
ACCOUNTING FOR ENVIRONMENTAL FIXED ASSETS AND THE FINANCING OF ENVIRONMENTAL INVESTMENTS IN BUILDING MATERIALS ENTERPRISES

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Abstract

The paper proposes a synthetic-analytical model for accounting for environmental fixed assets and environmental investments in building materials enterprises built into the national chart of accounts. Sub-accounts 0192 and 0193 within account 0100, accounts 0600 and 3200 for capital and current environmental expenditure and account 8540 with sub-accounts 8541–8543 for financing by technological stage are introduced, together with the entry sequence and the treatment of environmental obligations under IAS 37. The model is tested on the 2020–2023 data of three cement producers, whose environmental investments of 17.2 bn UZS are traced by object, financing source and asset sub-account. The proposals have been adopted by the Chamber of Commerce and Industry of Uzbekistan.

Keywords: Building materials industry, cement, environmental assets, environmental investments, chart of accounts, sub-accounts, environmental obligations, IAS 37.

Introduction

The building materials industry is one of the most resource- and energy-intensive sectors of the economy: on energy-intensive lines the share of energy in production cost reaches 30–50 per cent, and dust, flue gases, wastewater and solid waste create a high environmental load. In Uzbekistan the modernisation of the sector and its shift towards resource-saving and environmentally clean production belong to the tasks of the "Uzbekistan–2030" strategy [1] and of the 2025 state programme for the Year of Environmental Protection and the Green Economy [2], while accounting itself is being converted to IFRS; this turns the environmental component of accounting into a separate object of accounting and audit.

Environmental accounting in the building materials industry has been studied by Rubanova [5] and Kudin [6], who argued for the systematic accounting of environmental costs in cement production; Fribus [7] developed the accounting and audit of environmental obligations of extractive enterprises; Rahman et al. [8] and Umobong and Akani [9] examined cost accounting and IFRS adoption in cement companies; in Uzbekistan Tulovov [10] and Omanov [11] studied accounting and audit in construction and the accounting of production costs. None of these works offers a scheme that fits the national chart of accounts [4] and links environmental assets with their financing sources, expenses and obligations. The analysis of the 2020–2023 financial statements of three cement producers – "Qizilqumsement" JSC, "Ohangaronsement" JSC and "Quvasoysement" JSC – showed that fixed assets are growing fast (at "Qizilqumsement" JSC from 1.7 trillion UZS in 2021 to 3.2 trillion UZS in 2023), that environmental investments are not yet separated from general expenditure, and that the reports contain no line on atmospheric protection assets. The aim of the paper is to propose an accounting model that identifies environmental assets, their financing, expenses and obligations within the existing chart of accounts.

Materials and methods

The study draws on the Law "On Accounting" [3], the chart of accounts approved as National Accounting Standard No. 21 [4], IAS 37 [12], and the financial statements and investment documentation of the three joint-stock companies for 2020–2023. Grouping, comparison, monographic study, analysis and synthesis, and modelling of accounting entries were applied.

Results and discussion

Environmental assets are tangible or intangible resources that serve environmental protection, the rational use of natural resources and the reduction of environmental risks: gas and dust cleaning, wastewater treatment, waste recycling and environmental monitoring equipment. In current practice such objects are recorded as ordinary fixed assets on account 0100, so their function, environmental effect and investment results remain invisible in the statements. The proposed structure of accounts is given in Table 1.

Table 1. Proposed accounts and sub-accounts for environmental assets, expenses and financing

Account / sub-account	Name	Objects recorded
0100 / 0192	Fixed assets for atmospheric protection	Electrostatic filters, gas scrubbers, dust collectors
0100 / 0193	Fixed assets for protection against production and consumption waste	Waste presses, crushers, incinerators, sorting and recycling lines
0600	Investment expenditure on environmental protection	Capital expenditure on treatment facilities, filter systems and monitoring stations until commissioning
3200	Current expenses on environmental protection	Filter cleaning, atmospheric monitoring fees, laboratory tests, maintenance
8540 / 8541–8543	Financing of environmental investment expenditure: mining processes; crushing-and-sorting section; cement production	State programmes, own funds and credit by technological stage
9430	Depreciation expenses of sub-environmental assets	Annual depreciation of the assets on sub-accounts 0192 and 0193
8920	Reserves for environmental asset expenses	Provisions for future expenses on environmental assets under IAS 37

Source: developed by the author.

Account 0600 accumulates capital expenditure until the object is commissioned and is then transferred to account 0100; account 3200 collects current environmental expenses; account 8540 shows from which source each project was financed and to which technological stage it belongs. The entries form a closed cycle: receipt of financing – Dr 854x Cr 5110; acquisition of the asset – Dr 0100 (019x) Cr 854x; depreciation – Dr 9430 Cr 0210; maintenance – Dr 3200 Cr 5310 or 6010. For a biological wastewater treatment plant bought in 2022 for 850 million UZS from own funds with a ten-year straight-line useful life, the annual depreciation of 85 million UZS is charged to account 9430 and the annual preventive maintenance of 60 million UZS to account 3200.

Table 2 applies the model to the environmental investments of the three producers, which amounted to 17.2 billion UZS over 2020–2023.



Table 2. Environmental investments of cement producers of Uzbekistan by object, financing source and account, 2020–2023

Enterprise	Year	Investment object	854x	Financing source	Amount, bn UZS	FA sub-account
Qizilqumsement	2021	Gas cleaning filter	8541	State environmental programme	2.5	0192
Qizilqumsement	2022	Wastewater treatment plant (modernisation)	8542	Own funds	1.8	0193
Qizilqumsement	2023	Energy-saving heat unit	8543	Credit	2.2	0192
Ohangaronsement	2020	Environmental monitoring system	8543	Own funds	1.2	0192
Ohangaronsement	2021	Energy-saving kiln	8542	Own funds	3.4	0192
Ohangaronsement	2022	Automatic waste-sorting line	8541	Own funds	2.1	0193
Quvasoysement	2020	Air cleaning system	8541	Own funds	1.5	0192
Quvasoysement	2021	Environmental laboratory equipment	8543	Own funds	0.9	0192
Quvasoysement	2022	Recycling technology	8542	Own funds	1.6	0193

Source: compiled by the author from the enterprises' data.

"Qizilqumsement" JSC diversified its sources – a state environmental programme (2.5 bn UZS), own funds (1.8 bn) and credit (2.2 bn) – whereas "Ohangaronsement" JSC (6.7 bn) and "Quvasoysement" JSC (4.0 bn) financed all projects from own funds; with the proposed sub-accounts this structure, hidden today in total capital expenditure, becomes visible for management, lenders and auditors.

The model is completed by the accounting of environmental obligations, which fall into three groups: mandatory payments established by law, contingent obligations that may arise from inspections, and provisions for restoring damaged land and water resources. Under IAS 37 [12] a provision is recognised when a present obligation exists, an outflow is probable and the amount can be estimated reliably: an annual reserve of 600 million UZS for restoring the land of a sand quarry is recognised on the balance sheet, whereas a possible fine of 300 million UZS still under inspection is disclosed in the notes. A register of such obligations is proposed for this purpose. The

model has been adopted by the Sirdarya regional department of the Chamber of Commerce and Industry of Uzbekistan (certificate No. SR-11/485 of 10 April 2026).

Conclusions

1. Environmental assets, expenses and investments of building materials enterprises require separate synthetic and analytical accounting; sub-accounts 0192 and 0193, accounts 0600 and 3200 and accounts 9430 and 8920 make their composition, value and burden on the financial result transparent.
2. Account 8540 with sub-accounts 8541–8543 ties every environmental investment to its financing source and technological stage, so that state, own and credit resources and the efficiency of each project can be controlled separately.
3. Recognising environmental obligations under IAS 37 and keeping their register raises the reliability and comparability of financial statements and creates a documented base for audit.

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