Registry System Architecture**

The recommended provisions (A.4, Provisions 1–4) form the following architecture:

**L1 (Green Technologies Registry) → L2 (Green Products Registry) → L3 (Green Services and Works Registry) → goszakup.gov.kz**

**Table 46. Cascading verification examples**

Stage	Example 1: Metallurgical Slag	Example 2: CHP Coal Ash/Slag	Example 3: Recycled Plastic (MSW)
L1 (Technology)	GGBS technology (clinker replacement with slag)	Coal ash/slag recycling technology	PET polymer-sand tile production technology
L2 (Product)	Concrete with 30–70% GGBS content	Asphalt with 15–30% ash content	Polymer-sand paving tiles
L3 (Service / Design Works)	Construction and installation works with L2 concrete	Road works with L2 asphalt	Territory improvement with L2 tiles
Public Procurement	Environmental discount per Art. 5(1)(8) of Law No. 106-VIII (as amended by Law No. 188-VII of 19.05.2025)	Environmental discount per Art. 5(1)(8) of Law No. 106-VIII (as amended by Law No. 188-VII of 19.05.2025)	Environmental discount per Art. 5(1)(8) + off-take contract per Art. 16(3)(43) of Law No. 106-VIII (as amended by Law No. 188-VII of 19.05.2025)

**Key principle:** each subsequent level inherits verification from the previous one. A product in the L2 registry is guaranteed to be linked to a technology from L1, and a service or works in L3 – to a product from L2 and/or a technology from L1. Greenwashing is structurally impeded.

## A.6. Comparative Table: Current and Recommended Versions

For the convenience of the draft law developer, below is an analytical comparative table showing which provisions are recommended for inclusion in the structure of Article 130 of the Environmental Code.

**Table 47. Analytical comparative table (regarding Article 130)**

Art. 130	Current Version (Summary)	Recommended Addition
para. 1	List of incentive mechanisms (sub. 1–5)	No changes
para. 2	Definition of ‘green’ technologies, 7 directions	Expand sub. 7 or add sub. 8 for MSW recycling technologies into urban infrastructure products (Provision 6)
para. 2, sub-paras. 3–5 (service operator, green investments, recognition rules)	‘Green’ technologies service operator (sub-para. 3); green investments for projects (sub-para. 4); technology recognition rules approved by the Government of the RK (sub-para. 5)	Expand operator functions to include maintaining L2 and L3 registries
NEW para. 2-1	—	Definition of ‘green’ goods, L2 registry, circularity criteria (Provision 1)
NEW para. 2-2	—	Definition of ‘green’ services and works, L3 registry (Provision 2)
NEW para. 2-3	—	Cascading verification principle L1→L2→L3 (Provision 3)
NEW para. 2-4	—	API integration of registries with goszakup.gov.kz (Provision 4)
NEW sub-paragraphs of para. 2	—	Delegation: L2 and L3 registry rules to be approved by MENR (Provision 5)

Art. 130	Current Version (Summary)	Recommended Addition
para. 3	Definition of 'green' financing	No changes

## A.7. Recommended Accompanying Subordinate Regulations

Adoption of amendments to Article 130 of the Environmental Code will require the development of the following subordinate normative legal acts.

**Table 48. Subordinate normative legal acts**

Subordinate Act	Developer	Timeline (recommended)	Link to Policy Paper
Rules for maintaining the 'green' products registry (L2)	MENR	6 months from the law's entry into force	Provision 1; Appendix C (circularity criteria in off-take contract)
Rules for maintaining the 'green' services and works registry (L3)	MENR	6 months from the law's entry into force	Provision 2; integration with construction works procurement
MF Order on environmental discount in the RPS	Ministry of Finance	Developed in parallel with Art. 130 amendments; enters into force upon adoption of the law (precondition per B.8)	Appendix B
Terms of reference for API goszakup ↔ IGTIPC	MF jointly with MENR	6 months from the law's entry into force	Provision 4
Standard guaranteed off-take contract	MF jointly with MENR	After adoption of L2 registry rules	Appendix C

## A.8. Objectives and Expected Outcomes

The recommended amendments are aimed at achieving the following objectives:

- 1. Creating a fully-fledged three-tier system** of 'green' registries (L1→L2→L3) ensuring traceability of 'green' status from technology to specific public procurement;
- 2. Enshrining cascading verification** as a legislative mechanism for preventing greenwashing in public procurement;
- 3. Integrating environmental registries with the procurement portal**, ensuring automatic verification and monitoring;
- 4. Creating the legal basis for the environmental discount** in the tender evaluation formula (implementing the sustainable procurement principle, Art. 5(1)(8) of Law No. 106-VIII of 01.07.2024, as amended by Law No. 188-VII of 19.05.2025);
- 5. Creating guaranteed market demand** for products from production and consumption waste through the off-take contract mechanism (Art. 16(3)(43) of Law No. 106-VIII of 01.07.2024, as amended by Law No. 188-VII of 19.05.2025) and the environmental discount;
- 6. Contributing to the Waste Management Concept implementation** regarding target indicators for recycling industrial and consumer waste (Government Decree of the RK No. 1201 of 31.12.2025).

## A.9. Recommended Adoption Procedure

**Step 1.** MENR, based on legal monitoring results, submits a proposal to the Ministry of Justice of the RK for inclusion in the Government Legislative Plan (Art. 16, para. 4-1 of the Law 'On Legal Acts', as amended by Law of the RK No. 157-VIII of 13.01.2025).

**Step 2a.** MENR develops a Regulatory Policy Consultation Document (RPCD) pursuant to the form of Appendix 1 to the Rules on Legislative Work of the Government of the RK (Government Decree No. 907 of 29.12.2016, form introduced by Government Decree No. 1082 of 28.12.2022). The RPCD includes 12 mandatory sections: (1) problem description, (2) analysis of the current situation and international experience, (3) proposed solutions, (4) impact on social, entrepreneurial and environmental spheres and the budget, (5) expected results, (6) implementation mechanisms, (7) risks, (8) target groups, (9) public consultation method, (10) results of public consultation, (11) structure and content of the draft law, (12) effectiveness indicators. This Policy Paper (Sections 1–6 and Appendix A) constitutes a ready analytical basis for 7 of the 12 RPCD sections.

**Step 2b.** Following approval of the RPCD by the Inter-Agency Commission on Legislative Activities, MENR establishes a working group and develops the draft law in accordance with Chapter 5 of the Law 'On Legal Acts' No. 480-V (as amended by Law No. 157-VIII of 13.01.2025), including: explanatory note, comparative table in the form of Appendix 2 to GD No. 907 (introduced by GD No. 1082) and scientific legal review.

**Step 3.** Public consultation on the RPCD on the open NLA internet portal (no less than 15 working days), obtaining conclusions from the NCE 'Atameken' and expert councils; Regulatory Impact Assessment (RIA) pursuant to Articles 82–83 of the Entrepreneurial Code of the RK (GD No. 907, clause 4(10)); coordination with interested government bodies (MF, MNE, MIC) in accordance with the Regulations of the Government of the RK (GD No. 10 of 06.01.2023); public consultation on the draft law pursuant to Art. 20 of the Law 'On Legal Acts'.

**Step 4.** Obtaining a legal opinion from the Ministry of Justice of the RK on the draft law (legal expertise for conformity with the Constitution and laws of the RK) pursuant to the Rules on Legislative Work of the Government of the RK (GD No. 907, clause 4(6)–(8)) and the Regulations of the Government of the RK (GD No. 10 of 06.01.2023, para. 40(1)); coordination with the Administration of the President of the RK (GD No. 907, clause 4(17)); submission of the draft law to the Mazhilis of the Parliament of the RK as a Government legislative initiative (Art. 29 of the Law 'On Legal Acts' No. 480-V). Note: state registration with the justice authorities (Order of the MJ No. 464 of 05.07.2023) applies to subordinate normative legal acts (Step 5), not to draft laws.

**Step 5.** In parallel with the draft law's passage through Parliament – preparation of subordinate acts (section A.7) under the procedure of Order of the MJ No. 464 of 05.07.2023, to ensure their adoption within 6 months of the law's entry into force.

**Recommended timeline:** inclusion in the 2027 Legislative Plan within Phase 1 (2026–2027) of this Policy Paper implementation. The full cycle from RPCD to law adoption is estimated at 12–18 months accounting for the mandatory procedures under GD No. 907.

# Appendix B. Recommendations for integrating the environmental discount into the rating-point system of public procurement

## B.1. Problem: Absence of an environmental parameter in the RPS Formula

Since 1 January 2025, the Republic of Kazakhstan has implemented a rating-point system (RPS) for conducting tenders for design services and construction works procurement. The system is automated on the [gozakup.gov.kz](http://gozakup.gov.kz) web portal and determines the winner based on the notional price, calculated using the formula derived from paragraph 217 (criteria) and paragraphs 222–271-1 (notional discount calculation methodology) of the Public Procurement Rules (Order of the Minister of Finance of the RK of October 9, 2024, No. 687, as amended by Order of MF RK No. 321 of 24.06.2025).

**Current notional price formula:**

$$NP = BP \times (100 - Dq - Do) / 100$$

where NP (Notional Price) – the evaluated (notional) bid price; BP (Bid Price) – participant’s price bid; Dq (Discount, qualification) – notional discounts for qualification criteria (work experience up to 10%, tax payment indicator up to 3%, registry of Kazakhstani manufacturers 3%, etc.); Do (Discount, other) – other notional discounts (territorial criteria up to 2%, audited financial statements up to 2%, etc.) net of negative values (paras. 222–271-1 of Rules No. 687). The tender winner is the participant with the lowest notional price.

**Operating mechanism:** discounts reduce the notional price NP compared to the price bid BP, creating a competitive advantage for suppliers who score higher on criteria. The higher the total discount, the lower the notional price.

This formula accounts for price, qualification, and reputation factors but does not contain an environmental parameter. A contractor using verified ‘green’ materials from the IGTPC L2 registry receives no competitive advantage. The principle of ‘developing sustainable public procurement’ (sub. 8, para. 1, Art. 5 of Law No. 106-VIII of 01.07.2024, as amended by Law No. 188-VII of 19.05.2025) remains unimplemented in the RPS mechanism.

## B.2. Legal grounds for amendments

The Public Procurement Rules, including the RPS formula, are approved by Order of the Minister of Finance – a subordinate normative legal act. According to the Law of the RK ‘On Legal Acts’ (of 6 April 2016, No. 480-V), the procedure for developing subordinate normative legal acts is established by Art. 18(1) (as amended by Law of the RK No. 157-VIII of 13.01.2025); developers are the authorised central executive bodies acting within their competence.

In this regard, this Appendix does not contain a draft Order of the Minister of Finance but presents an analytical justification and recommendations on the content of amendments to the Public Procurement Rules, which may be used by the Ministry of Finance of the RK in preparing the corresponding subordinate act.

**Recommended developer:** Ministry of Finance of the RK as the authorised body in the field of public procurement.

**Subject of amendments:** Paragraph 13 (Clause 217) of the Public Procurement Rules (Order of MF of the RK of October 9, 2024, No. 687, as amended by Order of MF RK No. 321 of 24.06.2025) – criteria affecting competitive price offers.

**Legal basis:** Art. 5(1)(8) of the Law of the RK of July 1, 2024, No. 106-VIII ‘On Public Procurement’ (as amended by Law No. 188-VII of 19.05.2025) (principle of developing sustainable public procurement). The Law is framework-based, and specific criteria are established by subordinate acts, requiring no amendments to the Law itself.

**Link to Appendix A:** the environmental discount relies on the L2 registry ('green' products), the creation of which is recommended through amendments to Article 130 of the Environmental Code (see Appendix A, Provisions 1 and 4). Adoption of the MF order is recommended in parallel with or after the entry into force of said amendments.

### B.3. Recommended modification of the Notional Price Formula

It is recommended to introduce an additional parameter into the RPS formula – a notional discount for environmental characteristics (De):

$$NP = BP \times (100 - Dq - Do - De) / 100$$

where additionally: De – notional discount for environmental characteristics (from 0% to 5%).

**Operating mechanism:** adding the De parameter increases the total discount, which reduces the notional price NP. When comparing two participants with identical price bids BP, the winner is the one with the lower notional price, i.e., the one with a higher De value. Thus, the environmental discount creates a competitive advantage for 'green' suppliers.

**Table 49. Comparison of current and recommended formulas**

Parameter	Current formula	Recommended formula
<b>Formula</b>	$NP = BP \times (100 - Dq - Do) / 100$	$NP = BP \times (100 - Dq - Do - De) / 100$
<b>Dq (work experience)</b>	Up to 10%	Up to 10% (no changes)
<b>Do (other discounts)</b>	Per RPS criteria	Per RPS criteria (no changes)
<b>De (ecology)</b>	–	Up to 5% (new parameter)
<b>Max. total discount</b>	Determined by criteria	+ 5% for ecology

### B.4. Recommended Methodology for Calculating the Environmental Discount

#### B.4.1. Green Value Share (GVS) Indicator

It is recommended that the De discount be determined automatically by the goszakup.gov.kz web portal based on the Green Value Share (GVS) indicator:

$$GVS = (\sum \text{Value of L2 Registry materials} / \text{Total value of ALL contract materials}) \times 100\%$$

**Denominator justification.** The GVS indicator is calculated as the share of 'green' materials in the total cost of all contract materials (not in the total contract value). According to cost estimation practice, the cost of materials, products, and structures constitutes 50–70% of the estimated CIW (Construction and Installation Works) cost (per the cost estimation regulatory framework of MIC RK; the remainder being labor, machinery operation, overhead costs, estimated profit). Using the total contract value in the denominator would make the upper scale levels (GVS ≥ 80% and GVS ≥ 90%) physically unattainable: even with 100% 'green' materials, the GVS indicator would not exceed 50–70%, which would undermine the discount's incentive effect.

The calculation is performed based on data provided by the participant in the bid (the materials registry is a mandatory element of construction works bids pursuant to Chapter 10 of Rules No. 687, as amended by MF RK Order No. 321 of 24.06.2025), with automatic verification against the 'green' products registry (L2) through API integration goszakup.gov.kz ↔ IGTIPC (see Appendix A, Provision 4).

**GVS Calculation Mechanism.** The GVS indicator is a tool for aggregating verified L2 environmental status at the contract level. The mechanism operates as follows: (1) the manufacturer applies for product inclusion in the IGTIPC L2 registry; (2) IGTIPC verifies compliance with criteria (cascading linkage with L1, safety standards, circularity) and includes the product in the L2 registry; (3) when submitting a bid on goszakup.gov.

kz, the contractor lists L2 registry materials in the construction materials schedule; (4) GVS is automatically calculated as the share of L2 material costs in the total contract material costs. Thus, GVS ensures scaling of registry verification to the contract procurement level.

#### B.4.2. Recommended Environmental Discount Scale

The environmental discount scale is the sole mechanism for calculating De. The discount is determined exclusively based on the GVS indicator, verified through the IGTIPC L2 registry. Other criteria (management system certificates, international building ratings, etc.) are not applied, as they do not ensure cascading L1→L2 verification and are not amenable to automatic verification through the goszakup.gov.kz API.

**Table 50. Recommended Environmental Discount Scale**

GVS Score	Discount De	Justification
GVS < 20%	0%	Minimum threshold below which the environmental effect is insignificant
GVS 20–39%	1%	Basic level: corresponds to the minimum circularity criterion ( $\geq 20\%$ secondary materials; corresponds to end-of-waste criteria under Art. 333 of the Environmental Code of the RK)
GVS 40–59%	2%	Advanced level: significant share of materials from secondary raw materials
GVS 60–79%	3%	High level: majority of materials from recycled waste
GVS 80–89%	4%	High level: contractor is systematically oriented toward ‘green’ materials
GVS $\geq 90\%$	5%	Maximum level: virtually complete transition to L2 registry materials and technologies

**Maximum De discount: 5.0%.** The limit is proportionate to current RPS parameters (Dq up to 10%, Do per criteria) and is subject to calibration based on pilot testing results (see B.8).

#### B.5. Recommended Automation Algorithm

Full automation of the environmental discount calculation on the goszakup.gov.kz web portal is recommended.

**Table 51. Recommended Automation Algorithm**

Step	Action	Performed by
1	Specifying the list of construction materials with the cost of each item in the bid	Tender participant
2	Automatic verification via IGTIPC API: which of the specified materials are included in the L2 ‘green’ products registry	Web portal goszakup.gov.kz
3	Calculation of total cost of all contract materials	Web portal (automatically)
4	GVS calculation = L2 materials cost / total materials cost $\times 100\%$	Web portal (automatically)
5	Assigning De discount per scale (B.4.2): 0% / 1% / 2% / 3% / 4% / 5%	Web portal (automatically)
6	Notional price calculation $NP = BP \times (100 - Dq - Do - De) / 100$ ; winner determined by lowest NP	Web portal (automatically)

**Anti-corruption effect:** full automation of the calculation eliminates assessment subjectivity. The environmental status of materials is confirmed by objective data from the L2 registry, verified through API integration, rather than by participant declarations or documents subject to subjective review.

## B.6. Illustrative calculation example

To demonstrate the mechanism, consider a comparison of two tender participants for construction works (hypothetical data).

**Table 52. Sample calculation, comparison of two tender participants**

Parameter	Participant A (with 'green' materials)	Participant B (without 'green' materials)
Price bid (BP)	KZT 100 million	KZT 100 million
Experience discount (Dq)	8%	8%
Other discounts (Do)	3%	3%
Total materials cost	KZT 60 million (60% of BP)	KZT 60 million (60% of BP)
Materials from L2 registry	KZT 27 million	0
GVS	$27 / 60 \times 100\% = 45\%$	0%
De (environmental discount)	2% (GVS 40–59%)	0%
Notional price calculation NP	$100 \times (100 - 8 - 3 - 2) / 100 = \text{KZT } 87.0 \text{ million}$	$100 \times (100 - 8 - 3 - 0) / 100 = \text{KZT } 89.0 \text{ million}$
Outcome	<b>WINNER</b>	–

**Interpretation:** Participant A, using verified 'green' materials from the IGTIPC L2 registry, receives a notional price of KZT 87.0 million – lower than Participant B (KZT 89.0 million). With identical price bids, the 2% environmental discount ensures Participant A's tender victory. The contract is concluded at the price bid amount (KZT 100 million) excluding notional discounts.

This example demonstrates that the environmental discount creates a real competitive advantage for suppliers using waste-derived materials, without increasing the contract cost for the procuring entity.

## B.7. Linkage to other GPP system elements

**Table 53. Links to other GPP system elements in Policy Paper 1**

GPP System Element	Link to Environmental Discount	Policy Paper Appendix
L2 Registry ('green' products)	Sole data source for GVS calculation: only materials included in L2 are considered in discount calculation	Appendix A, Provision 1
API integration goszakup ↔ IGTIPC	Ensures real-time automatic 'green' status verification upon bid submission	Appendix A, Provision 4
Cascading verification L1→L2→L3	Guarantees the discount applies only to products with a verified technological foundation (L1→L2)	Appendix A, Provision 3
Off-take contract	Environmental discount complements the guaranteed off-take mechanism: discount – for competitive procurement, off-take – for single-source procurement (Art. 16(3)(43) of Law No. 106-VIII of 01.07.2024, as amended by Law No. 188-VII of 19.05.2025)	Appendix C

GPP System Element	Link to Environmental Discount	Policy Paper Appendix
<b>Anti-greenwashing</b>	Supply of materials not conforming to declared L2 status triggers contractual sanctions (penalty, replacement, termination), complementing formula protection – linking De exclusively to L2 registry data	Appendix C, section C.4.5

## B.8. Adoption Recommendations

**Recommended developer:** Ministry of Finance of the RK.

**Form:** Order of the Minister of Finance amending the Public Procurement Rules (Order of October 9, 2024, No. 687, as amended by Order of MF RK No. 321 of 24.06.2025), supplementing paragraph 217 with an environmental criterion (De) and adding a new paragraph on De calculation methodology.

**Coordination:** with MENR (as L1–L3 registries operator through IGTIPC), MIC (as authorised body in construction), MNE; conclusion of the National Chamber of Entrepreneurs (NCE ‘Atameken’); anti-corruption review; public consultation; state registration with the Ministry of Justice of the RK (MJ Order No. 464 of 05.07.2023).

**Precondition:** adoption of amendments to Article 130 of the Environmental Code (Appendix A), creating the legal basis for L2 and L3 registries on which the discount is calculated.

**Pilot testing:** piloting the environmental discount in Pavlodar, Zhambyl, and Karaganda regions is recommended (see Appendix F) before nationwide rollout.

**Timeline:** preparation and adoption of the MF Order is recommended within Phase 1 (2026–2027) of this Policy Paper implementation, in parallel with amendments to Article 130 of the Environmental Code (Appendix A).

# Appendix C. Recommendations for Developing a Standard Guaranteed Off-take Contract

## C.1. The 'Valley of Death' Problem and the Purpose of the Contract

The consumer waste (MSW) recycling sector in Kazakhstan is predominantly represented by small and medium enterprises (SMEs) that face a systemic market failure – the 'valley of death' blocking the emergence of new secondary raw material products:

**1) Lack of access to raw materials.** MSW flows from landfills are de facto concentrated under municipal enterprises, limiting SME startups' access to a stable resource base for recycling consumer waste into construction materials.

**2) High R&D risks.** The banking sector does not finance experimental developments, and venture capital for Deep Tech (advanced recycling technologies) in Kazakhstan is virtually absent.

**3) Public procurement entry barriers.** Procuring entities (akimats) cannot purchase innovative products without a confirmed operational track record due to budget risks and the absence of a regulatory framework.

The guaranteed off-take contract is an instrument for overcoming this 'valley of death.' It serves as a linking mechanism between the IGTPC cascading verification system (L1–L2–L3 registries) and the public procurement system (goszakup.gov.kz), transforming environmental verification into guaranteed market demand.

Without an off-take contract, the GPP system remains incomplete: an enterprise can obtain technology (L1) and product (L2) registration but has no mechanism guaranteeing procurement. The environmental discount in the RPS formula creates a price advantage but not an obligation. The off-take contract fills this gap by creating the procuring entity's obligation to purchase a specified volume of 'green' goods.

**Legal nature of the contract.** This Policy Paper recommends that the standard guaranteed off-take contract be developed and approved by the authorised body in the field of public procurement (Ministry of Finance of the RK) jointly with the authorised body in the field of environmental protection (MENR) with the involvement of IGTPC as the operator of cascading registries. Below are recommendations on the content, architecture, and mechanism for creating such a contract.

## C.2. Pre-commercial Procurement (PCP) mechanism as the contract origin

To overcome the SME 'valley of death' without creating risky state venture funds, the introduction of the 'Green Regulatory Sandbox' mechanism based on the Pre-Commercial Procurement (PCP) instrument is proposed.

The PCP mechanism transforms the procurement process from purchasing a finished product into procuring a solution development process. The state acts not as a passive buyer but as an innovation initiator, sharing risks with the private sector through existing institutions (EPR Operator and IGTPC).

The process is implemented in three stages with phased participant selection.

**Table 54. Pre-commercial procurement mechanism**

PCP Phase	Content	Participants	Funding
Phase 1: Concept	Grant funding for feasibility study development of production and consumption waste recycling technology into construction materials	10–15 applicants	EPR Operator (Art. 388(9) (10) of the Environmental Code of the RK)

PCP Phase	Content	Participants	Funding
Phase 2: Prototype	Funding for prototype product development and laboratory testing	3–5 finalists	EPR Operator (Art. 388(9) (10) of the Environmental Code of the RK)
Phase 3: Pilot	Pilot deployment at an urban infrastructure facility with field testing and IGTIPC verification	1–2 winners	EPR Operator + akimat (operation)

**Key principle:** at each stage of the funnel, projects with insufficient technical or economic potential are eliminated. Only solutions that have passed IGTIPC verification and demonstrated viability under real operating conditions advance to Phase 3.

**PCP Result:** the competition winner, whose products are included in the L2 registry, concludes a long-term off-take contract (guaranteed product purchase agreement) with the akimat. The recommendations below address the architecture of this contract.

### C.3. Recommended Legal Framework for the Contract

The following regulatory grounds are recommended for the standard contract preamble:

- Article 130 of the Environmental Code of the RK** – legal basis for maintaining ‘green’ technology, product, and service registries that form the foundation of cascading verification;
- Article 16, paragraph 3, sub-paragraph 43 of the Law of the RK of July 1, 2024, No. 106-VIII ‘On Public Procurement’ (as amended by Law No. 188-VII of 19.05.2025)** – directly provides for the procurement of goods that are the subject of off-take contracts via single-source method. This is the key provision enabling the akimat to conclude a contract without a competitive procedure;
- Article 5, paragraph 1, subparagraph 8 of the same Law** (sustainable procurement principle) – legal basis for including environmental criteria in public procurement procedures;
- Art. 388(9) of the Environmental Code of the RK** – funding experimental, pilot, design, and research activities is a statutory function of the EPR Operator (JSC ‘Zhasyl Damu’). This reclassifies the allocation of funds from ‘venture investment’ to ‘targeted EPR obligation fulfilment,’ removing administrative and criminal risks from government officials in case of individual startup failures;
- Concept for the Transition of the RK to a ‘Green Economy’** (Presidential Decree of the RK of 30.05.2013 No. 577 as amended by Decree of 10.06.2024 No. 568) – strategic goals for implementing circular economy principles;
- Waste Management Concept of the RK for 2026–2030** (Government Decree of the RK of 31.12.2025 No. 1201) – target indicators for recycling production and consumption waste and generating demand for secondary raw materials through green public procurement;
- Article 150 of the Civil Code of the RK** (transactions subject to a condition precedent) – recommended mechanism for linking procurer obligations to the fact of product certification in the L2 registry.

### C.4. Recommended Key Contract Mechanisms

#### C.4.1. Take-or-Pay Mechanism

The central mechanism of the contract is the procuring entity’s obligation to purchase a minimum guaranteed volume of ‘green’ goods during the contract term. This creates demand predictability, enabling recycling enterprises to attract investments for scaling production. The off-take contract also serves as collateral for attracting bank financing.

**Table 55. Recommended parameters for Take-or-Pay mechanism**

Parameter	Recommendation	Justification
Minimum guaranteed volume	No less than 70–80% of the procurer’s planned demand	Balance between supplier guarantee and procurer flexibility
Contract term	No less than 3 years	Sufficient horizon for R&D and certification investment payback
Compensation for non-acceptance	Fixed percentage of the non-accepted volume value	Incentivises the procurer to fulfil obligations
Price indexation	Annual CPI (Consumer Price Index)-linked or formula-based pricing	Protection against inflation risks for long-term contracts

### **C.4.2. Cascading Verification of ‘Green’ Status**

The contract must ensure a direct link with the IGTIPC three-tier registry system. The following requirements for supplied goods are recommended:

- a. Mandatory inclusion in the L2 registry** (green products registry) at the time of each delivery. The L2 registration number is specified in the specification and verified upon acceptance;
- b. Confirmed cascading linkage with a technology from the L1 registry** – the principle whereby a product is included in L2 only upon confirmed linkage with a verified technology. This is a structural barrier against greenwashing;
- c. Compliance with circularity criteria:** secondary material content  $\geq 20\%$ , use of priority production and consumption waste types (see Appendix D and section C.7 of this Appendix), suitability for recycling at end of life;
- d. Possession of a valid eco-passport** – a document confirming the product’s compliance with L2 registry criteria and containing information on cascading verification, secondary material composition, and waste source.

### **C.4.3. Innovation Voucher**

To ensure the financial sustainability of IGTIPC as the registry operator and the independence of expertise, the introduction of the ‘Innovation Voucher’ mechanism is recommended – a dedicated line item in the EPR grant budget, directed by the grantee towards payment for IGTIPC technical expertise and field testing services:

**Principle:** the EPR Operator grant budget allocated to the PCP competition participant enterprise includes a protected targeted expenditure line for verification.

**Usage:** these funds may be directed by the grantee exclusively toward payment for IGTIPC services for conducting final technical expertise and field testing.

**Effect:** the mechanism ensures the quality of technology selection for the L2 registry without burdening akimat budgets and ensures IGTIPC’s financial independence from interested parties.

The standard contract should provide that re-verification costs (in case of product updates or L2 registry registration renewal) are borne by the supplier and may be covered from ‘Innovation Voucher’ funds if not fully expended.

#### C.4.4. API Integration with the Public Procurement Portal

A mechanism for automatic verification of the product's 'green' status through information exchange between the IGTIPC database and the public procurement web portal (goszakup.gov.kz) is recommended. This will enable:

- automatic verification of the L2 registration number when forming a procurement application;
- ensuring real-time product status currency (if a product is excluded from the L2 registry, the system automatically blocks application of the environmental discount);
- building an analytical database for monitoring 'green' procurement volumes.

**Technical implementation** of API integration is provided for in the draft amendments to Article 130 of the Environmental Code (see Appendix A, paragraph 2-4 of the draft law).

#### C.4.5. Special Liability for Greenwashing

It is recommended to include enhanced supplier liability in the contract for delivery of goods not meeting declared environmental characteristics. This is a key anti-corruption element of the GPP system.

**Table 56. Recommended sanctions for greenwashing**

Violation	Recommended Sanction
Delivery of goods not included in the L2 registry	Reimbursement of the difference between 'green' and conventional product prices + fine
Violation of L1→L2 cascading linkage	Fine + compensation for damages, including loss of environmental discount
Non-compliance with circularity criteria	Product replacement + compensation for expertise costs
Falsification of eco-passport	Contract termination + referral of materials to authorised bodies

**Important:** exclusion of a product from the L2 registry due to supplier fault is recommended not to be recognised as force majeure. This creates an incentive for the supplier to maintain product compliance with requirements throughout the entire contract period.

#### C.4.6. Off-Take Contract as a Transaction Subject to a Condition Precedent

It is recommended to structure the contract as a transaction subject to a condition precedent in accordance with Article 150 of the Civil Code of the RK. The procuring entity's (akimat's) purchase obligations take effect only upon confirmation of product certification in the IGTIPC L2 registry. This ensures:

- budget protection: the akimat makes no advance payments during the development stage; budget funds begin to be expended only when the product has already proven its viability and safety (functional risk is covered at the R&D stage using EPR funds);
- supplier incentive: the existence of a 'conditional' contract serves as a basis for attracting financing for production scaling;
- operational guarantees: upon contract activation, standard performance assurance instruments (bank guarantees, liability insurance) provided for by the Public Procurement Rules apply.

### C.5. Recommended Standard Contract Structure

The standard contract is recommended to be structured as a main agreement and four appendix forms.

**Table 57. Recommended standard contract structure**

Element	Content	Purpose
Main agreement (Art. 1–11)	Subject, take-or-pay, price, verification, liability, force majeure, details	Legal framework of parties' obligations
Form A-1: Product Specification	Name, L2 registry number, volume, price, GOST/ST RK, secondary material content	Technical specification of the contract subject
Form A-2: Circularity Criteria	Three criteria ( $\geq 20\%$ secondary raw materials, use of priority waste types, recyclability) + supporting documents	Verification checklist for goods acceptance
Form A-3: Delivery Schedule	Batch number, name, volume, delivery time and location	Contract execution calendar plan
Form A-4: Eco-Passport	L2 number, L1→L2 cascading linkage, circularity criteria, level (Basic/Advanced/Premium)	Document accompanying each product batch

### C.6. Participant Interaction Scheme: From PCP Competition to Contract Execution

The guaranteed off-take contract arises as a result of the PCP competition and operates within the following sequence:

**Phase 1 (PCP Competition – Concept).** EPR Operator (JSC 'Zhasyl Damu') announces a competition for developing technologies to recycle consumer waste (MSW) into construction materials. Grant funding for feasibility studies for 10–15 participants. Legal basis: Art. 388(9) of the Environmental Code of the RK.

**Phase 2 (PCP Competition – Prototype).** Funding for prototype development for 3–5 finalists. The grant budget includes an 'Innovation Voucher' – a dedicated line item in the EPR grant budget directed towards payment for IGTIPC technical expertise and field testing services.

**Phase 3 (PCP Competition – Pilot).** Pilot deployment at an urban infrastructure facility. The technology is registered in the L1 registry, the product undergoes field testing and is included in the L2 registry with eco-passport issuance. IGTIPC issues a compliance certificate.

**Phase 4 (Contract Conclusion).** The PCP competition winner concludes an off-take contract with the akimat pursuant to Art. 16, para. 3, sub. 43 of the Law of the RK of July 1, 2024, No. 106-VIII 'On Public Procurement' (as amended by Law No. 188-VII of 19.05.2025) (single-source procurement). The contract is structured as a transaction subject to a condition precedent (Art. 150 of the CC of the RK): the akimat's obligations take effect upon confirmation of certification in the L2 registry.

**Phase 5 (Execution).** The enterprise delivers goods under the off-take contract (single-source procurement). Each batch is verified via the API [gozakup.gov.kz](http://gozakup.gov.kz) ↔ IGTIPC. The verified L2 status of delivered materials enables contractors to use them in subsequent competitive construction works procurement with the environmental discount applied (Appendix B).

**Result:** the mechanism combines the resources of the EPR Operator (funding risky stages), IGTIPC expertise (technology verification), and akimat needs (guaranteed demand), forming a closed loop of innovation support without creating new government structures.

### C.7. Priority Production and Consumption Waste

The contract circularity criteria cover two classes of waste. The contract must require a waste origin certificate indicating the type and source of raw materials. Types of construction materials from industrial waste are listed in Appendix D, subsection D.3. Specific construction applications of consumer waste (MSW) will be determined based on PCP competition results within Phase 1 (2026–2027).

**Table 58. Industrial waste (Category I–II facilities)**

Nº	Waste Type	Main sources
1	CHP coal ash and slag	Pavlodar, Ekibastuz
2	Metallurgical slag GGBS	Karaganda, Temirtau
3	Steelmaking slag (EAF (Electric Arc Furnace)/converter)	ERG, Qarmet, KSP Steel
4	Overburden rock	Kazzinc, ERG
5	Technogenic soils	Industrial sites
6	Phosphogypsum	Kazphosphate (17 million t)
7	Synthetic gypsum FGD	Power plants with desulphurisation
8	Reclaimed asphalt pavement RAP	Road construction
9	Rubber crumb from tires	Automotive industry

**Table 59. Consumer waste (MSW)**

Nº	Waste Type	Product examples
10	Recycled plastic (PET, LDPE, PP)	Small architectural forms, polymer-sand tiles, geotextile
11	Recycled glass	Glass composite rebar, foam glass (thermal insulation)
12	Recycled cellulose	Eco-wool (cellulose insulation), fibre cement
13	Recycled rubber (end-of-life tires)	Safety surfacing, rubber tiles, rubberised asphalt modifier
14	Recycled textile	Thermal insulation, acoustic panels, geotextiles

Expanding coverage to consumer waste (items 10–14 of the table above) ensures support for the MSW recycling SME sector, which is the primary beneficiary of the PCP mechanism and the ‘Green Regulatory Sandbox.’ Product examples in the table are indicative; specific construction materials, standards, and green criteria for inclusion in the IGTIPC L2 registry will be developed based on PCP Phase 1 results.

## C.8. Recommendations for Development and Approval

**Authorised development body:** Ministry of Finance of the RK (as the authorised body in public procurement) jointly with MENR and with IGTIPC participation.

**Form of approval:** Order of the authorised body approving the standard form of the guaranteed off-take contract for ‘green’ goods, with inclusion in the subordinate regulatory framework of the Law ‘On Public Procurement.’

**Coordination:** conclusion of the National Chamber of Entrepreneurs (NCE ‘Atameken’); anti-corruption review; public consultation; state registration with the Ministry of Justice of the RK (MJ Order No. 464 of 05.07.2023).

**Pilot application:** Pilot testing of the standard contract is recommended within pilot projects in Pavlodar, Zhambyl, and Karaganda regions (industrial waste) and in Astana/Almaty (consumer waste) prior to national-level approval (see Appendix F).

**Timeline:** Development and approval of the standard contract is recommended within Phase 1 (2026–2027) of this Policy Paper implementation, in parallel with the adoption of amendments to Article 130 of the Environmental Code (Appendix A) and the MF order on the environmental discount (Appendix B).

### C.9. Alignment with the Waste Management Concept

The proposed mechanism is a concrete instrument for implementing the Concept for Management of All Types of Waste of the Republic of Kazakhstan for 2026–2030 (Government Decree No. 1201 of 31.12.2025).

**Table 60. Mechanism for alignment with the Waste Management Concept**

Concept Provision	Mechanism Element
'Green business development: SME support in waste management' (Principle 4)	PCP mechanism directly targets SME support in the consumer waste (MSW) recycling sector
'Develop the market for products, secondary raw materials, and materials from secondary raw materials – through 'green' public procurement, demand generation'	Off-take contract creates guaranteed demand through public procurement
'Blended financial models, especially for SMEs'	Separation of funding sources (EPR + akimat)
'Technological support for SMEs'	Grant-based R&D funding through EPR Operator (Phases 1–3)
'Update the green technologies registry'	Expanding IGTIPC mandate (L1→L2→L3)
'Green contracts as an economic incentive instrument'	Off-take contract is a form of 'green contract'

# Appendix D. Construction materials for Green Public Procurement

This Appendix contains systematised data on construction materials classified for the purposes of green public procurement in the construction sector. The Appendix focuses on creating a market for construction materials from industrial waste (items 42–44, addressed in D.3); construction materials from consumer waste (items 45–49) are addressed separately in Appendix C, section C.7. Conventional materials are included as a substitution baseline. Appendix structure: D.1 – classification by categories (covering all 20 categories of the registry); D.2 – baseline conventional materials (6 items) substitutable with recycled counterparts; D.3 – construction materials from industrial waste (items 42–44); D.4 – links to other appendices. For each material the following are provided: key RK standards, green criteria for the IGTIPC (International Green Technologies and Investment Projects Center) L2 registry, and recommended procurement clauses for the Goszakup.gov.kz platform.

## D.1. Classification of Materials by Category

Below is the full classification of construction materials across 20 categories (12 established + 3 developing + 5 emerging). Within this document (focused on creating a market for construction materials from secondary raw materials), subsection D.2 details only 6 base materials directly substitutable by recycled equivalents from subsections D.3 (industrial waste, items 42–44). Full technical specifications for all 41 standard items – including international standards mapping (EU, Japan, Asia), domestic capacity analysis, cost premium analysis (international/national/ex-factory prices), market readiness assessment, and per-unit carbon benefit quantification – are provided in the companion document: Handbook of Construction Materials and Engineering Equipment for Green Public Procurement – Technical Background Document to Policy Paper 1 (EU SWITCH-Asia Policy Support Component, March 2026; Dr F. Karaca, principal author).

**Table 61. Full classification of construction materials across 20 categories**

Category Code	Construction Materials Category Name	Registry Items (Table 62)	No. of Items	Category Status
A	Timber and Wood Products	5, 6, 15, 22	4	Market established
B	Concrete, Cement, and Mortars	1, 2, 8, 19, 21	5	Market established
C	Steel and Metal Structures	3, 4, 9	3	Market established
D	Insulation and Waterproofing	10, 11, 12, 27, 35	5	Market established
E	Facade Systems and Glazing	14, 16, 17	3	Market established
F	Flooring	23, 24	2	Market established
G	Ceramics, Gypsum, and Plaster Materials	18, 20	2	Market established
H	Paints and Coatings	26	1	Market established
I	Engineering Systems (HVAC (Heating, Ventilation, and Air Conditioning), Lighting, Plumbing)	28, 29, 30, 31, 32	5	Market established
K	Renewable Energy	36, 37	2	Market established

Category Code	Construction Materials Category Name	Registry Items (Table 62)	No. of Items	Category Status
L	Landscape and Geotechnical Materials	7, 13, 38, 39, 40	5	Market established
M	Specialty Materials (Fire Protection, Water Treatment, Temporary)	25, 33, 34, 41	4	Market established
N	Road Materials from Industrial Waste	42	1	Market developing (industrial waste)
O	Aggregates from Technogenic Raw Materials	43	1	Market developing (industrial waste)
P	Gypsum Materials from Phosphogypsum	44	1	Market developing (industrial waste)
R	Recycled Plastic Construction Materials	45 *	1	Market emerging (consumer waste) *
S	Recycled Glass Construction Materials	46 *	1	Market emerging (consumer waste) *
T	Recycled Cellulose Insulation Materials	47 *	1	Market emerging (consumer waste) *
U	Recycled Rubber Construction Materials	48 *	1	Market emerging (consumer waste) *
V	Recycled Textile Insulation Materials	49 *	1	Market emerging (consumer waste) *

'Category Status' column values: 'Market established' – category includes construction materials for which standards have been approved in Kazakhstan and which are already available on the market through established supply chains; full technical profiles are provided in the accompanying Technical Handbook (41 standard positions). 'Market developing (industrial waste)' – category includes materials from industrial waste of the RK for which production technologies are available and standards are approved; production is underway or commenced, while market expansion in construction applications is supported through Pillar 1 (environmental discount up to 5% in the RPS) of this Policy Paper. Detailed profiles are provided in Appendix D.3. 'Market emerging (consumer waste)' \* – category includes materials from consumer waste (MSW), production of which is envisaged under Phase 1 of this Policy Paper implementation through PCP competitions (Section 3.3, Appendix C, section C.4) and off-take contracts (Appendix C). Items marked with an asterisk (\*) will be activated in the IGTIPC L2 registry following PCP results in 2027–2028; priority types of consumer waste are listed in Appendix C, section C.7.

Below is the full registry of construction materials indicating the section containing detailed information. 'D.2'–'D.3' – detailed in this Appendix; 'Cond. eco.' – conditionally eco-friendly construction materials (see note for definition).

**Table 62. Complete Construction Materials Registry (Items 1–49)**

Nº	Material Name	Detailed In
1	Concrete (ready-mix, precast)	D.2
2	Cement and binders	D.2
3	Reinforcement steel	Cond. eco.
4	Structural steel and metal framing	Cond. eco.
5	Structural timber (sawn lumber, CLT (Cross-Laminated Timber))	Cond. eco.
6	Engineered wood (plywood, OSB (Oriented Strand Board), MDF (Medium-Density Fibreboard))	Cond. eco.
7	Composite materials and FRP (structural/non-structural)	Cond. eco.
8	Concrete admixtures and chemical modifiers	Cond. eco.
9	Fasteners, anchors, and hardware	Cond. eco.
10	Waterproofing and moisture barriers	Cond. eco.
11	Thermal insulation (mineral wool, EPS (Expanded Polystyrene) / XPS (Extruded Polystyrene), cellulose, bio-)	Cond. eco.
12	Roofing membranes and waterproofing	Cond. eco.
13	Green roof systems (substrate, vegetation)	Cond. eco.
14	Facade cladding and composite panels	Cond. eco.
15	Exterior wood cladding and decking	Cond. eco.
16	Glazing – coated insulated glass units	Cond. eco.
17	Windows and doors (frames)	Cond. eco.
18	Plasterboard / gypsum boards	D.2
19	Plasters, mortars, and fillers	D.2
20	Ceramic tiles and masonry (bricks, blocks)	Cond. eco.
21	Screeds and levelling compounds (concrete/anhydrite)	Cond. eco.
22	Flooring – hardwood and engineered	Cond. eco.
23	Flooring – resilient (vinyl, PVC (Polyvinyl Chloride))	Cond. eco.
24	Raised floors and access systems	Cond. eco.
25	Acoustic panels and ceiling systems	Cond. eco.
26	Paints and Coatings	Cond. eco.
27	Adhesives, sealants, and mastics	Cond. eco.
28	HVAC equipment (air handling units, chillers)	Cond. eco.

Nº	Material Name	Detailed In
29	Lighting and lighting controls (LED)	Cond. eco.
30	Electrical cables and components	Cond. eco.
31	Sanitary equipment (toilets, faucets)	Cond. eco.
32	Pumps, valves, and hydraulic equipment	Cond. eco.
33	Water treatment and filtration systems (on-site)	Cond. eco.
34	Fire protection systems and materials (compounds, boards)	Cond. eco.
35	Sealants and fire protection compounds	Cond. eco.
36	Photovoltaic modules and mounting systems	Cond. eco.
37	Energy storage systems and batteries	Cond. eco.
38	Geotextiles and geosynthetic materials	Cond. eco.
39	Recycled aggregates and secondary materials (backfill)	D.2
40	Landscape materials (paving tiles, aggregates, soil)	D.2
41	Temporary works materials (formwork, scaffolding)	Cond. eco.
42	Road construction materials from industrial waste	D.3
43	Aggregates from overburden rock and technogenic sources	D.3
44	Gypsum binders and construction materials from phosphogypsum	D.3
45	Recycled plastic (PET, LDPE, PP)	C.7
46	Recycled glass	C.7
47	Recycled cellulose	C.7
48	Recycled rubber (end-of-life tires)	C.7
49	Recycled textile	C.7

Market readiness and carbon benefit summary for all 41 standard items is provided in the Technical Handbook (Block 2 – Market Readiness and Block 4 – Environmental Criteria of each material profile).

## D.2. Base materials substitutable with recycled analogues

Table D.2 defines the baseline of conventional construction materials that can be partially or fully substituted with recycled counterparts from items 42–44 (D.3). For each material, current RK standards, green criteria and procurement clauses are provided, along with a direct reference to the substituting item. This enables procurers on the Goszakup.gov.kz platform to see which conventional material can be replaced with secondary raw material products that have undergone IGTIPC cascading verification L1→L2. Abbreviations used in the table: SCM (supplementary cementitious materials); GGBS (ground granulated blast-furnace slag); EPD (Environmental Product Declaration); GWP (Global Warming Potential); VOC – volatile organic compounds.

**Table 63. Base materials substitutable with recycled analogues**

Nº	Material	Substituted by Item
1	Concrete (ready-mix, precast)	42, 43 (D.3)
2	Cement and binders	44 (D.3) – for binders in plastering and finishing works
18	Plasterboard / gypsum boards	44 (D.3)
19	Plasters, mortars, and fillers	44 (D.3)
39	Recycled aggregates and secondary materials (backfill)	42, 43 (D.3)
40	Landscape materials (paving tiles, aggregates, soil)	43 (D.3) – for recycled aggregates

International standards permitted in Kazakhstan for base materials are provided in the Technical Handbook (field 'International Standards Permitted in Kazakhstan' in each material profile).

Below are the recycled equivalents designed to partially or fully replace conventional materials listed in D.2. Subsection D.3 covers materials from industrial waste (items 42–44, status: Market developing).

### D.3. Construction Materials from Industrial Waste (Items 42–44)

Materials 42–44 are priorities for the GPP (green public procurement) system in construction, as they are directly linked to IGTPC L1→L2 cascading verification and the off-take contract mechanism (Appendix C). For these materials, expanded data are provided, including domestic potential, cost analysis, market readiness.

**Table 64. Material 42, Road-construction materials from industrial waste (coal ash/slag asphalt, Superpave (high-performance asphalt concrete design system), RAP (reclaimed asphalt pavement), rubber-modified asphalt)**

<b>KZ Standards</b>	GOST 31015-2002: Hot-mix asphalt and stone mastic asphalt. Technical specifications; ST RK 1225-2019: Road and airfield asphalt mixtures and asphalt concrete. Technical specifications; GOST 25592-91 / GOST 25592-2019: Coal ash/slag mixtures from thermal power plants for concrete. Technical specifications; ST RK 1216-2003: Black crushed stone-gravel-sand mixtures. Technical specifications; ST RK 1549-2006: Crushed stone-gravel-sand mixtures
<b>Green Criteria</b>	Minimum industrial waste content: ash/slag 15–30%, RAP (reclaimed asphalt pavement) 15–50%, crumb rubber 1–3%; source certification from ERG (Eurasian Resources Group)/Qarmet/KSP Steel/CHPs; material passport with waste traceability; compliance with the Waste Management Concept of RK; heavy metal leaching tests
<b>Environmental Effect</b>	Reduction of environmental burden by diverting coal ash/slag waste from disposal in ash dumps; reduction of primary natural material extraction (crushed stone, sand, bitumen); reduction of ash dump areas and decreased dust and methane emissions; integration of metallurgical grey sludge (EAF/ converter steelmaking slag; terminology of Concept GR No. 1201) into Superpave-class road material production (Waste Management Concept of RK 2026–2030, Government Resolution of RK dated 31.12.2025 No. 1201)

<b>Procurement Clause</b>	Road construction materials must contain at least 15% certified industrial waste (CHP ash/slag, metallurgical grey sludge (EAF/converter steelmaking slag; terminology of Concept GR No. 1201) per the Waste Management Concept, or RAP (reclaimed asphalt pavement)). The supplier must provide: (1) waste origin certificate, (2) material passport per GOST 31015-2002 or ST RK 1225-2019, (3) environmental safety test report.
<b>Domestic Potential</b>	HIGH – ERG (Eurasian Resources Group), Qarmet, KSP Steel have grey sludge (EAF/converter steelmaking slag; terminology of Concept GR No. 1201) accumulations; CHPs generate 1–1.5 million tonnes/year of ash; processing target up to 10 million tonnes from accumulated stocks; domestic asphalt plants
<b>Cost Analysis</b>	Cost reduction of 15–25% when using industrial waste compared to primary materials; grey sludge processing costs are offset by waste disposal savings
<b>Market Readiness</b>	MODERATE – Technology proven (Czechia/Poland: 70% coal ash/slag utilisation); Kazakhstan: pilot projects exist; regulatory framework required per the Waste Management Concept
<b>Sources</b>	See Technical Handbook bibliography, refs [3],[105],[106],[107],[395],[417]

**Table 65. Material 43, Aggregates, Crushed Stone, and Backfill Materials from Overburden Rock and Technogenic Sources**

<b>KZ Standards</b>	ST RK EN 12620-2011: Aggregates for concrete; ST RK EN 13055-2022: Lightweight aggregates; ST RK EN 13139-2015: Aggregates for mortar; ST RK EN 13383-1-2022: Armourstone for hydraulic works. Part 1. Technical specifications; GOST 23735-2014: Sand-gravel mixtures for construction. Technical specifications; GOST 25607-2009: Crushed stone-gravel-sand mixtures for road and airfield surfaces and bases. Technical specifications
<b>Green Criteria</b>	Geological certification of overburden rock source; grain size distribution per EN/GOST; radioactivity testing (compliance with natural background); heavy metal leaching test per construction standards; waste origin declaration per the Waste Management Concept; exclusion of contaminated technogenic materials
<b>Environmental Effect</b>	Integration into economic circulation of overburden rock from accumulated overburden (45.4 billion tonnes out of a total 53.6 billion tonnes of TMF); reducing the need for developing new quarries; using dump rock as backfill material, rubble stone, or crushed stone for construction; reducing technogenic dump areas and lowering environmental risks of tailings storage facilities (Waste Management Concept of RK 2026–2030, Government Resolution of RK dated 31.12.2025 No. 1201)
<b>Procurement Clause</b>	Aggregates may be supplied from certified mining overburden rock or technogenic deposits per the Waste Management Concept. The supplier must provide: (1) geological certificate, (2) radioactivity compliance certificate (natural background), (3) grain size analysis per ST RK EN 12620-2011 or equivalent, (4) environmental safety test report for heavy metals.
<b>Domestic Potential</b>	HIGH – 1,630 TMF objects totalling 53.6 billion tonnes (Geology Committee of MIC (Ministry of Industry and Construction), July 2025), including 45.4 billion tonnes of overburden rock and 5.7 billion tonnes of beneficiation tailings; ERG, Kazzinc, and other mining companies generate overburden rock; technogenic dumps are accessible

<b>Cost Analysis</b>	Expected cost reduction of 20–40% (expert estimate) compared to quarried aggregates; transport costs vary depending on deposit location; profitability of sub-economic ore processing 20–30% at copper price \$9,000/t (Waste Management Concept of RK 2026–2030, Government Decree No. 1201 of 31.12.2025)
<b>Market Readiness</b>	MODERATE – Rock screenings are widely used informally; standardised classification required per the Waste Management Concept; environmental safety protocols needed
<b>Sources</b>	See Technical Handbook bibliography, refs [3],[105],[106],[107],[395],[401],[406]

**Table 66. Material 44, Gypsum Binders and Construction Materials from Phosphogypsum and Synthetic Industrial Gypsum**

<b>KZ Standards</b>	GOST 125-2018: Gypsum binders. Technical specifications; ST RK EN 13279-1-2012: Gypsum binders and gypsum plasters. Part 1. Definitions and requirements; ST RK EN 13279-2-2015: Gypsum binders and gypsum plasters. Part 2. Test methods; GOST 4013-2019: Gypsum and gypsum-anhydrite stone for binder production. Technical specifications; GOST 26871-86: Gypsum binder materials. Acceptance rules
<b>Green Criteria</b>	Certification of phosphogypsum source from fertiliser production (Kazphosphate); radioactivity testing (compliance with construction material standards per SanPiN (Sanitary Rules and Norms)); heavy metal content analysis (Cd, As, Pb, Hg); chemical purity per grade classification under GOST 4013-2019 (from 80% to 95% CaSO <sub>4</sub> ·2H <sub>2</sub> O); synthetic gypsum from desulphurisation systems (FGD) with source certification; waste origin declaration per the Waste Management Concept
<b>Environmental Effect</b>	Diversion of phosphogypsum from disposal (over 17 million tonnes in Kazphosphate dumps); reduction of gypsum waste storage by 20–25%; application in construction, chemical reclamation of saline lands, neutralisation of petroleum contamination, and in the cement industry (Waste Management Concept of RK 2026–2030, Government Resolution of RK dated 31.12.2025 No. 1201)
<b>Procurement Clause</b>	Gypsum materials may be produced from phosphogypsum or synthetic gypsum of industrial origin per the Waste Management Concept. The supplier must provide: (1) waste origin certificate from the fertiliser plant or FGD system, (2) radioactivity compliance certificate per construction material standards, (3) chemical composition analysis per GOST 125-2018, (4) heavy metal content test report.
<b>Domestic Potential</b>	MODERATE – Over 17 million tonnes of phosphogypsum in Kazphosphate dumps (Zhambyl Region); potential for use in construction, reclamation of saline lands, rehabilitation of disturbed lands (Waste Management Concept of RK 2026–2030, Government Decree No. 1201 of 31.12.2025); FGD gypsum is limited; processing technology is available
<b>Cost Analysis</b>	Expected cost reduction of 10–25% (expert estimate) compared to natural gypsum; purification costs are offset by savings on waste disposal; target result – reduction of gypsum waste storage by 20–25% (Waste Management Concept of RK 2026–2030, Government Decree No. 1201 of 31.12.2025)
<b>Market Readiness</b>	LOW–MODERATE – Technology proven at the international level; Kazakhstan: pilot stage; radioactivity/purity certification system required per the Waste Management Concept; public acceptance needed
<b>Sources</b>	See Technical Handbook bibliography, refs [3],[105],[106],[107],[143],[266],[267],[270]

## D.4. Linkages with other Appendices

Appendix D is not a standalone document – its data are used in other appendices of the analytical document. Table 67 shows which appendices rely on the Appendix D data, how, and for which material items (numbering per the registry in Table 62).

**Table 67. Links among Appendices A, B, C, E, F, G, and H**

*Note: Items in column 3 reference the Construction Materials Registry (Table 62). Items detailed in subsection D.2 (6 baseline conventional materials substitutable with industrial-waste alternatives 42–44; see Table 63 for substitution mapping): 1=Concrete, 2=Cement and binders, 18=Plasterboard, 19=Plasters and mortars, 39=Recycled aggregates (backfill), 40=Landscape materials. Items detailed in Appendix D, section D.3: 42=Road materials from industrial waste, 43=Aggregates from overburden rock, 44=Gypsum from phosphogypsum. Items detailed in Appendix C, section C.7: 45=Recycled plastic, 46=Recycled glass, 47=Recycled cellulose, 48=Recycled rubber, 49=Recycled textile. Items 1–41 are detailed in the Technical Handbook (companion document).*

Appendix	Use of Appendix D Data	Registry Items (Table 62)
<b>Appendix A (Art. 130 EC)</b>	L1–L2–L3 registry inclusion criteria: Handbook green criteria serve as the basis for forming the IGTIPC L2 registry	1, 2, 18, 19, 39, 40 (D.2) + 42–44 (D.3) + 45–49 (C.7)
<b>Appendix B (RPS)</b>	GVS (Green Value Share) calculation: Handbook materials included in the L2 registry are factored into the environmental discount De calculation	1, 2, 18, 19, 39, 40 (D.2) + 42–44 (D.3) + 45–49 (C.7) – upon inclusion in L2 registry
<b>Appendix C (off-take)</b>	Contract circularity criteria (C.4.2), priority waste (C.7): industrial waste (items 42–44) and consumer waste (items 45–49)	42–49
<b>Appendix E (inst. architecture)</b>	Cascading verification L1→L2→L3 (E.2): Handbook green criteria define requirements for including materials in the IGTIPC L2 registry; organisational architecture (E.3) ensures registry administration	1, 2, 18, 19, 39, 40 (D.2) + 42–44 (D.3) + 45–49 (C.7)
<b>Appendix F (scaling)</b>	Pilot contracts are linked to specific materials: coal ash/slag and metallurgical slag (42), aggregates from overburden rock (43), phosphogypsum (44)	42, 43, 44
<b>F.5 (GPP System Risk Matrix)</b>	Indirect link: greenwashing and standards non-compliance risks identified in the risk register are mitigated through Handbook green criteria and procurement clauses	All items
<b>Appendix G (stakeholders)</b>	Indirect link: stakeholder map defines the ‘producer → verifier → procurer’ chain participants for whom Handbook data is intended	–
<b>Appendix H (international experience)</b>	Indirect link: international GPP practices (EU, Korea, Japan) described in Appendix H were used in developing Handbook green criteria and procurement clauses	–
<b>Technical Handbook</b>	Full technical specifications for all 41 standard items: international standards mapping (EU, Japan, Asia), domestic capacity analysis, cost premium analysis (international/national/ex-factory prices), market readiness assessment, per-unit carbon benefit quantification, procurement clauses; 528 IEEE bibliographic references	Items 1–41

# Appendix E. Institutional Architecture

This Appendix describes the institutional architecture of the green public procurement (GPP) system of the Republic of Kazakhstan, based on the single-operator model of the International Green Technologies and Investment Projects Center (IGTIPC) and the cascading verification mechanism of three interlinked registries (L1 → L2 → L3). The architecture was developed incorporating international expert peer review (EU SWITCH-Asia PSC (Policy Support Component)) and adapted to the legal, institutional, and market specifics of Kazakhstan.

## E.1. IGTIPC Single-Operator Model

### E.1.1. Legal Basis

In accordance with the Action Plan for the Implementation of the Concept for the Transition of the Republic of Kazakhstan to a Green Economy for 2024–2030 (Government Decree of the RK No. 1019 of 29 November 2024), the Ministry of Ecology and Natural Resources and IGTIPC are responsible for maintaining the registry of domestic manufacturers and suppliers of green technologies and equipment under the Green Finance section of the Concept (Presidential Decree of the RK No. 577 of 30 May 2013, as amended on 10 June 2024).

Pursuant to Article 130 of the Environmental Code of the RK, IGTIPC also maintains the registry of green technologies and projects, understood as startups aimed at creating green technologies. The green technology operator is defined as a subordinate organisation of the authorised body in the field of environmental protection, providing comprehensive services for maintaining the registry of green technologies and projects, commercialisation, and technological business incubation of green technologies.

### E.1.2. Rationale for the Centralised Model

GPP effectiveness critically depends on institutional design. Unlike models with distributed responsibility where multiple institutions (for standards, procurement, verification) create coordination problems, Kazakhstan implements a single-operator model (IGTIPC).

**Table 68. Advantages of the centralised model**

Advantage	Description
<b>Seamless Integration</b>	IGTIPC manages all three cascading registries (technologies, products, services), providing a single entry point for manufacturers and suppliers
<b>Conflict Elimination</b>	No interagency disputes over jurisdiction or standards – all decisions are made within a unified system
<b>Efficiency</b>	Single point of contact for manufacturers and consistent verification procedures across all three levels
<b>Institutional Sustainability</b>	IGTIPC has multi-year experience managing the Green Technologies Registry (L1) since 2022
<b>Low Implementation Risk</b>	Expansion of existing IGTIPC functions (L1 → L1+L2+L3) instead of creating a new structure from scratch. Resource and budget assessment for the expansion of IGTIPC functions will be refined through RIA in the preparation of the KDRP (Section 6.5.2).

## E.2. Cascading Verification L1 → L2 → L3

The three-tier cascading registry architecture ensures traceability and regulatory compliance for all technologies, products, and services. Green status at each subsequent level is only possible upon confirmation of status at the preceding level.

**Table 69. The structure of the cascading registries**

Parameter	L1: Green Technologies Registry	L2: Green Products Registry	L3: Green Services and Works Registry
<b>Verification Object</b>	Product manufacturing technologies; service delivery protocols and methods; process management systems	Products included in the national GWS classifier, manufactured using L1-registered technologies	Services included in the national GWS classifier, using L2-registered products and/or L1-registered protocols
<b>Assessment Criteria</b>	Resource-efficient development; circular economy; ecosystem and biodiversity conservation	Resource-efficient operational characteristics (LCA); circularity (recyclability, repairability); eco-safety	Binary assessment (Yes/No): (A) all consumable materials from L2 + (B) protocols from L1. Both conditions simultaneously
<b>Inclusion Conditions</b>	Article 130 of the Environmental Code of the RK; Government Decree of the RK No. 576 of 18.08.2022, as amended by GD No. 919 of 04.11.2024	(A) Manufacturing technology in L1; (B) Recycling technology in L1 (EPR); (C) Compliance with the ecodesign technical regulation	(A) All consumable materials registered in L2; (B) Service delivery protocols registered in L1
<b>Outcome</b>	Foundational verification level – the basis for L2 and L3	‘Dual green certification’ (production + recycling); closed-loop product lifecycle	Prevention of greenwashing; enhanced transparency for procuring entities
<b>Operator</b>	IGTIPC under MENR (operational function since 2022)	IGTIPC (expanded functions)	IGTIPC (expanded functions)
<b>Cascading Linkage</b>	Technology must be registered in L1 for linkage with L2	Product from L2 linked to L1; where applicable – linkage with L3	Integration of L3 with goszakup.gov.kz; mandatory cascading linkage with L2 and L1

**Table 70. Key properties of the cascading system**

Property	Description
<b>Transitivity and Traceability</b>	If a service is included in L3 → all related products must be in L2 → all underlying technologies must be in L1. Full traceability across all levels.
<b>Greenwashing Protection</b>	Access to L2 is impossible without a verified technology in L1. Access to L3 is impossible without verified products in L2 (and corresponding protocols in L1). Falsification requires overcoming three independent barriers.
<b>Closed-Loop Lifecycle</b>	Production (L1) → use phase (L2) → service delivery and works (L3) → end-of-life (EPR) → cyclical verification in L1.
<b>Scalability</b>	Pilot project: construction materials (Appendix F). Expansion: adding categories through ecodesign technical regulations. Full coverage: all GWS classifier categories.

### E.3. Four-level Organisational Architecture

The organisational architecture of the GPP system is designed following the model of the Best Available Technologies (BAT) Bureau, which has been successfully operating in Kazakhstan since 2018. The selection of this model is driven by the fact that government bodies are already familiar with the procedures of Technical Working Groups (TWGs) and IGTPC workflows, ensuring institutional continuity and minimising implementation risks.

**Table 71. Comparative Rationale: BAT Model and Registry System**

Characteristic	BAT System (operational)	GPP Registry System (proposed)
Coverage	Production processes	L1: Technologies / L2: Products / L3: Services
Regulatory Basis	BAT Reference Documents (BREFs) by sector	L2 criteria by product category
Expert Review	TWGs with expert participation	Stakeholder Advisory Council
Validation	Compliance verification	Documentary review + laboratory testing

#### E.3.1. Four Governance Levels

##### Level 1. Strategic Governance – Green Procurement Council

Interagency commission (analogous to the BAT Commission), providing strategic oversight of the GPP system.

**Table 72. Level 1, Strategic governance**

Parameter	Description
Composition	Representatives of MF, MENR, MIC, MNE. Chair – Deputy Head of MENR.
Functions	Approval of L2/L3 criteria; high-level strategic decision-making; identification of priority product categories for registry inclusion; approval of the versioning calendar.
Frequency	Meetings – at least once per quarter; extraordinary – at IGTPC’s initiative.

##### Level 2. Operational Management – IGTPC

Central body for operational management of all three registries. The structure includes three specialised departments.

**Table 73. Level 2, Operational management, IGTPC**

Department	Functions
Department of Technical Criteria and Methodologies	Development of L2/L3 criteria; TWG coordination; adaptation of international standards (ISO 14024, ISO 14025, ISO 14040–14044, EU ESPR 2024/1781); drafting ecodesign technical regulations.
Department of Registry Operations	Receiving and reviewing applications; maintaining public registries L1–L3; processing appeals within established timeframes; issuing eco-passports; verification of cascading linkages L1→L2→L3.
Department of Market Monitoring and Analytics	Assessment of market maturity of categories; conducting regular spot audits; formulating recommendations for threshold adjustments; monitoring product compliance with declared characteristics.

### Level 3. Technical working groups (TWGs)

TWGs are formed by sector (construction materials, cleaning services, furniture, textiles, and other priority categories) and serve as the primary mechanism for expert elaboration of criteria.

**Table 74. Level 3, Technical working groups (TWGs)**

Parameter	Description
<b>Composition</b>	Chair from IGTIPTC; manufacturer representatives (large business/SMEs); relevant ministries; Technical Regulation Committee; universities; NGOs; international experts.
<b>Mandate</b>	Drafting L2 criteria; managing public consultations (60 days); expert review of applications in disputed cases; annual revision of threshold values.
<b>Public Consultations</b>	Mandatory 60-day public consultation period for draft L2/L3 criteria (analogous to the BAT procedure). Ensures inclusion of all stakeholders.

### Level 4. External verification (Hybrid Model)

The verification system is built on a hybrid principle combining IGTIPTC in-house expertise and outsourced laboratory testing.

**Table 75. Level 4, External verification (Hybrid Model)**

Verification Type	In-house (IGTIPTC)	Outsourced
<b>Documentary Review</b>	✓ Document verification, criteria compliance, cascading linkages	–
<b>L2 Criteria Verification</b>	✓ Verification of cascading linkage with L1, safety standards compliance, circularity criteria	–
<b>Physical-Chemical Testing</b>	–	✓ Laboratories accredited under ISO/IEC (International Organization for Standardization / International Electrotechnical Commission) 17025 (KazInST (Kazakhstan Institute of Standardization), NCA (National Center for Accreditation), private laboratories)
<b>Field Audits</b>	☒ Spot audits per monitoring plan	✓ Engagement of environmental auditors (as needed)

## E.4. Roles and Responsibilities of Participants

Role distribution is based on the principle of functional specialisation: IGTIPTC – substantive registry management, CEF – IT infrastructure and integration with goszakup.gov.kz, relevant ministries – rulemaking and monitoring within their competence.

**Table 76. Detailed functions of participants**

Participant	Functions and Responsibilities
<b>IGTIPC</b>	L1: establishment and maintenance (operational function). L2–L3: methodology and criteria development; application review; inclusion/exclusion decisions. Approval of L2–L3 criteria and category lists; versioning calendar management (effective dates, transition periods). Review of appeals for L1–L3. Verification of cascading linkages L1→L2→L3. Issuance of methodological letters and clarifications.
<b>JSC CEF (MF)</b>	IT management and administration of L2–L3 (registration cards, public extracts, audit logs). Integration of L2–L3 with goszakup.gov.kz (verification fields, reference directories, API). Publication of criteria versions and archives; user support for procuring entities and suppliers.
<b>Ministry of Finance</b>	Rules for applying preferences and non-price evaluation for green categories in public procurement. Green procurement budgeting and reporting (Budget Planning Department). Verification of supporting documentation and post-contract audit jointly with the authorised supervisory body.
<b>Ministry of Industry and Construction</b>	Sectoral proposals for procurement criteria for construction materials and turnkey projects. Preparation/maintenance of ecodesign technical regulations jointly with MENR. Integration of environmental requirements into sectoral standards and standard design documentation.
<b>Ministry of National Economy</b>	Development and approval of target indicators and methodology for calculating the share of green procurement in accordance with the Action Plan (GD No. 1019 of 29.11.2024). This Policy Paper recommends establishing the following benchmarks: 30% by 2030 (construction sector); 100% by 2040 (all public procurement categories) – benchmarked against EU NAP (50–70% by 2030) and Republic of Korea (100% by 2020). Interagency monitoring coordination within the Roadmap for Achieving Carbon Neutrality by 2060. Annual consolidated public report on indicators.
<b>IGTIPC Advisory Council</b>	Independent experts from research institutes/universities/NGOs. Mandate: peer review of draft criteria and category lists; recommendations on transition periods; expert opinions on appeals. Remuneration on a results basis (reviews/opinions); conflict of interest policy; opinion submission deadline: 7–10 business days. Government bodies are engaged only to provide written comments at IGTIPC’s request.

## E.5. RACI Matrix of Key Processes

The responsibility assignment matrix following the RACI model (Responsible – Accountable – Consulted – Informed) covers all key GPP system processes.

**Table 77. Extended RACI Matrix**

Process	IGTIPC	CEF	MF	MIC	MNE
Development and approval of L2–L3 criteria and category lists	R/A	I	C	C	C
Inclusion/exclusion decisions; appeal review	R/A	I	I	C	I
Versioning calendar and transition periods	R/A	C	C	C	C

Process	IGTIPC	CEF	MF	MIC	MNE
IT infrastructure for L2–L3; integration with goszakup.gov.kz	C	R/A	C	I	I
Preference and non-price evaluation rules in public procurement	C	I	R/A	C	C
Sectoral proposals (construction, ecodesign)	C	I	C	R/A	C
Target indicators/KPIs and consolidated reporting (recommended benchmarks: 30% by 2030; 100% by 2040)	C	I	C	I	R/A
Advisory Council operations and expert peer reviews	R/A	I	I	C	C

#### Legend:

Symbol	Role	Description
R	Responsible	Body/organisation directly performing the task
A	Accountable	Body/organisation making the final decision
C	Consulted	Body/organisation providing recommendations
I	Informed	Body/organisation notified of progress
R/A	Combined role	Responsible and Accountable in one entity

#### Abbreviations:

IGTIPC – International Green Technologies and Investment Projects Center; CEF – JSC Center for Electronic Finance; MF – Ministry of Finance; MIC – Ministry of Industry and Construction; MNE – Ministry of National Economy; MENR – Ministry of Ecology and Natural Resources.

## E.6. Cross-References with other Policy Paper Appendices

The institutional architecture (Appendix E) serves as the connecting element of the entire GPP system. Below are cross-references with other Policy Paper appendices.

**Table 78. Cross-references with other Policy Paper appendices (in Policy Paper 1)**

Appendix	Connection with Institutional Architecture	Key Elements from Appendix E
<b>Appendix A (Art. 130 EC)</b>	Legislative amendments create the legal basis for cascading registries L1–L3 and vest IGTIPC with operator authority	E.1 (legal basis), E.2 (cascade structure)
<b>Appendix B (RPS)</b>	Environmental discount De applies to products verified through the L1→L2 cascade. IGTIPC provides verification, CEF – API integration with goszakup.gov.kz	E.4 (CEF and IGTIPC roles), E.5 (IT integration process)

<b>Appendix C (off-take)</b>	Off-take contract requires verification of each batch via goszakup.gov.kz ↔ IGTIPI API. PCP regulatory sandbox is coordinated at Level 1 (Green Procurement Council)	E.3 (levels 1, 2), E.5 (inclusion/exclusion processes)
<b>Appendix D (handbook)</b>	41 Handbook items + 8 emerging items (42-49) are verification objects for the L2 registry. Criteria from the 'Green Criteria' column are developed by the construction materials TWG	E.3 (level 3 – TWGs), E.4 (MIC role)
<b>Appendix F (scaling)</b>	Scenario analysis + operational track: Operational Implementation Plan – pilot contracts in 3 regions; Sections F.1–F.7 – 4 GPP system implementation scenarios (2026–2030), NRR (National Risk Register) risk matrix and watchpoints; IGTIPI verifies, CEF integrates, akimats coordinate	E.1 (operator model), E.5 (all processes)

# Appendix F. Scenario Analysis of the Green Public Procurement System of the Republic of Kazakhstan

This Appendix contains the scenario analysis of the green public procurement system of the Republic of Kazakhstan for the period 2026–2030.

Methodological basis: scenario planning toolkit – formulation of the analytical question, identification of factors of change (PEST analysis: Politics, Economy, Society, Technology), selection of critical factors, construction of scenario matrices, development of detailed scenario descriptions with watchpoints (early warning indicators) and analysis of consequences and practical conclusions. Risk assessment performed in the UK National Risk Register 2025 format (parameters: probability × impact across seven dimensions).

Before proceeding to the analysis of implementation conditions, below is the operational plan of the GPP system under favourable development conditions. This plan is conditional – its feasibility depends on the decisive conditions explored in Sections F.1–F.7.

**Table 79. Operational Implementation Plan**

Period	Stage	Location / Focus
H2 2027	Launch of the first Innovation Support Programme competition (coal ash/slag → road materials)	Pavlodar Region
2028	Pilot Contract 1: Coal ash/slag → road materials	Pavlodar Region
2028	Expansion of green construction materials in the L2 registry: materials from industrial and consumer waste, free of toxic and carcinogenic substances	National level
2028–2029	Pilot Contract 2: Phosphogypsum → gypsum board	Zhambyl Region
2029	Pilot Contract 3: Metallurgical slag → cement	Karaganda Region
2029–2030	Evaluation of pilot contract results; replication of successful model	3–5 regions
2030	Scaling of the GPP system for construction works	National level

## Rationale for Pilot Location Selection

The selection of regions for pilot contracts is driven by the concentration of target waste, the availability of industrial infrastructure for processing, and alignment with the priorities of the Waste Management Concept.

**Pavlodar Region (coal ash/slag → road materials).** According to the Waste Management Concept, 60% of Kazakhstan’s electricity is produced at coal-fired TPPs (Thermal Power Plants) running on high-ash (40–43%) Ekibastuz coal; 1–1.5 million tonnes of ash are generated annually (Concept, section ‘Thermal Power Sector Waste’). The Ministry of Industry and Construction of the RK projects recycling of up to 10 million tonnes of coal ash/slag in road construction (Concept). Ekibastuz hosts Kazakhstan’s largest thermal power plants: Ekibastuz GRES (State Regional Power Station)-1 (4,000 MW (Megawatt), 8 units) and Ekibastuz GRES-2 (1,000 MW) (data of the Ministry of Energy of the RK), making the region the primary source of coal ash/slag in the country. Proximity to coal open-pit mines (Ekibastuz Basin – approximately 10 billion tonnes of reserves, data of the Geology Committee of MIC RK) ensures a stable and predictable feedstock supply for decades ahead.

**Zhambyl Region (phosphogypsum → gypsum board).** According to the Waste Management Concept, phosphogypsum accumulates in large volumes – over 17 million tonnes in the dumps of Kazphosphate

LLP (Concept, section 'Chemical Industry Waste'). The Concept also notes the potential for using gypsum waste in construction, land reclamation, and the cement industry. According to MIA Kazinform, 72% of the republic's balance phosphorite reserves are located in the subsurface of Zhambyl Region (Kazinform). According to the regional akimat, in the region 48 phosphorite deposits have been discovered with reserves of 13 billion tonnes; regional enterprises produce 100% of the country's phosphorus and 87% of its gypsum (Nur.kz, regional governor's report, 2024). Importantly, an industrial processing chain is already forming in the region: Knauf Gips Taraz LLP plans to build a gypsum board plant with a capacity of 22 million m<sup>2</sup> per year (Nur.kz, 2024), creating a ready-made consumer for phosphogypsum-derived products.

**Karaganda Region (metallurgical slag → cement).** In Temirtau is located the Karaganda Metallurgical Plant (Qarmet) – Kazakhstan's largest steelmaking enterprise with a design capacity of up to 6 million tonnes of steel per year (Qarmet data, 2025). Actual steel production in 2024 was approximately 3.5 million tonnes. The plant is the primary source of blast-furnace slag in the country. Ground granulated blast-furnace slag (GGBS) is a recognised international component in cement production, enabling a 40–50% reduction in the carbon intensity of cement manufacturing. The Waste Management Concept notes that over 6.2 billion tonnes of waste have accumulated in the ferrous metallurgy sector, of which 1.1% are metallurgical processing waste (Concept). In addition to GGBS, ERG, Qarmet, and KSP Steel companies have accumulations of steelmaking slag ('grey sludge' in the terminology of the Concept) suitable for producing road materials, creating an additional raw material base for expanding the list of 'green' construction materials in the region. Karaganda Region combines the country's largest slag raw material base with a developed construction industry, ensuring the logistical feasibility of the pilot project.

## F.1. Methodology and Analysis Structure

### F.1.1. Scenario Analysis Approach

The Operational Implementation Plan, presented at the beginning of this Appendix, describes the implementation of the GPP system under favourable development conditions. It answers the question 'what and where we do', while the scenario analysis (Sections F.1.2–F.7) answers 'under what conditions this is achievable'. The timelines in the scenario descriptions are illustrative and may differ from the operational planning set out in Section 6.3 (Scaling, 18 months–2030) of this Policy Paper.

Scenario analysis is not a forecast and not a plan: it is a tool for preparing for several possible futures simultaneously. In the context of this document it is necessary because the implementation of the GPP system depends on conditions that are unknown today: whether amendments to Art. 130 will be adopted on time, whether the API integration will work, whether SMEs will enter the market. The six-step structure provides a sequential transition from formulating the question to concrete indicators that can be monitored today:

- 1. Define the main question and time horizon** – what specifically concerns you, over what time horizon, and with what level of detail.
- 2. Identify factors that could change the future (PEST analysis: Politics, Economy, Society, Technology)** – what factors could shape the future; phrased in neutral language without predetermining direction.
- 3. Map factors on the matrix: how important and how unpredictable is each one** – each factor is assessed for importance and uncertainty; critical factors are placed on the matrix axes.
- 4. Build basic scenarios (2×2 matrices)** – critical factors are paired; each pair generates four possible states of the world.
- 5. Develop three key scenarios + wild card (joker) – a low-probability but game-changing event** – the most probable, optimistic, pessimistic scenarios and a wild card are selected and developed into detailed descriptions.
- 6. Watchpoints (early warning indicators) and analysis of consequences and practical conclusions** – for each scenario, signals indicating its approach are identified, along with conclusions about actions to take today.

## F.1.2. Main Question and Time Horizon

### Central Scenario Analysis Question

In what manner and to what extent will the integrated green public procurement (GPP) system – including the cascading verification L1→L2→L3, the environmental discount in the Rating and Points System (RPS) and the PCP mechanism – function in Kazakhstan over 2026–2030, and what conditions will determine its trajectory from law adoption to real market uptake?

Horizon: 2026–2030 (aligned with the Waste Management Concept of the RK for 2026–2030, Government Resolution of the RK dated 31.12.2025 No. 1201). Level of detail: the GPP system as a whole, with emphasis on the construction sector as a priority.

## F.2. Identifying and Assessing Factors of Change

### F.2.1. Full List of Change Factors (PEST Analysis: Politics, Economy, Society, Technology)

The following factors of change will determine the trajectory of the GPP system. The ‘Code’ column is a shorthand label for each factor, used in the matrices in Sections F.2.2 and F.2.3: P = Politics, E = Economy, S = Society, T = Technology; the number indicates the sequential order within each block.

**Table 80. Change factors, full list**

Block	Code	Factor of Change	Possible Development Directions
Politics	P1	Political stance of MENR and MF on GPP	High – Moderate – Blocking
Politics	P2	Pace of adoption of amendments to the Environmental Code (Art. 130)	Fast (2026) – Moderate (2027) – Slow (2028+)
Politics	P3	IGTIPC status as single operator	Mandate expansion – Status quo – Transfer of authority
Politics	P4	EU/OECD position on green transition	Strengthening – Unchanged – Weakening
Economy	E1	Market readiness of SME waste processors	High – Limited – Absent
Economy	E2	Prices of primary raw materials (coal, metal, aggregates)	Growth (substitution incentive) – Stability – Decline
Economy	E3	Availability of EPR financing through JSC ‘Zhasyl Damu’	Sufficient – Limited – Unavailable
Politics	P5	Pace of Rating and Points System (RPS) rollout to regional procurement	Fast – Gradual – Stagnation
Politics	P6	Readiness of public procurers to apply GPP criteria	High – Moderate – Low
Society	S1	Public demand for environmental responsibility in public procurement	Growing – Stable – Latent
Technology	T1	API integration of IGTIPC registries with goszakup.gov.kz	Delivered on time – Delay – Technical failure
Technology	T2	Availability of verifiable recycling technologies in the L1 registry	Sufficient – Limited – Critically low

## F.2.2. Importance × Uncertainty Matrix

Each factor is assessed on two parameters: importance (how much it affects the question) and uncertainty (how hard it is to predict which direction it will take). Key factors for building scenarios (marked ★) – those combining high importance with high unpredictability.

**Assessment Criteria.** Importance was assessed by degree of influence on the three-tier verification system L1→L2→L3 and the Waste Management Concept targets: ‘very high’ – without this factor the GPP system is not feasible; ‘high’ – significantly affects pace and scale; ‘medium’ – affects individual components. Uncertainty was assessed by dependence on external factors outside MENR and IGTPC control and by the range of expert assessments.

**Table 81. Factors of change: Importance x Uncertainty matrix**

	Low uncertainty	Medium uncertainty	High uncertainty
Very high importance	P1: Political will MF / MENR	E1: SME market readiness P2: Pace of adoption Art. 130	★ E3: EPR financing ★ T1: API integration
High importance	T2: L1 technology availability P4: EU/OECD pressure	P5: RPS scale P6: Procurer readiness	★ E2: Primary raw material prices ★ P3: IGTPC status
Medium importance	–	S1: Public demand	–

★ – Critical scenario factors selected for building 2×2 matrices. Note: P3 (‘IGTPC Status’) is marked ★ as a critically important and difficult-to-predict factor. However, it is not used as an axis in the F.2.3 matrices: once amendments to Art. 130 are adopted (P2), IGTPC’s status is determined automatically by law – meaning P3 follows from P2 rather than developing independently. For this reason, P3 is included in the descriptions of all four scenarios as a contextual factor, but not as a standalone matrix axis.

## F.2.3. Selection of Critical Factor Pairs

From the twelve factors, three pairs are selected to define the axes of the scenario matrices. Each pair represents two factors that together determine a key fork in the road for the GPP system. The intersection of their possible states generates four versions of the future.

**Table 82. Selection of critical factor pairs**

Pair	Factor 1	Factor 2	Why this pair
1	Political will of the state (MENR + MF)	Market readiness of SME waste processors	Law without a market is an empty norm. A market without law means no legal verification. Only when both align does the system become operational. P1 is included despite its relative predictability – even a partial reduction in political will significantly impedes system launch.
2	Pace of adoption of amendments to Art. 130	API integration with goszakup.gov.kz	Both are the ‘gateways’ of the system: until both are open, the environmental discount cannot function. A delay in either postpones the launch of the L2 registry.
3	E2: Primary raw material prices	Availability of EPR financing	If coal and metal are cheap, secondary materials are uncompetitive without a subsidy. EPR is the main source of such support. This pair determines the economic sustainability of SMEs in the secondary materials market.

### F.3. Basic Scenario Matrices

Each of the three matrices below explores four possible combinations of two factors and assigns them working names. This gives 12 cells in total. These are not 12 scenarios: in Section F.4, the author synthesises four final scenarios from these cells, each combining the logic of several cells from different matrices. The matrices here are building blocks, not the end result.

**Table 83. Basic scenario, Pair 1: Political Will × SME Market Readiness**

	Weak will ← Political Will MF / MENR → Strong will	
High market readiness	<p><b>'Green Decree'</b></p> <p><i>Law exists but no market – a norm on paper with no result</i></p> <p>The regulatory system is created but the market does not respond. The L2 registry is empty or formal. The environmental discount creates no real competitive advantage.</p>	<p><b>'Systemic Breakthrough'</b></p> <p><i>Law adopted, market ready – the system is operational</i></p> <p>Baseline scenario. Regulations adopted, SME market responds. Off-take contracts work. The GPP system functions as a closed loop.</p>
Low market readiness	<p><b>'Dormant Potential'</b></p> <p><i>Market ready but without the law, no verification is possible</i></p> <p>SMEs are ready but there is no legal basis. Enterprises produce 'green' materials but cannot obtain L2 verification and the environmental discount.</p>	<p><b>'Double Failure'</b></p> <p><i>Neither law nor market – the system exists only formally</i></p> <p>Neither regulatory base nor market supply. Implementation of the Waste Management Concept through the GPP instrument is impeded.</p>

#### F.3.2. Pair 2: Pace of Art. 130 Adoption × API Integration

**Table 84. Basic scenario, Pair 2: Pace of Art. 130 Adoption x API Integration**

	Slow ← Pace of adoption of Art. 130 Environmental Code amendments → Fast	
API integration successful	<p><b>'Rules Without Data'</b></p> <p><i>Law introduced but automatic verification is not working</i></p> <p>The legal basis is ready but API integration is delayed. The environmental discount is formally introduced but cannot be verified automatically.</p>	<p><b>'New Green Standard'</b></p> <p><i>Both conditions met – the system is fully operational</i></p> <p>Both conditions fulfilled. Full GPP automation on goszakup.gov.kz – potentially the first such system in the world.</p>
API integration delayed/failed	<p><b>'Technology Without Law'</b></p> <p><i>API works but no legal basis for the environmental discount</i></p> <p>API works but L2 has no legal basis. Integration is not used for the environmental discount.</p>	<p><b>'Double Delay'</b></p> <p><i>Neither law nor API – launch postponed to post-2028</i></p> <p>Both decisive conditions are not met. The GPP system is postponed to the post-2028 period.</p>

### F.3.3. Pair 3: Primary Raw Material Prices × EPR Financing Availability

Table 85. Basic scenario, Pair 3: Primary Raw Material Prices × EPR Financing Availability

	Low ← Primary raw material prices → High	
<b>EPR financing available</b>	<p><b>‘Forced Green’</b> Expensive raw materials + EPR subsidy – maximum market impulse Expensive primary raw materials stimulate demand for secondary materials, while EPR creates supply. The most dynamic market scenario.</p>	<p><b>‘Regulatory Market’</b> High prices alone make green materials competitive High raw material prices make ‘green’ materials competitive without subsidies. The GPP system is sustainable even with limited EPR.</p>
<b>EPR financing limited</b>	<p><b>‘Subsidised Market’</b> System survives only through EPR financing Low prices make secondary materials uncompetitive. The system survives only with active EPR financing.</p>	<p><b>‘Economic Failure’</b> Cheap raw materials + no subsidy – secondary materials unviable Secondary materials are uncompetitive and financing is absent. The GPP system operates only for a narrow niche.</p>

### F.4. Four Scenarios: What could happen

Based on an expert assessment of the probability of each of the 12 variants constructed in F.3, four scenarios are selected for detailed analysis: the most likely, optimistic, pessimistic, and wild card (joker).

#### Rationale for the expert probability assessment

**Scenario 1 – most likely:** political will is confirmed by Government Resolution No. 1201 (2025), amendments to Art. 130 are already in progress, and IGTIPC has been designated as the operator. All key conditions are in place – with a moderate delay on the SME market side.

**Scenario 2 – optimistic:** requires all favourable conditions to coincide simultaneously – fast amendments, early API integration, rising raw material prices and full EPR availability. Possible, but unlikely.

**Scenario 3 – pessimistic:** delayed API integration and a weak SME market are realistic risks. International practice shows that a regulatory framework is not always accompanied by market demand formation within planned timelines.

**Scenario 4 – wild card (joker):** the definitive phase of CBAM (EU Carbon Border Adjustment Mechanism, Regulation (EU) 2023/956) and other complementary EU regulations under definition (from 2026) creates for Kazakhstani steel and aluminium exporters a demand for documentary confirmation of low carbon intensity of products. The L2 registry contains some of the data required for CBAM reporting, which transforms the GPP system from a domestic policy instrument into an element of export competitiveness. An unlikely but potentially transformative scenario.

## F.4.1. SCENARIO 1: 'SYSTEMIC BREAKTHROUGH' (Baseline)

### Characteristics

Political will is realised; the SME market forms with a delay. API integration is successful by Q4 2026. The GPP system operates in pilot regions by 2027 and scales up by 2030. The most probable track given current institutional dynamics.

#### F.4.1.1. How this scenario unfolds

In Q2 2026, MENR completes drafting amendments to Article 130 of the Environmental Code and submits them for approval. In parallel, the Ministry of Finance analyses the introduction of an environmental discount into Public Procurement Rules No. 687 – the window of opportunity of the Rating and Points System (RPS), in its initial implementation phase, is fully utilised.

By end-2026, the Environmental Code amendments are adopted, IGTIPC is approved as the single L1–L2–L3 operator, and API integration with goszakup.gov.kz is launched. The first 8–12 positions of construction materials from Pavlodar Region industrial waste are included in the L2 registry: 7 priority sub-categories per the Appendix D (Appendix D, Table D.2: coal ash/slag asphalt, MSW aggregates, clinker with waste additives, secondary raw material insulation, wall blocks, waterproofing, metal structures) + 1–5 additional variants within sub-categories.

In 2027, PCP competitions in three pilot regions (Pavlodar, Zhambyl, Karaganda) attract 30–45 SME participants. The first off-take contracts are concluded for a total of KZT 2–4 billion. The share of 'green' materials in regional construction procurement reaches 5–8%.

By 2030, the GPP system is scaled to the national level. The L2 registry contains 35–44 positions. Contribution to Target Indicator 3 of the Concept (reduction of industrial waste not in circulation) is 8–12 percentage points.

#### F.4.1.2. Early warning signals

**Table 86. F.4.1. Scenario 1: Early warning signals**

Indicator	Observation Source	Threshold Value / Signal
Inclusion of Art. 130 amendments in the legislative work plan	Official MENR website, regulatory database adilet.zan.kz	Inclusion by Q3 2026 – positive signal; delay to Q4 2026 – warning
Publication of MF order on the environmental discount	MF RK regulatory register	Adoption by Q3 2026 – scenario on track; delay over 6 months – transition to Scenario 3
Number of goods in the IGTIPC L2 registry by Q4 2026	IGTIPC web portal	More than 8 positions – 'on track'; fewer than 5 – system delay risk
Launch of API integration goszakup.gov.kz ↔ IGTIPC	Official press releases CEF, MF	Launch by Q4 2026 – baseline scenario; delay to 2027 – transition to Scenario 3
Number of applications for PCP competitions in pilot regions	Reports of JSC 'Zhasyl Damu' (EPR Operator)	More than 15 applications per competition – high SME market readiness
Volume of off-take contracts concluded by Q2 2027	Portal goszakup.gov.kz, akimat reports	More than KZT 1 billion – system works; less than 200 million – insufficient demand

### F.4.1.3. What each party should do

**Table 87. F.4.1. Scenario 1: What each party should do**

Stakeholder	Action if scenario is realised	Action if scenario deviates
MENR / IGTIPC	Accelerate development of secondary legislation under Art. 130 in parallel with amendments	Diagnose cause of delay: insufficient interagency coordination or technical problems
Ministry of Finance	Adopt the discount order in Q3 2026 using the 'RPS window'	Conduct additional consultations with pilot akimats to agree on conditions of application
Akimats (Pavlodar, Zhambyl, Karaganda)	Include GPP criteria in construction tenders already in Q1 2027	Request methodological guidance from IGTIPC on applying Appendix D
SME processors	Prioritise filing for L1 registration and PCP participation	Form associations for collective representation for access to EPR financing

## F.4.2. SCENARIO 2: 'NEW GREEN STANDARD' (Optimistic)

### Characteristics

All three pairs of key factors develop in the most favourable direction: regulations are adopted quickly, API integration is delivered ahead of schedule, primary raw material prices rise, EPR financing increases. A possible but contingent scenario requiring several favourable conditions to coincide.

### F.4.2.1. How this scenario unfolds

A favourable confluence of circumstances: Kazakhstan's international climate commitments are strengthened (subject to NDC (Nationally Determined Contribution) update at COP31 (UNFCCC, Antalya, November 2026)), coal and metal prices rise following global carbon regulation. This makes secondary materials economically competitive even without the environmental discount, forming a political consensus in favour of rapid reforms.

Art. 130 Environmental Code amendments are adopted by end-2026 in a package with the 'green economy' law. The MF order on the environmental discount is issued simultaneously. API integration with goszakup.gov.kz is delivered by CEF by Q3 2026 – one quarter ahead of schedule. By end-2026, the L2 registry already contains 18–22 positions, including consumer waste materials (early activation of consumer waste categories based on PCP Phase 1 results).

In 2027–2028, off-take contracts are concluded in 7 regions. International investors (EIB, EBRD) use verified L2 data to finance 'green' construction projects. Kazakhstan presents the system as a successful international case.

By 2030, the GPP system contribution to Target Indicator 3 of the Concept is 18–22 percentage points. When all favourable conditions align (50+ L2 positions, coverage of 7+ regions, primary raw material price growth  $\geq 15\%$  y/y, full EPR financing availability), the volume of secondary resources entering industrial circulation is estimated at 15–20 million tonnes annually. Detailed quantitative assessment is subject to refinement through RIA in KDRP preparation. Calculation base: accumulated industrial waste – approx. 53.6 billion tonnes (Concept, Section 2); share of construction works in public procurement – 39.1% (KZT 7.2 trillion); target share of contracts with GPP criteria – 25–35% by 2030; recycled content  $\geq 20\%$  by mass criterion applied to 7 sub-categories (Appendix D) + consumer waste categories (PCP Phase 1); multipliers: off-take contracts in 7 regions + EIB/EBRD investment + market demand with rising primary raw material prices.

### F.4.2.2. Early warning signals

Table 88. F.4.2. Scenario 2: Early warning signals

Indicator	Observation Source	Threshold Value / Signal
Adoption of Art. 130 amendments as part of a package green economy law	Regulatory register, parliamentary hearings	Inclusion in Mazhilis agenda by Q3 2026 – optimistic track
Update of Kazakhstan’s NDC at UN COP 2026	MENR, UNFCCC NDC Registry	Strengthening of emission reduction commitments → political stimulus for GPP
Number of goods in L2 by Q2 2027	IGTIPC web portal	More than 20 positions, including planned 45–49 – optimistic track realised
Interest of international financial institutions in L2 data	EIB, EBRD, IGTIPC press releases	Official request to use L2 data – signal of optimistic scenario
Growth of aggregate and metal prices in Kazakhstan	Statistics Committee of RK, market data	Growth above 15% y/y – strengthens competitiveness of secondary materials

### F.4.2.3. What each party should do

Table 89. F.4.2. Scenario 2: What each party should do

Stakeholder	Action if scenario is realised	Action if scenario deviates
IGTIPC	Accelerate criteria development for emerging consumer-waste categories R–V (items 45–49 in Appendix C, section C.7)	Use additional resources to strengthen international recognition of L2
Government of the RK	Consider positioning the GPP system as a model for Central Asian countries	Document success and avoid reducing monitoring rigour even under successful implementation

## F.4.3. SCENARIO 3: ‘REGULATORY GHOST’ (Pessimistic)

### Characteristics

The legal framework is in place but the market and technological components are not working. The GPP system exists formally: registries are maintained, the environmental discount is introduced, but no competitive market for ‘green’ materials emerges. A significantly probable risk, particularly with API integration delay and EPR underfunding.

### F.4.3.1. How this scenario unfolds

The legal part is implemented as planned – Art. 130 amendments are adopted, the MF order is issued. However, API integration is delayed to Q2 2027 due to technical difficulties modernising goszakup.gov.kz. During this period the environmental discount is introduced manually through paper documentation, creating risks of misuse and undermining confidence in the mechanism.

In parallel, the PCP competition in Pavlodar Region attracts only 4–6 participants instead of the expected 15+: small businesses assess participation risks as high given the uncertainty of off-take contract conditions

and limited funds for R&D. EPR Operator financing is constrained due to incomplete receipts from producers and importers.

By 2028, the L2 registry contains only 6–8 positions (predominantly large industrial enterprises, not SMEs). The environmental discount is applied in fewer than 3% of construction tenders. Pilot off-take contracts are concluded but for minimal amounts. The pace of GPP system implementation falls significantly behind the target indicators of the Concept.

A critical juncture arrives in 2028–2029: as practice accumulates of applying the RPS without the environmental parameter, the task of introducing it loses the status of ‘fine-tuning a new system’ and acquires the status of ‘reform of an operating system’, which significantly increases the volume of approval procedures and requires more significant administrative efforts.

#### F.4.3.2. Early warning signals

**Table 90. F.4.3. Scenario 3: Early warning signals**

Indicator	Observation Source	Threshold Value / Signal
API integration delay of more than 3 months from schedule	Quarterly reports CEF, MF	Transition to manual L2 verification – immediate greenwashing (imitation of green procurement) and misuse risk
Number of applications for the first PCP competition below 8	Reports of JSC ‘Zhasyl Damu’	Signal of low market readiness – requires revision of grant conditions
Legal disputes over EPR levy distribution	RK legal database, press monitoring	Suspension of EPR financing → impossibility of conducting PCP competitions
Share of tenders with GPP criteria below 2% within 6 months of launch	Portal goszakup.gov.kz (analytics)	Signal of procurer unreadiness – urgent training programme required
No new L2 inclusion within 4 months	IGTIPC portal	Sign of verification system slowdown or insufficient demand

#### F.4.3.3. What each party should do

If Scenario 3 is realised, the following corrective actions are recommended:

1. Immediate audit of reasons for low PCP competition participation with adjustment of conditions (lowering thresholds, expanding the list of eligible waste types)
2. Introduction of a temporary manual GPP criteria verification mechanism with enhanced controls against misuse until API launch
3. Initiation of a competency development programme for akimats before the next tender cycle launch
4. Negotiations between MENR and MF on synchronising Environmental Code amendments with the update of Rules No. 687 as a single package
5. Development of an ‘emergency’ mechanism for direct procurement of green materials by akimats without competition (Art. 16, para. 3, sub-para. 43 of the Public Procurement Law No. 106-VIII) as a temporary measure

## F.4.4. SCENARIO 4: 'CLIMATE STORM' (Wild Card)

### Characteristics

Non-linear acceleration triggered by an external shock: the definitive phase of the EU Carbon Border Adjustment Mechanism (CBAM, Regulation (EU) 2023/956) and other complementary EU regulations under definition creates demand for documentary confirmation of carbon intensity of Kazakhstan's exports of steel, aluminium and cement – commodity positions directly covered by CBAM and simultaneously constituting base materials of the RK construction sector. The GPP system transforms from a domestic environmental policy instrument into an element of export competitiveness.

#### F.4.4.1. How this scenario unfolds

As of 1 January 2026, the definitive phase of CBAM (Regulation (EU) 2023/956) is in effect: exporters of steel, aluminium, cement, and fertilisers are required to declare embedded CO<sub>2</sub> emissions, and from 2027 – to purchase CBAM certificates. The first surrender of certificates for 2026 imports is due by 30 September 2027 – this is when the financial burden on exporters becomes real. ERG, Qarmet and 'Kazphosphate' – key Kazakhstani exporters in these categories – are interested in reducing the cost of CBAM certificates through documentary confirmation of low carbon intensity of their products.

This creates urgent political demand for a system that could provide such data. The IGTIPC L2 registry, initially designed for the domestic GPP market, becomes an instrument for confirming secondary resource content for CBAM reporting. Large businesses, previously not engaged with the GPP agenda, become active supporters of its rapid scaling.

In 2027–2028, IGTIPC receives additional financing from large exporters (through a voluntary certification mechanism) and rapidly expands the L2 registry to 50+ positions. Registry data are integrated into Kazakhstan's national ETS (Emissions Trading System). Off-take contracts acquire not only an environmental but also an export dimension.

Scenario risk: a focus on CBAM compatibility may skew the system towards large businesses at the expense of SME MSW processors – the original GPP priority. Three protective mechanisms against this skew are set out in Section F.4.4.3.

#### F.4.4.2. Early warning signals

**Table 91. F.4.4. Scenario 4: Early warning signals**

Indicator	Observation Source	Threshold Value / Signal
First CBAM requirements for Kazakhstani steel and aluminium exporters	EUR-Lex, adilet.zan.kz, press releases ERG / Qarmet	Official request for CBAM-compatible verification → immediate revision of IGTIPC strategy
Requests from Kazakhstani exporters for CBAM-compatible verification	Business media, requests to IGTIPC	3+ large enterprises approach IGTIPC → wild card signal
Inclusion of L1 data in Kazakhstan's ETS	MENR, regulatory acts on ETS	Official integration → multiplication of GPP system value
International agreements on mutual recognition of L2 certificates	MFA RK, MENR, negotiation tracks	Agreement with EU on recognition of L2 for GPP → strategic breakthrough

### F.4.4.3. What each party should do

Three protective mechanisms against skewing the system towards large businesses: (a) SME quota in L2 registry – at least 30% of positions reserved for SME processors of MSW and industrial waste; (b) Separate PCP competition tracks – Track A (SMEs, consumer and industrial waste) and Track B (large business, CBAM-compatible certification), each with its own budget and selection criteria; (c) Simplified L2 inclusion procedure for SMEs (reduced timelines, preferential verification rates), while large businesses undergo the full CBAM-compatible verification cycle on a commercial basis.

**Table 92. F.4.4. Scenario 4: What each party should do**

Stakeholder	Action if scenario is realised	Action if scenario deviates
IGTIPC	Develop a 'dual-track' verification: for GPP and for CBAM simultaneously	Maintain SME focus through protective quotas in PCP competitions
MENR	Initiate negotiations with the EC on mutual recognition of the L2 registry for CBAM purposes	Ensure that the CBAM agenda does not absorb the domestic GPP programme
Large businesses (ERG, Qarmet)	Finance L1 expansion in exchange for priority certification	Ensure preservation of balance between large businesses and SME waste processors

## F.5. GPP System Risk Matrix

The scenario analysis (Sections F.1–F.4) identified the decisive conditions determining the GPP system trajectory: timeliness of Art. 130 amendments, API integration readiness, EPR financing availability, the external CBAM factor. Each of these conditions gives rise to specific risks that may direct implementation along one of four scenarios – from 'Systemic Breakthrough' to 'Climate Storm'. This section systematises these risks in a unified matrix enabling prioritisation of actions today.

The risk matrix shows which threats to the GPP system are most serious and require priority attention. The horizontal axis shows severity of consequences (from manageable to critical); the vertical axis shows likelihood. Risks in the high-likelihood, high-impact zone are marked ★ and require immediate action. Impact is assessed across seven dimensions: (1) economic damage, (2) disruption of public services, (3) environmental damage, (4) reputational damage, (5) legal and institutional consequences, (6) international consequences, (7) harm to SME waste processors.

**Table 93. GPP System Summary Risk Matrix (probability × aggregate impact)**

Probability \ Impact	Critical impact	Significant impact	Moderate impact	Manageable impact
High	★ R7: Greenwashing during manual verification	★ R1: Delay of Art. 130	R3: SME market exit	R9: MF priority shift
Medium	R2: API integration failure	★ R4: EPR underfunding	R5: Price dumping of primary materials	R8: Staff shortage at IGTIPC
Low	R6: CBAM incompatibility	–	R10: Inter-agency disagreements	–

★ – priority risks requiring immediate action. ALARP (As Low As Reasonably Practicable) – a risk management principle applied in international practice (UK National Risk Register): it is impossible to eliminate a risk entirely, but for each risk specific measures are identified that reduce its probability or consequences to an acceptable level given available resources and timelines. R1\* – additional aspect of risk R1, requiring separate consideration.

Of the ten risks systematised in the matrix, four fall within the priority attention zone (marked ★): R7 and R1 – a combination of high probability with critical and significant impact respectively; R4 – medium probability with significant impact on the entire SME support mechanism; R1\* – a derivative of R1, the risk of declining political priority for integrating the environmental discount into the RPS as practice accumulates of applying the RPS without the environmental parameter. For each of them, an assessment and specific risk mitigation measures are provided below. The remaining seven risks (R2, R3, R5, R6, R8, R9, R10) are in the manageable or moderate impact zones and are addressed through standard measures within Section 6 (Recommendations).

**Table 94. F.5.1. Priority risk descriptions**

ID	Risk	Probability	Impact	ALARP measures
R1	Delay in adoption of Art. 130 Environmental Code amendments	High (legislative work plan is competitive)	Critical: postpones the launch of L2, the environmental discount and off-take contracts simultaneously	MENR submission by Q3 2026; parallel development of secondary legislation; alternative track through Presidential Decree
R4	Underfunding or suspension of EPR Operator funds	Medium (depends on completeness of EPR fund receipts)	Significant: suspends PCP and the entire SME support mechanism	Diversification of financing sources; targeted allocation of a portion of EPR funds for GPP
R7	Greenwashing during manual verification period before API launch	High (with API delay of more than 3 months)	Critical: creates a risk of distrust in the system, corruption risks	Moratorium on application of the environmental discount until API launch OR enhanced audit of manual applications by an independent body
R1*	Declining political priority for integrating the environmental discount into the RPS: as practice accumulates of applying the RPS without the environmental parameter, the task of introducing it loses the status of 'fine-tuning a new system' and acquires the status of 'reform of an operating system', requiring more significant administrative and coordination efforts to introduce changes	Medium (accumulates with each quarter without reform)	Significant long-term: GPP integration after 2027 will require more significant inter-agency coordination efforts, extending the timelines for Concept implementation	MENR submission of a proposal on including the environmental discount in Rules No. 687 by Q3 2026 – at the stage when the RPS is perceived by market participants as a system in the fine-tuning phase; parallel preparation of ToR for goszakup.gov.kz upgrade (jointly with CEF)

## F.6. Summary Scenario and Action Table

The scenario analysis (Sections F.1–F.4) and the risk matrix (Section F.5) enable identification of the decisive condition for each scenario – the condition on which the realisation of that scenario depends – and the priority action that must be taken now to increase the probability of a favourable scenario and reduce the consequences of an unfavourable one. Consolidation logic: for each scenario, its decisive condition is identified, the associated priority risk from matrix F.5.1 is determined, and the risk mitigation measure is translated into a specific action with an indication of the responsible body and timeline.

**Table 95. Summary scenario and action table**

Scenario	Relative probability	Decisive condition	Priority action today
<b>1. 'Systemic Breakthrough' (baseline)</b>	Most probable	API integration on time	Ensure CEF – IGTIPC coordination already in Q2 2026; begin parallel development of secondary legislation
<b>2. 'New Green Standard' (optimistic)</b>	Possible	External climate impulse + fast package law	Prepare the system for scaling in advance; document methodology for experience export
<b>3. 'Regulatory Ghost' (pessimistic)</b>	Significantly probable	PCP insufficient demand + API delay	Immediately launch a competency development programme; introduce target indicators for akimats on applying GPP criteria
<b>4. 'Climate Storm' (wild card)</b>	Low-probability but significant	CBAM verification phase for steel / aluminium / cement	Analyse CBAM compatibility of L2 methodology now; establish a working group with large businesses

## F.7. Conclusions and link to the Main Document

The analysis conducted – scenarios (Sections F.1–F.4), risk matrix (Section F.5) and summary action table (Section F.6) – enables identification of five conclusions most significant for the practice of GPP system implementation.

### **Conclusion 1: The initial stage of RPS implementation creates favourable conditions for integrating the environmental parameter**

The Rating and Points System (RPS), introduced from 1 January 2025, is at the formation stage: market participants are adapting to new procedures, and the regulatory framework continues to be refined (MF RK Order of 24.06.2025 No. 321 – first revision of Rules No. 687). At this stage, integration of the environmental discount is perceived as part of the general system fine-tuning process and requires minimal coordination effort – amendments to a single paragraph of the secondary legislation (para. 217 of Rules No. 687). As established practice of applying the RPS accumulates, the volume of approval procedures for introducing similar changes increases. It is recommended to initiate MENR’s proposal on including the environmental discount in Rules No. 687 during the preparatory phase (Section 6.1).

### **Conclusion 2: API integration of goszakup.gov.kz with IGTIPC registries – a condition for automation and anti-corruption protection of the system**

Automatic verification of the ‘green’ status of goods through API integration of the goszakup.gov.kz portal with IGTIPC registries (Appendix A, Norm 4) ensures two key properties of the GPP system: objectivity of assessment (elimination of subjective decisions in calculating the environmental discount) and protection against unfounded environmental claims. Pending technical completion of the API, it is recommended to provide a transitional procedure for applying the environmental discount – for example, an enhanced procedure for confirming ‘green’ status based on L2 registry documents of IGTIPC. The terms of reference for API integration are recommended for development during the preparatory phase (Section 6.1) jointly with CEF.

### **Conclusion 3: The CBAM mechanism and other complementary EU regulations under definition create additional demand for L2 registry data from exporters**

As of 1 January 2026, the definitive phase of the EU Carbon Border Adjustment Mechanism (CBAM, Regulation (EU) 2023/956) is in effect: importers into the EU of goods in the categories 'steel', 'aluminium', 'cement', 'fertilisers', 'hydrogen' are required to declare embedded CO<sub>2</sub> emissions, and from 2027 – to purchase CBAM certificates. For Kazakhstani exporters of steel and aluminium (ERG, Qarmet, KSP Steel), this means the need for documentary confirmation of carbon intensity of products. The L2 registry contains some of the data required for CBAM reporting: origin of raw materials, secondary resource content, and cascading linkage with verified L1 technology – which may reduce the carbon intensity of products and, correspondingly, the cost of CBAM certificates for exporters. It is recommended at the stage of developing the L2 Registry Management Rules (Section 6.1) to analyse the possibility of including parameters compatible with CBAM reporting requirements.

### **Conclusion 4: Financial sustainability of the Innovation Support Programme (PCP) requires ensuring stability of EPR financing**

Financing of the Innovation Support Programme (PCP) through the EPR mechanism (Art. 388(5)/(9)/(10) of the Environmental Code of the RK) is the foundation of Pillar 2 of the GPP system. The sustainability of this source depends on the stability of receipts to the EPR Operator fund (JSC 'Zhasyl Damu'), which in turn are determined by the completeness of obligations fulfilment by producers and importers. It is recommended: (a) when developing the Innovation Support Programme Regulation (Section 6.1) to provide for targeted allocation of a portion of EPR funds for R&D in waste processing; (b) at the scaling stage (2028–2030, Section 6.3) to explore the possibility of attracting additional financing sources, including international financial institutions.

### **Conclusion 5: Timely launch of PCP competitions and pilot off-take contracts – a condition for populating the L2 registry by 2028–2030**

The GPP system creates demand for 'green' construction materials (Pillar 1), but its effectiveness depends on the availability of supply – SME enterprises capable of producing verified products from secondary raw materials for the L2 registry. Risks R3 (SME market exit with prolonged absence of demand) and R5 (price advantage of primary materials) from matrix F.5.1 indicate the need for synchronisation of regulatory and market actions. It is recommended: (a) to ensure readiness of the first PCP competition (Appendix C) by the time Art. 130 Environmental Code amendments are adopted, so that the first SME products can enter the L2 registry without delay; (b) to provide in PCP grant conditions for assisting participants in securing a stable raw material base; (c) to use pilot off-take contracts in three regions (Appendix F) as the practical foundation for scaling the system.

Methodological basis: scenario planning toolkit and risk matrix in UK National Risk Register 2025 format

# Appendix G. Stakeholder Map

**Table 96. Stakeholder map**

Stakeholder	Interest	Position	Engagement Strategy
MENR	Concept implementation	Leading	Initiating amendments to Art. 130 of the Environmental Code; developing L2–L3 registry management rules
MF	Public procurement regulation	Supportive	Joint development with MENR of amendments to Rules No. 687 and environmental discount methodology
JSC 'Zhasyl Damu'	Development of secondary materials market through EPR mechanism	Supportive	R&D and pilot project financing through the Innovation Support Programme (EPR mechanism)
IGTIPC	Green product verification	Leading	Designation as operator of L1–L3 registries and certification system
Akimats	Budget savings	Supportive	Engagement through pilot projects in 3–5 regions demonstrating budget savings
SMEs – industrial waste processors (fly ash, slag, phosphogypsum) and MSW fractions	Access to public procurement market	Leading	Ensuring access to public procurement through IGTIPC registries and off-take contracts
MIC	Construction sector development	Supportive	Joint development with IGTIPC of sectoral green construction material criteria
CEF	Modernisation of goszakup.gov.kz	Supportive	Development of ToR and implementation of goszakup.gov.kz ↔ IGTIPC registry API integration
MNE	Assessment of the programme's economic impact GPP	Neutral	Request for assessment of the programme's economic impact on GDP, employment and SMEs
Government of the RK	Concept implementation	Leading	Approval of Decrees on IGTIPC's authority to maintain L2–L3 registries
Parliament of the RK	Improvement of environmental legislation	Neutral	Review and adoption of amendments to Art. 130 of the Environmental Code of the RK

**Position Scale (PMI (Project Management Institute) PMBOK (Project Management Body of Knowledge), Stakeholder Engagement Assessment Matrix).** The 'Position' column reflects the current stakeholder engagement level according to the standardised five-level PMI scale:

**Unaware** – not aware of the project and its potential impacts.

**Resistant** – aware of the project and its potential impacts, but resistant to change; does not support the work or project outcomes.

**Neutral** – aware of the project but neither supportive nor resistant.

**Supportive** – aware of the project and its potential impacts; supports the work and its outcomes.

**Leading** – aware of the project and its potential impacts; actively engaged in ensuring project success.

**Source:** *Project Management Institute. A Guide to the Project Management Body of Knowledge (PMBOK® Guide), 6th Edition, 2017 – Section 13.2.2.5, Figure 13-6. Detailed methodology description: [project-management.info/stakeholder-engagement-matrix](http://project-management.info/stakeholder-engagement-matrix).*

# Appendix H. International Experience

Numbers in square brackets [N] are references to primary sources; a complete list with hyperlinks is provided at the end of the appendix.

**Table 97. International GPP experience for safe construction materials from industrial and consumer waste**

Country / Region	GPP Regulatory Framework	Incentive Mechanism	Safety Control	Secondary Material Thresholds	Practical Case	Verified Result
<b>EU (supra-national)</b>	<p><b>Level(s)</b> (2020) – 16 building sustainability indicators<sup>[1]</sup></p> <p><b>EU GPP Criteria</b> for buildings (2016, revised 2024) and roads<sup>[2,3]</sup></p> <p><b>CPR 2024/3110</b> – mandatory DPP and GWP reporting from 2026<sup>[4]</sup></p> <p><b>EU Ecolabel</b> – top 10–20% of the market<sup>[3]</sup></p>	<p><b>Voluntary criteria</b> Core/ Comprehensive for tenders<sup>[2]</sup></p> <p><b>Mandatory reporting</b> on GWP from 2026, full – by 2032<sup>[4]</sup></p> <p><b>Anti-greenwashing:</b> Directive 2024/825 – fines up to 4% of turnover (Dir. 2019/2161 mechanism)<sup>[7]</sup></p>	<p><b>REACH:</b> 0.1% threshold for 251 SVHCs (11.2025)<sup>[5]</sup></p> <p><b>EN 15804+A2:</b> EPD with modules A1–A3, C1–C4, D<sup>[6]</sup></p> <p><b>Level(s) 4.1:</b> formaldehyde and VOC limits<sup>[1]</sup></p>	<p>Concrete: <b>≥20%</b> RC aggregate<sup>[2]</sup></p> <p>Reinforcing steel: <b>≥98%</b> secondary materials<sup>[2]</sup></p> <p>Laminate flooring: <b>≥30%</b><sup>[2]</sup></p> <p>CDW recovery: <b>≥70%</b><sup>[3]</sup></p> <p>During demolition: <b>≥80%</b> by mass<sup>[2]</sup></p>	<p><b>Euroslag</b> (2024): &gt;90% steel slag recovery<sup>[8]</sup></p> <p>Leading countries: up to <b>60%</b> GPP adoption (2012 data)<sup>[7,8]</sup></p> <p>ECO Platform: <b>12 749+</b> EPD<sup>[ECO Portal]</sup></p>	<p><b>~15%</b> of EU GDP – through public procurement<sup>[9,10]</sup></p> <p>CPR 2024: DPP and GWP reporting from 2026<sup>[4]</sup></p> <p>Price dominates in &gt;55% of contracts<sup>[9]</sup></p>
<b>Netherlands</b>	<p><b>Circular NL 2050</b> – –50% primary materials by 2030<sup>[11]</sup></p> <p><b>MPG</b> (mandatory since 2013, tightened 2021) – eco-efficiency of buildings (offices &gt;100 m<sup>2</sup>, housing – all)<sup>[13]</sup></p> <p><b>DuboCalc/ MKI</b> – Rijkswaterstaat LCA calculator<sup>[12]</sup></p> <p><b>CO<sub>2</sub> Performance Ladder</b> – 5 levels (v3.1; v4.0 from 2025: 3 tiers)<sup>[15]</sup></p>	<p><b>Monetisation:</b> MKI converts eco-damage to €, fictitious MEAT discount<sup>[12,13]</sup></p> <p>CO<sub>2</sub> Ladder: advantage <b>up to 10% (2% per level)</b><sup>[15]</sup></p> <p>NMD: penalty values for non-certified<sup>[14]</sup></p>	<p><b>NMD:</b> 19 impact categories (since 2021, EN 15804+A2), incl. toxicity<sup>[14]</sup></p> <p><b>MPG:</b> ≤0.8 €/m<sup>2</sup>/year (housing)<sup>[13]</sup></p> <p>Leaching test for RC materials<sup>[12]</sup></p>	<p>MPG: <b>≤€0.8/ m<sup>2</sup>/year</b> (tightening to 0.5 postponed)<sup>[13]</sup></p> <p><b>85% GWW</b> contracts (€1.1 bn) with MKI<sup>[14,15]</sup></p>	<p><b>Beverbrug:</b> geopolymer concrete, 50% RC, –38% CO<sub>2</sub><sup>[17]</sup></p> <p><b>Kampen Viaduct:</b> disassembly-reconstruction, –1% losses<sup>[17]</sup></p> <p><b>A6/A12:</b> RAP + secondary polymers in PPP<sup>[16,19,20]</sup></p> <p><b>Kokosystems:</b> noise barriers from RC plastic<sup>[18]</sup></p>	<p><b>30,6%</b> circular use (Eurostat 2023, best in EU)<sup>[11]</sup></p> <p>~100% fly ash recovery<sup>[17]</sup></p> <p>Target: 80% bridge reuse by 2030<sup>[11]</sup></p>

Country / Region	GPP Regulatory Framework	Incentive Mechanism	Safety Control	Secondary Material Thresholds	Practical Case	Verified Result
Germany	<p><b>Blue Angel</b> (1978) – 20,000+ products<sup>[25]</sup></p> <p><b>EBV</b> (01.08.2023) – first regulation for RC mineral construction materials<sup>[21,22]</sup></p> <p><b>AgBB</b> – health assessment of construction materials<sup>[26]</sup></p>	<p><b>Certification + pollutant limits:</b><sup>[21,25]</sup></p> <p>Blue Angel – priority criterion<sup>[27]</sup></p> <p>EBV: ‘suitability certificate’ from RC producers<sup>[22,23]</sup></p>	<p><b>AgBB:</b> VOC emissions per EN 16516 (day 3/28); CMR ban<sup>[26]</sup></p> <p><b>Blue Angel:</b> DE-UZ 102 (VOC ≤700, SVOC ≤500 ppm)<sup>[25]</sup></p> <p><b>EBV:</b> pollutant limits in slags, ashes, CDW<sup>[21,24]</sup></p>	<p>DE-UZ 30a: RC plastic (profiles, pipes) ≥80%<sup>[25]</sup></p> <p>DE-UZ 216: RC concrete products (outdoor, ≥40% RC from 2025)<sup>[25]</sup></p> <p>VOC ≤700, SVOC ≤500 ppm<sup>[26]</sup></p>	<p><b>EBV (2023):</b> unified regulation for slags, ashes, CDW<sup>[21,22,23]</sup></p> <p><b>DGNB:</b> 83% share among cert. systems (new commercial buildings, DGNB 2024)<sup>[28]</sup></p>	<p><b>80 million t</b> (14%) RC aggregates from 577 Mt/year (UEPG, 2022)<sup>[24]</sup> over 200 Mt mineral CDW/year (KWB, 2022)<sup>[22]</sup> 20,000+ Blue Angel products<sup>[25]</sup></p>
France	<p><b>RE2020</b> (01.01.2022) – mandatory carbon limits<sup>[29,30]</sup></p> <p><b>AGEC Law</b> (02.2020) – secondary materials 20–80%<sup>[31]</sup></p> <p><b>INIES</b> – 4 560 FDES + 1 342 PEP<sup>[29]</sup></p>	<p><b>Mandatory thresholds:</b> CO<sub>2</sub> + % secondary materials<sup>[29,30]</sup></p> <p><b>Dynamic LCA:</b> advantage for RC materials<sup>[30]</sup></p> <p>From 22.08.2026: mandatory eco-criterion in all public contracts<sup>[31]</sup></p>	<p><b>French VOC label:</b> A+ rating<sup>[34]</sup></p> <p><b>RE2020:</b> penalty generic values<sup>[29]</sup></p> <p>Bio-based materials (timber, hemp, straw)<sup>[35]</sup></p>	<p>RE2020: ≤530 kg CO<sub>2</sub>e/m<sup>2</sup> (individual), ≤650 (multi-family)<sup>[29,30]</sup></p> <p>Tightening: –30% by 2031<sup>[30]</sup></p> <p>AGEC: 20–80% secondary materials<sup>[31]</sup></p>	<p><b>Métisse:</b> 85% RC cotton; A+ VOC; formaldehyde-free<sup>[32,33,37]</sup></p> <p><b>Luma Arles:</b> sunflower, rice straw<sup>[36]</sup></p> <p>Paris social housing with bio-based materials<sup>[34,35]</sup></p>	<p><b>4 560 FDES</b> + 1 342 PEP in INIES<sup>[29]</sup></p> <p>Bio-based material growth in construction<sup>[30,31]</sup></p> <p>Clauses d’insertion sociale<sup>[34]</sup></p>
Scandinavia (Sweden, Denmark)	<p><b>BASTA</b> (IVL) – chemical safety registry<sup>[38,39,40]</sup></p> <p><b>Nordic Swan</b> – ‘New Buildings’ (generation 4)<sup>[41,42]</sup></p> <p><b>POGI</b> (Denmark) – GPP Partnership<sup>[43]</sup></p>	<p><b>Negative lists + eco-labelling:</b><sup>[38,41]</sup></p> <p>BASTA: ALPHA/BETA + Logbook<sup>[38,39]</sup></p> <p>Trafikverket: harmonisation with BASTA<sup>[40]</sup></p> <p>Denmark (2024): mandatory eco-labelling<sup>[43]</sup></p>	<p><b>BASTA: 39 criteria</b> across 11 categories, REACH/PRIO<sup>[38,39]</sup></p> <p><b>Nordic Swan:</b> CMR, phthalate, halogenated compound ban<sup>[41]</sup></p> <p>M×100×H410 + 10×H411 + H412 ≤ 8%<sup>[41]</sup></p>	<p>Nordic Swan: +10% better than NZEB<sup>[42]</sup></p> <p>Byggvarubedömningen: 7 factors<sup>[40]</sup></p> <p>CE-marking of RC brick<sup>[43]</sup></p>	<p><b>Hjørring:</b> RC brick (demolition → reuse)<sup>[43]</sup></p> <p><b>Byggvarubedömningen:</b> ‘Rec./Accepted/Avoid’<sup>[40]</sup></p>	<p>BASTA in Swedish infrastructure tenders<sup>[38,40]</sup></p> <p>POGI: ~30 participants<sup>[43]</sup></p> <p>44% of tenders with eco-criterion (Finland)<sup>[78]</sup></p>
Japan	<p><b>Green Purchasing Law</b> (2000) – 270+ items<sup>[44,45]</sup></p> <p><b>Construction Material Recycling Law</b><sup>[49]</sup></p> <p><b>JIS:</b> A 6201, A 6206, R 5211<sup>[46]</sup></p> <p><b>Eco Mark</b> (1989)<sup>[47,48]</sup></p>	<p><b>Mandates + standardisation:</b><sup>[44,45]</sup></p> <p>JIS: ‘waste’ → ‘standard material’<sup>[46]</sup></p> <p>Mandatory ministry reporting<sup>[45]</sup></p> <p>Eco Mark: preferences in public procurement<sup>[47]</sup></p>	<p><b>Eco Mark:</b> CMR, halogenated flame retardant, Pb, Cd, Cr<sup>6+</sup> ban<sup>[47,48]</sup></p> <p><b>CASBEE*:</b> free of harmful substances<sup>[44]</sup></p> <p>JIS: quality and safety requirements<sup>[46]</sup></p>	<p>Eco Mark: secondary materials*<sup>[47]</sup></p> <p>JIS R 5211: A (5–30%), B (30–60%), C (60–70%)<sup>[46]</sup></p> <p>Mandatory RC-CDW in roads<sup>[49]</sup></p>	<p>Mandatory on-site CDW sorting during demolition<sup>[49,50]</sup></p> <p><b>Eco-cement:</b> up to 50% ash; ports, dams<sup>[50]</sup></p> <p><b>Marine blocks:</b> from slag for marine ecosystems<sup>[50]</sup></p>	<p><b>99,3%</b> concrete CDW recycling<sup>[50]</sup></p> <p><b>99,5%</b> asphalt concrete recycling<sup>[50]</sup></p> <p>~<b>99%</b> steel slag recovery<sup>[50]</sup></p> <p><b>95%+</b> government compliance<sup>[45]</sup></p>

Country / Region	GPP Regulatory Framework	Incentive Mechanism	Safety Control	Secondary Material Thresholds	Practical Case	Verified Result
South Korea	<b>Act on Green Products</b> (2005, mandatory) <sup>[51]</sup> <b>Korean Eco-label</b> (1992, ISO 14024) <sup>[51]</sup> <b>MGS</b> – 176 items <sup>[51]</sup> <b>GR Mark</b> – standard for RC products <sup>[53]</sup>	<b>KONEPS:</b> auto-priority for 30,000+ government bodies <sup>[51]</sup> <b>Civil servant KPIs:</b> green procurement share <sup>[51]</sup> MGS: inability to procure non-compliant <sup>[51]</sup>	<b>Korean Eco-label:</b> ISO 14024, KEITI (Korea Environmental Industry & Technology Institute) verification <sup>[51]</sup> <b>GR Mark:</b> RC product testing <sup>[53]</sup>  Standards for RC asphalt concrete <sup>[53]</sup>	<b>MGS: 176</b> items <sup>[51]</sup> Mandatory RC aggregates in roads <sup>[53]</sup> <b>97,3%</b> CDW recycling <sup>[53]</sup>	<b>KONEPS:</b> unified system; auto-priority <sup>[51]</sup> Green infrastructure fund: <b>400 billion won</b> <sup>[51]</sup> Unification GR+KS → KS (2025) <sup>[51]</sup>	Growth from <b>\$759 million to \$2,945 million</b> <sup>[51]</sup> <b>665,000 t CO<sub>2</sub>/year</b> <sup>[51]</sup> <b>16,6%</b> green products in KONEPS <sup>[51]</sup>
USA	<b>EPA CPG</b> (1995) – mandatory % for federal agencies <sup>[61,62]</sup> <b>Buy Clean California</b> (2017) – embodied carbon <sup>[54,55]</sup> <b>Red List</b> (San Francisco) – toxin ban <sup>[56,57,58]</sup> <b>CALGreen</b> – embodied carbon >100k sq.ft <sup>[54]</sup>	<b>Thresholds + negative lists:</b> <sup>[54,62]</sup> EPA CPG: % secondary materials by category <sup>[61,62]</sup> Buy Clean: GWP + EPD; exceedance = disqualification <sup>[54,55]</sup> Red List: C2C Silver for municipal <sup>[56,58]</sup>	<b>Red List:</b> PFAS, phthalate, triclosan ban <sup>[56,57,58]</sup> <b>C2C:</b> circularity + chemical safety <sup>[56]</sup> <b>Buy Clean:</b> EPD no EN 15804 / ISO 14025 <sup>[54,55]</sup>	Cellulose insulation: <b>≥75%</b> <sup>[62]</sup> Stone/glass wool: <b>≥20–75%</b> <sup>[62]</sup> Cement (ash/slag): <b>15–50%*</b> <sup>[61,62]</sup> Rubber tile: <b>≥90–100%</b> <sup>[62]</sup> Carpets (SF): <b>≥45% + C2C</b> <sup>[57,58]</sup>	<b>San Francisco:</b> PFAS ban → formulation change <sup>[56,57]</sup> <b>Seattle Library:</b> LEED, RC aluminium <sup>[59,60]</sup>	Buy Clean – first embodied carbon law <sup>[54]</sup> Manufacturers changed formulations <sup>[56,57]</sup> CALGreen: embodied carbon for schools <sup>[54]</sup>
United Kingdom	<b>BREEAM</b> (1990) – world's first system <sup>[63]</sup> <b>GBS</b> – mandatory for central government <sup>[64]</sup> <b>PPN 06/20:</b> 10% social value <sup>[65]</sup> <b>PPN 006:</b> CRP (>£5M) <sup>[66]</sup> <b>London Plan SI 7</b> <sup>[67]</sup>	<b>Points + thresholds:</b> BREEAM: Pass → Outstanding <sup>[63]</sup> PPN 06/20: min. 10% weight <sup>[65]</sup> PPN 006: Net Zero 2050 <sup>[66]</sup> London: 20% RC by value <sup>[67]</sup> NPPS 2025: statutory duty <sup>[68]</sup>	<b>UK REACH</b> (HSE regulator) <sup>[69]</sup>  <b>BES 6001 (Framework Standard for Responsible Sourcing):</b> responsible sourcing <sup>[70]</sup> <b>BRE Green Guide:</b> A+ → E <sup>[71]</sup> <b>WRAP Quality Protocol</b> <sup>[72]</sup> <b>EPD:</b> ISO 14025/EN 15804 <sup>[63]</sup>	<b>30%+</b> UK aggregates from RC <sup>[73]</sup> <b>73.5 million t</b> RC aggregates (2022) <sup>[73]</sup> London: 20% RC by value <sup>[67]</sup> Olympic: 25% RC aggregates <sup>[74]</sup> GGBS: up to 66% (HS2) <sup>[75]</sup>	<b>Olympic Park:</b> >90% CDW <sup>[74]</sup> <b>HS2 Curzon St:</b> 100% RC steel <sup>[75]</sup> <b>K-Briq:</b> >96% RC, BBA cert <sup>[76]</sup> <b>M25:</b> 50% RAP (first in UK) <sup>[77]</sup>	BREEAM – world's first (1990) system <sup>[63]</sup> 600,000+ certified buildings <sup>[63]</sup> Quality Protocol: 'waste' → 'product' <sup>[72]</sup> Procurement Act 2023: MEAT → MAT <sup>[68]</sup>

**Abbreviations:** GPP – Green Public Procurement; CDW – Construction and Demolition Waste; RAP – Reclaimed Asphalt Pavement; GGBS – Ground Granulated Blast-furnace Slag; RC – Recycled; SVHC – Substances of Very High Concern; CMR – Carcinogens, Mutagens, Reprotoxicants; VOC – Volatile Organic Compounds; SVOC – Semi-Volatile Organic Compounds; PFAS – Per- and Polyfluoroalkyl Substances; EPD – Environmental Product Declaration; LCA – Life-Cycle Assessment; GWP – Global Warming Potential; DPP – Digital Product Passport; MEAT – Most Economically Advantageous Tender; MAT – Most Advantageous Tender (UK, from 2023); MKI – Environmental Cost Indicator; MPG – Environmental Performance of Buildings; NMD – National Environmental Database; FDES – Environmental Declaration (France); PEP – Product Environmental Profile (France); INIES – FDES Database (France); C2C – Cradle to Cradle; NZEB – Nearly Zero-Energy

*Building; CPR – EU Construction Products Regulation; EBV – Substitute Building Materials Regulation (Germany); REACH – EU Chemicals Regulation; AGECE – Circular Economy Law (France); PPN – Procurement Policy Note (UK); CRP – Carbon Reduction Plan (UK); GBS – Government Buying Standards (UK); NPPS – National Procurement Policy Statement (UK); PPP – Public-Private Partnership; GWW – Road/Water Infrastructure (Netherlands); KPI – Key Performance Indicators; BREEAM – Building Environmental Certification System (UK); LEED – Building Environmental Certification System (USA); DGNB – Building Environmental Certification System (Germany); CASBEE – Building Environmental Certification System (Japan); JIS – Japanese Industrial Standards; ISO – International Organization for Standardization; MGS – Mandatory Green Standards (South Korea); GR – Recycled Product Marking (South Korea); KONEPS – Korean Online E-Procurement System (South Korea); CE – EU Conformity Marking; BASTA – Chemical Safety Registry (Sweden); WRAP – Waste and Resources Action Programme (UK); EPA – Environmental Protection Agency (USA); HSE – Health and Safety Executive (UK); BRE – Building Research Establishment (UK); A1–A3 – Production modules per EN 15804; C1–C4 – End-of-life modules per EN 15804; D – Reuse/recycling module per EN 15804; \* – exact parameters may vary by product category.*

**Key Finding:** Successful GPP systems for safe construction materials from waste combine five mechanisms: (1) eco-damage monetisation (Netherlands), (2) mandatory mandates (Japan, South Korea), (3) embodied carbon thresholds (France, USA), (4) negative lists of toxic substances (Scandinavia, San Francisco), and (5) scoring systems (UK). The critical condition is the simultaneous assurance of circularity and chemical safety – which distinguishes mature systems from declarative ones.

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All links verified as of March 2026.

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*Note: data is current as of March 2026. Secondary material content thresholds are stated as minimum requirements of the respective GPP programs.*



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