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**TERRITORIAL FEATURES OF THE USE OF IRRIGATED LAND AND WATER  
RESOURCES IN SAMARKAND REGION**  
**САМАРКАНД ОБЛУСУНДА СУГАТ ЖЕРЛЕРДИ ЖАНА СУУ РЕСУРСТАРЫН  
ПАЙДАЛАНУУНУН АЙМАКТЫК ӨЗГӨЧӨЛҮКТӨРҮ**  
**ТЕРРИТОРИАЛЬНЫЕ ОСОБЕННОСТИ ИСПОЛЬЗОВАНИЯ ОРОШАЕМЫХ  
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**TERRITORIAL FEATURES OF THE USE OF IRRIGATED LAND AND WATER  
RESOURCES IN SAMARKAND REGION**

**Annotation**

The article provides information on the importance of land and water resources, which are the basis of agriculture, including the regional efficiency of land and water resources in the example of Samarkand region, the situation within the districts.

To do this, the share of districts in agricultural production, the percentage of land and water resources is expressed in comparable indices ( $\bar{i} = 1$ ). The specific (land and water resources separately) and integral (combined land and water resources) aspects of land and water use efficiency were calculated in two ways (brutto and netto). Specific efficiency was determined by the state of water use at the expense of the regional agricultural lands and the Zarafshan Basin Department of Irrigation Systems.

In order to more accurately reflect the results of the study, the districts were divided into four groups according to the net (net) efficiency status, and each group was named based on a certain criterion. In addition, differences in the use of land and water resources by districts were identified using differences in netto and brutto efficiency. The results are tabulated in order to change the situation by region and to show the situation more clearly. At the end of the article, suggestions and recommendations for improving the efficiency of land and water use in the districts of the region are given.

**Keywords:** *land, water, region, resource, area, brutto ratio, netto ratio, efficiency, index, indicator, intensive use, extensive use.*

**Аннотация**

Макалада Самарканд облусунун мисалында аймактагы жер жана суу ресурстарын пайдалануунун натыйжалуулугун, анын ичинде айыл чарбасынын негизи болгон жер жана суу ресурстарынын маанилүүлүгү, аймактардын ичиндеги кырдаал тууралуу маалымат берилет.

Бул үчүн райондордун айыл чарба өндүрүшүндөгү үлүшү, жер жана суу ресурстарынын пайыздык катышы салыштырмалуу көрсөткүчтөрдө көрсөтүлөт (Сток = 1). Жерди жана сууну пайдалануунун натыйжалуулугунун конкреттүү (жер жана суу ресурстары өзүнчө) жана интегралдык (жер жана суу ресурстарынын айкалышы) аспектилери эки жол менен эсептелген (жер жана суу). Салыштырмалуу натыйжалуулук региондук айыл чарба жерлеринин жана Зарафшан ирригациялык системалардын бассейндик башкармалыгынын эсебинен сууну пайдалануунун абалы менен аныкталды. Изилдөөнүн жыйынтыктарын так чагылдыруу үчүн райондор таза аткаруу статусуна ылайык төрт топко бөлүнгөн жана ар бир топ белгилүү бир критерийдин негизинде аталган. Мындан тышкары, аймактар боюнча жер жана суу ресурстарын пайдалануудагы айырмачылыктар ӨКМ жана ӨКМ натыйжалуулугунун айырмачылыктарын колдонуу менен аныкталды. Натыйжалар таблицада региондорду өзгөртүү жана аны визуалдуу түрдө көрсөтүү үчүн берилген. Макаланын аягында облустун райондорунда жер жана суу ресурстарын пайдалануунун натыйжалуулугун жогорулатуу боюнча сунуштар жана сунуштар берилди.

**Ачкыч сөздөр:** жер, суу, регион, ресурс, аймак, пайдалуу коэффициент, таза коэффициент, эффективдүүлүк, индекс, көрсөткүч, интенсивдүү пайдалануу, экстенсивдүү пайдалануу.

**Аннотация**

В статье представлена информация о важности земельных и водных ресурсов, которые являются основой сельского хозяйства, в том числе об эффективности использования земельных и водных ресурсов в регионе на примере Самаркандской области, о ситуации внутри районов.

Для этого доля районов в сельскохозяйственном производстве, процентное соотношение земельных и водных ресурсов выражаются в сопоставимых показателях ( $i = 1$ ). Конкретные (земельные и водные ресурсы по отдельности) и интегральные (комбинированные земельные и водные ресурсы) аспекты эффективности использования земли и воды были рассчитаны двумя способами (*brutto* и *netto*). Удельная эффективность определялась состоянием водопользования за счет региональных сельскохозяйственных угодий и Зарафшанского бассейнового управления ирригационных систем.

Чтобы более точно отразить результаты исследования, районы были разделены на четыре группы в соответствии со статусом чистой эффективности, и каждая группа была названа на основе определенного критерия. Кроме того, различия в использовании земельных и водных ресурсов по районам были определены с использованием различий в эффективности *netto* и *brutto*. Результаты приведены в таблице, чтобы изменить ситуацию по регионам и показать ее более наглядно. В конце статьи даны предложения и рекомендации по повышению эффективности использования земельных и водных ресурсов в районах области.

**Ключевые слова:** земля, вода, регион, ресурс, площадь, коэффициент полезного действия, коэффициент *netto*, эффективность, индекс, индикатор, интенсивное использование, экстенсивное использование.

**Introduction**

The issue of rational use of natural resources, including land and water resources, has been much discussed over the last years. This process is especially important in countries specializing in agriculture, especially in Uzbekistan. The organization of rational use of land and water resources has two main goals: the efficient use of land and water resources and their protection [1]. Like other production processes, economic factors play an important role in determining land and water use efficiency. High productivity per unit, the usefulness of the amount per capita, and so on. If efficiency is expressed in the example of a region (region, province, district), it can be recognized as regional efficiency [5].

**The purpose of the study** is to calculate the efficiency of land and water resources use of districts using their agricultural production. For this purpose, the specific (separate) efficiency of land and water resources use, integrated (joint) efficiency of land and water resources use were calculated, and differences in land and water resources use of the surveyed districts were determined.

**Methodology and Materials.** Statistical analysis, interregional comparison, mathematical methods were used in this work. To show the absolute figures clearly, they are expressed in a certain ratio (percentage). Efficiency was calculated in indices relative to the regional average. Here, the indices are determined by the ratio of relative indicators (percentages). The efficiency of

land and water use is expressed in brutto and netto ratios. They were calculated by arithmetic mean and geometric mean.

In Samarkand region, agricultural lands (1295.5 thousand hectares) make up about 90% of the total area [7]. In general, large rural districts (Nurabad, Koshrabat) are well provided with agricultural lands. However, most of them are occupied by lands specializing in pastoralism and dry farming (see Table 1). On the contrary, in the suburbs there are very little agricultural lands (Taylak, Aqdarya), in addition, the intensive farming has mainly developed there. Pastdargom, Payariq and Kattakurgan districts are well supplied with water resources. The difference in agricultural production is not so great.

**Table 1.**

The share of districts in the cultivation of regional agricultural products and the provision of agricultural lands and water resources<sup>3</sup>

№	Districts	The share of agricultural production $R_a$	Provision of land resources $R_l$	The provision of water resources $R_w$
1	Bulung'ur	9.5	3.6	7.2
2	Jomboy	5.8	2.2	7.4
3	Ishtikhon	8.4	3.3	8
4	Kattakurgan	7.4	6.6	10.6
5	Narpay	4.5	1.9	8.8
6	Nurobod	2.5	28.0	2
7	Aqdaryo	5.4	1.6	6.3
8	Pastdargom	8.8	6.8	14.1
9	Pakhtachi	5.1	3.9	8.2
10	Payariq	9.3	7.4	12.5
11	Samarkand	8.5	1.7	4.5
12	Tayloq	8.8	1.1	3.9
13	Urgut	10.9	4.9	6
14	Koshrabat	4.2	12.7	0.3
<b>By province</b>		<b>100</b>	<b>100</b>	<b>100</b>

The index of the share of regions in agriculture was calculated on the basis of data for the last 12 years [4]. The index of effective use of land and water resources is calculated in relation to the indicator of land or water supply of the districts (see Table 2).

$$I_{eul}(I_{euw}) = R_a / R_{l(w)}; \text{ here:}$$

$I_{eul}$  ( $I_{euw}$ ) (effective use of land or water) – Index of efficient use of land or water resources,  
 $R_a$  (ratio of agricultural production) – Ratio in agricultural production,

$R_{l(w)}$  (ratio of land or water resources) – the ratio (share) of districts in the provision of land or water resources.

When calculated by this formula, the state of land and water use of the regions arose. Taylak district, which is well-supplied with agro-climatic natural resources, is distinguished by the level of land use, which is almost eight times higher than the regional average. Along with Taylak, Samarkand district also stands out in the use of agricultural lands. Nurabad and Koshrabat districts are the least developed areas for growing agricultural products from land resources. These districts

<sup>3</sup> The table was prepared by the authors on the basis of 2018 data of the State Committee for Land Resources, Geodesy, Cartography and State Cadastre of the Republic of Uzbekistan and the Samarkand Regional Department of Statistics.

are the most passive in the agricultural sector of the region. This is directly related to the inconvenience of natural conditions.

In the efficient use of water resources, the situation is slightly different. That is, 50 percent of the districts lag behind the regional average, which is due to the fact that they are provided with more water resources [2]. Interestingly, a very high figure in this regard is observed in Koshrabat district. The fact that the share of this district in the regional water distribution is very small, significantly increases its performance. From this it is clear that the agriculture of this district is dominated by dry farming and animal husbandry. In addition, the index of water efficiency is high in the eastern districts of Taylak, Samarkand and Urgut. The relatively low rate is in Narpay, Pastdargom, Pakhtachi and Payarik districts. Of these, two western districts use water for other purposes as well, while the others simply use too much water.

**Table 2.**

Index of agricultural land and water use efficiency in the cultivation of agricultural products in the region<sup>4</sup>

№	Districts	Land use efficiency index $I_{eul}$	Water use efficiency index $I_{euw}$
1	Bulung'ur	2,6	1,3
2	Jomboy	2,6	0,8
3	Ishtikhon	2,6	1,1
4	Kattakurgan	1,1	0,7
5	Narpay	2,4	0,5
6	Nurobod	0,1	1,3
7	Aqdaryo	3,4	0,9
8	Pastdargom	1,3	0,6
9	Pakhtachi	1,3	0,6
10	Payariq	1,3	0,7
11	Samarkand	4,9	1,9
12	Tayloq	8,1	2,3
13	Urgut	2,2	1,8
14	Koshrabat	0,3	14,0
<b>By province</b>		<b>1,0</b>	<b>1,0</b>

Factors influencing the efficiency of land and water use include the provision of areas with fertile land and sufficient water supply. Determining the effectiveness of their joint use allows us to draw general conclusions. In particular, a separate study of the efficiency of agricultural production from land and water resources does not give clear, satisfactory results. Because the lack of land or water resources does not have a strong impact on the agriculture of the region. Therefore, it is necessary to determine the effectiveness of their joint use. This can be expressed by 2 indicators.

### 1. Brutto coefficient $(I_{eul}+I_{euw})/2$ .

The brutto coefficient of land and water use efficiency was determined by the arithmetic mean of the land and water indices (see Table 3). In this regard, Koshrabat is far ahead, and as noted above, the low amount of water used by the district is the reason for this situation. Moreover, Taylak district has a much better performance (as in other eastern districts). It should be noted that the brutto efficiency does not fully reflect the potential of the regions. This is because the efficiency

<sup>4</sup> The table was prepared by the authors on the basis of 2018 data of the State Committee for Land Resources, Geodesy, Cartography and State Cadastre of the Republic of Uzbekistan and the Samarkand Regional Department of Statistics.

of one of the land or water resources is so high that it can cause the other to overestimate or underestimate its potential.

**2. Netto coefficient or efficiency  $\sqrt{(I_{eul} * I_{euw})}$ .**

The netto coefficient is determined by the average geometric index of these indices, which more accurately reflects the characteristics of the use of land and water resources of the regions (see Figure 1). The reason for this is that the role of precipitation in agriculture, especially in livestock sector and dry farming, is also high. However, this indicator provides an opportunity to obtain sufficient information about the state of the regional economy, the agricultural sector, including the efficiency of land-water use. In the regions, different indicators are recorded relative to its average. In particular, Taylak and Samarkand districts have a significant advantage, recording 4 and 3 times higher than the main indicator, respectively (see Table 3).

The efficiency of land and water use in these districts depends, firstly, on the convenience of natural conditions and, secondly, on the fact that fertile agriculture (intensive form of farming and livestock) has traditionally developed in the past. In addition, these areas are the main growing regions in terms of population and the region's economy. Their main problem is that the rational use of land and water resources is not regulated. Examples include the transfer of agricultural land to other sectors, problems with water distribution and some shortcomings in the free operation of activities.

**Table 3.**

Land and water use efficiency index<sup>5</sup>

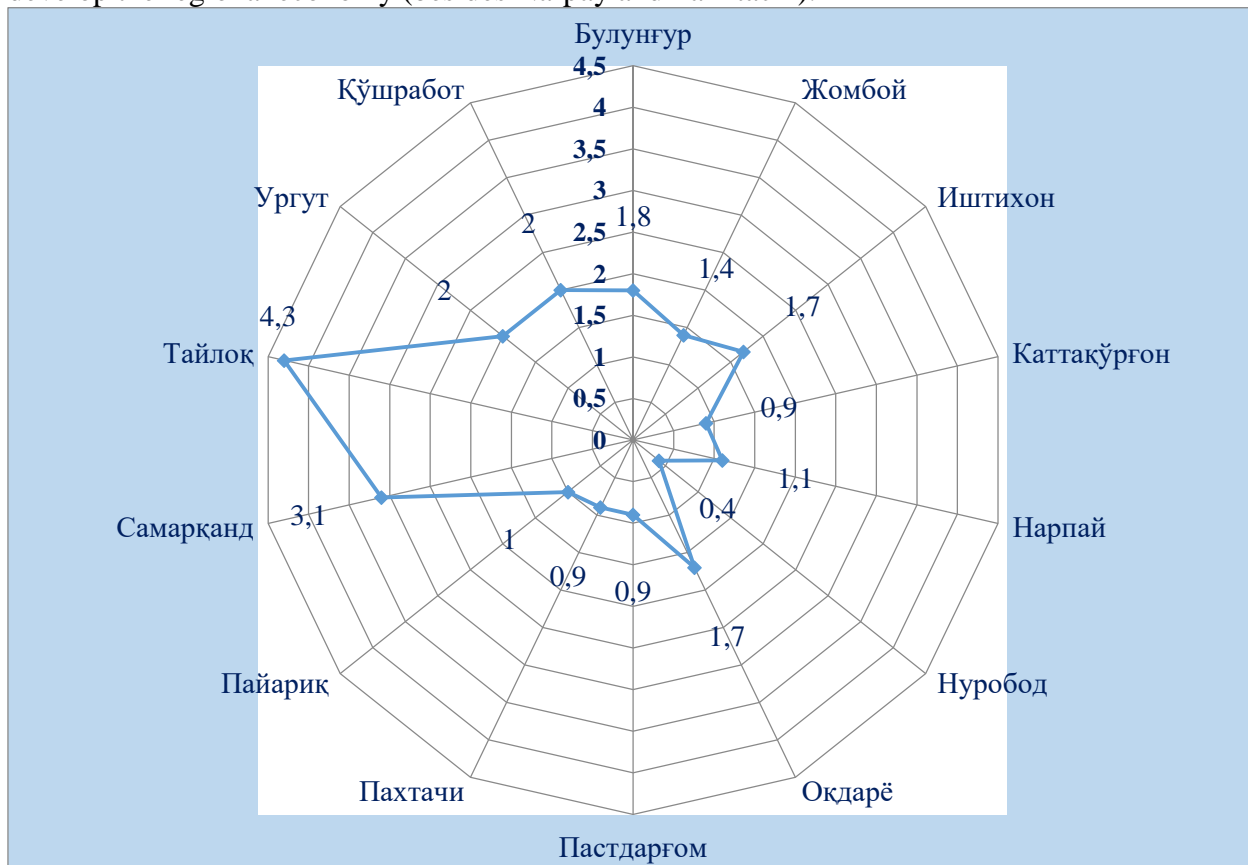
№	Districts	Brutto efficiency E <sub>b</sub>	Netto efficiency E <sub>n</sub>	Ratio
1	Bulung'ur	2,0	1,8	1,1
2	Jomboy	1,7	1,4	1,2
3	Ishtikhon	1,9	1,7	1,1
4	Kattakurgan	0,9	0,9	1,0
5	Narpay	1,5	1,1	1,4
6	Nurobod	0,7	0,4	1,8
7	Aqdaryo	2,2	1,7	1,3
8	Pastdargom	1,0	0,9	1,1
9	Pakhtachi	1,0	0,9	1,1
10	Payariq	1,0	1,0	1,0
11	Samarkand	3,4	3,1	1,1
12	Tayloq	5,2	4,3	1,2
13	Urgut	2,0	2,0	1,0
14	Koshrabat	7,2	2,0	3,6
<b>By province</b>		<b>1,0</b>	<b>1,0</b>	<b>1,0</b>

The second group includes regions with different conditions and levels of development, the average efficiency of land and water resources which is 1.8 times higher than the regional average. Both intensive and extensive branches of agriculture are well organized in these regions. Extensive farming prevails only in Koshrabat district. The reason for this, as noted above, there are available conditions and large area for spring farming and livestock sector.

The real situation of the efficiency of land and water use in the region can be demonstrated by the third group. Because these are the main base areas of the region's agricultural sector, they are better provided with land and water resources than others. However, the efficiency of using

<sup>5</sup> The table was prepared by the authors on the basis of 2018 data of the State Committee for Land Resources, Geodesy, Cartography and State Cadastre of the Republic of Uzbekistan and the Samarkand Regional Department of Statistics.

these resources lags far behind their potential, although these districts have ample opportunities to develop the regional economy (besides Narpay and Pakhtachi).



**Figure 1. Efficiency of net use of land and water resources**

In terms of agricultural production and land and water use efficiency, Nurabad district lags far behind the regional average. The reason for this is, firstly, the unfavorable conditions of the region, and secondly, the unsatisfactory conditions and opportunities for the development of an intensive form of agriculture accordingly.

**Table 4.**

**The netto coefficient of efficient use of land and water resources in the districts of the region<sup>6</sup>**

№	In relation to the indicator	The indices range	Districts	Average index
1	Very high	Above 3.0	Taylak, Samarkand	3,7
2	High	1,5 – 2,0	Urgut, Koshrabat, Bulungur, Ishtikhon, Aqdarya,	1,8
3	Average	0,9 – 1,4	Jambay, Narpay, Payariq, Pastdargom, Kattakurgan, Pakhtachi	1,0
4	Very few	Less than 0.5	Nurobod	0,4

Differences in the use of land and water resources can be identified through the ratio of brutto and netto efficiencies.

$$E_b/E_n$$

As can be seen from the table, the biggest difference is in Koshrabat, half of which is observed in Nurabad districts. One-sidedness in the use of land and water resources in these areas is obvious. On the contrary, in Kattakurgan, Payariq and Urgut districts there is no difference in the use of land and water resources. These cases indicate that the regions have problems with the provision of land and water resources, their agricultural production potential.

<sup>6</sup> Calculated by the authors based on the data in Table 2.

**Research results.** In this study, for the first time, the specific (each separately) and integral (joint) efficiency (in brutto and netto coefficients) of land and water use was calculated.

When grouping the results of netto efficiency indicators, the highest rate was recorded in suburban areas (Taylak, Samarkand), and the lowest in the largest desert (Nurabad) district.

However, in the third group of districts, which are the backbone of the region's agricultural sector, the efficiency of land and water use is lower than expected. It is clear that the efficiency use of land and water resources does not depend only on the fact that they are well supplied.

This indicates that there are problems with the intensive organization of agriculture in these areas. The difference between brutto and netto coefficients was also determined. In this regard, the difference in land and water use was high in Koshrobat (3.6) and Nurabad (1.8) districts respectively.

Therefore, it is necessary to improve the extensive form of agriculture (pastoralism, dry farming) in these areas and in other areas, which are generally poorly supplied with land and water resources.

**Conclusion and suggestions.** There is a decrease in land and water resources per capita. If this process continues, in 2030 each person will have 8 hundredths of irrigated land and 32 liters of water, and by 2050 - 5 hundredths of land and 20 liters of water resources. However, in our (agro-industrial) conditions, a person needs at least 6 hundredths of irrigated land and 40 liters of fresh water a year to live a normal life. From the above figures, it can be seen that before 2050, the shortage of land and water resources in the region will begin.

However, given that these resources are not evenly distributed in all regions, it is not difficult to feel that in some disadvantaged areas, land and water resources are beginning to run out. To prevent this problem, we need to do the following:

- when planning the regional economy, it is necessary to take into account which (in agrarian conditions,) sectors it is most dependent on. Artificial production planning does not lead to good results;

- complex work on the use and protection of land and water resources (study, decision-making, implementation and outcome) should be carried out. Control plays an important role in this.

### References

1. Abduazizovich, N.J., Umirkulovic, S.A., Turakulovich, R.F. Pasture livestock effects on agricultural land in Samarkand region. Annals of the Romanian Society for Cell Biology. 25(2), 2021. с. 447-451 (<https://www.scopus.com/results/>)
2. Аминов Ф.Б. Ер ресурсларидан фойдаланиш самарадорлигини оширишнинг худудий хусусиятлари (Қашқадарё вилояти мисолида). Иқти. фан. ном. ... дисс.- Т., 2003.
3. Зарафшон ирригация тизимлари хавза бошқармаси маълумотлари. - Самарқанд, 2018.
4. Fayzullo R. Khamidov, Shavkat J. Imomov, Otabek S. Abdisamatov, Maqsud M. Sarimsaqov, Gulnora Kh. Ibragimova, Khurshida I. Kurbonova. Optimization of agricultural lands in land equipment projects. Journal of Critical Reviews. © 2020 by Advance Scientific Research. This is an open-access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.31838/jcr.07.11.184>.
5. Намозов Ж.А. Самарқанд вилояти ер ресурсларининг худудий тузилиши // СамДУ илмий ахборотномаси, № 3(91) Самарқанд-2015. Б. 144-147.
6. Намозов Ж.А. Мирзалиев С. Сув ресурсларидан оқилона фойдаланишнинг иқтисодий географик жиҳатлари // ЎзМУ. География ва Ўзбекистон табиий-ресурс салоҳиятини баҳолаш муаммолари. Республика илмий-амалий конференцияси материаллари. -Т., 2016. Б. 155-157.
7. Намозов Ж.А. Сув ресурсларидан оқилона фойдаланишнинг иқтисодий географик жиҳатлари // География ва Ўзбекистон табиий-ресурс салоҳиятини баҳолаш

- муаммолари. Республика илмий-амалий конференцияси материаллари. -Т., 2016. Б. 155-157.
8. Намозов Ж.А., Шарипов Ш.М., Ўралов Э.О. The territorial features of effective use of water resources (as Zarafshan basin) // European science review № 1 -2 2016 January-February. Vienna-2016. Б. 8 - 11.
  9. Намозов Ж.А., Довулов Н.Л. Territorial aspects of water resources usage in Samarkand region // Science and world. 11(51), 2017, Vol. I. Б. 60-63.
  10. Namozov J.A., Sangirova U.R., Yunusov I.O., Ahmedov U.Q., Dustmurodov G'.G., Hakimov R. Features of gis application in agriculture // Journal of Xi'an University of Architecture & Technology. Volume XII, Issue IV, 2020. Б. 305-308.
  11. Намозов Ж.А., Қосимов Д.Н. The status of land resources and their protection in Zarafshan region // Sustainable Agriculture, № 2(6), 2020. Б. 30-33.
  12. Рахматуллаев О.Р. Ўрта ва Қуйи Зарафшон воҳа геосистемаларида экологик вазиятни географик оптималлаштириш. Геогр. фан. док. ... дисс. – Т. 2018. 120 б.
  13. Самарканд вилояти статистика бошқармаси маълумотлари. - Самарканд, 2018.
  14. Солиев А.С. Иқтисодий география: назария, методика, амалиёт. – Т.: Мумтоз сўз, 2013.
  15. Солиев А.С. Ўзбекистон географияси (Ўзбекистон иқтисодий ва ижтимоий географияси). – Т.: Университет, 2014.
  16. Ўзбекистон Республикаси ер фонди. – Т.: Ўзбекистон Республикаси Ер ресурслари, геодезия, картография ва давлат кадастр давлат кўмитаси маълумотлари (<https://ygk.uz>). – Т., - 2018 й.
  17. Қурбонов Ш.Б. Ўзбекистон қишлоқ туманлари ривожланишининг иқтисодий-географик хусусиятлари. География фан. бўйи. фал. док. дисс. (PhD) автореферати. Т., 2017.
  18. Ҳикматов Ф.Ҳ., Ҳайдаров С.А., Ярашев Қ.С. ва бошқалар. Зарафшон дарёси ҳавзасининг гидрометеорологик шароити ва сув ресурслари. – Т.: Фан ва технология, 2014.

МАЗМУНУ / СОДЕРЖАНИЕ

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