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Use of common resources by rural communities in Russia: Problems of collective choice

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Abstract

One of the key elements of well-being of rural residents is the development of rural social infrastructure. Measures for the development of rural areas often do not take into account the opinion of rural residents themselves, which leads to their dissatisfaction. The level of cohesion and collectivism of the rural community plays an important role in identifying problems and finding solutions, including the use of common resources of the territory. This article makes an attempt to apply Elinor Ostrom's theoretical considerations to the investigation of rural communities in Russia. The experimental part of the study was carried out in small settlements of Stavropol Krai and Krasnodar Krai in South Russia. The hypothesis about the possibility of forming self-governing rural communities, independent in determining the rules for the use of common resources and participating in the implementation of development policies for their territory, was tested. The surveyed residents very rationally selected directions for the social and everyday development of their settlements that allow them to obtain maximum benefit from their implementation. Continuing such research will make it possible to clarify true preferences of rural residents regarding social standards and make timely adjustments to the state policy of rural development.

Keywords: rural areas of Russia, common resources, rural communities, standards of living, rural development policy, Russia.

JEL classification: R2, R23.

1. Introduction

Currently, both politicians and researchers focus mainly on studying the contextual factors of the unfavorable situation in rural areas, that is, on the state of engineering and household infrastructure, the dynamics of jobs in agriculture, transport accessibility of settlements, etc. The analysis of well-being of rural resi-

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dents in Russia, their attitude to current policy of rural development, decisions made in this area, the effectiveness of funded measures, and how all this affects life quality, is addressed less frequently. Based on the research of Elinor Ostrom (1990), we plan to fill this gap by changing the perspective. That is, considering the problems and priorities of rural development through the prism of assessing quality standards by the population itself.

The results obtained are important in the context of understanding the objective and subjective reasons for the outflow of the population from the village, as well as the most effective measures of state support for rural development. The planned study is at the intersection of economics and sociology, which takes into account the complex nature of existing challenges for rural development of Russia as well as expands significantly the scientific base and validity of decisions in the field of rural development policy.

2. Theoretical background

Rural areas are complex natural, socio-economic objects that serve as the core of the natural environment for human habitation. Their role, especially for industrialized countries, is crucial in terms of preserving biodiversity, natural and recreational areas, local culture and traditions (Torre et al., 2023).

A comprehensive study of the countryside does not lose its relevance due to the intensification of urbanization processes and, as a result, the distancing of people from nature, which has negative consequences for both urban and rural life. As a result, in cities this leads to environmental degradation, unemployment and an increase in crime, deteriorating morals and the psychological instability of society. Rural depopulation creates a vicious circle between low prosperity and lack of development (Casini et al., 2021).

Living in a rural area involves the constant interaction of man with nature and direct use of natural resources in everyday life. Therefore, well-being of rural residents largely depends on the rational use of the common resources of the territory, especially in relation to limited resources, or those subject to exhaustion. These, for example, can be water resources, pastures, biodiversity of local forests. Also, this issue also concerns the non-natural common resources of the rural area, which, as a rule, also have restrictions in use (social infrastructure facilities, public places, etc.).

The theoretical basis of this issue is highlighted in the works of Elinor Ostrom, who devoted most of her research to social dilemmas regarding the use of common resources (Kapeliushnikov, 2010). The allocation of common resources proceeded from the traditional concept of private and public goods, which seemed insufficient to the authors.

The spouses V. Ostrom and E. Ostrom expanded the typology of goods depending on their properties of exclusivity and subtractability: in addition to private and public, club goods and public resources were identified (Ostrom and Ostrom, 1979; Hess and Ostrom, 2003). Based on this differentiation, the resources of common use are deductible (subject to exhaustion) and difficult to exclude (available to most individuals).

Most of the benefits enjoyed by the inhabitants of rural areas, according to this classification, can be attributed to resources of common use. As a result, there are

problems of inconsistent use of such benefits by the rural population, which leads to overuse and possible exhaustion of common resources.

The tragedy of easy public access (Hardin, 1968) to common resources (the tragedy of the commons) stems from the lack of established ownership of them and the assumption that resource users are not capable of self-organization and partnership in resolving issues of their use. However, the decisions taken in this regard by the governments of many developing countries to nationalize natural resources did not produce the expected results, and even exacerbated the problems of their use (Gibson et al., 2005). Ostrom was able to prove that it is impossible to apply the same form of ownership to different types of resources.

Depending on the situation regarding the management of common resources, public, private, collective ownership, and open access regimes can be applied (Hess and Ostrom, 2003). This conclusion can also be true for the common resources of rural communities. Each rural area as well as the community of people living in it carries an unlimited number of features associated with living conditions, local mentality, and traditions. Accordingly, common resources used by the local community differ in composition, nature and exhaustibility. The application of the same norms for the management of common resources to different territories and different goods cannot produce the same effect.

One of the features of rural life is a small number of inhabitants in the community. The level of cohesion and collectivism of the rural community in understanding problems and making decisions plays an important role, including in relation to the use of common resources of the territory. A collective understanding of the situation, the recognition of common rules and values, can allow each participant to feel a sense of belonging and, as a result, create “living” communities (McAreavey, 2022).

The functional purpose of such self-organized groups is quite wide: from collective decision-making to the formation of social institutions (Quinn et al., 2021). The management of collective norms and rules in the management of common resources significantly increases the efficiency of their use by rural residents.

The results of many years of research by Ostrom proved that, contrary to the prevailing understanding of the tragedy of the commons, individuals can create self-governing groups and act effectively, reaching the most convenient compromise for everyone. Moreover, rules developed directly by the community of users of shared resources are in most cases more effective than those imposed from above (Ostrom et al., 1999; Liu et al., 2007; Ostrom, 2009).

First, the rules set by the consumers themselves are perceived by them as fairer; second, such rules take into account the smallest details and features of the environment in which the community operates. Indeed, one can hardly imagine that an official who was born and raised in an urban environment can create optimal standards for the management of common goods in rural areas. Especially given their natural, social and economic differentiation.

Self-organization of the community in the management of common resources certainly implies the development of a system of special rules and means to prevent their violation. And as the results of various experiments have shown, formal rules established from above do not give positive effects and do not stimulate cooperative behavior (Vollan et al., 2013). Rules set by the users themselves

allow not only the utility of resource assignment but also procedural utility (from the shared resource management mechanism) to be achieved (Momeni, 2021).

Self-organization and self-government generate a more rational approach not only in the use of common resources, but also in managing the collective coexistence of individuals (Healey, 1997). Achieving consensus involves the transfer by the state of certain powers to communities in order to participate in the process of developing and implementing certain areas of its policy. Citizen participation in governance, policy development, and implementation of projects and programs makes the process sustainably effective in the long term (Suhirman, 2016).

At the same time, even with sufficient financial support, government policy regarding the development of rural areas may prove unsuccessful. The reason for this is, among other things, the lack of participation of the local community in the programs being implemented. Changing the vector of decision-making, providing a certain degree of independence and expanding the participation of rural communities in policies aimed at developing the area of their residence can give impetus to a new evolutionary stage in the existence of rural areas (Koloskova et al., 2022).

Despite the relevance of the problem of managing common resources in rural areas, it is not sufficiently represented in Russian studies. There are various reasons for this. Traditionally, in Russia, the development of rural areas is a secondary goal in the general agricultural policy, aimed primarily at stimulating agricultural production (Serova et al., 2021). Measures for the development of rural areas often do not take into account the assessment of well-being of life and the mood of the rural residents themselves, which leads to dissatisfaction among the rural population (Saraikin et al., 2023).

The underestimated potential of rural areas and insufficient attention to the sentiments of rural residents entail problems of aging of the rural population and depopulation of territories (Lugovskoy and Zvyagintseva, 2022).

This paper makes an attempt to project Ostrom's concept of self-government of common resources onto rural communities in Russia. The importance of scientific substantiation of the seemingly obvious processes of using common benefits of rural areas is that it will help explain the reasons for the failure of government programs developed without taking into account the opinion of the rural community.

The experimental part of the study was carried out using the example of Russian rural communities living in small settlements of municipalities of Stavropol Krai and Krasnodar Krai. Both regions are located in the south of Russia and have very rich natural resources for agricultural development and favorable climatic conditions for people living in rural areas. The share of the rural population in the studied regions significantly exceeds the Russian average: Krasnodar Krai—44.1%, Stavropol Krai—40.7%, Russia—25.2%.¹

In addition, these entities have a relatively high level of provision of engineering infrastructure to rural settlements, even small ones. The choice of these regions is due to the constant population growth that is not typical for most territories of Russia, as well as the strategic importance of the development of agricultural production for the country in conditions of ensuring food indepen-

¹ Rosstat data on 01.01.2022. https://rosstat.gov.ru/storage/mediabank/Chisl_nasel_RF_MO_01-01-2022.xlsx

dence. The agrarian specificity of the southern regions suggests the relevance of the problems of rural development, where, in fact, agriculture is concentrated.

The desire of people to live in rural areas and engage in agriculture is directly related to the conditions of rural life, which depend on government policies (Viccaro et al., 2021; Polushkina et al., 2022).

The purpose of the study is to test the hypothesis about the possibility of forming self-governing rural communities, independent in determining the rules for the use of common resources and participating in the implementation of development policies for their territory.

3. Methods

Issues of social interaction and collective choice continue to be the most difficult to resolve. All attempts to find a solution through the development of abstract social norms and standards and their implementation in practice in rural areas, without factoring in residents' perceptions and assessments, have led to most of them turning out to be unsubstantiated and ineffective (Uryadova, 2022).

So, for example, which village resident needs a children's playground if in the evenings there is no lighting on the streets, and there is no drinking water or sewerage in the houses? Differing priorities over the need and implementation of public goods are the main stumbling blocks in solving problems of social development of the village and improving the quality of life of its residents.

Most social interactions are non-contractual. They are difficult to judge and even more difficult to study, but they make the basis for development of rules and institutions of human behavior. If subsequently adopted norms become regulators of public life, then we can talk about the existence of standards that ensure an increase in well-being of citizens (Ma et al., 2020).

This study aims to correctly take into account and formulate requests for public goods from village residents in order to increase the efficiency of implemented projects and thereby ensure an increase in their well-being. To solve it, it is necessary to turn not so much to the presence of existing facilities, but to what residents currently lack. It is necessary to establish what is of greater utility to them, and therefore will bring them greater satisfaction. The ability to direct the necessary budget funds to what will give the maximum increase in utility is, in our opinion, an expression of social efficiency.

In order to find out the opinion of rural residents about what minimum standards they require for comfortable living, a survey was conducted of 250 rural households in six districts of two regions of the south of Russia. After statistical processing of the results, generalized subjective assessments of rural residents were obtained about the value and importance of the available collective/individual resources used in households as well as existing problems in their operation.

We believed that the survey will allow us to:

- determine total subjective rating assessments of the importance of available collective (or individual) resources used in households (water supply, sewerage, gas supply) as well as existing problems in their operation;
- find out whether there are rules for the sharing of public resources in settlements, and how they are maintained as well as how willing residents are to independently participate in improving the quality of life in their settlement;

- establish the value (priority) of future investments of public (budget) funds in the development of their settlement for rural residents. Determine how the interests of residents coincide in the development strategy of the settlement, and how, in case of disagreement, to decide on the choice of a specific direction.

To process the results of the questionnaire survey, the authors used the method of pairwise comparison of alternatives and built a complete matrix of pairwise preferences of rural households when choosing the most important utilities.

In theory, we relied on Condorcet's principle of non-transitivity of collective preferences and Kenneth Arrow's theorem (Arrow, 1963). The meaning of this theorem is that within the framework of the ordinalist approach, there is no method for combining individual preferences for three or more alternatives that would satisfy some quite fair conditions and always give a logically consistent result.

4. Results and discussion

4.1. Subjective resource utilization ratings

As already mentioned, the survey of rural residents was carried out to determine the minimum standards of comfortable living. The main task was to find out through alternative voting how one type of service is more important (more valuable) than another. In the next step, the resulting data was used to obtain a cumulative rating of each service.

The calculation of the final values was carried out according to the following algorithm: each respondent set his assessments of the importance (value) of each utility from 1 (minimum value) to 10 (maximum value), while it was required that the estimates do not coincide. Next, the number of ratings for each utility was calculated. For example, for water supply, 59 respondents in Krasnodar Krai gave the highest score—10; 51 respondents—9, 48 respondents—8, etc., and the total number of voters for water supply was 208 people. For gas supply, 76 people delivered 10; 35 respondents—9, etc., with a total of 210 voters. The ratio of the number of those who gave the same estimates to the total number of voters determined their share in the assessment of a specific communal service (Table 1).

As a result of the calculations carried out, matrices for the distribution of the value of benefits among residents of rural settlements of Krasnodar Krai and Stavropol Krai were obtained. These values show the aggregate utility ratings. As one can see, with an alternative vote, 36.2% of respondents in Krasnodar Krai determine the gas supply to houses to be the most important communal service for comfortable living. In the second place is water supply 52.9% (28.4 + 24.5) in the sum of two assessments, in the third—the presence of sewage—61.7%, in the fourth—heating—82.6% (14.0 + 24.6 + 16.9 + 27.1). The last in the ranking of importance in the house for comfortable living was the sanitary hub. Thus, providing all houses of settlements with gas will increase the comfort of living in rural areas in the first place. In Stavropol Krai this alignment is slightly different: in the first place is water supply—59.5%, in the second place—sewage—61.4%, then come gas supply—81.7%, heating—81.9% and in the last place—the presence of a sanitary unit. It is important to note that the level of gas supply rating in Krasnodar Krai is only half of the total amount of ratings

Table 1
Importance of public services in rural settlements (% of total answers).

Rating	Type of utility service				
	Water supply	Sewerage	Gas supply	Heating	Bathroom
Krasnodar Krai					
1	28.4	12.9	36.2	14.0	9.3
2	24.5	23.0	16.7	24.6	10.7
3	23.1	25.8	23.8	16.9	11.2
4	16.8	21.1	12.4	27.1	21.5
5	7.2	17.2	11.0	17.4	47.3
Total	100.0	100.0	100.0	100.0	100.0
Stavropol Krai					
1	59.5	11.5	24.3	14.7	7.5
2	19.9	49.9	18.5	11.4	6.8
3	13.6	24.5	38.9	10.1	6.0
4	4.8	9.4	13.1	45.7	17.6
5	2.2	4.8	5.2	18.1	62.1
Total	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations based on survey results.

given for this service, in contrast, for example, to water supply in Stavropol Krai its weight is 59.5%.

Water and gas supply as well as sewerage are priorities for respondents who have lived in the village and are under 30 years old, while those who have lived much more increase the demand for domestic heating, and it displaces the presence of sewerage in the house from the second place in the ranking of the importance. Note also that the request for a bathroom in the house, regardless of the length of stay, remains in the last place in terms of importance.

If the strategy of improving the standard of living in the countryside of chosen regions adhered to these ratings when investing in the regions, then we could talk about conditional optimality in satisfying the choice. But even such superiority in the rating of any one service will not allow maximizing the satisfaction of all residents of the settlement, because the value indicators of other services also matter and affect comfortable living in homes. In other words, the problem arises of finding such a distribution of investments in utilities, in which the resulting utility from resources will become Pareto efficient.

Achieving collective well-being in resource utilization and equitable distribution of the usages generated among community members is one of the complex social challenges. To solve it, you need not only to identify and find an adequate model by which the benefits received would be distributed fairly, but also a way to assess investments of both sole and public resources in the final calculations of utility. "Rational community choice should be as close as possible to how individual members are selected" (Moulin, 1988). Should collective distribution provide benefits to all in the same proportion if the usefulness of the benefits is assessed differently by community members? Will the distribution be fair, whereby those who invest more in the production of public goods will receive them in an amount equal to the one whose investment is much less?

The resulting summary on the question of the priority of goods is not yet an absolutely unambiguous collective answer to the question of how the benefits available in the territory should be distributed in order to achieve maximum use-

fulness for each of its members. Nevertheless, understanding its meaning is much better than blindly following the accepted quantitative standards for providing utilities or other benefits.

4.2. Rules for sharing public resources in settlements

Another challenge in addressing collective choice issues is assessing the possibility of reaching an agreement between residents on the use of public resources. In order to understand how widespread the application of the rules is in the use of free sharing resources, a number of questions were included in the questionnaire, the answers to which made it possible to make an appropriate assessment.

The first was the question of the availability of free-sharing resources on the territory of residence, including water sources, garbage sites, sewerage, etc. such as “Are there any problems with providing residents with water in the village?,” “Are there any resources of joint free use in the territory of your settlement (water sources, garbage collection sites, sewerage, etc.)?,” “Do you have (apply) rules for sharing or accessing common (shared) resources in your locality?.”

The goal was to get a general idea of the distribution of residents to those who believe that there are such resources on the territory, and those who believe that there are no such resources. Quantitative analysis of the cumulative results is presented in Table 2. In order to clarify the availability of rules for sharing common resources, several questions were formulated in the questionnaire. It turned out that the number of respondents who have problems with the provision of drinking and industrial water is quite large—the distribution charts of typical respondents’ answers are presented in Figs. 1 and 2.

As can be seen from Table 2, the share of those who believe that such resources are in the territory of the settlement of their residence is slightly less than $\frac{1}{4}$ of respondents, while in Stavropol Krai they are more than twice as high as in Krasnodar Krai. However, testing the statistical hypothesis of the influence of the regional factor on the discrepancy in the distribution of respondents’ responses showed that the resulting calculated Chi-square value was 3.775 and the critical Chi-square value at the 95% significance level was $\chi^2(0.95; 1) = 3.841$ does not confirm the presence of a significant difference. Therefore, the available

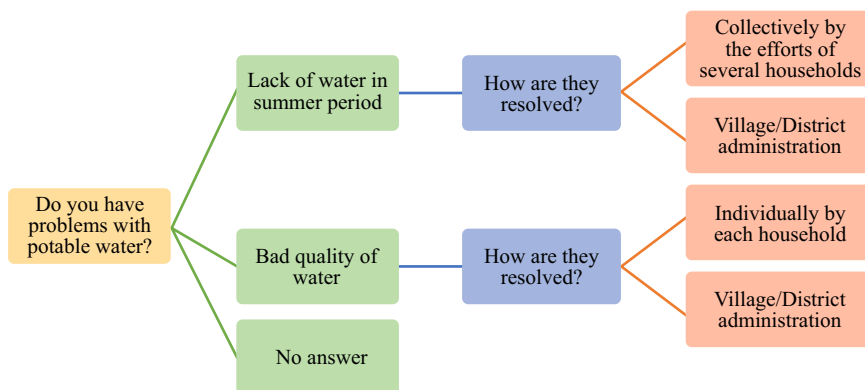


Fig. 1. Providing of drinking water: scheme of responses distribution.

Source: Compiled by the authors.

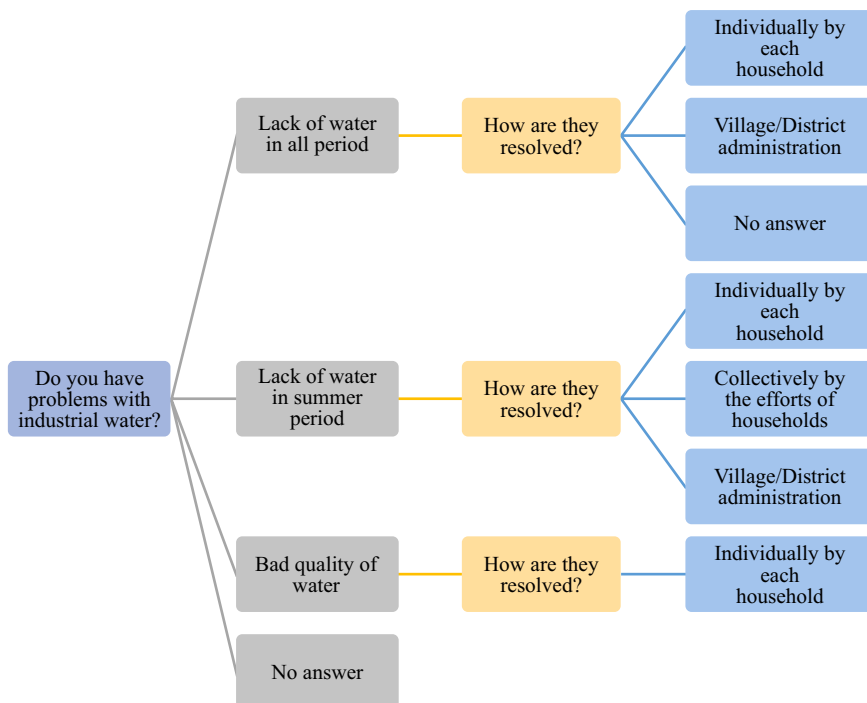


Fig. 2. Providing of industrial water: scheme of responses distribution.

Source: Compiled by the authors.

Table 2

Distribution of answers to the question “Are there free sharing resources on the territory of your settlement?.”

Region	Responses		Total
	Yes	No	
Stavropol Krai	29 (45.3%)	64 (54.7%)	93
Krasnodar Krai	44 (20.9%)	167 (79.1%)	211
Total	73 (24.0%)	231 (76.0%)	304

Source: Authors’ calculations based on survey results.

difference in the distribution of responses can be considered as a statistical error at the 5% level, caused by the formation of a sample set. Thus, it can be accepted that the answers of residents to the question of the availability of free sharing resources on average in other settlements of the region will be distributed as 1/4 answering “yes” to the 3/4 of those who answer “no.”

The next question concerned the existence of rules for using shared resources. Summary responses made it possible to see how the population perceives the importance of rules in using a shared resource. The responses were distributed as follows (Table 3).

The obtained statistics of the distribution of answers show that most of the respondents do not know anything about the availability of rules for the use of free resources. So out of 93 who answered in Stavropol Krai, there were 55 or 59.1% who did not know, and in Krasnodar Krai out of 75–39 or 52.0%. The result can be considered symptomatic, showing that a relatively large proportion of respondents believe that there are no rules for the use of common resources at all. In general,

Table 3

Distribution of answers to the question of the questionnaire: “Are there (are) rules for using common (joint) resources or gaining access to them in your village?”

Region	Responses			Total
	Yes	No	Don't know	
Stavropol Krai	9	29	55	93
Krasnodar Krai	17	19	39 ^{a)}	75 ^{a)}
Total	26	48	94	168

^{a)} When processing the questionnaires, it turned out that many did not choose any of the proposed options, although all the answers represent a complete group, we did not independently classify the unfilled cells as the “I do not know” answer in order to exclude our subjective influence on the final distribution result.

Source: Authors' calculations based on survey results.

according to surveys in both regions, the number of such people is 48 people or 28.6%. The smallest share came from those who answered positively when asked about the availability of rules, there were 26 people or 15.5% of all respondents.

Despite the existing difference in the distribution of responses between the surveys in Stavropol Krai and Krasnodar Krai, the statistical test also confirmed the hypothesis that there was no effect of the regional difference factor on the distribution of the responses received (χ^2 estimated = 5.402 < χ^2 critical (0.95; 2) = 5,991). In other words, the share of those who believe that there are rules for the use of public resources is within $15.5 \pm 5\%$, regardless of the region of the survey.

An important result for understanding the role of rules in regulating relationships was the answers obtained from respondents who indicated earlier that rules exist, to the question seeking to establish “how formalized they are in documents.” They were offered two answers: (1) there are written rules, and (2) the rules are oral. The choice of the first option assumed that there are existing rules and they are documented, the choice of the second that the rules exist, but in the format of only oral agreements.

For those who answered “No” or “Don't know” when asked about the availability of rules, clarifying questions were also offered about how residents do if there are no rules for using shared resources. They were also offered two options: (1) each acts on the basis of their understanding of the correctness of use; (2) agree in each situation separately. The distribution of the received responses is shown in Table 4.

Summary response rates to the question of formalization of rules, if any, and how to proceed for those who believe that there are no rules (or know nothing about them), characterize the existing regulatory framework for the use of common resources. Only less than $\frac{1}{4}$ of respondents, who answered that the rules exist, are sure of the written rules, and all answers were given by respondents from Krasnodar Krai. The rest of the respondents believe that the rules are oral in nature.

On the other hand, those who believe that there are no rules and those who know nothing about them are convinced that in relation to public resources, people act on the basis of their understanding of the correctness of their use, and in cases where difficulties arise in deciding on their use, agree specifically when a problem arises. In fact, it can be seen that the majority of those who believe that there are rules, and those who consider there are no rules, mainly believe that when problems arise, residents rely on oral agreements when it comes to the allocation of public resources. With only one difference: the former believe that

Table 4

Distribution of answers to the question on the availability and formalization of rules for the use of public resources.

Region	Yes			No (Don't know)		
	There are written rules	Are oral in nature	Total	Everyone acts on the basis of their understanding of the correctness of use	We agree in each situation separately	Total
Stavropol Krai		9	9	12	17	29 ^{a)}
Krasnodar Krai	6	7	13 ^{b)}	20	5	25 ^{c)}
Total	6	16	22	32	22	54

^{a)} Of the 55 who answered “Don't know” in Table 3—none gave an answer.

^{b)} Of the 17 who answered “Yes” in Table 3—4 did not answer the additional question.

^{c)} Of the 19 “No” responders in Table 3—9 did not give an answer, of the 39 “I do not know” responders—24 did not give an answer.

Source: Authors' calculations based on survey results.

the previous agreements are taken into account in the present, the latter—that this may not be mandatory for each specific case.

The next question was formulated like this—“If there are rules for the use of shared resources, then by whom were they established?” And the answers are offered: (a) residents at the meeting; (b) territorial department/administration of a rural settlement; (c) district administration; (d) residents orally agreed among themselves.

Equally important in the study was to know the source of the rules for the use of public resources. Therefore, when asked by the questionnaire—If there are rules for using shared resources, then by whom they were established, it was initially assumed only for those who answered “Yes” to the question about the availability of rules. However, when conducting the survey, it was partially answered by those who believe that there are no rules and those who do not know about their presence. The received distribution of responses confirms the previously expressed conclusions (Table 5).

Respondents who answered positively know exactly who sets the written rules. They believe that these are either the residents participating in the meetings themselves, or the so-called territorial departments (local administration). Moreover, such unambiguity is characteristic of the answers of respondents in both regions.

In contrast to them, those who replied that there are no rules (or they do not apply) and those who know nothing about them, for the most part, believe that the rules are set by the administration or residents in the process of solving problems, but orally. From which it follows that in their understanding the rules for sharing resources should still be just in the realm of knowledge, and even more so the application of them is the monopoly of the administration, and only in some cases its oral agreement of the inhabitants among themselves.

The value of these responses is important for understanding how rural people find an acceptable solution to the use of shared resources in cases where the quantitative benefits from it are much less than the demand for them, or when the benefits of using them go to one and the costs are borne by others. Answers to the question about dispute resolution in case of resource use violation show existing problems. The distribution of responses is shown in Table 6.

Table 5

Distribution of answers to the question: Who set the rules?

Agreement with the statements	Stavropol Krai				Krasnodar Krai			
	Residents at the meeting	Territorial department/ administration of a rural settlement	District administration	Residents orally agreed among themselves	Residents at the meeting	Territorial department/ administration of a rural settlement	District administration	Residents orally agreed among themselves
Yes	4	3		1	6	9	1	1
No	4	2		10	2	9	1	2
Don't know		3	1	6	2	13	7	1
Total	8	8	1	17	10	31	9	4

Source: Authors' calculations based on survey results.

Table 6

The distribution of answers to the questionnaire question: "If there are no rules, then how are disputes between residents resolved when using common resources incorrectly?."

Agreement with the statements	Stavropol Krai				Krasnodar Krai			
	Not in any way	District or rural settlement administration	There were no cases	Another	Not in any way	District or rural settlement administration	There were no cases	Another
Yes	7	1	1	–	1	5	10	1
No	13	1	8	–	3	3	6	6
Don't know	8	3	9	–		5	14	2
Total	28	5	18	–	4	13	40	9

Source: Authors' calculation based on survey results.

The final data of Table 6 characterize the participation of the population in solving issues arising from the use of common resources as best as possible. In total, those who believe that there are rules and those who believe that there are none are absolutely united: the decision remains with the administration or no decision is made. It is important to note that in Stavropol Krai, the majority of respondents believe that no one is engaged in finding solutions to the problem (conflict), in Krasnodar Krai—that the rural administration is engaged in the solution.

But an even more interesting result of the survey is that many have chosen the option of no disputes and conflicts when using public resources. The absence of controversial issues when using public resources emphasizes that residents either do not participate at all in obtaining benefits when using public resources, or in every possible way avoid a conflict situation when they arise and subsequently resolved. It would be a mistake to interpret this behavior as normality, since in the long term, accumulated problems are largely the reason for the departure of families to other settlements or cities.

Thus, most of the respondents are poorly aware of the availability of: (a) public resources used free of charge by residents; (b) rules for their use; (c) rules in dispute resolution when conflicts occur with free or shared resources.

For example, answers to the questions show that there is a problem in providing residents with water in summer. The obvious explanation for this situation is summer watering of crops on personal plots. The conflict that arises between residents who do not get water and those who have it is not regulated by the rules for sharing resources due to, most likely, the absence of such. Each resident who does not have the opportunity to receive the proper amount of water is forced to independently, or jointly with other “victims” look for a solution to this problem. The expectation of residents that village administrations will be able to resolve this issue is 30% in Krasnodar Krai and 58% in Stavropol Krai.

The main problem in the use of free public resources is the lack of complete control (due to disadvantage), which leads to their depletion or deterioration. Returning them to normal requires additional costs from the budget, while reducing the ability to direct funds to solve other problems. Unfortunately, this problem concerns not only the surveyed settlements but also the majority of rural communities in Russia.

4.3. Priority of future investments of public (budgetary) funds in the development of the settlement

To establish the priority of the directions of budget investments in the development of settlements, a special question was posed, in which residents were asked to determine the importance (value) of a particular direction. Twelve directions were formulated. Respondents were asked to choose ratings in at least four areas (Table 7).

The interviewed residents very rationally selected the directions for the social and domestic development of their settlements, which allows, from their point of view, to get the maximum usefulness in their implementation. As one can see, rural residents do not have a problem with a reasonable choice of preferences in either Krasnodar Krai or Stavropol Krai. It should be noted that the third in the rating in Krasnodar Krai and fourth in Stavropol Krai is the direction for the ‘construction and/or modernization of the water supply network,’ the importance of which was mentioned earlier for many rural residents.

Table 7

Results of a questionnaire of residents on the selection of priority directions for the use of allocated financial resources.

Direction	Rating	
	Krasnodar Krai	Stavropol Krai
Repair (construction) of roads inside the settlement	1	3
Availability of health care services	2	1
Construction (modernization) of the water supply network	3	4
Improvement of recreation areas	4	8
Availability of educational services	5	2
Availability of cultural objects	6	6
Establishment of MSW receiving points (landfills)	7	5
Construction (modernization) of the sewerage network	8	7
Improvement of water bodies located within the boundaries of the settlement	9	10
Street lighting	10	Not asked
Conservation and increase of green spaces (forest belts, landscaping)	11	9
Pasture improvement	12	11

Source: Authors' calculation based on survey results.

Table 8

Answers to the question “Is there a permanent meeting of residents or initiative group in your village?.”

Region	Meeting of residents	Initiative group	Nothing of the mentioned	if “Yes,” then whether the development of the settlement is discussed	
				Yes	No
Krasnodar Krai	141	123	53	134	11
Stavropol Krai	24	17	52	34	4

Source: Authors’ calculation based on survey results.

Table 9

Answers to the question “Are the decisions of your meetings taken into account by municipal authorities?.”

Region	Yes, taken into account	No, not taken into account	Discuss only disputes between residents	Don’t know	Total
Krasnodar Krai	133	27	15	36	211
% to total	63.0	12.8	7.1	17.1	100
Stavropol Krai	78	10	4	1	93
% to total	83.9	10.8	4.3	1.1	100

Source: Authors’ calculation based on survey results.

4.4. Participation of residents in the management of social development of the settlement

To obtain an assessment of how much residents of settlements are involved in the work on public improvement of the settlement, questions about self-government were asked. The total answers to these questions make it possible to assess the impact of residents on the social development of settlements (Table 8).

It can be seen that in the settlements of both regions there is a meeting of residents or initiative groups, or both, on an ongoing basis. This is an important moment in the public structure of human settlement management. In addition, 91.7% of respondents in Krasnodar Krai and 82.9% in Stavropol Krai note that issues related to the future of their settlement are discussed at meetings of these public organizations.

However, despite the discussion, it is more important how the decisions made at such meetings are taken into account, in the opinion of respondents, by municipal authorities (Table 9). It can be seen that in Krasnodar Krai 63.0% of respondents believe that municipal authorities take into account the proposals and decisions of public organizations when making their own decisions, 12.8% believe that they do not, and 17.1% do not know the answer to the question asked. In Stavropol Krai, the number of people who believe that the decisions of initiative groups or meetings of citizens are taken into account by municipal authorities is slightly higher than 83.9%, and mainly due to the reduction of those who do not know anything about the decisions made there. In either case, in both regions most of the respondents are confident that the impact of local communities on municipal authorities is significant.

The question of the personal participation of respondents in the implementation of collective projects to improve social conditions made it possible to assess how interested the respondents themselves are in this work (Table 10).

Table 10

Answers to the question “Are you personally ready to participate in the development and implementation of a collective project to improve life in your village?”

Region	Yes	Perhaps yes	No	Total
Krasnodar Krai	112	58	41	211
% to total	53.1	27.5	41.2	100
Stavropol Krai	38	43	12	93
% to total	40.9	46.2	12.9	100

Source: Authors’ calculation based on survey results.

Table 11

Answers to the question “If someone organized a project to improve the quality of life in your village, which would require a certain co-financing/labor participation, are you personally ready to participate in such an event?”

Region	No, under no circumstances	Perhaps yes	Of course yes	Total
Krasnodar Krai	38	89	84	211
% to total	18.0	42.2	39.8	100
Stavropol Krai	21	60	12	93
% to total	22.6	64.5	12.9	100

Source: Authors’ calculation based on survey results.

The last two questions (Tables 10 and 11) regarding the participation of the respondents themselves in the improvement of the settlement of residence show how difficult it is to make a decision, when you are also required to co-finance or participate with your labor. The number of people who are ready to take part in project discussions is always slightly more than those who are ready to bring their plans to the actual result. So, if you accept that those who spoke in favor of unconditional participation are taken with a probability of 100%, and those who chose, “perhaps yes” with a probability of 50%, then the number of participants will be:

- (a) readiness of respondents to participate in the discussion:
- in Krasnodar Krai: $112 + 58 \times 0.5 = 141$ or $141/211 \times 100 = 66.8\%$;
 - in Stavropol Krai: $38 + 43 \times 0.5 = 59.5$ or 63.9% .
- (b) respondents’ readiness for labor participation and co-financing:
- in Krasnodar Krai: $84 + 89 \times 0.5 = 128.5$ or $128.5/211 \times 100 = 60.9\%$;
 - in Stavropol Krai: $12 + 60 \times 0.5 = 42$ or $42/93 \times 100 = 45.2\%$.

It is important to note here that in many rural settlements public management institutions are poorly functioning and much more expenditure and effort are required to achieve the intended goal of the project than originally planned by the participants. This reason is often the main one in the refusal of residents to participate in joint social events, especially in cases where the usefulness of the intended benefit is difficult to specify and the project costs are significant.

5. Final remarks

Based on the results of the study, the authors came to the conclusion, that using of rating voting to assess the priority of benefits allows good results of their cumulative utility evaluation for a particular community and allows to increase the efficiency of the return of resources invested in the project. There are prob-

lems with the establishment and observance of the rules for the use of resources jointly owned by citizens living on the territory. However, most citizens of rural settlements are ready to participate in community programs and activities aimed at improving social conditions of the entire community.

Understanding and measuring the quality of life in rural areas is an important task that demands the participation of authorities at all levels, the scientific and expert community, and rural residents. The effectiveness of state policy in the field of rural development largely depends on the quality of interaction of authorities with the rural population, the ability to combine various methods and tools of analysis, the ability to adapt to the ongoing changes.

It should be noted that the authors have only come closer to understanding how united rural residents can understand the development plan of their settlement, and how, in such cases, to decide on choosing a specific direction. Similar studies need to be continued.

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