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# ANALYSIS OF THE CURRENT STATE OF INVESTMENT PROCESS MANAGEMENT AT INDUSTRIAL ENTERPRISES OF THE FERGANA REGION

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**ABSTRACT**

This article examines the current state of investment process management at industrial enterprises in the Fergana Region. Particular attention is paid to the role of the Fergana Oil Refinery, JSC "Ferganaazot", and the Fergana Chemical Fiber Plant in the regional economy, the dynamics of their investment activity, and the structural characteristics of implemented investments. The effectiveness of the existing organizational and economic mechanisms for managing investment processes is assessed on the basis of strategic, organizational, financial, methodological, risk-oriented, and digital criteria. The study identifies major problems and constraining factors associated with technological obsolescence, high capital intensity of production, limited internal financing sources, foreign-exchange and market risks, insufficient integration of information systems, and the limited use of post-investment audits. Based on the results of the analysis, priority directions for improving the efficiency of investment activity at industrial enterprises in the region are identified.

**Keywords**

investment, investment process, industrial enterprise, Fergana Region, investment activity, oil refining, chemical industry, organizational and economic mechanism, investment efficiency, risk, modernization, investment portfolio.

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## INTRODUCTION

Sustainable development of regional industry is largely determined by the scale and quality of investment processes taking place at the level of individual enterprises. Investments are particularly important for capital-intensive industries, where production facilities, technological complexes, and infrastructure assets require continuous renewal, modernization, and substantial long-term capital expenditures. The Fergana Region is one of the regions of the Republic of Uzbekistan with a well-developed industrial specialization. Oil refining, chemical, textile, food, construction, and other industries play a significant role in the regional economy. Large industrial enterprises occupy a particularly important position because their activities affect not only regional output, but also employment, exports, tax revenues, energy resilience, and the development of related industries. This study focuses on three industrial enterprises: Fergana Oil Refinery, JSC "Ferganaazot", and the Fergana Chemical Fiber Plant. These enterprises were selected due to their importance for the industrial potential of the region, the high capital intensity of their production processes, and the continuing need for technological renewal.

The purpose of the study is to assess the current state of investment process management at the selected enterprises, evaluate the effectiveness of the existing organizational and economic mechanisms, and identify the main problems and constraints affecting investment activity.

To achieve this objective, the study analyzes the role of the selected enterprises in the economy of the Fergana Region, examines the dynamics and structure of investment activity, evaluates the existing mechanisms for managing investment processes, identifies internal and external constraints, and formulates analytical

conclusions that may serve as a basis for further improvement of investment management.

Investment development of industry in the Fergana Region should be considered within the broader context of the dynamics of fixed-capital investment in the regional economy. Growth in investment reflects not only an increase in the volume of financial resources directed toward the economy, but also the expansion of production capacity, renewal of the material and technical base, and strengthening of long-term growth potential.

In 2024, fixed-capital investment in the Fergana Region reached a substantial level, with the prevailing share financed from attracted sources. This indicates the growing importance of external financing, credit resources, and investment capital in the implementation of large-scale projects.

At the same time, enterprises' own funds remain an important source of investment. However, in capital-intensive sectors such as oil refining and the chemical industry, internal resources are often insufficient to finance comprehensive modernization programs.

In 2025, investment activity in the region continued to expand. A significant share of investment was directed to manufacturing, confirming the priority role of the industrial sector in the investment development of the Fergana Region.

Growth in industrial investment creates opportunities for technological renewal, but it also raises the requirements for the quality of investment management. The larger the scale of capital expenditure, the higher the cost of poor decisions, inefficient allocation of funds, and lack of coordination among projects. The growth rate of investment may be assessed using the following indicator: $T_i = I_t / I_{t-1} \times 100$ where $T_i$ is the investment growth rate; $I_t$ is investment in the current period; and $I_{t-1}$ is investment in the previous period. This indicator reflects the quantitative dynamics of investment activity but does not measure the efficiency of invested capital. It should therefore be supplemented by indicators of investment structure, returns, and performance.

The Fergana Oil Refinery occupies an important position in the industrial structure of the region. Its significance is determined not only by the scale of its production activity, but also by its role in hydrocarbon processing, petroleum-product output, and the functioning of related industries.

Oil refining is characterized by high capital intensity and technological complexity. Production units form an interconnected system; therefore, modernization of an individual technological unit can be effective only when other links in the production chain possess sufficient throughput capacity and technical readiness.

The refinery's investment activity should focus on modernization of process units, increasing the depth of refining, reducing energy intensity, and strengthening environmental and industrial safety. A significant part of the equipment at large industrial enterprises may remain in service for many years. Even when technically operational, such equipment may lag behind modern alternatives in energy efficiency, refining depth, environmental performance, and productivity.

For an oil-refining enterprise, not only the volume of processed feedstock but also the composition of output is important. The higher the share of high-value-added products, the greater the potential economic efficiency of refining. Oil refining requires substantial amounts of thermal and electrical energy. Investment in heat-exchange equipment, furnaces, steam and condensate systems, and automated control can reduce production costs.

Modern investment projects must also address emission treatment, waste processing, water recirculation, leak prevention, and reduction of environmental pressure. Thus, the investment activity of the Fergana Oil Refinery is complex in nature and cannot be reduced merely to increasing production capacity. $K_{va} = V_{hva} / V^f \times 100$ where $K_{va}$ is the coefficient of high-value-added product output; $V_{hva}$ is the volume of high-value-added products; and $V^f$ is the volume of processed feedstock. JSC "Ferganaazot" is one of the major enterprises of the regional chemical industry. Its operations are associated with the production of mineral fertilizers and other chemical products. A distinctive feature of chemical production is its strong dependence on raw materials and energy resources. In nitrogen chemistry, natural gas is particularly important because it serves both as a feedstock and as a major energy resource. Accordingly, the investment efficiency of the enterprise depends not only on output volumes but also on the specific consumption of resources. Key investment priorities include modernization of ammonia and fertilizer production, improvement of energy efficiency, reduction of natural-gas consumption, modernization of environmental protection systems, expansion of the product range, and

development of export potential.

For JSC “Ferganaazot”, market risk is also a major consideration. Prices for mineral fertilizers depend on global market conditions, agricultural demand, logistics, and seasonality. Therefore, investment projects should be evaluated not only on the basis of current product prices, but also under several market scenarios. Product diversification is of particular importance. Dependence on a limited product range increases sensitivity to market fluctuations. Investment in new chemical products can therefore contribute to greater revenue stability. $G_u = G / Q$ $Sg = (G_0 – G_1) \times Q \times Pg$ where $G_u$ is specific natural-gas consumption; G is total gas consumption; Q is output; $G_0$ and $G_1$ are specific gas consumption before and after project implementation, respectively; and Pg is the price of natural gas. The Fergana Chemical Fiber Plant requires particular analytical attention. In studying the investment activity of this enterprise, a methodological issue arises concerning the need to accurately determine its current legal and production status.

The historical enterprise known as the Fergana Chemical Fiber Plant should not automatically be equated with modern legal entities bearing similar names or operating on the basis of individual production assets inherited from earlier industrial structures. For a reliable investment analysis, it is necessary to establish the official legal name of the enterprise, taxpayer identification number, ownership structure, composition of assets, current state of production, liability structure, production specialization, actual utilization of production capacities, and the existence of investment programs.

Without such information, the assessment of investment dynamics may mix historical and current statistics. Therefore, preliminary investment diagnostics are especially important for this enterprise and should include technical, financial, legal, environmental, and market components. Depending on the results of such diagnostics, three development options may be considered: modernization of existing capacities; transformation of the product profile and transition to new types of chemical or textile products; and use of the industrial site as a diversified production complex or industrial zone. For the Fergana Chemical Fiber Plant, an investment strategy should therefore begin not with the selection of equipment, but with the definition of the enterprise’s future development model.

Investment activity at large industrial enterprises can be analyzed across several structural dimensions. The technological structure reflects the allocation of capital among equipment, construction, installation works, infrastructure, and intangible assets. Effective modernization requires more than the acquisition of modern equipment. It also requires engineering infrastructure, energy networks, automation, personnel training, and integration with existing production systems. The reproduction structure reflects the allocation of investment to simple replacement of worn-out assets, modernization, expansion, or creation of new production capacities. For mature industrial enterprises, it is particularly important to distinguish investments that merely restore existing capacities from investments that generate new economic effects.

The financial structure reflects the ratio of internal, borrowed, and attracted funds. The strategic structure differentiates mandatory, sustaining, efficiency-oriented, innovative, environmental, and transformational investments. An integrated approach is proposed for assessing the state of investment process management. Investment management effectiveness is treated as a function of strategic efficiency, organizational efficiency, financial and economic efficiency, quality of project appraisal, monitoring, risk management, digitalization, and post-investment audit. The assessment is conducted on a five-point scale. A score of 1 indicates the absence of a developed system. A score of 2 indicates the presence of isolated elements without systematic application. A score of 3 characterizes a partially functioning mechanism. A score of 4 corresponds to a well-functioning system, while a score of 5 indicates a high level of investment management maturity.

The Fergana Oil Refinery demonstrates a pronounced strategic orientation in its investment activity. Modernization is associated with improving product quality, technological renewal, higher refining efficiency, and environmental objectives. The organizational component is also characterized by the presence of specialized technical, production, and management functions. At the same time, the high capital intensity of projects requires substantial external financing. Investment efficiency depends on feedstock prices, exchange-rate dynamics, the cost of imported equipment, and project implementation schedules.

JSC “Ferganaazot” is characterized by a relatively high importance of strategic and financial manage-

ment. Positive factors include its corporate governance structure, the availability of financial reporting and audit procedures, and more formalized governance bodies. Investment priorities are associated with modernization, energy efficiency, reduction of natural-gas consumption, enhancement of export potential, and environmental sustainability. At the same time, risks remain related to the price and availability of natural gas, the cost of imported equipment, exchange-rate volatility, and the state of the mineral fertilizer market. The assessment of the Fergana Chemical Fiber Plant is the most complicated due to limited up-to-date and comparable information regarding its current status. Preliminary analysis indicates uncertainty regarding long-term strategy, technological obsolescence of assets, the need to clarify legal status, limited investment transparency, difficulties in assessing financing sources, and the need for a comprehensive technical audit.

Enterprises may have separate modernization and capital-construction programs, but this does not necessarily mean that they possess a coherent investment strategy. An effective strategy should define priority investment areas, target production indicators, acceptable risk limits, financing structure, project sequencing, and criteria for project termination or revision. The absence of an integrated strategic approach may lead to a situation in which each project appears justified individually, while the aggregate portfolio creates excessive pressure on financial and organizational resources.

Another important constraint is the absence of a unified multi criteria project appraisal system. Traditional practice often emphasizes capital expenditures, production capacity, and payback period, but these indicators alone are insufficient. Industrial enterprises should also consider strategic alignment, technological compatibility, market demand, energy intensity, environmental impact, effects on production cost, export potential, and risk. Life-cycle costing is especially important. Equipment with a lower purchase price may prove more expensive over time due to high energy, maintenance, and spare-parts costs. $TCO = C_0 + C_{op} + C_{maint} + C_{en} + Cdisp$ where $C_0$ is the initial acquisition cost; $C_{op}$ is operating cost; $C_{maint}$ is maintenance and repair cost; $C_{en}$ is energy cost; and Cdisp is disposal cost. The high capital intensity of the industries under review is one of the most serious constraints. Major financial problems include limited internal funds, the high cost of long-term borrowing, foreign-exchange risks, collateral requirements, long payback periods, and the limited use of bonds and project finance. Physical and technological obsolescence of equipment leads to higher repair costs, rising energy consumption, increased accident risk, reduced product quality, and longer downtime. However, simple equipment replacement does not always solve the problem. Modern technology must be compatible with existing infrastructure, energy systems, automation platforms, and workforce qualifications.

Prices and availability of raw materials and energy resources directly affect investment efficiency. Key risks include rising natural-gas prices, changes in oil and other feedstock prices, deterioration in input quality, supply restrictions, and mismatches between equipment capacity and the available feedstock base. Risk reduction measures should include increasing localization, using long-term service contracts, maintaining critical spare-parts inventories, and matching the currency of debt with the currency of revenues.

At industrial enterprises, risk is often treated merely as a separate section of the business plan. However, an effective system requires a continuously updated risk register. For each risk, it is necessary to determine the probability of occurrence, the scale of consequences, the responsible person, response measures, and residual risk. Investment monitoring in practice is often focused on the absorption of funds and the physical completion of works. However, budget utilization is not the final outcome of investment. Monitoring should cover project implementation, commissioning, and the actual economic effect.

After commissioning, many projects are formally considered completed. Yet only after the start of operations can the real efficiency of investment be determined. Post-investment audit should compare planned and actual project cost, planned and actual implementation periods, designed and actual capacity, expected and actual cost reductions, planned and actual revenue, as well as NPV and IRR. Investment-related information may be dispersed across different systems and spreadsheets. Financial data, procurement, construction, production, and contracts are often managed separately. This leads to data duplication, inconsistencies, manual reporting, delays in information flows, and difficulties in identifying deviations in a timely manner.

Oil refining and chemical production are characterized by heightened environmental and industrial-safety responsibilities. Environmental investments often do not generate direct revenues; however, they should

not be assessed solely on the basis of financial NPV. Prevented fines, avoided downtime, reduced accident risks, compliance with export requirements, and reputational effects should also be taken into account.

Modern investment management requires professionals who combine competencies in finance, technology, and project management. In practice, a gap often exists: technical specialists may understand production well but lack financial-modeling skills, while financial specialists may not fully account for technological features of a project. The identified constraints should be considered as an interconnected system rather than as isolated problems. Equipment obsolescence leads to higher maintenance and energy costs, increased production cost, lower profitability, reduced internal investment resources, and slower modernization. Weak project appraisal can result in poor project selection, budget overruns, higher debt, and reduced capacity to finance future investments. Insufficient digitalization contributes to delayed detection of deviations, higher correction costs, project delays, and postponed revenues. For the Chemical Fiber Plant, uncertainty regarding legal status and market prospects increases investment risk, raises the cost of capital, reduces project attractiveness, and delays modernization.

## CONCLUSION

The analysis of investment processes at industrial enterprises in the Fergana Region shows that regional investment development is characterized by substantial capital investment and the significant role of manufacturing.

The Fergana Oil Refinery has strategic importance for the oil-refining industry and requires integrated investment management that takes into account the technological interdependence of production units.

JSC “Ferganaazot” has a relatively more formalized system of corporate and financial management; however, its investment efficiency is highly dependent on energy resources, natural gas, export markets, and the cost of capital.

The Fergana Chemical Fiber Plant requires a separate institutional approach based on a preliminary clarification of its legal, technological, and financial status. The identified problems are systemic and require the development of a long-term investment strategy, improvement of project selection quality, strengthening of financial planning and risk management, digitalization of monitoring, and mandatory post-investment audits.

The results of the study provide an analytical basis for developing further scientific and practical recommendations aimed at improving the organizational and economic mechanisms for managing investment processes at industrial enterprises in the Fergana Region.

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