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Current trends in import substitution of construction materials and equipment in the Russian Federation

This paper investigates the current directions of import substitution in the Russian construction sector. Against the background of economic instability and international sanctions in recent years, the task of building up the potential of domestic production of construction materials and equipment has become increasingly important. The paper discusses the key areas of import substitution, including the development of high-tech construction materials production, strengthening support for Russian manufacturers, as well as the introduction of innovative technologies. Currently, the issue of import substitution for companies in the construction sector is very important. Co-operation with domestic suppliers for a number of materials required for production is being actively developed. Russian manufacturers of raw materials, equipment and components understand perfectly well that now is a unique time for them, when many market segments and niches are being freed up and they can replace foreign suppliers who are leaving. At the same time, one of the negative consequences of the sanctions has manifested itself in the fact that many enterprises have decided to temporarily reduce their investment programmes and abandoned plans to modernize or expand their production capacities. There are also difficulties in supplying equipment components from abroad. Previously, a significant part of equipment was purchased in the European Union countries, for example, in Italy. Currently, most of the alternative supplies are from China.

Special attention is paid to analyzing government policies aimed at stimulating local producers, as well as assessing the prospects for sustainable growth and self-sufficiency of the construction industry. In general, the current prospects of domestic producers are positively assessed.

The purpose of the paper is to highlight the current trends of import substitution of construction materials and equipment in the Russian Federation, find problems and propose solutions.

Keywords: construction industry, construction materials, equipment, import substitution, production, economy, instability

Import substitution has long been a serious problem for Russia. Analysis of statistical data shows that many industries in the country are largely dependent on imported goods and services, as a result of which there is a deterioration of the economic situation due to the strengthening of sanctions policy of Western countries. Solving the problem of import substitution is of crucial importance, as it directly affects the growth, development and defence capability of the national economy. Dependence on imports has been formed for many years, and for many industries a significant part of the volume of realized products is produced using imported materials and equipment.

The purpose of this research is to study the actual directions of import substitution in the production of construction materials and equipment in the Russian Federation.

The problem of dependence on imports is analyzed from the standpoint of both the production of materials and construction equipment.

It should be noted that the growing gap between the economy's need for innovative solutions and the capabilities of domestic R&D forces to rely on foreign technologies, especially in the field of technological equipment. At the same time, attempts to replace imported components with domestic ones face a number of significant challenges (Table 1).

Table 1. Opportunities and limitations of import substitution in the construction industry

Potential opportunities	Existing constraints
Reducing dependence on external supplies of materials and technologies	Lack of necessary production capacity for mass production
Ensuring sustainability of domestic production and its competitiveness	Lack of investment and high capital costs for modernization of the industry
Development of new jobs and support for the domestic market	High level of technological backwardness in some areas of production
Improving the environmental situation through the introduction of new, environmentally friendly technologies	Shortage of qualified specialists in new areas of production
Development of domestic scientific and technical potential	Limited support from the state for small and medium-sized enterprises
Improving the level of quality and standardization of domestic construction materials	Dependence on imported components for complex production facilities

Import substitution in the construction sector should be considered as the creation of conditions for equal competition of domestic producers with foreign companies. Active development of this direction and the formation of new competitive industries can lead to a profound restructuring of the economy, contributing to the emergence of new industries and the growth of demand for local equipment, raw materials and construction materials [1]. Such a vector will not only accelerate scientific and technological progress, but also allow domestic research and development to reach the world level. Moreover, high-tech industries focused on import substitution should strive not only to meet domestic needs, but also to enter global markets, thus ensuring their export potential and strengthening the country's international position.

Given the current geopolitical and economic situation, the task of import substitution of a number of goods and technologies is becoming increasingly important for the Russian Federation [2]. Trade restrictions from other countries, as well as the shortage of imported raw materials, components and spare parts have led to the need to search for domestic substitutes [3]. This scenario, combined with changes in logistics, has led to an increase in the cost of construction materials and increased dependence on imports for some products.

The plan for the development of the construction industry and housing construction in Russia for the period until 2030 and further until 2035 emphasizes the importance of shifting from imported construction materials and equipment to increasing local production in Russia [4]. Studies in more than 50 regions of the Russian Federation show that most of them do not actually face problems of shortage of construction materials and equipment, even despite the withdrawal of foreign manufacturers from the market.

About 85 % of applied construction materials are produced from resources that are available in significant quantities in the country. Among the various types of construction, premium real estate is particularly vulnerable today, as most of the fittings for special works, plumbing fixtures and high quality equipment are supplied from abroad. For example, the country has established production of construction chemicals, but the equipment used for production is supplied from European companies. Also, the production of sanitary ware, ceramic products and facing bricks. are heavily dependent on imported equipment. there is still a lot of work to be done to localize these production lines and expand the capacity in production, installation, design and, most importantly, high quality service.

According to official sources, the current situation with import substitution in the construction industry is quite good. According to the Ministry of Construction of Russia, most materials for large construction projects are produced locally, but imported materials still lead in the medium and high price range [5]. Many types of engineering systems are still imported, including air conditioning systems, ventilation systems, pumps, fire-fighting equipment, public address systems, shut-off and regulating equipment, plumbing and automated control systems.

As for basic building materials such as concrete, glass, pipes and some metal products, the construction market has everything it needs from Russian suppliers. Construction goods are also supplied from countries such as Belarus, Kazakhstan, China, Turkey and Iran, and parallel imports also take place.

In the period from 2019 to the present, there is an average annual growth rate of 12.8 % in monetary terms for the production of construction materials.



Dynamics of the volume of construction materials output in Russia (2019–2024), trillion rubles [6]

In the first half of 2024, the Russian construction industry recorded a significant growth in the output of materials, namely the total value increased by 5.6 % compared to the same period last year. At the same time, the actual volumes were even more impressive, with the production of wood panels increasing by 20 %, wall blocks by 15 %, ceramic tiles by 9 %, and the output of sheet glass increasing by 7 %. There was also strong growth in the crane market segments, as well as in the production of wood and concrete panels (Figure).

At the beginning of 2024, about 80 % of the lift equipment market was occupied by domestic products. Thus, in the first half of the year, four factories in Moscow produced more than 6,000 lifts, and they can produce about 25,000 units per year. Significant progress has also been made in the development of high-tech equipment, namely Karacharovsky, Shcherbinsky and MEL plants have certified their lifts to achieve speeds of up to 4 m/s, which is optimal for use in multi-storey residential buildings.

To mitigate the impact of sanctions, the relevant departments of the Russian government represented by the Ministry of Construction, Ministry of Industry and Trade and various industry groups are implementing a set of measures [7].

The National Association of Builders "NOSTROI" together with the Ministry of Construction of Russia launched an online platform, which is a catalogue presenting a wide range of domestic construction materials and equipment capable of replacing imported analogues [8]. At the same time, the Ministry of Construction formed a list of Russian software for urban planning, and the Ministry of Industry and Trade initiated the Import Substitution Exchange, which helps to find the necessary spare parts and components.

The federal budget for 2023–2025 has allocated 872.8 million rubles for the target programme, and 16 banks with a total loan portfolio of 65 billion rubles, designed for 513 potential borrowers, have been selected for its implementation. As of April 2023, 38 special loans for the amount of 2.86 billion rubles have been issued, and 32 loan agreements for 3.39 billion rubles are still under consideration [9]. The need for import substitution mainly concerns the introduction of advanced technologies and construction equipment. Currently, government agencies are working on these problems by teaming up with institutions, research centres and small businesses.

At present, it seems necessary to improve the monitoring and analysis of the construction industry by focusing on critical areas requiring government attention. Preliminary analysis of import substitution programmes can be organized according to several criteria: identification of problem areas (technological, technical, informational, personnel); cataloguing of materials, raw

► materials, structures, units, machinery, equipment and mechanisms that are scarce in the domestic construction market; assessment of innovative and scientific and technical potential of organizations and their components; study of potential diversification opportunities. Systemic solution of the tasks faced by the construction industry in the field of import substitution will allow for an in-depth analysis of projects and programmes, which will allow to adequately assess their effectiveness [10].

Self-regulatory organizations in the field of design and construction should also actively participate in import substitution initiatives to ensure the involvement of all industry participants in this process. It is recommended to create a centralized federal body that will take over the coordination of import substitution measures, paying special attention to improving the efficiency of R&D and supporting mutually beneficial cooperation with technologically advanced friendly or neutral countries.

At the current stage, the priority task of federal and regional authorities is not just operational substitution of imported products for construction enterprises, but the definition of strategic directions

that can create a synergistic effect and build the necessary technological chains within the country. For the highlighted problems, it seems reasonable to consider specific measures of solutions, shown in Table 2.

The main objective of modernization of the construction sector is to provide targeted support measures. The management of innovation and import substitution at the state, industry and corporate levels is not always properly coordinated. There is a gap in the goals and motivation of efforts in this area, and there are no standardized performance indicators [11].

So, the study shows that in recent years, the construction industry has been developing under significant sanctions pressure under the acute need for import substitution of various construction materials, machinery, equipment and technologies. These challenges necessitate fundamental structural transformations aimed at improving the sustainability and competitiveness of domestic construction.

Among the key areas of transformation are:

1. Institutional and regulatory support.

Table 2. Ways of solving import substitution problems in the construction industry, with examples of solutions

Problem	Solutions
Warranty repair of foreign equipment and components	Develop and implement quality standards for domestic equipment. Example: Germany introduced a programme of certification and support for local manufacturers to improve product quality. Creation of a government programme aimed at subsidizing manufacturers of domestic components similar to foreign ones. Attracting investment in the development of domestic analogues of foreign components
Problems with the implementation of Russian software in construction	Introduction of state support programmes for local software development focused on the needs of the construction sector. Active co-operation with educational institutions and business structures to improve the skills of specialists in digital technologies used in construction. Formation and promotion of accelerator programmes to stimulate the development of startups in the field of innovative construction technologies
Increase in delivery times and production costs due to the need to create new logistics chains	Use of multimodal transport, as practiced in the US, to optimize logistics routes. Developing and implementing regional logistics hubs to reduce delivery time and costs. Application of modern technologies in supply chain management, such as blockchain and logistics automation systems
High costs of domestic transport, especially to northern regions	Development and implementation of subsidies for transport companies operating in hard-to-reach regions. Use of alternative modes of transport, such as air transport for small consignments of materials, which can reduce delivery times to remote regions
State support measures are available only to large enterprises	Introduction of a system of tax incentives and subsidies for medium and small enterprises, as it is practiced in EU countries. Creation of specialized funds and grants for small construction companies to participate in import substitution programmes. Development of educational and consulting programmes for small enterprises on how to obtain state support
Lack of investors to organize production of construction materials in the constituent entities of the Russian Federation	Organize specialized economic clusters for the production of construction materials, providing tax incentives and developed infrastructure. Attract private capital through venture capital financing or loan programmes backed by state guarantees. Actively support the development and implementation of innovative technologies that can significantly reduce production costs
Division of import substitution management functions between different bodies and centres	It is proposed to form a single federal body responsible for coordinating the import substitution process in the country, similar to the Chinese model, where a centralized agency manages all areas of industrial policy. At the same time, it is necessary to create a universal digital platform that would unite data on the import substitution process and be available to all stakeholders
Lack of a unified information space on construction import substitution	Creation and implementation of a unified information platform for all market participants, as it was implemented in South Korea for the construction sector. Introduction of a cataloguing and monitoring system for all types of import substitution, which will make it possible to track material shortages and provide access to up-to-date information

First of all, it requires the development and implementation of modern legislative initiatives and regulatory mechanisms that stimulate domestic production. This includes revision and adaptation of existing regulations, creation of favourable conditions for investment, as well as introduction of state support instruments such as subsidies, tax incentives and grant programmes. Such measures will make it possible to offset the negative impact of sanctions and ensure stabilization of the industry.

2. Technological modernization and innovative development.

A strategically important direction is the integration of advanced scientific and technological developments into production processes. Active co-operation between research institutes, higher education institutions and industrial enterprises is necessary for the formation of innovative potential. The development of domestic analogues of imported technologies and materials will be a key element of import substitution, allowing to increase production efficiency and reduce technological dependence.

3. Digitalization and information support.

Effective information interaction between construction market participants facilitates the rapid exchange of analytical data, best practices and research results. The creation of specialized digital platforms will not only optimize management processes, but also increase transparency in supply chains and logistics, which is an important factor of competitiveness.

4. Development of international partnership.

Establishing constructive partnerships with allied countries with a high level of technological development remains a priority. Conclusion of bilateral and multilateral agreements in the field of technology exchange, joint research and investment will allow to diversify the sources of raw materials and equipment, as well as to ensure a stable supply of advanced innovations.

To implement a comprehensive import substitution mechanism, it is proposed to create an integrated model of interaction between the state and business, which involves the formation of a specialized fund to support import substitution projects in construction. Such a fund will be aimed at financing experimental and design developments, research and implementation of domestic innovative technologies. At the same time, special attention should be paid to the synergy between public institutions and private structures, which will ensure a prompt response to dynamically changing foreign economic conditions and sanctions challenges.

Therefore, a systemic approach that combines institutional regulation, technological modernization, digitalization and international cooperation is a viable strategy for creating an effective

organizational and economic mechanism for import substitution in the construction industry. The implementation of this strategy will not only reduce dependence on imported components, but also create conditions for sustainable development and increase the competitiveness of the domestic construction complex in the context of global economic and geopolitical challenges.

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Современные тенденции импортозамещения строительных материалов и оборудования в Российской Федерации

Данная статья исследует современные направления импортозамещения в российском строительном секторе. На фоне экономической нестабильности и международных санкций в последние годы становится все более важной задача наращивания потенциала отечественного производства строительных материалов и оборудования. В статье рассматриваются ключевые направления импортозамещения, включая развитие производства высокотехнологичных стройматериалов, усиление поддержки российских производителей, а также внедрение инновационных технологий.

В настоящее время вопрос импортозамещения для компа-

ний строительного комплекса является очень актуальным. Активно развивается сотрудничество с отечественными поставщиками по ряду необходимых для производства материалов. Российские производители сырья, оборудования и комплектующих прекрасно понимают, что сейчас для них уникальное время, когда многие рыночные сегменты и ниши освобождаются, и они могут заменить уходящих иностранных поставщиков. В то же время одно из негативных последствий санкций проявилось в том, что многие предприятия решили временно сократить свои инвестиционные программы и отказались от планов по модернизации или расширению производственных мощностей. Существуют также трудности с поставками комплектующих для оборудования из-за рубежа. Ранее значительная часть оборудования закупалась в странах Европейского Союза, например в Италии. В настоящее время большая часть альтернативных поставок приходится на Китай.

Особое внимание уделяется анализу государственной политики, направленной на стимулирование местных производителей, а также оценке перспектив устойчивого роста и самообеспечения строительной отрасли. В целом позитивно оцениваются текущие перспективы отечественных производителей.

Цель статьи — выделить современные тенденции импортозамещения строительных материалов и оборудования в Российской Федерации, найти проблемы и предложить пути решения.

Ключевые слова: строительная отрасль, строительные материалы, оборудование, импортозамещение, производство, экономика, нестабильность

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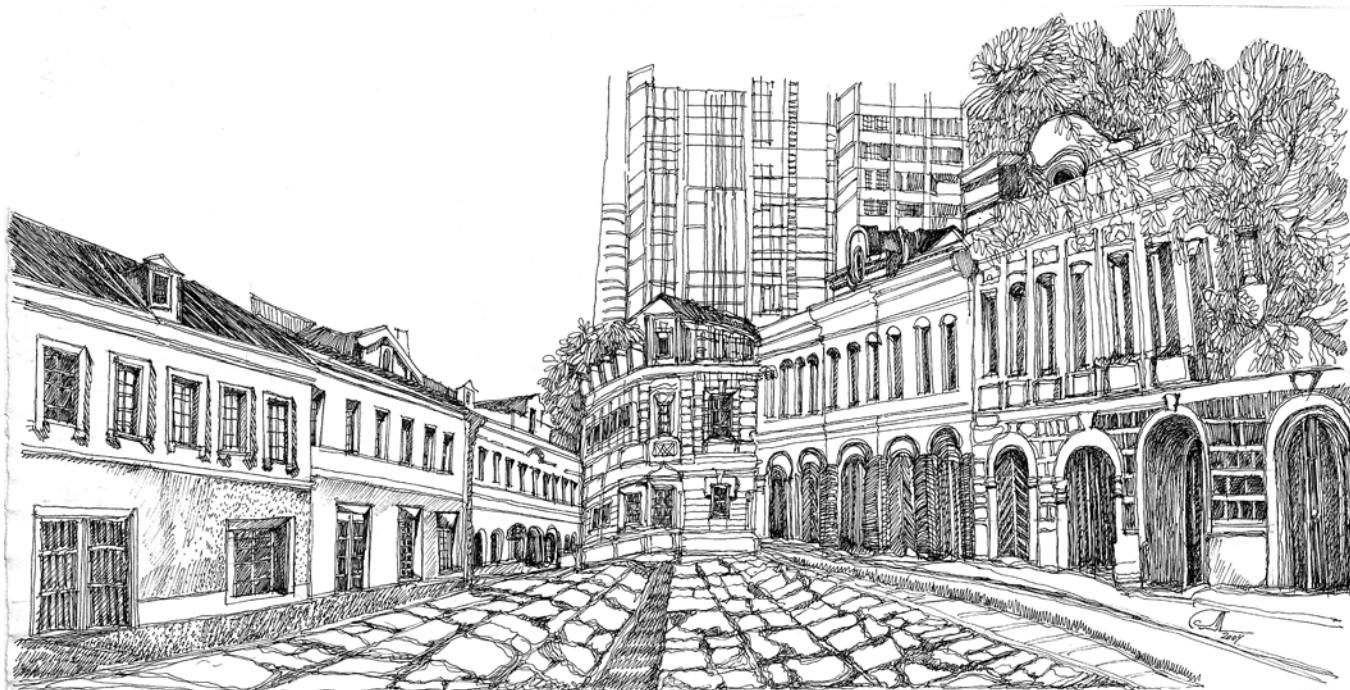
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