

Development of Public Control Object-Subject Cooperation Methodology in Housing and Utility Complex on the Example of Tomsk Region

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Abstract—Major models of cooperation between objects and subjects of public control in housing and utility complex (HUC) are analyzed and a new scheme of object-subject cooperation on the basis of public-private partnership (PPP) on regional level is proposed. On the grounds of conducted analysis recommendations on improvement of efficiency of public control in housing and utility complex are given. The results of the research can be applied in territorial-economic planning and compilation of regional development programs.

Keywords—housing and utility complex, efficiency, monitoring, models, mechanisms, management

I. INTRODUCTION

The problem of improvement of efficiency of public control in housing and utility complex (HUC) has been one of the major issues at the federal and regional levels likewise. The necessary system is based on the documents of strategic planning; however, the role of economic subjects at municipal level is minimized. The Federal Law as of October 6th, 2003 No. 131-FL "On general organization principles of local self-government in the Russian Federation" states [1] that municipal administrations are major participants of housing and utility complex development process. However, budgets of municipal administrations are unable to fulfill such functions and, what is more, insularity of authority prevents them from financing programs and projects aiming at development of HUC. Therefore, a considerable number of municipal administrations make fake attempts to satisfy requirements of federal programs. As a result such programs and projects of HUC development fail to become a part of a "wider program of social improvement of territories paid attention to by municipal authorities" [2]. As a result, poor correlation between HUC development program tasks and interests of economic subjects at different management levels makes it impossible to solve problems of economic sectors and increase efficiency of budget expenditure and attract investments from the federal level. This issue defines the aim of the given article which lies in efficiency analysis of cooperation between objects and subjects of HUC using the example of Tomsk region and making recommendations on how to increase its efficiency.

II. TOPICALITY OF THE ISSUE, SCIENTIFIC ACTUALITY GIVEN WITH BRIEF LITERATURE REVIEW

The feasibility of the social and economic environment of the region largely depends on development level and sustainability of regional infrastructures. Therefore, infrastructural arrangement of the region is an essential issue of highest priority for federal and municipal authorities. Processes of creation and development of infrastructures are not paid enough attention to, so their evolvement is majorly spontaneous and only partly reflects needs of emerging regional relations between subjects.

Therefore, development of an adequate mechanism of cooperation which might guarantee the mentioned fundamental propositions becomes obligatory. In spite of the fact that many methodological approaches have been introduced and a diverse range of management level assessment tools has been offered, there still exists a need in theoretical and methodological inventions able of efficient executive decision-making provision due to agility of addressed issues. The mentioned problems refer to cooperation between subjects and objects of HUC public control current development of which cannot be called sufficient [3].

Moreover, huc has not yet resolved the following issues:

1. Creation of an effective private owner (small and medium-sized businesses have not been given enough legislative, economic and financial basis for a civilized competition).
2. Monopolistic position of large enterprises which has led to decrease in their productiveness.
3. Lack of renovations in production assets left since the Soviet times.
4. Lack of conditions satisfying needs of high-tech manufacturing.
5. Lack of diversification.

These issues result in spontaneous adjustment of the mentioned sector participants to government's actions which in its turn negatively impacts citizens. Therefore, scholarly importance lies in objective necessity of adequate cooperation system between objects and subjects of public control along with development of HUC regulatory methods on regional level which are to be based on interest provision level evaluation for each infrastructure participant [4].

Considering all arguments mentioned above the topic of the research is actual and its analysis is to allow improving region's economic sector management level which is to ensure its efficiency [5, 6].

It is worth mentioning that by now methodological toolkit of interest provision level evaluation has not been enough analyzed. However, Russian scientists who contributed to solution of the mentioned issues are A.A. Abolin, V.R. Avanesyan, I.A. Bashmakov [7], O.G. Bezhaev, A.I. Bezlydov, V.V. Buzylev [8], I.A. Bashmakov [9], I.V. Bychkovski, D.P. Gordeev, A.G. Granberg, Y.V. Yegorov, A.M. Kirilyuk, S.I. Kruglik, M.I. Kruglov, O.A. Novikov, O.O. Smirnova, G.S. Savitskaya, V.S. Chekalin, A.S. Epshtein, O.V. Pischulin [10], S.S. Zinovkin [11], V.N. Barinov [12].

Researches of these scientists laid the foundation of region's infrastructure subject discrimination and definition of major factors contributing to development of the studied economic infrastructure.

Such foreign scientists as M. Albert, I. Ansoff [13], P. Drucker, M.H. Mescon [14], V. Plyuta, M. Porter [15], R. Strike, F. Hedouri, R. Boardway, S. Brown, G. Wetterberg [16], E. Deutsch significantly contributed to provision of a rationale for different aspects of economic sector functioning. Analytical research of region's social and economic development was conducted by Y.B. Dondokova, G.N. Makarova, V.I. Samarukha, T.V. Svetnik, I.V. Tsvigun and others.

Major efforts in research of housing and utility complex renovation are made by specialists of "the National Centre of Public Control in Housing and Utility Complex" of Tomsk region [18].

Taking into consideration the fact that a considerable number of questions on provision of economic development of HUC as a life-supporting infrastructure are insufficiently studied both in economic environment and business practices it is necessary to study complex functioning business mechanisms further. It is also necessary to develop a scientific concept based on interest provision level evaluation for all life-supporting infrastructure participants.

III. AIM SETTING

Development of a model and approbation of methodological approach of cooperation level between objects and subjects of HUC region's infrastructure public control basing on evaluation of their interest provision; provision of rationale for improvement of cooperation between subjects of region's infrastructure on the basis of priority factor complex.

IV. THEORETICAL PART

The main regulatory document which states the order of public control is the Decree of the Russian Federation Government as of December 26th 2016 No. 1491 "On the order of performing public housing control" which puts the rules of performing public housing control into force. Public housing control is conducted in order to guarantee rights and legal interests of citizens provided by housing legislation and is aimed at promotion of transparency, publicity and efficiency of state, municipal authorities, state and municipal organizations as well as other organizations performing separate public powers under the regulation of housing legislation in accordance with federal laws.

Subjects of housing public control are those that can control compliance with the mentioned parameters, namely Public Chambers of the Russian Federation, regions, cities, territories, villages (municipalities), Community Councils of federal and regional public authorities, public monitoring commissions, inspections, groups of public control and other organizations.

The main condition of public control (PC) efficiency is moral authority of state bodies which are the leaders of PC among ordinary citizens and their ability to perform obligations they have committed to.

Region's housing and utility complex contains a high number of participants: federal and regional public authorities, local self-government authorities, enterprises, citizens. Notably, citizens, public authorities and local self-government authorities are both consumers as well as participants coordinating and regulating functioning of the complex.

PC objects' key issues can be grouped in the following way (Table 1).

TABLE 1. Objectives and aims of public control

Objectives of public control	Aims of public control
1. Territorial life safety	<ol style="list-style-type: none"> 1. Control of personal, property, sanitary, production, ecological safety provision 2. Cleanup in residential buildings and residential neighbourhoods 3. Prevention of law violations 4. Control of authorities specialized in provision of normal human life
2. Provision of urban amenities	<ol style="list-style-type: none"> 1. Development of public rules and control of their execution in residential buildings, their adjacent territories and neighbourhood renovation 2. Prevention and confinement of adverse influences 3. Cleanliness and beauty control 4. Control of HUC management and repair-providing companies as well as utility services producers (water, gas, energy suppliers and others).
3. Provision of housing area	<ol style="list-style-type: none"> 1. Sanitary cleaning 2. Creation and management of the green belt 3. Provision of common facilities
4. Delivery of high-quality services	<ol style="list-style-type: none"> 1. Tariff keeping 2. Issuing of reliable information on amount and quality of provided services 3. Control of limit-exceeding charges

Therefore, HUC public control collaborating with housing cooperative (HC) occupies a dual position. Legal standards do not impose on their representatives the necessity to follow requests and suggestions of social activists. However, they tend to act rather persistently and persuade others to take their opinion into consideration and cooperate with them, attract media and supervision bodies' attention to the fact that managing companies and housing cooperatives work unsatisfactorily.

V. PRACTICAL IMPORTANCE

In presidentially approved Decree on housing and utility reorganization conception of the Russian Federation it is stated that merging of residents into housing cooperatives is considered to be one of the most efficient ways of residents' rights' defense, cost and quality of provided services' influencing and of attracting new investment sources' means.

Tomsk region already is bearing signs of housing cooperatives and other residents' organizations activity which are necessary to be studied in greater detail in order to justify usefulness of such organizations (Table 2).

TABLE 2. Benefits of housing cooperatives' creation

Aims	Results
1. Economic benefits	1. Municipal administration wants to reduce budget expenses on maintenance of residential buildings and regularly collect rather than "wheedle" rent and other fees out of natural and legal persons 2. Residents want to permanently stay in their houses but prefer not to pay a lot for utility and other services and possibly earn money by operation and maintenance of their dwelling. 3. Tenants want to thoroughly settle in their quarters and expand it by basement utilization. 4. Other participants – investors want to renovate the whole building and get their hand on the attic, build a parking lot and an additional building but do this without paying municipal administration the amount of money equal to construction of a brand new building
2. Political benefits	1. Residents – property owners and tenants want to independently solve any questions related to their house surrounding grounds and residential neighbourhood without authorities' involvement. 2. Tenants and investors want to have one strong power but not multiple authorities for it contributes to a certain stability
3. Social and ecological benefits	Municipal authorities, residents and tenants want to have clean residential buildings and their adjacent territories, new jobs' generation, less fires, crimes and emergencies inside and outside the buildings, more discipline, responsibility and fresh air

It becomes clear that there are many benefits and they vary. They can only be combined and satisfied through efficient collaboration of HUC public control objects and subjects.

In the framework of contract relations' implementation between property owners (consumers of utility services) and management company (HUC) representatives of owner performs three major management functions:

- chooses operator of municipal assets;

- approves unified rates, tariffs, financial plans and operator's production programmes;
- controls quality, conducts customer supervision of municipal assets condition and quality of housing and utility services.

Other contract management functions are delegated to operators of HUC municipal assets. Therefore, a part of owner's functions including planning, customer supervision and funding is separated from the functions of operation and maintenance of buildings (HUC) (Fig.1).

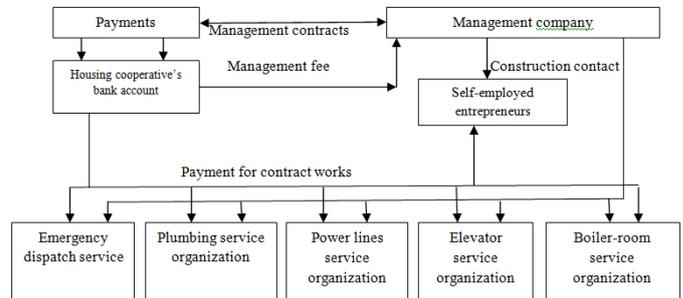


Fig. 1. Scheme of owner functions' realization and housing facility management in the context of contract relations

The owner and their authorized representative are to specify types of services which will require engaging executive-operators.

All the services can be divided into three groups:

- those which can be provided by small-scale for-profit business organizations or self-employed entrepreneurs;
- those which can be provided by focused manufacturing facilities;
- those provided by multi-activity enterprises.

The given division allows defining a facility package which is to be put up for a specific service providing operator selective tender. A considerable number of services which are currently provided by multi-activity enterprises (hotel / sauna maintenance, planting of greenery, cleaning and others) can be singled out into separate activity areas and assigned to private operators or self-employed entrepreneurs on a competitive basis.

Part of housing and utility services requires significant overhead costs. Therefore, wide service areas for focused manufacturing facilities and diversified activity categories in narrow service areas for multi-activity enterprises should be tender-illegible.

Thus, addressing the issue of rational organization of utility service provision system needs considering several options (Fig.2):

1. several isolated municipal operators.
2. some isolated private operators;
3. single municipal operator;
4. single private operator.

In fact, it is possible to choose any of the given schemes. Utility service system operator participating in tender is to offer their own scheme of utility services efficiency and quality provision in city-owned premises.

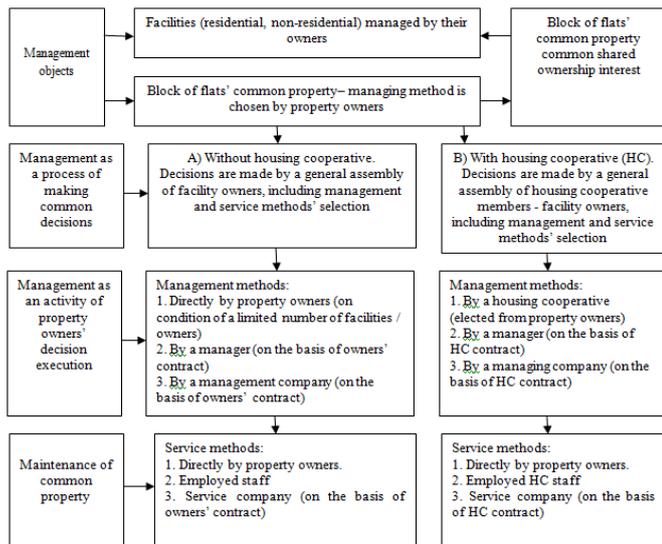


Fig. 2. Property owners' function and management implementation scheme with creation of housing cooperative (HC) under contractual relations

HUC and HC Boards as owners make a contract (trust agreement, rental contract, and public-private partnership agreement) with management companies. These contracts specify:

- area of activities and list of work items' execution right specified by the contract;
- development and approval of financial plan and production programme (participation of residents is particularly specified);
- exclusion of certain kinds of work due to their absence;
- funding or workload extension in case of additional funding sources;
- operator's responsibilities in improvement introduction and preservation of municipal property placed in management;
- standards of housing and utility service provision including highest possible share of HUC expenses in population's average income;
- standards' compliance control methods (control process residents' participation degree is particularly specified);
- indicators which facilitate assessment of management company activities and penal sanctions in case of nonfulfillment;
- financial arrangements on the part of municipal government and management company and other conditions.

Housing service management company organizes house manager office which allows exercising control over execution and organizing productive communication of property owners and tenants with operator in terms of service quality. Each

house manager – is a self-employed entrepreneur who commands a budget and hires service providers for certain types of work in accordance with fixed marginal cost of service.

In the given scheme HUC Board does not perform operation of housing stock or utility systems. On the contrary, it only performs property owner functions through the following succession of actions:

- conclusion of a contract on housing stock management;
- creation of housing and utility companies' financial plan by means of defining their production programme and certain work-type unit prices (tariffs);
- defining municipal quality standards on housing and utility companies' work through a system of quality and quantity work-efficiency indices;
- evaluation of financial plan and production programme completion as well as monitoring of adherence to work execution standard requirements and conditions of "Utility service provision principles";
- employment of economic sanctions in case of incur obligation violations

As a result, importance of economic management methods is increased, planning and operation processes are transparent, HUC service workload is brought in accordance with financial means of property owners.

The following documents are composed with participation of public control representatives:

- financial plan of each enterprise providing services for housing stock;
- production plan (workload according to the type and facility).

They become more feasible due to involvement of public control representatives to their composition. A larger workload can be accomplished in facilities with a higher payment discipline.

1. Constant uniform prices on each work type.
2. A system of indicators and service provision municipal standards, housing company efficiency monitoring procedure.
3. Housing and utility service provision quality control system with the participation of public control representatives.
4. Budget- and resident-beneficial penalty scheme for non-compliance with parameter indicators.

Utilization of the mentioned principles and parameters of HUC organizational system improvement requires property owner not to interfere with internal affairs of operator and not to control actual expenditures on each work type. It allows counteracting the tendency to overrate prices of work types and motivating subcontractor to decrease operational self-cost and plan their activities strategically [19].

Technical control is to be conducted by HUC Board on the basis of an indicator system which, in fact, functions as

municipal standards of service provision. HUC Board is to develop and reinforce indicator system for housing companies efficiency monitoring.

Indicators are to:

1. include well-defined quality and workload requirements;
2. allow continuity of utility service provision requirements. Penalty size in case of limit-exceeding supply cuts is at least to surpass short-delivered utility service costs;
3. contain approximate characteristics which allow comparing operations of housing and utility companies having different in size and residential property quality work ranges.
4. include operation efficiency in promotion of payment collectability criteria.

Operation activity efficiency evaluation in the context of the mentioned aims is conducted on the basis of the following quantitatively measured indices (Table 3).

TABLE 3. Indices, reflecting operation efficiency of housing and utility complex public control object and subject evaluation

Aims	Indicator description	Index calculation
1. Creation of favourable conditions for property owner institute operation foundation	Average length of period between making a decision (Lpa) and beginning of HC operation (Bo), day	Lpa / Bo
	Average expenses of property owners (Ave) on housing cooperative's creation, thousand RUR	Ave
	Density of awareness-raising activities among residents (Ara) on housing cooperative adoption (H), unit / pers	Ara / H
	Density of education and staff training for housing stock self-government system introduction activities (Eda) as compared with total number of activities (H), pers / pers	Eda / H
	Proportion of trainees received certificates (Tr) as compared with total number of trainees (Tto), %	$\frac{Tr}{Tto} \times 100$
	Quantity index of developed and distributed among property owners guidance materials and standard sets of documents on housing cooperative's creation (Dm) as compared with total quantity of materials (Mto)	Dm / Mto
	Quantity index of rooms preferentially-leased to housing cooperative for the purpose of accommodating personnel and contracting organizations (Rpl) as compared with total number of rooms (Rto)	Rpl / Rto
	Average amount of HC's earned revenue from utilization of non-residential space in houses belonging to HC, thousand RUR	ER
	Average amount of budgetary subsidies received by HC, thousand RUR	BS
	Measures index on preferential conditions for financial, material-technical, information resource utilization creation as well as scientific inventions and technologies' application by HC	UA
2. Formation of free competitive environment on housing and utilities service market	Concentration index of management companies (Cmc) as compared with total number of residents (Nre), unit / thousand people	Cmc / Nre
	Proportion of management companies having valid management contracts with housing cooperatives and property owners (Vc) as compared with total number of contracts (Cto), %	Vc / Cto
	Quantity dynamics of small enterprises involved in HUC (Ein) as compared with total number of small enterprises (Eto), %	$\frac{Ein}{Eto} \times 100$
	Quantity dynamics of legislative initiatives aimed at small enterprise development assistance in HUC (Lda) as compared with total number of legislative	$\frac{Lda}{Lto} \times 100$

3. Creation of private-public HUC service quality control system	initiatives (Lto), %	
	Quantity dynamics of management companies (Mc) as compared with total number of companies (Cto), %	$\frac{Mc}{Cto} \times 100$
	Average cost of provided housing and utility services by management companies, RUR / m ²	Acps
	Proportion of marginally profitable and loss-making companies (Cml) as compared with total number of companies (Ctot), %	$\frac{Cml}{Cto} \times 100$
	Proportion of management companies having a compliance certificate (Ccc) as compared with total number of companies (Cto), %	$\frac{Ccc}{Cto} \times 100$
	Proportion of management companies operation of which is terminated by professional participants of the market (Ct) as compared with total number of companies (Cto), %	$\frac{Ct}{Cto} \times 100$
	Proportion of management companies participating in professional alliances (Cpr) as compared with total number of companies (Cto), %	$\frac{Cpr}{Cto} \times 100$
	Index of registered residents' housing and utility service quality complaints	Rc
3. Creation of private-public HUC service quality control system	Proportion of residents' complaints as a result of which penal sanctions of a civil law character are imposed by professional participants of the market (Pc) as compared with total number of complaints (Cto), %	$\frac{Pc}{Cto} \times 100$
	Proportion of residents' complaints about housing and utility service quality registered by means of intentionally created by HUC governing bodies public internet message boards (Pic) as compared with total number of complaints (Cto), %	$\frac{Pic}{Cto} \times 100$
	Growth / decline quantity dynamics of public internet message boards (Gd) created by HUC governing bodies as compared with total number of message boards (Mto), %	$\frac{Gd}{Mto} \times 100$

Each group of parameters both reflects execution degree of specified financial-economic and technical-economic HUC public control operation efficiency indicators in Tomsk region and indicators of legislative, regulatory and informational operation aspects on various levels of assigned aims and objectives' fulfillment.

Calculation of performance indicators according to the proposed method can be annually conducted by public control bodies using consolidated data reported by enterprises and institutions and engaging applicable statistics data.

VI. CONCLUSIONS

Within the framework of the proposed system quality operation efficiency evaluation can be conducted on the basis of correlation between actual values of indices using the following scale (table 4).

TABLE 4. Efficiency of indices

Scale	Index value
“Outstanding result” (average value of positive actual indicator value increment in comparison with planned one)	80-100
“Excellent result” (average value of actual indicator value increment in comparison with planned one)	60-80
“Standard result” (average value of actual indicator value digression in comparison with planned one)	40-60
“Moderate result” (average value of actual indicator value digression in comparison with planned one)	20-40
“Critical result” (average value of actual indicator value digression in comparison with planned one)	<20

Detailed development of the indices on proposed criteria is a time-consuming process which requires participation of federal and regional sector bodies due to the fact that the criteria and index system is to take Tomsk region key features into consideration and be appropriately differentiated.

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