

UDC 338.51

DOI: 10.17238/issn2221-2698.2016.22.25

Analysis of pricing and budget normalization for construction projects on the territory of the Russian Arctic



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Abstract. According to the results of the building expertise of facilities that are constructed, operated and repaired in the Arctic zone of the North-West Russia the authors made a critical analysis of pricing and the estimated valuation. A number of shortcomings revealed and suggestions on improving the pricing were made. Implementation of the proposals could form an unbiased starting price of construction projects.

Keywords: *construction, Arctic zone, pricing, estimates, normalization, calculation*

Today the development of the Russian Arctic infrastructure requires approaches that take into account modern technology, national security, preserving the environment and sources of funding [1, p. 177]. In terms of the crisis and investment deficit it becomes especially important to save budget, to use the resources carefully at all stages of development in the Arctic and the North of Russia. The federal bodies of power and administration switched to an annual period of planning with a widely introduced saving mode and control functions. Currently, the Russian government is the largest customer of the construction and housing repair companies due to the state resettlement program for Russian citizens who are living in the dilapidated housing and therefore state is interested in the objective formation of the construction market. Not long ago, the state stopped the budget regulation and this was used by the interested construction market suppliers. Now the need of a more modern and accurate

methods of pricing and valuation emerges. This will form an objective starting price of construction projects, including housing and social infrastructure, which are vital for all northerners. On the 5th of October 2015 Presidium of the State Commission on the Development of the Arctic under the chair of Dmitry Rogozin made a number of conceptual solutions in the field of construction and repair of the Arctic infrastructure. The Ministry of Construction of Russia under the leadership of Mikhail Men promptly reorganized the structure and appointed Sergei Fokin new head of the Federal Pricing Center for Construction and Building Materials Industry. Other necessary measures are also implemented in the current conditions.

The purpose of the present paper is to use a critical analysis of the pricing practiced, the methods and the estimates for construction on the territory of the Russian Arctic in order to develop proposals for improving the current federal and regional legal acts and to improve the quality of construction services and elimination of corruption risks.

On the 1st of January 2001 the building complex of the Russian Federation was transferred from an outdated estimate regulation 1984 to the updated state building standards (GSN). According to GSN 81-05-02-2001 "Dividing the territory of Russia into temperature zones" the Arkhangelsk Region and Nenets Autonomous District (NAD) belonged to the sixth (cold) zone. In 2007 the Federal Pricing Center for Construction and Building Materials Industry (Moscow) developed an updated second edition of GSN 81-05-02-2007 that Rosstroy approved and recommended for use by letter dated by 28 March 2007, № SK – 1221/02. But the Arkhangelsk Region and Nenets Autonomous District were transferred to warmer 4th zone without a valid justification. The estimated rate of appreciation in the winter construction decreased by 1.8 times [2]. Since the 1st of April 2014 in accordance with the orders of the Ministry of Construction of Russia №31 /pr 30.01.2014 the new edition of the GSN was introduced. The update was a minor, modification has not reformed the concepts of valuation. It is not possible to improve the system of administrative planning dramatically, the management of investment and construction activities [3]. It should a fundamental improvement of the rules and prices in terms of use of modern materials and designs, as well as the types of repairs and the cost of operating the equipment and mechanisms [4].

Estimated rules allow to determine the amount of regulatory resources, minimally necessary and sufficient for the implementation of the relevant types of work, and use them to pass to the cost indicators. As part of the direct costs, the estimated standards take into account the totality of the resources: man-hours, time ekspluatation of construction equipment, the need for materials, products, and construction. The rules adopted are set on the construction, assembling or other works (person/hour, equipment/ hour; t; m², m³, etc.). Estimated norms are developed on the basis of averaging

and minimizing of costs of all the necessary resources. At the same standards as a part of the direct costs have not been adjusted in the direction of their reduction. For example, the ventilated curtain wall surface area of the outdoor walls of the building (m^2) does not change, but if we use more effective insulation with higher insulating properties, its volume (m^3) may be reduced.

According to expert estimates, in the Arctic zone four methods of determining the cost are used while preparing the estimates: 1) basic-index (used up to 50% of cases); 2) resource-index (40%); 3) resource (5%); 4) a method based on the estimated consolidated standards (5%). Different estimates for the same object are the outcome of the method that was used.

Method №1 is based on the use of the complex both current and projected indexes for to the cost of the resources that have been defined in the base of price 2001. The method involves higher equality of the construction price and its average for a specific region as the cost of each kind of resources should be determined by the results of the monitoring of the current price level index. Regional centers of pricing in the construction (RCCS) should carry out systematic monitoring of prices and indexes relevant for each region and quarterly publish the results in printed collections construction prices.

Method №2 comprises a combination of the resource method and system of indexes for the resources used in construction. It should be used in case of monthly renewed information on resource costs based on monitoring done by RCCS (in the Arkhangelsk region — in the quarterly printed collections “ArhStroyTsena”).

Method №3 most accurately reflects the estimated cost of construction or repair, but it is rather consuming. The costs of estimates are significantly higher than for the methods №1 and №2. According to the method №3, all cost resource indicators, their calculations are defined in real terms and in a current price on resources that developers have to find by themselves to prepare estimates based on the the system monitoring of retail and wholesale prices of building materials and resources, including large surveys of a great number of suppliers.

Method №4 is based on data reflecting the value of the similar buildings previously built or projected to be built. It is used at the stage of pre-work for close-calculating the cost of construction or repairs of the property for the purpose of immediately providing investor with the information about the approximate cost of the total volume of financing, the investment project. Calculating the estimates for the medium and long-term perspective, the index-deflators for civil and industrial construction are used.

Such indicators of the estimated cost as the labor of workers, machinists and commissioning personnel compensation fund, material resources, the cost of operation of machines and mechanisms

we use a method of indexation of cost exponents of resources in relation to the previous quarter, without monitoring of the prices of all the resources mentioned above. In the long term perspective this might entail wrong resources costs estimated. If we consider the coefficients of indexation of the resource cost in the database 2001 related to the current prices in the 3rd quarter 2015, then, for example, for the objects of education we get: wages — 25.27; the cost of materials — 4.64; the cost of machinery — 10.40.

Let us analyze the “Arkhangelsk RCCS” data base, established in 2004, using a collection of “ArhStroyTsena”. The cost of one man-hour of a worker with category IV in the 3rd quarter of 2004 was 55.44 rubles, and in the 3rd quarter of 2015 — 243.44 rubles, ie. for 11 years, the wage cost of workers increased by 4.39 times, which is not comparable with the price index base 2001. It is significant that for the period 2004—2015, according to Rosstat data: the overall inflation index in Russia has changed by 2.74 times. In the building industry and building materials production the inflation index value is somewhat higher. In addition, it should be noted that the real inflation indexes are even higher.

Techniques for the estimated coefficients and other regulations are developed under the “Federal Center of Price Formation in Construction and Building Materials Production”. Legal acts directed to the RCCS are mostly advisory ones. The analysis has shown that in Moscow and St. Petersburg, Moscow, Leningrad, Nizhny Novgorod and Samara regions, the Republic of Tatarstan and other industrialized Russian regions with surplus economies the RCCS units are actively involved in updating and regional binding of the local estimate standards and coefficients. At the same time the participants of the construction market are the source of extra-budgetary income for the RCCS due to its commercial activity: the examination of estimates, consultations, issue of regulatory acts and methodical literature, courses and seminars. Subsidized Russian regions do not have such opportunities.

The analysis had shown that in the favorable period of high prices for hydrocarbons when calculating the estimated cost of work in the AZRF the method №1 had been dominating. It is less accurate than the method №2, because the knowledge implies significantly distortion (increase) of the estimated cost of the work, especially in terms of the cost of materials. However, the method №1 is profitable for commercial structures for the opportunity to get maximized profits. In the context of the successful budget formation at the expense of oil and gas exports, method №1 had often found support from many customers, who financed the geological engineering survey, design, construction and repair works with the use of the budget system.

Practiced method of salary costs

Since the 1st of January 2014 we have a minimum of the monthly wage (MRMTS) for workers of the category I, employed in the construction industry or building materials production. When oper-

ating in normal working condition with full working off the monthly standards, the MRMTS is set with indexation coefficient which is not lower than 1.2 of the living wage for the working population developed for a certain area of the Russian Federation. At the same time according to the “Federal tariff agreements for the construction and production of construction materials in the RF in 2014-2016”, inflation in the area of the Russian Federation is taken into account, as well as the existing inter-sectoral relations (cross-sectoral index). In 2015 the average rate of working time in Russia amounted to 164.25 hours, regardless of profession.

The procedure for the calculations the salaries’ fund in order to include them in estimates and contractual prices for construction products depends on the following factors: applied method of determining the estimated cost of construction and repair, installation and other works; the availability of background information in a particular contracting organization; availability of statistics in this area in order to get reliable results of statistical calculations. Any of the applicable methods means that a contractor and a customer, ie parties to a contract agreement must be guided by a single regulatory framework and common legal and regulatory acts: the provisions of the federal branch agreement in the construction; methodic documents for construction; and a pay scheme.

Methods for determining the amount of salaries funds, characteristic of systems and forms of paying, the principles of development and application of unified tariff for workers are defined in MDS 83-1.99 “Guidelines for the definition of salary funds at bargain prices and estimates for construction and wages for workers of construction, installation and repair organizations”. The basis of all forms and systems of payment used by the repair and construction, installation and other contracting organizations is a tariff system that ensures the quantitative indicators of qualification and compensation for employees and takes into account the complexity of the work carried out by them. Results of the analysis has shown that when calculating the cost of one man-hour of a construction worker in RTCCS it is used as reference value of the subsistence minimum in accordance to the region, which is equivalent to the category I of the pay scheme in construction industry. It should be also noted that the average category for all types of works is the category IV.

The living wage per capita and per population groups in the whole of Russia and in the regions is determined on the basis of the consumer basket and the Rosstat data about the level of consumer prices for goods, services and the costs of mandatory fees and payments (№134-FZ 24.10.1997 "On the living wage in the Russian Federation"). The average figures are established by the Russian Government, and regional ones by local executive bodies of the Russian Federation. The value of the living wage on the basis of the consumer basket takes into account the average costs of living of a citizen and relevant socio-demographic groups in the Far North and equal areas with a regard to regional co-

efficients and northern allowances. The analysis of the methods used there for calculating the cost of one man-hour has shown that such an approach takes into account the regional coefficient and northern allowances twice. For example, Arkhangelsk area has regional coefficient that includes northern allowances and it is equal to 1.7. At the same time the decision of the Arkhangelsk Regional Government done on the 20th of October 2015, №419-pp approved living wage for working population in the amount of 13,128 rubles for the VI zone, which includes the city of Arkhangelsk (here graduation on this indicator is carried out only in two zones: II and VI).

When calculating the amount of salary funds as part of direct costs depending on types of repair, construction and other works, as well as structural elements and construction sites, the main indicator used is the living wage level established by the Arkhangelsk Regional Government. The “Arkhangelsk RCCS” accouts this figure (3) for the III quarter of 2015 using the following formula:

$$З = \frac{ВПМ * К_{инд.} * К_{мрр} * К_{т} * (1 + \sum К_{р} + К_{сн})}{t_p * 0,9}$$

where ВПМ — living wage for the III quarter of 2015 and is equal to 13 128 rubles;

$K_{инд.}$ — index equal to 1,2 (according to § 3.1 “Federal branch agreement 2014-2016”);

$K_{мрр}$ — index by Ministry of Regional Development equal to 1.003, that takes into account higher norms of costs in the areas of the Far North; the index is used for territorial single estimates for constcution and building (TEP) in the Arkhangelsk region (the index is not used for the federal single costs and for state norms of estimates);

T_p — an average working hours for one worker per month; in 2015 $T_p = 164,25$;

$K_{т}$ — tariff for an average category of work or equal average category of workers used in the applied tariff scheme in construction industry (for the category IV $K_{т} = 1,34$, table 2 “Federal branch agreement”);

$K_{р}$ — regional index, for Arkhangelsk region: 0.2;

$K_{сн}$ — northern allowance, for Arkhangelsk: 0.5;

0,9 — tariff value (regulating rate, used in a range 0.5—0.99). Federal Centre for pricing in construction recommends the use of the coefficient within that range due to the need to control the cost inflationary processes in the Russian Federation and market changes for construction services. The cost salaries, except for tariffs, includes the cost of payments for harmful working conditions, paid vacations (12%), bonuses, bonuses for length of work for the same enterprise.

Lets count the index for the Arkhangelsk Region (3) using the method applied for the Far North and equal areas:

$$3 = \frac{13128 * 1,2 * 1,003 * 1,34 * 1,7}{164,25 * 0,9} = 243,49 \text{ (руб.)}$$

Let us analyze the calculations made. The calculation formulas apply the appropriate regional coefficient and northern allowance, which ultimately increases the wages. However, too large range of changes of the regulatory index (0,5 to 0,99) and the lack of clear procedures for the selection of its value in a particular case create the opportunity for arbitrary decisions. This leads to greater dependence of the calculation from subjective factors. Calculations of the estimated cost for the construction with the use of such a procedure will inevitably lead to significant errors, because it does not correspond to real conditions of the construction market. It brings a lot of confusion in the formation of the construction market and undermines the principles of objectivity, its price regulation. However, if there is a state order to perform monitoring of prices and direct costs based on such indicators as the increase in wages, changes in prices for materials and operation of machinery, the error in accounting the cost of construction products will be minimized. In III quarter 2015 “Arkhangel'sk RCCS” recommended to use the wage cost for workers of the category IV, who were employed in the construction and repair, equal to 243.44 rubles per hour (according to the respective “ArhStroyTsena” printed data collection), i.e. 0.5 ruble less, than it has been calculated above.

Living wages and its accounting in the construction industry of the Northern areas

For the upcoming three-year period, the cost of living in Russia had been calculated by 1 January 2013 on the basis of the new procedure for determining the consumer basket, which had been set by the Federal Law of December 3, 2012 №233-FZ “On minimum living wage in the Russian Federation”. The new order replaced previously applied normative method for determining a living wage based on sets of foodstuff, non-food products and services. Calculations of the minimum living wage (see Table 1) was made on the basis of the regional consumer basket, which had been made taking into account the climatic conditions, national traditions and local features of consumption of food, nonfood goods and services by socio-demographic groups. Structure in consumer basket (including all taxes) includes foods with a specific list, and non-food goods and services without the lists, but with a set of prices correlated to food prices and expressed as a percentage. The size and structure of the consumer basket in the Russian Federation changed in 2006 for the last time and now it looks as follows: food products — 45.8%; non-food products — 20%; services — 34.2%.

Table 1

Living wage indicators in Russia in 2014—2015.

Period (quarter — year)	For working population	Indexation in relation to the previous period (quarter)	Legal act
Arkhangelsk Region			
II – 2014	11,491	1	№ 295-pp 22.07.2014
III – 2014	11,471	0.99	№ 433-pp 21.10.2014
IV – 2014	12,158	1.06	№ 18-pp 27.01.2015
I – 2015	14,262	1.17	№ 140-pp 21.04.2015
II – 2015	14,083	0.98	№ 299-pp 21.07.2015
III – 2015	13,513	0.96	№ 419-pp 20.10.2015
Quarter average rate	12,830	1.12	
Murmansk Region			
II – 2014	11,875	1	№ 442-pp 27.08.2014
III – 2014	12,013	1.012	№ 554-pp 31.10.2014
IV – 2014	12,164	1.013	№ 20-pp 03.02.2015
I – 2015	14,298	1.175	№ 167-pp 08.04.2015
II – 2015	14,566	1.019	№ 321-pp 29.07.2015
III – 2015	14,166	0.972	№ 486-pp 02.11.2015
Quarter average rate	13,180	1.11	
Vologda Region			
II – 2014	9,174	1	№ 683 11.08.2014
III – 2014	9,000	0.98	№ 950 27.10.2014
IV – 2014	9,260	1.029	№ 104 16.02.2015
I – 2015	10,917	1.179	№ 354 27.04.2015
II – 2015	11,145	1.021	№ 626 27.07.2015
III – 2015	Not accepted	0	
Quarter average rate	9,899	1.079	
In general in Russia			
II – 2014	8,834	1	№ 905 06.09.2014
III – 2014	8,731	0.99	№ 1321 05.12.2014
IV – 2014	8,885	1.018	№ 260 21.03.2015
I – 2015	10,404	1.171	№ 545 04.06.2015
II – 2015	10,792	1.037	№ 902 28.08.2015
III – 2015	Not accepted	0	
Quarter average rate	9,529	1.079	

When counting the salaries to tariff rates of construction workers in the Far North and equivalent areas we use regional coefficient and northern allowances. In the Arkhangelsk Region

the total coefficient is 1.7. In the Murmansk Region — 2.2, i.e. 29.4% more. The data in table 1 indicate that the cost of living in the Murmansk Region is only 4.8% higher.

Considering the energy tariffs, which are the main indicators of pricing in the cold climate regions. The electric power industry it is prohibited for one legal (physical) body to enjoy the right of ownership or rent power grid assets and property, directly used to purchase and sale the electric energy (this is the area for the marketing companies).

The analysis has shown that a decisive stages of tariff formation are:

1. The cost of the delivered energy. In the absence of transparent study of all the costs at this stage the supplier includes various real and “assigned” spending. Most often, they take the increased amount of work hidden or difficult to be checked (such as digging and backfilling of trenches and pits for laying cables, pipes or wires), as well as the simulation of technical re-equipment while using outdated, used or cheap equipment into accounting the cost [5, 6].
2. Checks of the calculations and approval of tariffs with the highest possible profitability factor are applicable to the concrete consumer market. At the stage of control and at the stage of approval of the profitability ratio the key role is played by the state. This is the stage of corruption risks.

Table 2

Tariffs for electricity for the second half of 2015

Region	Marketing company	One-part tariff, rub. With VAT	
		Population	Population with electric stoves
Murmansk	JSC “Kolskaya energosbytovaya kompaniya (Kolenergosbyt)”	2.53	1.78
Arkhangelsk	JSC “Arkhangelskaya sbytovaya kompaniya (ArkheNERGOSBYT)”	4.32	3.24
Vologda	JSC “Vologodskaya sbytovaya kompaniya”	3.83	3.06

Tariffs on the cost of electricity for the population in Arkhangelsk Region are 1.5 times higher than in the neighboring Vologda, and in Murmansk — by 1.7 times. Low tariffs in the Murmansk Region are formed by using a low-cost price of nuclear energy at the Kola nuclear power plant (it provides 60% of consumption in the Murmansk Region).

Table 3

Indexes for living wages in the Arkhangelsk and Murmansk Regions (III quarter 2015)

Index	Arkhangelsk Region		Murmansk Region	
	rubles	%	rubles	%
Living wage, incl:	13,513	100	14,166	100
<i>Food</i>	5,962	44,1	5,468	38,6
<i>Non-food products</i>	3,009	22,3	3,329	23,5
<i>Services</i>	3,032	22,4	3,782	26,7
<i>compulsory fees and payments</i>	1,510	11,2	1,587	11,2

Analysis of the data in Tables 2 and 3 shows that in the northern regions the greatest part of the spendings for such an index as “services’ is influenced by the prices for energy.

Limit costs in the structure of the estimated cost and their use

Invoice costs as a part of the estimated cost are for reserve funds associated with the creation of the necessary conditions to carry out repair and construction, installation and commissioning, as well as their organization, management and service. The main document defining the procedure for determining the invoice costs in the North is MDS 81-34.2004 “Guidelines for the determination of the amount of invoice costs for construction, carried out in the Far North and the districts equal to it”.

Bigger rates of the invoice costs by types of construction vary in the range from 100% to 130% of the wage construction workers are paid. Funds are reserved in the budget and intended for the payment of salaries for administrative and service personnel and taxes; for the maintenance and operation of buildings; for servicing the construction workers; for the organization of work on construction sites. During the production on a relatively large or medium-cost objects value of invoice costs can range from hundreds of thousands to millions of rubles. Analysis of experience in the Arctic zone of the Russian Federation shows that invoice costs are relatively used as intended by large repair, building and assembly organizations with developed material-technical and production base, as well as a full staff of administrative personnel with professional expertise relevant to such activities. In many cases, in the Far North the construction work is performed by small enterprises, which have only a director, an accountant and someone who does the work. Such organization work due to the rent of construction machinery and equipment and temporary employment of workers. Materials for contraction is usually bought only for a particular projects, due to the absence of current asserts and warehouses.

Getting and using estimated profits. A similar situation exists with the means under “Esti-

mated Profit”, which as part of the estimated cost is adopted as limited costs in the range of 50% to 65% of the wage fund for construction workers and it is spent, primarily on payment of taxes (the cost of entering the construction into operation is accounted for and paid at the expense of earnings); modernization of equipment; reconstruction of objects that are part of its own capital stock; financial incentives for employees (financial aid). A company without its own technical and production bases do not spend these funds, except for the financial aid payments for employees that is currently rather rare case. In most cases, contracting organizations of such type consider finances that could be used for financial benefits of the workers, as their own “bonus” hidden inside the estimates, ie as the actual additional income for the owner or manager of a small business.

These “preferences” allow such organizations to dump prices and win the competitive bidding in case of budget financing. A “loophole” for such organizations were existing provisions of the law 94-FZ “On placement of orders for delivery of goods, works and services for state and municipal needs”. The basic requirements that applied to providers were expressed in the absence of tax debts, and the fact that a company had not been passing the liquidation procedure. Thus the main criterion for selection withing the applicitons accepted was the price of goods, works and services. The situation has changed for the better since the adoption of FZ-44 (Art. 32, §1) “About contract system in the procurement of goods, works and services for state and municipal needs”, where the criteria for selection of candidates for contracts consists requirements for the qualification of staff and the availability of financial and production resources.

Transportation costs

The estimated cost of the materials and equipment includes all the costs of its delivery to the on-site warehouse of the building that is under construction or installation to zone. The transport costs ususally includes current tariffs for cargo transportation by different means of transport. The initial data for the definition of transport costs may include the following factors: type of franco, included in the purchased price of construction materials, equipment and products; destination (a railway station, a port, a dock, an airport); the shortest distance determined by reference data and existing logistic schemes of roads and railways, water routes (rivers and seas) from the departure station (ports, docks), taking into account the franco accepted in the selling price to the destination station (pier or port) of cargo, delivery of equipment, from the railway station (pier, port) or to on-site storage (type of vehicles, the price of transportation, the distance of transportation to railway and road transport); tariff description of equipment (tariff schedule number for carriage delivery, its class, variety and group for loading and unloading during transportation).

Currently, the NAD is using, for example, four transport schemes for building materials: railway or road transport to Pechora stations in the Republic of Komi and then along the Pechora River on a barge to Naryan-Mar (summer navigation in June — October); rail or road transport to the Arkhangelsk and then by sea to Naryan-Mar (during the summer season in June — October); rail or road transport to the Komi Republic, then via the temporary winter road to Naryan-Mar (in December — March); by air all year round (regular direct flights from Moscow and Arkhangelsk).

Absence of the necessary data to determine transportation costs could be defined by using enlarged figures, where transportation costs are usually given in rubles per 1 ton of building materials, equipment, or as a percentage of the selling price of equipment for certain types of buildings or construction areas.

Let us consider it using the the example of Naryan-Mar. Taking into account the estimated cost of materials, which is not determined in a quarterly printed collections of “ArhStroyTsena”, but it is determined by commercial offers of suppliers and customers who are financed from the budget system, very often offer (or make) contractors to use transport expenses equal to 13% of the cost of materials. Carrying out construction and technical expertise to verify the estimated cost of one of the major social objects, controlled by Inspections from Gosstroyzhilnadzor of NAD, the following had been revealed: The customer was a budgetary organization that could formally explain the amount of transportation costs under Article 1.7 MDS 81-36.2004 “Guidelines on the application of the federal-tion unit prices for construction and special construction works”, where it was stated that the estimated prices for construction materials, products and structures used for calculations with the help of data from “Federal collection of estimated costs for materials, products and structures”, considered the transportation costs up to 13% of the selling price. This approach is applicable to participants of building industry, located in the middle or southern Russia where traffic flows are numerous and diverse. However, it is absolutely unacceptable for the AZRF, characterized by underdeveloped logistic schemes of delivery. The actual cost of transportation (i.e. for the full list of required materials purchased by a contractor) is between 25—30% of the cost.

Transportation costs for reinforced concrete in Naryan-Mar is 90-100% of the selling price of the plant in the summer (for sea and river transport), and up to 200% in the winter period (delivery via temporary winter road from the Republic of Komi). In winter, delivery is too expensive because of the car transportation from the town of Usinsk is approximately 14—15 thousand rubles per ton, and it is only possible to transport a very limited number of building materials (14—16 tons) due to restrictions of the car carrying capacity on the ice roads. In addition, the supplied materials do not often have overall dimensions, for example, reinforced concrete piles over 9 meters. Therefore, we

get additional costs that involve more expensive building materials, and hence lead to the rise in construction costs.

Transportation costs and the logistics for transportation of bricks. As a result of the expert-term evaluation of the selling price of the plant in Nizhny Novgorod, it is 10—11 rubles per item. Taking into account the cost of rail transport to the Republic of Komi, its price rises to 14 rubles per item. As a result, taking into account the cost of the river transportation along the river Pechora to Naryan-Mar, the brick price is 26.50 rubles per item. Accordingly, the transportation costs of bricks goes up to 250% of its selling price. At the same time, the price of 26.50 rubles per item is considered to be an acceptable market price for the NAD. However, under certain circumstances (shortage of the required brick stocks at warehouses in NAD due to improper planning or due to the absence of funds to complete the construction in the summer) the cost of a brick can be up to 40 rubles per item. Sometimes companies have to import bricks in the winter to complete the construction. The average annual cost of a brick is 32 rubles per item and it is not the best value indicator for NAD.

Transportation costs for small packed building materials (paint, wallpaper, baseboards, electrical products, glue and etc.) make up approximately 10—15% of the cost of materials in summer and up to 40% in winter. Sea transportation of materials is usually made from Arkhangelsk port. However, if the price of a railway delivery of materials from the central Russia to Arkhangelsk or Usinsk is the same, then sending goods to Naryan-Mar by sea is more expensive due to unstable weather and climate (glaciology and storms) conditions. Transportation of any materials via winter roads is also more expensive than transportation of goods in summer. For these reasons, the average year transport costs of 30% will not solve all the problems associated with the delivery of construction materials. Therefore it is necessary to develop and apply the differentiation (gradation) of transportation costs, depending on the type of building materials.

Transport costs in other localities of the NAD. Quarterly territorial collections of estimated construction prices (TSSTS-2001) consider only the delivery of materials to the city of Naryan-Mar. So transportation to construction sites and other locations should be considered further. Estimates for the budget organizations do not always have such calculations. Often, they just have lowered costs of such estimated calculation. At the design stage the projec organizations just get their share and do not have any interest in its implementation, especially if the contract for supervision is absent. Customers are also more interested in the cheapest projects. The estimated cost of a brick is the same for Naryan-Mar and remote villages Karatayka or Indiga. But the transport scheme for remote and inaccessible locations in the NAD are very different. It is possible to deliver materials only via rivers in summer to some places, but, for example, to Indiga, it is best to deliver everything by

sea from Arkhangelsk. Even the closest town Telviska, which is located near Naryan-Mar, is separated from it by the river. Due to the risky logistic schemes, construction companies have to hire a barge to deliver metal constructions and other building products in summer and in winter the delivery is very simple: ice ways through bays provide non-stop traffic.

There are cases when contractors from other regions win the auctions for the right to sign the agreement and to perform construction or repairs of the property in the countryside, and after a while these companies realize that the NAD has no railways and no all year-round motoways that connect the NAD with the other regions. As a result, some constructions are still not completed. For these reasons, contractors need to plan the purchase and delivery of materials to the objects carefully. The NAO needs to carry out a complex of measures for the introduction of appropriate correction to the transport costs for all settlements.

Organizing construction works

Cost-informed decision about the replacement of concrete products for the manufacture of materials on site (delivery of cement, rebar, large and small aggregates) is taken at the design stage in the "Organization of construction". If the development projects are not provided systematically improving organizational and technical level of construction, then it may decrease not only the quality of buildings, but also the competitiveness of the company and lead to a decline of its image. A pessimistic scenario might also mean bankruptcy.

A two-stage designed projects means that organization of building is solved as a part of the project of organizing the construction (POC), which is usually done by designers and then it is detailed in the project of works (POW) made by builders. A one-step designed project means only POW. Projects of organizing the construction take into account the specificity and complexity of the construction works. Developing the POC it is more efficient to use a variant design method, providing selection of decisions on the basis of technical and economic calculations. The main economic indicators are: total duration of construction; the complexity of work; maximum number of workers; planned wage fund for workers and administrative staff. Production efficiency is largely provided by choice of options for the development of the project with the least amount of costs, and also by accounting the economic effects of reducing the length of service for construction and speeding up its commissioning.

Resume

1. Intensive development of infrastructure has extreme importance for the AZRF and requires intensified work on improvement of the federal and regional legal acts with a regard to weather and climate conditions at the construction sites and their transport accessibility.

2. It is important to have monitoring of regional cost indexes for construction materials in order to make corrections of costs according to the market prices. Systematic monitoring of prices requires state funding.

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