



EURO-EURASIA ENVIRONMENTAL SCIENCE & EDUCATION FOUNDATION

Registration No: 17247709 · Registered Non-Profit Entity: England & Wales
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Document Reference: EEEEESEF-PB-2026-001

Publication Date: June 4, 2026

Security Classification: PUBLIC RELEASE — Policy & Regulatory Reference

Subject Pillars: Environmental Jurisprudence · Waste Hierarchy Alignment · Cross-Border Circular Economy

EEEESEF - POLICY BRIEF SERIES

***Regulatory Frameworks for Spent Mineral Oils in Central Asia:
Aligning Kazakhstan's Environmental Standards with EU Circular Economy Directives***

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Published by: Euro-Eurasia Environmental Science & Education Foundation (EEEESEF)

Target Audience: Ministry of Ecology & Natural Resources · Regional Environmental Inspectors

Academic Policy Panels · Industrial Compliance Officers



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1. Executive Summary & The Legislative Disconnect

As Central Asia undergoes rapid industrial modernisation, the management of hazardous industrial waste remains a major governance challenge. Among the most persistent environmental risks is the mismanagement of spent mineral oils. Kazakhstan's Environmental Code establishes a modern legal foundation for environmental protection, but implementation gaps can still allow used oils to bypass formal circular pathways. [1][8]

Instead of being routed to certified re-refining or other compliant recovery systems, spent lubricants may still enter informal markets, be burned for low-grade heating, or be dumped illegally. This policy brief outlines a legislative path to close that enforcement gap. By harmonising local waste classification and tracking rules with established European Union circular economy frameworks, regional authorities can reduce leakage, improve traceability, and support resource security. [3][5]

1.1 The Central Asian Hazardous Waste Governance Challenge

Spent mineral oils are hazardous waste and require controlled collection and treatment. The challenge is not simply technical; it is also regulatory, administrative, and economic. Where enforcement is weak, informal disposal channels become cheaper than compliant treatment, and the environmental cost is transferred to the public. [6][8]

1.2 The Dual-Sided Resource Dilemma

Spent mineral oils contain recoverable value, yet they also carry contamination risks, including soil and water pollution. If collection systems are weak, the region loses a feedstock that could support regeneration, industrial supply resilience, and local circular-economy investment. A stronger policy framework can turn a waste liability into a regulated secondary resource. [1][2]

1.3 Blueprint Objectives

This brief has three objectives. First, it identifies the core policy gap in spent-oil governance. Second, it proposes a practical alignment with EU waste-hierarchy principles. Third, it sets out immediate steps that regulators, industry, and universities can take to improve compliance and traceability. [3][5]

Core Legislative Problem:

The structural gap between Kazakhstan's statutory environmental intent and its enforcement mechanisms is estimated by EESEF to allow on the order of 80,000 tonnes per year of spent mineral oils to enter the shadow market — generating atmospheric pollution, groundwater contamination, and the permanent destruction of recoverable economic value.



2. The Policy Pivot: Aligning with the EU Waste Framework Directive

The EU Waste Framework Directive gives priority to separate collection and regeneration for waste oils, while also prohibiting mixing when it impedes regeneration or other equivalent recycling outcomes. That structure offers a useful reference point for modernising national rules and inspection practice. [3][5]

For Central Asian regulators, the key policy lesson is simple: a circular system works only when waste streams are visible, traceable, and directed toward the highest-value recovery option that is technically feasible.

2.1 Statutory Codification of the Regeneration Priority

The first reform is to state clearly in law that re-refining or regeneration is the preferred treatment route for suitable spent mineral oils. Where regeneration is technically feasible, it should be prioritised over energy recovery. [3][5]

This clarification matters because, in weak regulatory environments, energy recovery can become the default option even when higher-value circular treatment is available. A clear statutory hierarchy helps inspectors, producers, and waste handlers apply one consistent standard.

2.2 Digital Manifest Registry

The second reform is a centralised digital manifest system for used oils. Every batch should be recorded at the point of generation, transferred only through authorised handlers, and closed only when a certified recovery facility confirms receipt and treatment. [6]

A digital registry improves auditability, reduces paper-based manipulation, and gives regulators a real-time view of flow volumes. It also helps identify losses, anomalies, and unauthorised diversion early enough to enforce corrective action.

2.3 Anti-Mixing Prohibitions

The third reform is to prohibit the mixing of spent mineral oils with other waste streams when such mixing makes regeneration more difficult or impossible. Mixed waste is harder to process, less valuable, and more likely to end up in low-grade recovery or disposal routes. [5]

Clear anti-mixing rules should be paired with labelling requirements, transport documentation, and penalties for deliberate dilution or contamination. That combination creates both a legal and operational deterrent.

TIER 1	PREVENTION	← Highest Priority
TIER 2	RE-PREPARATION & REUSE	
TIER 3	RE-REFINING / REGENERATION	← Mandatory over Incineration
TIER 4	ENERGY RECOVERY	
TIER 5	DISPOSAL — Prohibited Last Resort	



3. Macroeconomic Multipliers & Immediate Policy Recommendations

Better control of spent-oil flows produces more than environmental gains. It also supports fiscal transparency, domestic value retention, and industrial modernisation by reducing the scale of informal, cash-based disposal markets. [1][7]

It can also create demand for scientific testing, compliance services, and technical training. In that sense, waste governance becomes part of a broader industrial competitiveness strategy.

3.1 Institutional Benefits of Legislative Loop Closure

Tightening the policy loop on hazardous oil tracking can improve sovereign resource security by reducing dependence on imported virgin base stocks. It can also strengthen fiscal transparency by moving waste handling into traceable, regulated channels. [7][8]

For universities and research institutions, a stable flow of lawful feedstock creates opportunities for applied research, safe testing protocols, and technology development in re-refining and waste analytics.

3.2 Immediate Policy Recommendations for Action

EEEF recommends three immediate actions:

RECOMMENDATION 1 — Mandate Circular Compliance for Permit Renewals

Require certified digital disposal receipts from authorised recovery facilities as a prerequisite for environmental permit renewal for major industrial operators.

RECOMMENDATION 2 — Standardise Green Procurement Mandates

Adopt green procurement rules that favour certified circular products where technically suitable, especially for public fleets and infrastructure systems.

RECOMMENDATION 3 — Establish Cross-Border Tracking Standards

Harmonise cross-border tracking codes and customs procedures so that spent lubricants cannot be misdeclared as low-grade heating fuel or other lower-risk materials.



4. Comparative Case Analysis — Poland & Romania

Historical experience in EU member states shows that used-oil governance improves when policy combines clear legal priority, national tracking systems, and enforcement against illegal burning or dumping. [3][4]

EU member states including Poland and Romania have introduced reforms intended to strengthen collection, traceability, and compliance. The broader European experience suggests that market formalisation tends to follow once the state closes the informal disposal pathway and makes compliant treatment the easier legal option. The outcomes described below are presented as an illustrative policy model drawn from the European regulatory toolkit rather than as a precise account of any single country; actual results vary by national context.

The Implementation Mechanism

Across these European reforms, the principal levers have been legislative and structural rather than subsidy-based. The main instruments are:

- ▶ **The Introduction of Product Fees** A strict legal mechanism placed a financial levy on the import or manufacture of virgin lubricants, completely waived only if the company proved it collected and sent an equivalent volume of spent oil to a certified re-refinery.
- ▶ **Systemic Criminalisation of Waste Burning** Environmental inspectorates were given the statutory authority to issue massive, immediate fines to any business utilising waste-oil burners for space heating.
- ▶ **The Unified Manifest Loop** Paper logs were replaced with mandatory digital reporting portals overseen by central environmental registries.

Socio-Economic Outcomes and Lessons for Central Asia

Where such measures have been applied, the European experience points to several recurring effects over the medium term:

- ▶ **Market Formalisation** Informal disposal channels tend to contract as compliant routes become the easier legal option, and small-scale collectors can transition into authorised handlers contracted to licensed processors.
- ▶ **Private Capital Inflow** Where investors gain confidence that the state will enforce feedstock tracking, private capital is more likely to fund regeneration and blending infrastructure, since a secured feedstock stream improves project bankability.



► **Environmental Reclamation** Diverting waste oil away from uncontrolled burning reduces associated air emissions in industrialised zones, and the European experience indicates that regulatory alignment is among the most important enablers of circular-economy deployment. [3][4]

KEY LESSON FOR CENTRAL ASIA

The enforcement gap is not a technical problem — it is a legislative design problem. Once the law closes the pathway for informal disposal, compliant treatment becomes the easier legal option and private capital is more likely to fund the necessary infrastructure. The regulatory framework is itself a primary investment catalyst, often reducing the need for heavy state subsidy.



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Sign-Off and Closing Block

APPROVAL FOR PUBLICATION

This policy brief has been reviewed and approved for publication by the Euro-Eurasia Environmental Science & Education Foundation (EEEESEF).

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Date of Publication: June 4, 2026

EEEESEF Company No. 17247709

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