Problems and prospects of import substitution in the construction industry of the region

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Abstract. The article provides an in-depth analysis of the construction industry in Russia, and in particular the Irkutsk region. Discloses the tools to support import substitution in the construction industry. As a research tool used economic-statistical, methods of analysis, synthesis and analogy. The statistical data that reflects the effectiveness of state mechanisms to support Russian manufacturers of building materials are presented. A number of proposals for improving the existing mechanism were proposed. The advantages of developing the production of heat-insulating materials, innovative constructions of reinforced concrete structures and ready-made house sets on the territory of the Irkutsk region are revealed. The conclusions are presented, which reflect the effectiveness of the application of the policy of import substitution as a mechanism for the development of the construction industry of the Irkutsk region.

1 State of the industry of building materials in the Russian Federation
Today in the Russian economy, various processes occurring in economic entities are being identified. Of particular relevance is the import substitution. At the same time, a proper strategy is needed, which will lead to an intensive development of industrial production, including in the construction industry.

In the construction industry as a whole in the Russian Federation and the Irkutsk Region, the development and growth of construction rates has become noticeable. Figure 1 [8]. At the same time, the number of construction in progress is decreasing every year. Figure 2 [8].

![Figure 1. Commissioning of residential and non-residential buildings in Russia.](image1)

![Figure 2. Number of buildings under construction in the Russian Federation.](image2)

The relevance of the import substitution policy is due to the need to develop the building materials industry in Russia, in particular the Irkutsk Region, to ensure production volumes, product range and product quality, and maintain demand not only in the domestic, but also in the foreign market.
The import substitution process is long and complicated, requiring serious investments, which will not be returned immediately. The policy is to reduce the share of imports of products, including those used by domestic producers, and involves direct and indirect support measures.

Direct and indirect support of enterprises implies the introduction of special measures that encourage import substitution through state and municipal procurement. To simplify the procurement created navigator GISP (State Information System Industry). Fig. 3 [4]

**Figure 3.** GISP trading and procurement system: potentials of the main subjects.

The trade and procurement activity system (GISP) allows customers to be interested in using building materials from domestic manufacturers [3]. At the same time, producers are interested in participating in the system in order to find a sales market. Benefits are listed in table 1.

**Table 1.** The advantages of using the system GISP.

| For customer | For manufacturer / supplier |
|-------------|-----------------------------|
| Own marketing center | Effective trading notification system in relation to the field of activity |
| Service consolidation of procurement plans with the possibility of jointing plan items to commodity items | Single resource with consolidated purchasing plans |
| Procurement / documentation approval functionality within one organization or group | Available interface for applying for participation in procurement procedures |
| Flexible configuration of analytical functions | Convenient search by current and planned trading |
| Effective notification system | The possibility of placing price lists in the catalog GISP |
The development of import-substituting production is inextricably linked with the realization of export potential [6], [7]. The development of the export direction is the main instrument for stabilizing and preserving the capacities of the sub-sectors that are the most vulnerable from the point of view of domestic demand. The export share is presented in Table 2.

**Table 2. Export share in the production of building materials, %**

| Material                                        | 2017 | 2018 | Δ, %  |
|-------------------------------------------------|------|------|-------|
| Soft roofing and waterproofing materials        | 15,1%| 31,8%| 16,7%↑|
| Sheet glass                                     | 28,3%| 29,3%| 0,9%↑  |
| Plaster and drywall products                    | 10,1%| 15,4%| 5,4%↑  |
| Thermal insulation products                     | 12,0%| 15,2%| 3,3%↑  |
| Ceramic plates and tiles                        | 11%  | 14,0%| 3%↑    |
| Natural facing materials                        | 0,0% | 4,9% | 4,9%↑  |
| Building plaster                                | 0,6% | 3,5% | 2,9%↑  |
| Cement                                          | 1,9% | 1,7% | -0,2%↓ |
| Building lime                                   | 1,2% | 1,2% | 0,0%   |
| Small wall materials                            | 0,2% | 0,9% | 0,7%↑  |
| Asbestos-cement products (slate and plates)     | 0,3% | 0,4% | 0,2%↑  |
| Prefabricated reinforced concrete structures and parts | 0,4% | 0,3% | -0,1%↓ |
2 Building complex of the Irkutsk region, as a key element of the policy of import substitution in the Russian Federation

The construction complex of the Irkutsk Region includes enterprises that perform construction and specialized, design and estimate, road, and work on the production of building materials.

According to Irkstat, the construction industry of the Irkutsk region employs about 6% of the working population. The first place is occupied by organizations engaged in general construction work on the construction of buildings and structures. They perform more than 42% of the total construction work [1].

According to preliminary data for 2018, there are about 3 thousand construction enterprises in the region, of which about 140 manufacturers of building materials, structures and products work, as well as 42 medium and large enterprises: LLC East-Siberian Reinforced Concrete Plant, Angarsk OJSC Cement and Mining Plant ”, CJSC“ Sayansk Gas Concrete ”, CJSC“ StroyKompleks ”, OJSC“ Irkutsk Precast Concrete Plant ”, LLC HBC“ VostSibStroy ”, OJSC“ New City ”, OJSC“ Sibaviastroi ”, CJSC“ Meget Steel Plant ”and etc [9].

Figure 6 shows the volume of work performed in the construction of the Irkutsk region. The figure shows that the volumes are growing rapidly, which is typical for a developed market of construction services [5]. However, there are a number of problems. One of these problems is the use of large quantities of imported materials, which adversely affects the timing and quality of construction.

![Figure 6](image)

**Figure 6.** Scope of work performed for the type of activity "construction".
At the present stage, it is worth arguing that the Irkutsk Region is fully provided with capacities for the production of non-metallic materials, wall blocks, wood products, drywall, metal structures, reinforced concrete structures, bricks, insulation materials, paints and thermal insulation. But at the same time there is no group of products such as: finishing materials, fiberglass fittings, carbon cloth, composite, etc. According to the data of Irkstat, table 2 presents the data of imports of construction goods to the Irkutsk region, in which there is a strong dependence of some groups of goods from foreign suppliers [9]. The study revealed that there are no measures to replace this group of imported goods.

**Table 3.** Import of the most important types of construction products to the Irkutsk Region in 2017.

|                        | quantity to 2015 | Cost, thousand dollars | In % to total |
|------------------------|------------------|------------------------|---------------|
| Import - total         | -                | 1014826,2              | 100           |
| Products of inorganic chemistry, thousand tons | 1921,8 | 100,5 | 530977,2 | 52,3 |
| Organic chemical compounds, thousand tons | 164,9 | 17,5 | 47005,8 | 4,6 |
| Products made of stone, gypsum, cement, asbestos, mica, thousand tons | 7,0 | 81,4 | 5579,6 | 0,5 |
| Black metals, thousand tons | 62,2 | 119,8 | 45024,3 | 4,4 |
| Boilers, thousand pieces | 57,1 | 101,4 | 82574,5 | 8,1 |
| Electric cars, thousand pieces | 39,3 | 57,5 | 72032,3 | 7,1 |
| Other goods            | x                | x                      | 191522,7      | 19,0 |

It should be noted that the Irkutsk region can fully provide the construction industry with ready-mixed concrete and reinforced concrete structures. The geography of large and medium-sized manufacturers of reinforced concrete structures (hereinafter referred to as ZHK) shows location mainly in Irkutsk, Angarsk, Shelekhov, Bratsk, and Usolye-Sibirskoye. Existing enterprises can produce a sufficient number of different types of floor slabs, beams, trusses, poles, wall panels, rings, and more. The production of reinforced concrete structures tends to decrease due to changes in construction technology. At the moment, producers of reinforced concrete structures have about 40-45% wear, they require large labor costs.
in the process of production of structures, therefore the cost of manufactured products increases [7].

Therefore, to date, buildings are designed mainly on a monolithic frame with wall fillings: from blocks, bricks with insulation, hinged facade systems, which do not ensure the energy efficiency of wall fillings, as well as increase the construction time. Table 2 presents data characterizing the input of residential buildings over the past 3 years. There is a tendency to increase the pace of construction. It is worth noting that it is probably connected with the policy of import substitution, which is being finalized and modernized.

![Graph showing entering residential houses (in % of December 2015).]

*Figure 7.* Entering residential houses (in % of December 2015).

With the advent of new technologies in construction, PJSC Novy Gorod plans to launch the production of reinforced concrete structures with modern technologies, including three-layer wall panels. Increasing demand for efficiency products will allow manufacturers to restore production, upgrade or purchase new equipment, which will ensure an increase in the rate and volume of housing construction.

It can be noted that there is an urgent need for industrial development and the application in construction of housing of technologies for the erection of buildings made of sandwich panels on a framework of light steel structures, which is widely used in the western regions of the country and abroad. The mineral resource base of the building materials industry in the Irkutsk Region has a huge stock of commonly available minerals necessary for the production of significant building materials available stocks for production.
3 Results and discussion

Today the industry needs new and modern technologies. Restraining the development of innovations is equally characteristic of both Russia as a whole and the Irkutsk Region. The factors affecting today are the lack of consistency in the actions of the main participants in the innovation cycle, the objective contradiction between the need for spending on innovation and the need to save and the shortcomings of regulatory and technical documentation.

Figure 8. Recommendations for the implementation of import substitution policies in the region.

It should be taken that regional authorities and entrepreneurs are not passive observers in the implementation of import substitution policies. The process of import substitution should initially be formed at the level of regions, subjects of the Russian Federation, which allows you to quickly identify promising areas of concentration of regional raw materials, financial and intellectual resources for organizing the production of import-substituting products. A quick maneuver will be required in pursuing the established regional industrial policy, which, along with the development of export-oriented industries, will also require the rapid deployment of import-substituting industries oriented to local demand.
As a result, the authors formulated the prospect of development of the strategy of import substitution and the release of export-oriented products in the Irkutsk region:
- the measures taken should create long-term conditions for the sustainable development of enterprises of building materials and increase their competitiveness;
- there will be overcoming the technological gap between regional enterprises of building materials and enterprises of leading Russian and foreign companies;
- in turn, striving for high rates of economic development in the region, providing the population with inexpensive high-quality housing and modern social facilities.

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