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## **GEOGRAPHICAL ASPECTS OF ECONOMIC ASSESSMENT OF AGRICULTURAL LANDS OF ALMATY AGGLOMERATION**

The article considers the geographical aspects of the economic assessment of agricultural lands of Almaty agglomeration. Specificity of agricultural land use depends on natural and landscape features of Kazakhstan. A scientifically justified territorial organization of agricultural production should be implemented on the basis of accounting for both component-wise conditions and assessment criteria for natural-landscape heterogeneity. Analyzing the diversity of types of natural landscapes on the territory of the Almaty agglomeration, it can be noted that the economic and geographical assessment of suburban lands is impossible without taking into account the local approach. Each type, species, unit, district, area of a specific landscape has its own specific characteristics, differently react to various anthropogenic impacts, thereby differing in the economic value of the territory. As a result of the study, methodological recommendations for improving the economic and geographical assessment of land resources in the suburban areas of the Almaty agglomeration were developed.

**Key words:** land resources, Almaty agglomeration, agricultural lands, specific indicator of cadastral value, normative productivity, gross income.

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### **Географические аспекты экономической оценки сельскохозяйственных земель Алматинской агломерации**

В статье рассматриваются географические аспекты экономической оценки сельскохозяйственных земель Алматинской агломерации. Специфика сельскохозяйственного землепользования зависит от природно-ландшафтных особенностей Казахстана. Научно обоснованная территориальная организация сельскохозяйственного производства должна осуществляться на основе учета как покомпонентных условий, так и оценочных критериев природно-ландшафтной неоднородности. Проанализировав разнообразие видов природных ландшафтов на территории Алматинской агломерации, можно отметить, что экономико-географическая оценка пригородных земель невозможна без учета локального подхода, так как каждый тип, вид, единица, округ, район определенного ландшафта имеет свои специфические характеристики, следовательно, может по-разному реагировать на различные антропогенные воздействия, тем самым отличаясь экономической ценностью территории. В результате исследования разработаны методические рекомендации по совершенствованию экономико-географической оценки земельных ресурсов пригородных территорий Алматинской агломерации.

**Ключевые слова:** земельные ресурсы, Алматинская агломерация, сельскохозяйственные земли, удельный показатель кадастровой стоимости, нормативная урожайность, валовой доход.

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**Алматы агломерациясындағы ауыл шаруашылық жерлерінің экономикалық бағалануының географиялық аспектілері**

Мақалада Алматы агломерациясындағы ауыл шаруашылық жерлерінің экономикалық бағалануының географиялық аспектілері қарастырылады. Ауыл шаруашылық жерлерінің спецификасы Қазақстанның табиғи-ландшафттық ерекшеліктеріне байланысты. Ғылыми негізделген ауыл шаруашылық өндірісін аумақтық ұйымдастыру компоненттік жағдайлар есебі негізінде жүзеге асырылуы тиіс, себебі бағалау критерийлері табиғи-ландшафттық әртекті болуында. Алматы агломерациясы аймағындағы табиғи ландшафттарың түр алуандығына талдау жасай отырып, жергілікті жердің ерекшелігін ескермей, қала маңы жерін экономикалық-географиялық бағалау мүмкін емес. Себебі белгілі бір ландшафттың әрбір типі, түрі, бірлігі, өңірі, ауданы өзінің жеке сипаттамасына ие. Демек аймақтың экономикалық бағалануы ерекшеліктеріне байланысты антропогендік әсерлердің деңгейі әртүрлі болуы мүмкін. Зерттеу нәтижесінде Алматы агломерациясындағы қала маңы аймағы жер ресурстарын экономикалық-географиялық бағалауды жетілдірудің әдістемелік ұсыныстары құрастырылды.

**Түйін сөздер:** жер ресурстары, Алматы агломерациясы, ауыл-шаруашылық жерлері, кадастрлық құнның меншікті көрсеткіші, өнімділік нормативі, жалпы кіріс.

**Introduction**

The identification of the consequences of the current agricultural land use system and the development of new methodological aspects of the economic and geographical assessment of land are becoming relevant in connection with the reform of land relations in the country and the need for development the Kazakhstan model of land management. In spite of the adopted legislative acts “Land Code of the Republic of Kazakhstan” (Land Code of the Republic of Kazakhstan, 2016:140), “On Farmer and Peasant Farms of the Republic of Kazakhstan” (Law of the Republic of Kazakhstan “On the peasant or farming enterprise”, 1998:18), “On Approving the Rules for the Rational Use of Agricultural Land” (<http://adilet.zan.kz/rus/docs/P1100001297>), “On Approving the Program for the Development of the Agro-Industrial Complex in the Republic of Kazakhstan for 2013-2020”, “Agrobusiness 2020” (“Agrobusiness 2020”, 2013:12), etc., the efficiency of agricultural land use is not improving. Reduction of the land resource base of agriculture is expressed in the reduction of the area of cultivated land.

The considering territory of Almaty agglomeration is located in the south-eastern part of the republic, in the north of the mountain Tien Shan, at the foot of the northern slope of the Ile Alatau within the Almaty region. Almaty agglomeration includes the territory of Almaty city, part territory of Enbekshikazakh, Jambyl, Ili, Karasai and Talgar

districts. The land fund of the Almaty agglomeration is 9.4 thousand km<sup>2</sup>, of which more than 50% of the total territory is occupied by agricultural land, 12.2% – lands of settlements, 11% – lands of specially protected natural areas, 10.9% – reserve lands, 9.3% – lands of industry, transport, communications and other non-agricultural purposes, 4.9% – lands of the water fund and 1.2% – lands of the forest fund (Interregional scheme of territorial development of Almaty agglomeration, 2015:113).

Currently, the process of reducing arable land occurs on the territory of the Almaty agglomeration, which can be caused by the withdrawal of lands for non-agricultural purposes. The depleted use of land resources has led to a reduction in crop yields. Irrational land use is reflected in the level of life quality, culture of the population, the weakness of the material base of the agro-industrial complex.

Since the reform of agricultural enterprises since 1991, the arable land in the Almaty region has decreased by more than 10 times. At present, for the rational use of the lands of Kazakhstan, it is necessary to conduct an economic assessment of agricultural land on a geographical basis, which will allow developing a system of actions to ensure food security in the regions of Kazakhstan.

**Field of study**

Almaty agglomeration is located in the south-eastern part of the republic, of Kazakhstan in the north of the mountain spurs of the Tien Shan,

at the foot of the northern slope of the Ile Alatau within the Almaty region. The region borders on the east with the Chinese People's Republic, in the south – with the Kyrgyz Republic, in the north – with the East Kazakhstan region, in the northwest adjoins to the lake Balkhash, and in the west – to the Zhambyl region. Apart from Almaty, the Almaty agglomeration includes Yesik town and 14 rural districts of Enbekshikazakh district, 6 rural districts of Zhambyl district, 9 rural districts of Ili district, Kaskelen town and 11 rural districts of Karasai district, Talgar town and 10 rural districts of Talgar district, Kapshagai town and 2 rural districts administratively subordinate to the Kapshagay city administration. All these territories are included in the 1.5-hour isochron of transport accessibility from the core – Almaty city.

### Materials and Methods of research

The research on economical and geographical assessment of agricultural lands of Almaty agglomeration based on the following methods: comparative – geographical, spatial analysis method, descriptive, statistical. The informational basis of the research was statistical and stock materials of the Almaty city, regional and regional branches of the State Research and Production Center for Land Resources and Land Management (an enterprise within the State Corporation “Government for Citizens”), the Management of Land Relations of Almaty and the Almaty Region, “Institute geography by National Scientific and Technological Holding “Parasat” of the Republic of Kazakhstan”. In the process of research, various statistical, cartographic and fund materials were widely used in the context of the administrative districts of Almaty region and Almaty.

### Results and discussion

The peculiarity of agricultural land use is determined by geographical features of the territory, a combination of landscape structures of different taxonomic series. According to the type of anthropogenic impact and the level of landscape organization, 6 classes of anthropogenic landscapes are distinguished on the territory of the Almaty agglomeration.

*The class of agricultural landscapes* within the agglomeration occupies the predominant part of the territory and is represented by pastures, hayfields, irrigated and rain-fed arable land. Agricultural land covers 50.4% of the total agglomeration area, including pasture lands – 72.7%, arable land – 19% and hayfields – 1%. Intensive use of pastures

and arable lands in the agglomeration area leads to their reduction, degradation and anthropogenic transformation (Interregional scheme of territorial development of Almaty agglomeration, 2015:113; Ecological and demographic survey of rural areas of Almaty region, 2004:268).

*The class of residential landscapes* is represented by all settlements of Almaty agglomeration. The lands of settlements (cities, towns and rural settlements) occupy 12.2% of the agglomeration land fund. Residential complexes of agglomeration can be divided into 2 groups: urban – the city of republican importance – Almaty, the city of regional importance – Kapshagay, the cities of district significance – Esik, Kaskelen, Talgar, Otegenbatyr, Uzynagash; rural – villages and farms. The distinctive features of rural settlements and nearby territories are the activation of processes of water and wind erosion, changes in groundwater levels, pollution and littering, the frequent development of salinization processes, etc. (Interregional scheme of territorial development of Almaty agglomeration, 2015:113; Ecological and demographic survey of rural areas of Almaty region, 2004:268).

*The class of road-technogenic landscapes* of the Almaty agglomeration is represented by paved and unpaved roads, a railway, a gas pipeline. The railway is represented by the directions Shu – Semei with branches: Aktogay – Dostyk; Aktogay – Balkhash; highway – Almaty – Astana, Almaty – Tashkent and other directions. Unpaved roads connects Almaty city with regional centers and suburban rural settlements. All urban and rural settlements are connected between themselves by improved roads and have access to the highway. Unpaved laid throughout the agglomeration area by the local population as a result of unsystematic grazing and economic use of this territory.

Class of technogenic landscapes. The technogenic class of anthropogenic landscapes of the Almaty agglomeration is represented by: mines of coal industry, quarries and mines for the extraction of ornamental stones:

- in Zhambyl district – Kastek deposit of gold, silver, lead and zinc, Kargalinsk deposit of gravel-sand mixture;
- in Talgar district – Kulantobe field of porcelain stone and granite, Besagash deposit of sand, gravel and clay;
- in Karasai district – Aksay and Pervomaisk deposits of sand and gravel, Kaskelen deposit of calcareous stone and marble;
- in Enbekshikazakh district – Chilik-Kemir deposit of sand and gravel.

The main types of impact of these deposits on the natural and territorial complexes are mechanical and chemical. The mechanical type of impact on the landscapes of the Almaty agglomeration has local or point-like nature in the places of mining. In these places, all the components of the landscape were fundamentally changed: relief, soil and vegetation cover.

*Class of aquatic landscapes.* Aquatic types of anthropogenic landscapes are reservoirs, sedimentation tanks, accumulators and irrigation canals. On the territory of the Almaty agglomeration there are 4.9% of natural and anthropogenic aquatic complexes. The purpose and economic use of reservoirs and lakes on the territory of Almaty agglomeration is various. So, the Kapshagai reservoir is used mainly to serve the needs of agriculture.

*The class of forest landscapes* occupies only 1.2% of the agglomeration territory and is represented by three categories: mountain spruce-deciduous, tugai and desert forests. Mountain forests are located on the foothills of the Northern Tien Shan. Tugai forests are confined to the floodplains of the Balkhash basin rivers. Desert forests are represented mainly by saxaul (*Haloxylon*) forests, which fix sand, prevent the formation of sandstorms, protect rivers and canals, populated areas and roads from drifting, contributing to an increase in the capacity of desert and semi-desert pastures. In recent years a large area of tugai and saxaul forests were cut down by the local population for fuel (Ecological and demographic survey of rural areas of Almaty region, 2004: 268).

Thus, the dominant distribution within the territory of the Almaty agglomeration has a class of agricultural landscapes and associated with agricultural production land areas, such as road and industrial landscapes, represented mainly by road and railways. In the general spatial structure of anthropogenic landscapes significant areas occupies by residential, technogenic, forest and aquatic class. More than half of the territory of the Almaty agglomeration is occupied by agricultural land, we further examined the methodology for determining the economic and geographical assessment of arable and forage lands. The base rates of land have the great importance in regulating of land relations, so it is important that it has a serious scientific justification.

Taking into account the existing structure of cultivated areas in the districts, the calculation of the normative productivity in rural districts is based on the crop rotation crops used according to the formula:

$$GP_n = (C_{1n} * P_{n1}) * C_{w1} + (C_{2n} * P_{n2}) * C_{w2} + (C_{nn} * P_n) * C_{wn} \quad (1)$$

where,  $GP_n$  – cost of normative gross production from 1 hectare (tenge);

$C_{W1,2, \dots n}$  – normative crop productivity;

$P_{mC1,2, \dots n}$  – unit price;

$C_{wWV1,2, \dots n}$  – specific weight of culture in rotation.

Normative income, in tenge ( $P_n$ ) defined by the formula:

$$P_n = (GP_n * R) : (1 + R), \quad (2)$$

where,  $G_{pn}$  – cost of normative gross production from 1 hectare (tenge);

$R$  – normative rentability (30%, or 0,3 shares of units).

The methodology proposes a way to establish the price of land based on the capitalization of the estimated income received from the exploitation of the land to the capitalization rate or the efficiency of capital application to the industry (in methodology – 8%, or 0,08 shares of units):

$$P_{nn} = P_n : K, \quad (3)$$

where  $P_{nn}$  – normative price of agricultural land;

$K$  – capitalization rate.

The productive capacity of the soils composing it, expressed through the output of gross output from a particular site, is based for assessing arable land and determining its normative price. The most basic appraisal unit is the estimated groups of soils according to their physicochemical, morphological properties, identical in their agronomic uses. The list of appraisal cultures for each soil variety is selected according to the climatic parameters of the territory to the agro-climatic parameters determining the range of possible cultivation of crops. Agro-climatic parameters of land plots are established on the basis of agro-climatic assessment of zoning of the territories of the Republic of Kazakhstan (Temporary methodology for determining the normative price of agricultural land, 1995:38).

The list of appraisal crops should be adapted for a wide variety of natural conditions and include crops whose crop areas in the region are at least 70-90%. The universal estimated structure of crops includes: cereals – 50%, perennial grasses – 34%, annual grasses – 10%, industrial crops – 6%.



Using of the universal evaluation structure mean that possible errors and subjective approaches are excluded in the selection of optimal crop rotations and, as a result, they ensure comparability and objectivity of land-valuation activities. In accordance with the rules for selecting optimal crop rotations, the universal evaluation structure is adapted, i.e. is optimized with reference to each specific soil variety, to the soil and climatic conditions of each particular land plot. At the same time, if it is possible to grow both potatoes and sugar beet according to climatic conditions, only one of them, more profitable, is left in the composition of the appraisal culture. This is due to the fact that, as a rule, these crops are not included in the same crop rotation in the commodity production (Temirbekov A.T., 1977:24; Baimyrzayev K.M., 1996:175; Danyshpanov B.D., 1999:120; Tokbergenova A.A., 1999: 133).

As a result of the analysis of the agricultural market in the research area, we determined that the largest number of agglomeration vegetables, cereals, potatoes, annual and perennial grasses are grown. Due to crop rotations with perennial grasses, self-sufficiency of crop rotation with organic matter and nutrients is achieved, the content of common humus increases, the physical, chemical and biological parameters of the soil are improved. As a variety of perennial grasses for calculations, we chose alfalfa, which can be used for pure sowing and which is an excellent precursor for most crops, as it is kept in the grass for any type of soil for at least 2-3 years. The most rational crop as the cereals is barley. The following priority agricultural crops of the region should be called vegetables, corn for silage.

According to the analysis of cash receipts from growing crops, the cultivation of cereals and vegetables in the agro-climatic conditions of the Almaty agglomeration is both acceptable and profitable. According to the results of market analysis, the cost of growing and the price of selling perennial and annual grasses are not significant. Thus, in further calculations we selected a universal valuation structure for generating income from the use of crop rotation, which includes 50% of cereals (barley), 6% of potatoes, 34% of corn, and 10% of alfalfa. To determine the amount of cash receipts, the data on the yield and the price of sale of barley, vegetables and corn for silage of the Statistics Department, the Department of Agriculture of the Almaty region were studied. Data on the price of selling perennial grasses for hay (lucerne) have not been published, so we analyzed the price of hay from alfalfa in the area (<http://www.agroprom.kz>).

Calculation of the specific indicator of cadastral value of the estimated land plots was carried out for the Karasai, Talgar, Ili and Zhambyl districts included in the Almaty agglomeration.

For this we select several (4) production cooperatives and farms on rural districts abovementioned administrative districts. The territory of the production co-operative "Rauan" in the Zhetygen rural district of the Ili district is located in the semi-desert and desert zones, which contribute to the formation of gray soils of the bright northern ones, which was reflected in the structure of the soil cover. As a result of human economic activity, the soil cover underwent significant changes. These changes, depending on the level of the culture of farming, different duration and intensity of use, lowering of biomass, different degrees of soil compliance to anthropogenic loads, are of a very different nature, mostly negative. The conduct of agricultural production, namely plant growing in conditions of small peasant farms, has shown its inefficiency. Small peasant farms, without technical ability and sufficient material resources, process land without observing zonal agrotechnical methods, do not use organic fertilizers in sufficient quantities, cultivate monoculture. This led to the development of processes of water and wind erosion over a large area of arable land. In comparison with the results of the survey, some depletion of humus, gross nitrogen and phosphorus is noted. In the last 20 years, the humus content has decreased to 10-12% not only in the upper horizon, but also throughout the profile (Soil essay, 2010:16.).

The Association of Farms "Druzhba" of the Zhanashamalgan rural district of the Karasai district is located in the desert-steppe zone in two soil sub-zones: in the south of the land use there is a subzone of light chestnut soils, in the north there is a subzone of ordinary serozems. In addition, in the northwestern part of the land use, soils of the hydromorphic series are formed, where the soil water level is affected by a near groundwater level. The processes of water erosion were found on the arrays of irrigated and irrigated arable lands. In these areas weakly washed soils were detected up to 10% in irrigated soils and up to 30% in non-irrigated soils. It should be noted that arrays of arable land in the past 5-10 years are practically not cultivated and are used for pasturing cattle. Arable lands located near the settlements are destroyed (Soil essay, 2010:15).

The production co-operative "Abdygulov" of Belbulak rural district of Talgar district is located in the desert-steppe zone on dark chestnut soils. In the land use area there are gray soils, soils are in

different degrees solonchaks, many are saline to a varying degree, some experience additional soil moistening due to closely located groundwater. In recent years, periodic increases and declines in groundwater have been observed in some land areas in the land use area (Soil essay, 2010:19).

The production co-operative “Kalkaman” of the Kargalinsk rural district of the Zhambyl district is located in the foothill steppe zone on the mountain chernozem leached. Soils were formed under meadow mixed-grass-grass steppes. The terrain of the territory is characterized by an alternation of strongly dissected elevations and lowland plains. Soils are characterized by high natural fertility. Soil-forming rocks are loess and loesslike loam (Soil essay, 2010:16).

Further, as an example, the calculation of the specific indicator of cadastral value of the estimated land plots for these areas is presented. We were not provided with data on the composition of the land and the number of fields in the farms occupied by a particular culture. Therefore, in determining the specific index of land rent, we assumed that in each farm there is one land plot with a weighted average productivity index.

Depending on the natural and economic conditions, the availability of the necessary initial information on the area and intensity of crops, the assessment of soils by crops productivity is determined by differentiating the indices of the estimated productivity of soil groups by varieties based on the soil bonitet mark [158]. The initial data for the calculation of crops productivity are presented: in the Karasai region, using the example “Druzhba” (bonitet mark equal to 36); in Ili district – “Rauan” (23); in Talgar district – “Abdygulov” (47), “Kalkaman” (60). Further, we find the normative productivity:

$$Y_{ij} = P_{ij} * K_y \quad (4)$$

where:

$Y_{ij}$  – normative productivity, tenge/ha for i-th crop at j-th farmland;

$P_{ij}$  – productivity, mark for i-th crop at j-th farmland;

$K_y$  – coefficient of transfer of feed units into the normative productivity.

Below are the coefficients of transfer of feed units into the normative productivity by crop production in Almaty agglomeration (Table 1).

**Table 1** – Coefficients of transfer of feed units into the normative productivity (V.I. Kiryushin, 2005:784)

Culture name	$K_y$
Cereals	0,45
Legumes	0,43
Sugar beet	2,08
Potatoes	1,61
Corn for silage	2,50
Annual grasses	0,98
Perennial grasses	1,09

**Table 2** – Normative productivity of agricultural crops by the selected farms in the agglomeration, tenge / ha

Name of land users	productivity, mark	Normative productivity, tenge/ha			
		Cereals (barley)	Vegetables (potatoes)	Perennial grasses (alfalfa)	Corn for silage
Production co-operative «Rauan», Zhetygen rural district, Ili district	23	1,04	3,7	2,5	5,75
Association of Farms «Druzhba», Zhanashamalgan rural district, Karasai district	36	1,62	5,8	3,9	9
Production co-operative «Abdygulov», Belbulak rural district, Talgar district	47	2,12	7,57	5,12	11,75
Production co-operative «Kalkaman», Kargalinsk rural district, Zhambyl district	60	2,7	9,66	6,54	15

According to the data obtained, we determine the normative productivity of agricultural enterprises by selected areas. The calculations are shown in Table 2. The price of sales of each crop was calculated on the basis of the analysis of sales prices for 2015 in connection with market changes in the value of

goods (<http://www.agroprom.kz>). Based on the data on the normative productivity for each agricultural crop and the projected prices for the sale of these crops, the table below shows the calculation of gross income per unit area in the context of each land user (Table 3).

**Table 3** – Gross income per unit area in the context of selected farms of the agglomeration

Type of crops	Productivity, mark	Crop rotation, %	Normative productivity, tenge / ha	Realization price, tenge / ha	Gross income, tenge / ha
Production co-operative «Rauan», Zhetygen rural district, Ili district					
Barley	23	50%	1,04	20000	20800
Potatoes	23	6%	3,7	30000	111000
Corn for silage	23	34%	5,75	12000	69000
Alfalfa	23	10%	2,5	10000	25000
Association of Farms «Druzhba», Zhanashamalgan rural district, Karasai district					
Barley	36	50%	1,62	20000	32400
Potatoes	36	6%	5,8	30000	174000
Corn for silage	36	34%	9	12000	108000
Alfalfa	36	10%	3,9	10000	39000
Production co-operative «Abdygulov», Belbulak rural district, Talgar district					
Barley	47	50%	2,12	20000	42400
Potatoes	47	6%	7,57	30000	227100
Corn for silage	47	34%	11,75	12000	141000
Alfalfa	47	10%	5,12	10000	51200
Production co-operative «Kalkaman», Kargalinsk rural district, Zhambyl district					
Barley	60	50%	2,7	20000	54000
Potatoes	60	6%	9,66	30000	289800
Corn for silage	60	34%	15	12000	180000
Alfalfa	60	10%	6,54	10000	65400

The range of prices varies depending on the soil characteristics of the area. The lowest indicator of the value of land is in the Zhetygen rural district of Ili region, which amounted to 124,096 tenge per 1 ha. For «Druzhba» of Zhanashamalgan rural district of Karasai district the amount of gross income is equal to 194 019 tenge per 1 hectare, for PC «Abdygulov» of Belbulak rural district of Talgar district – 224 671 tenge per 1 hectare, for PC «Kalkaman» of Kargalinsk rural district of Zhambyl district – 323 446 tenge per 1 ha. The difference in this value primarily depends on the location in different natural zones, and consequently, causes a low quality mark and the quality of the soil cover.

In comparison with other branches of economics, agriculture in Kazakhstan is profitable, although in different periods the values of this indicator are uneven. According to the JSC «Rating Agency of the Regional Financial Center of Almaty», the average annual profitability of the crop sector is about 30%,

which is significantly higher than in the livestock sector, where profitability varies at a level of 14% for the period from 2010 to 2015.

Thereby the described algorithm for using the estimated method of assessment of agricultural land requires special information of soil surveys, actual cartographic material. Cadastral valuation is carried out with an interval of 3-5 years. For the territory of Almaty agglomeration there is used the base rates for land plots calculated in 2003 for the Almaty region. Therefore, the monitoring of market prices based on a comparative approach will allow objective picture of the market value of agricultural land, which will periodically be updated using a revenue approach.

Analysis of the data suggests that the normative value of agricultural land for tax purposes, determined by the existing methodology, is significantly mark down, including for the legal persons is half than for physical persons, which does not stimulate the rational use of land.

## Conclusion

The assessment of agricultural land is specific, due to the following factors that should be taken into account in assessing their market value:

- direct dependence of the structure of agricultural land on the physical and geographical characteristics of the terrain (geomorphological, soil, hydrological and other features), that is, the inability to replace one type of land with others;
- high risks of agricultural production conducting caused by natural factors;
- the need to maintain soil fertility of agricultural land;
- influence on the amount of income received from agricultural production of fluctuations in prices for agricultural products, fuels and lubricants, agricultural machinery;
- seasonal nature of agricultural production and prices in the agricultural market;
- the lack of official information on transactions with agricultural land and the formation of a market

for agricultural land in an indirect form through the purchase of land shares or the purchase of shares of agricultural enterprises.

Paid land use caused necessity to develop theoretical, methodological and practical provisions for the economic and geographical assessment of land resources. The land assessment methodology should take into account not only the economic features, but also the specifics of the natural conditions of the republic with an orientation toward rational sustainable land use. Although often economic and political interests prevail over ecological and geographic interests, which leads to a decline in agricultural production, and conservation of existing trends of progressive land degradation. On the territory of the Almaty agglomeration there is necessary to adopt a set of concrete measures ensuring the preservation of existing land resources, conservation from possible threats and risks of an ecological and economic nature.

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