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## Conference Paper

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# REALIZATION OF THE LAND BANKING IN THE REPUBLIC OF MOLDOVA AS A STRATEGIC OBJECTIVE IN THE SUSTAINABLE RURAL DEVELOPMENT

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**Abstract:** *Agricultural land consolidation represents a complex of organizational, technical, economic, ecological and other legal measures requested by the rural community for the purpose of the most rational, efficient use and exploitation of land, as a whole and as a result, raising the living standard in rural communities. The creation of the Commercial Land Bank in the Republic of Moldova requires the consolidation of land and becomes a necessity even in conditions of private ownership over agricultural land, in conditions of wider structural reforms. The reasons for agricultural land consolidation, at present, are much deeper than its privatization. The research presents the basic structure and criteria in the organization of banking activity in the agricultural sector including the financial insurance of land transactions according to the nonparametric rating of data envelopment analysis.*

**Key words:** *land consolidation, land fragmentation, land bank, data envelopment analysis, european size unit*

**Classification JEL:** Q14, R14, R30

## INTRODUCTION

The basic objective of the sustainable rural development in the Republic of Moldova is the harmonious combination of its components: social, ecological and economic. Over the last decade, Moldova has achieved important achievements in the field of land reform. These include a dramatic increase in the share of privately owned agricultural land, which has grown from zero to 94 percent of total agricultural land and more than one million people became landowners. These positive trends have contributed to a significant improvement in agriculture, which has been observed since 2010, when it was recorded a halt in the decline of agricultural production followed by an increase both in production volumes and in productivity. Over the years 1995-2005, the land reform process took place in the Republic of Moldova, but it was a process of privatization and not one of restitution of private property, as it was done in some Eastern European countries. The basic principle of agricultural land privatization consisted in the fact that the members of collective farms (cooperative associations of farmers) should become landowners of a share of land free of charge. More than 98 percent of agricultural land subject to privatization today is privately owned. About 1.3 million landowners own on average 1.56 ha each one [5].

Land reform has contributed to the emergence of new enterprises of various sizes and legal forms of organization. But the basic purpose of the land reform was the creation of farm households and this purpose was fully achieved. Unfortunately, the same reforms have led to a serious negative impact on agriculture - excessive land fragmentation, which was based on the principle of equity. Namely this principle was the one that caused the excessive fragmentation of land. The existence of a relatively large number of people (about 25 percent of Moldova's population) and a relatively small area of land to be privatized contributed to the fact that about 1.7 million hectares were divided into over 3 million parcels with the average size less than 0.5 ha. On average, a landowner received 3 agricultural parcels with various land use destinations: arable land, perennial plantations and

orchards. Moreover, another common practice consisting in dividing a land parcel into 6 or more plots.

The aim of this research is to develop an alternative mechanism for agricultural land consolidation by creating a Commercial Land Bank (CLB) in the Republic of Moldova that would concentrate all functions related to land relations and would participate as an active player in the land market in order to create a state land fund, which would facilitate the supply for agricultural land in rural areas with the purpose to intensify the land consolidation processes. Another major function of the CLB would be to grant preferential loans to farmers for the procurement of agricultural land in order to reduce land fragmentation and improve the structure of agricultural farms.

## MATERIAL AND METHOD

The methodological approach in consolidating agricultural lands imposes the need for determining the optimal size of the agricultural farm and the legal form of organization ensuring the best economic performance of the agricultural farm. A fundamental indicator of rural performance is the nonparametric rating of the data envelopment analysis (DEA), which broadly reflects the economic efficiency of farmers and can serve as a conceptual approach in the creation of the CLB in the Republic of Moldova. Agricultural land consolidation represents a complex process in which the economic mechanism for restructuring the land market is of major importance. The modification of the regulatory framework of the land market regulation aims at increasing the efficiency of agricultural farms, i.e. their transformation into economic agents with a high degree of commercialization and the disposal of subsistence family farming in which everything produced by the farmer is used for own consumption. [2].

The main directions of agricultural land consolidation are focused on the procurement/sale and lease of land. The land procurement/sale mechanism must ensure a flow of agricultural resources (areas, means of processing, technologies, etc.) from less efficient operators on the land market to agrotechnically optimized solutions. After eliminating in 2017 the development restrictions of the land market, over 300 thousand ha of agricultural lands changed their owners during the investigated period. The distribution of land transactions depending on the legal form of organization of the land market operators is presented in Table 1.

**Table 1. The size of the agricultural farms and their legal forms of organization depending on the percentage share of land ownership in the land transactions.**

		Respondents, %	The size of the agricultural farm, ha	The share of land ownership, %
<b>The people who procured land</b>	Landowners of parcels next to the house	1,5	1,8	100,0
	Farmers	10,1	3,2	97,6
	Collective enterprises	40,0	923,0	39,4
<b>The people who didn't procure land</b>	Landowners of parcels next to the house	98,5	2,1	100,0
	Farmers	89,9	2,6	98,9
	Collective enterprises	60,0	837,7	34,1

		Respondents, %	The size of the agricultural farm, ha	The share of land ownership, %
<b>All options</b>	Landowners of parcels next to the house	100	2,1	100,0
	Farmers	100	2,9	98,7
	Collective enterprises	100	868,5	36,1

An important goal in agricultural land consolidation and consequently overcoming excessive land fragmentation is to define the mechanism for the optimization of land parcels, efficient land use and conservation of natural resources, which would contribute to sustainable rural development. The nonparametric aggregate indicator of the DEA rating gives the possibility to assess, depending on the resources of the economic agent, the value of the optimal size according to type of activity and regional location. The landowners of parcels next to the house record an average size of 0.37 ha for the agricultural farm, the farmers identified with property titles record on average 2.61 ha and the collective enterprises are characterized by an area of 851 ha of agricultural land. The econometric instrumentation based on the definition of the Lagrange multiplier on the land market represents the basic landmark in the banking activity in rural areas. [1].

## RESULTS AND DISCUSSIONS

The conceptual definition of CLB involves the financial approach of the land market strictly delimitating the notions of arable land parcel and surface of agricultural land. Traditionally, the land bank is defined in terms of agricultural land transactions as „a public authorized acquisition of land subject to be kept for future use and implementation of land policies”. The definition of CLB already indicates the fact that the land bank does not only refer to the agricultural environment, but is a broader concept, which includes elements of ecology, rural and even urban development. At the same time, the term land bank is used as a „strategic management of land with subsequent use for strategic public purposes such as infrastructure development and expansion of urban localities”. The main criterion for land consolidation consists in the stability of the compact sector in space and time, according to which the land sector will keep its shape and dimensions for as long as possible. The stability of the land sector in space and time will allow the owner to invest in perennial plantations, irrigation systems, other expenses that, in order to be recovered, require long intervals of time. [7].

The size of the surface is a specific criterion for determining the level of land consolidation. Depending on the specialized land-use, the cultivated plants, the characteristics of the area and the potential of the owner, the appropriate surface can vary greatly. The decision on the adequate area of the land sector for various cases will not come „from the top administration”. The owners will decide for themselves which is the most appropriate area of land sector and the program will provide consultations and help the owner achieve the established goal. Another finding consists in the fact that the agricultural farms, which, in most cases, own land with an area of 1.0 -1.5 ha, located on several sectors, at great distances from each other, produce insufficient but competitive commercial production. Land use planning involves the establishment of irrigation systems, drainage systems, anti-erosion measures, access roads and crop rotation systems. An important role in land use planning

is played by the scientific substantiation of the established systems. Based on the criteria for agricultural land consolidation, it will be possible to achieve the following activities:

- establishing the efficiency of the land consolidation methods;
- determining the level of land consolidation;
- evaluating the land consolidation process as a whole;
- making conclusions and presenting proposals regarding the continuation of the land consolidation process.

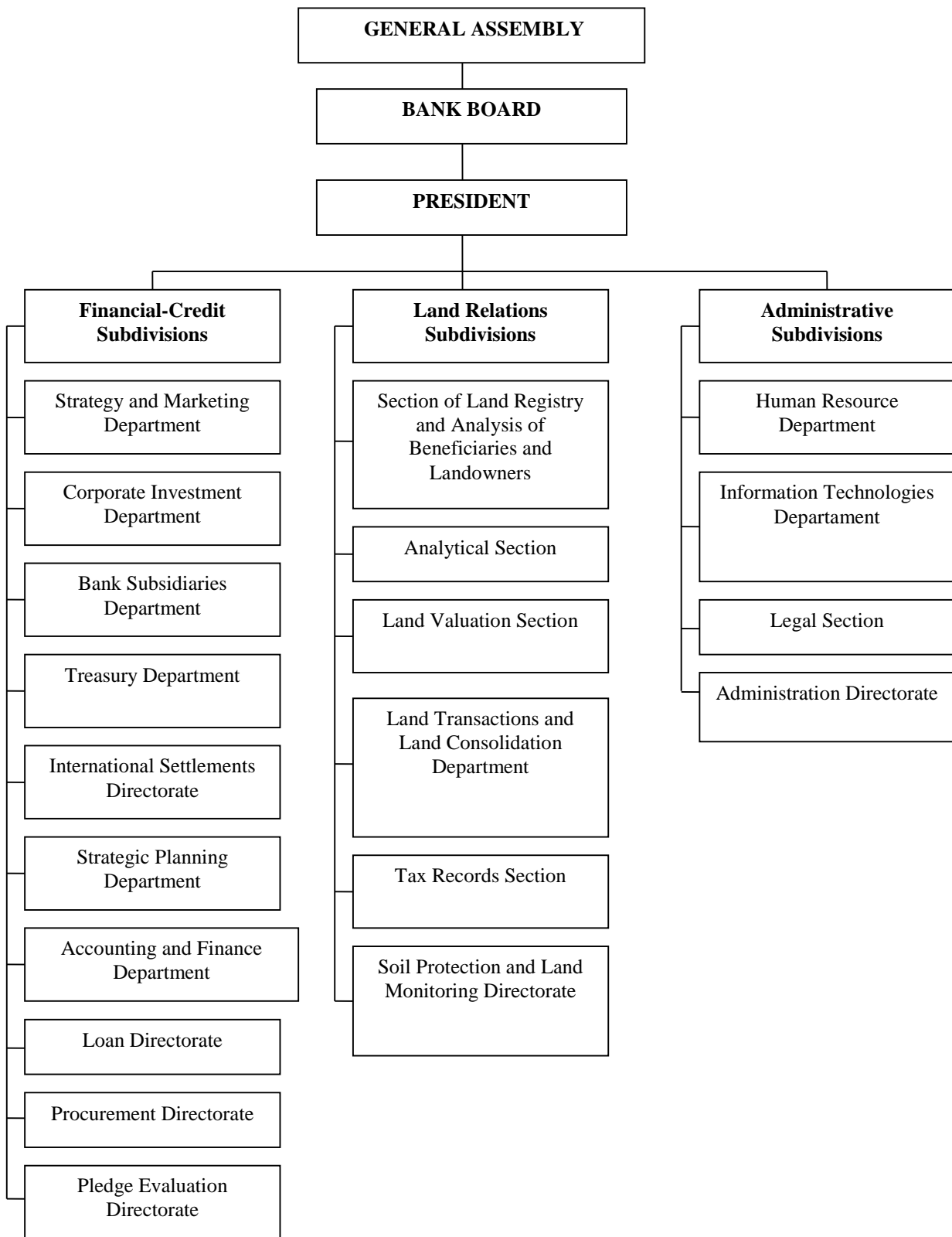
The definition of CLB stems from its historical use and also the way in which the land bank is defined differs depending on the organization, which is involved in the field of land planning Figure 1. Moreover, even the state does not use the term land bank consistently, because the two state institutions involved in the agricultural land bank use these definitions differently. Thus, the first presents the land bank as the structured procurement and temporary management of land in rural areas by an impartial state agency in order to redistribute and/or lease this land with the aim of improving the structure, and/or reallocating land for other purposes of general public interest. The procurement of agricultural land for the purpose of making land transactions requires the creation of an intermediate buffer, which can later serve as a basic tool in agricultural land consolidation. This buffer can be used not only for agricultural purposes, but also in rural development by improving the elements of infrastructure and other public interests. The term „land banking” refers to the use of this buffer, and the buffer itself simply represents the land fund. Taking into account the definitions already mentioned and their weaknesses, a conceptual approach to CLB is required in which the most valuable economic indicators - productivity, efficiency and competitiveness in the land market - are assessed on the basis of the DEA rating.

The advantage of this approach in agricultural land consolidation consists in determining the economic balance that ensures a sustainable rural development. First of all, it is not imperative that the public authorized to make land procurement has a certain fixed use for future purposes. At some time, the state can procure land to compensate a farmer for a road that was built on farmer’s land. Second, it is not always necessary that the state procure the land intended for public purposes [6].

As a result of analyzing the primary data related to the economic performance of the agricultural farms in the Republic of Moldova, the concept of CLB is proposed in the research, which corresponds to the characteristics of the rural area in the country and does not face the traditional approach in land valuation. Thus, CLB represents „the principle of structural or strategic procurement, storage and sale of land for future use”. A traditional approach of farmers working on agricultural lands involves defining an organizational structure (private or state) that coordinates land transactions with Local Public Agency (LPA) and additionally performs ecological expertise (or local sanitation criteria). Land fund management represents a special concern in order not to admit the distortion of the agricultural land procurement/sale market according to the macroeconomic concept of Gérard Debreu [4]. Local public administrations and agricultural decision-makers - Agency for Interventions and Payments in Agriculture (AIPA), Agency for the Development and Modernization of Agriculture and others are admitted to land banking in such a way that monopolization of the land market is not allowed. AIPA operates in a decentralized manner, with regional offices throughout the country and the CLB has the task to make the procurement and manage state property, both movable and immovable. In terms of land management, this service has the following tasks:

- development of the state policy in the land field;
- management of the state-owned land;
- facilitating the use of state lands;

- sale of state-owned land.



**Figure 1. Organizational structure of the Commercial Land Bank meant to reduce the level of agricultural land fragmentation and optimize the size of agricultural farms.**

The financial vision „strategic land management” assumes that property owners sell the land in order to subsidize high managerial performance in large corporate and medium private agricultural farms. The advantage of economies of scale for the agricultural farms having a major agricultural land area is oriented towards certain types of agricultural land that have important strategic land use and goals for the country (seed sector, biodiversity, etc.). In this context, unfortunately, the farmers who choose the option of subsistence agriculture in which the agricultural production is fully consumed by the agricultural farm does not support unfair market competition in the Republic of Moldova [8]. Therefore, the tasks of the CLB as a land agency are focused on:

- the land procurement in rural areas in order to improve land use and management;
- the management of change of the land fund;
- facilitating the temporary use of land;
- making the sale and distribution of land for multiple purposes.

This agency implements its policy in the agricultural sector through concrete projects in the development of green areas for recreation, nature, aquatic resources or agriculture. To this end, the CLB procures land, redesigns its land-use planning and then transfers it to land management organizations and individual farmers. Thus, the Commercial Land Bank is looking for common concepts and solutions that correspond to the (administrative) ambitions and characteristics of a certain rural area and also brings together the financing flows and has a unique plan of subsidy options. The land agency collaborates with local and governmental decision-makers who have a common goal in carrying out land use planning projects and maintains land market regulatory offices throughout the country. Therefore, the CLB Board, for public purposes, cooperates with the real estate departments within the Ministry of Agriculture and Food Industry (MAIA) to implement more effectively the agrarian policies in the field of land relations [3]. At the same time, the policy of the MAIA departments can be improved in terms of correlation with the land transaction market by better positioning the state and anticipating sudden changes in the real estate market.

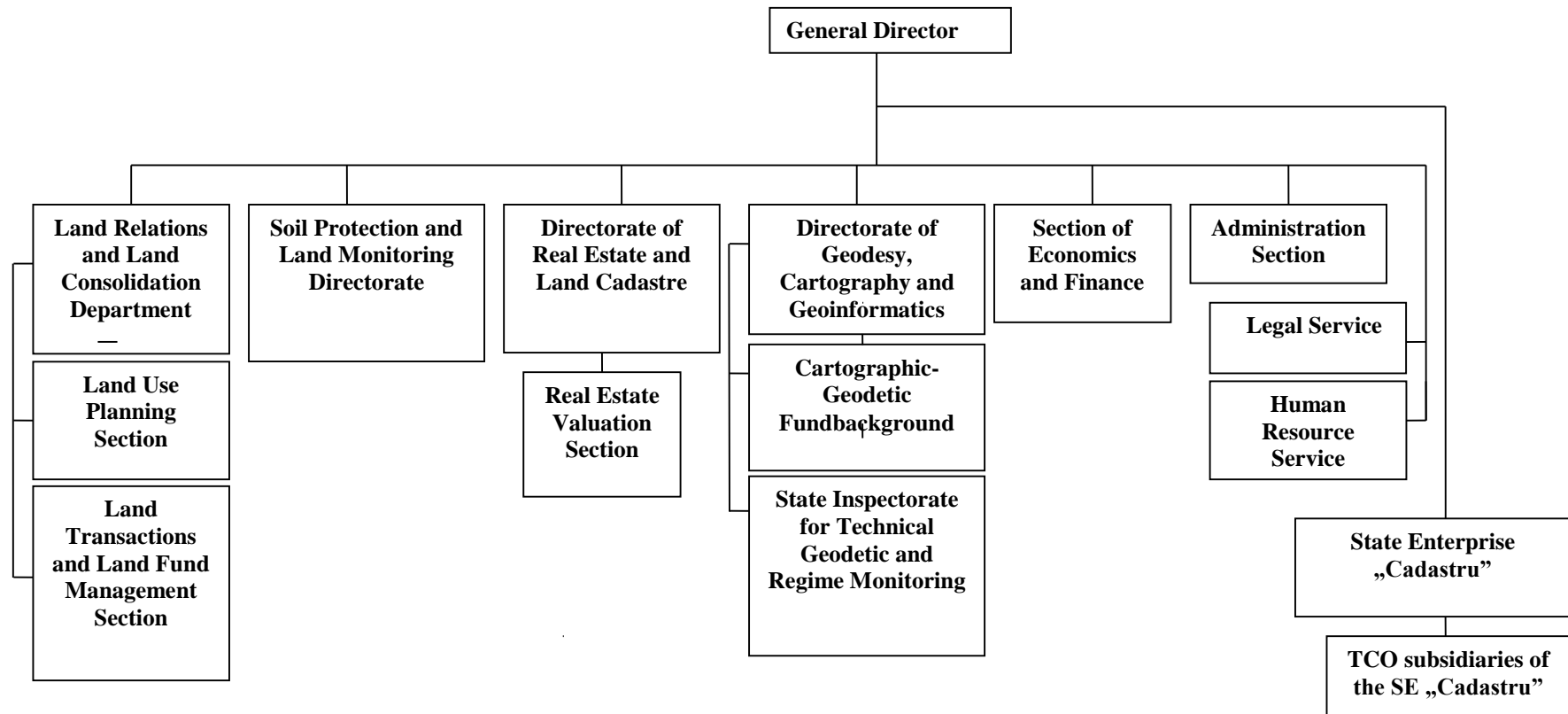


Figure 2. Organizational Structure of the Commercial Land Bank created based on the State Agency.



The five real estate departments that work together within MAIA are:

- project implementation unit in the field of environment;
- state hydrometeorological service;
- agency „Apele Moldovei”;
- agency for geology and mineral resources;
- consolidated unit for the implementation and monitoring of projects in the field of agriculture financed by the World Bank.

Municipalities play an active role in land issues. They have their own development corporations, which deal with the procurement, storage and sale of land, taking into account the future development of the locality. In this sense, a municipal development corporation can be considered a municipal land bank. The responsibilities for these land banks belong to the municipality (town hall). Private organizations also have their place in land relations. Among the roles of private organizations in land banking we could mention the financing of projects, which would make it possible to make land procurement. As mentioned above, there are various public organizations actively financing the land. In some cases, the money provided by the state is not enough to achieve the goals. In this case, private organizations can help to achieve public goals, but obviously these organizations also have their own goals.

At international level, in the agricultural sector, the land bank has been in place for a long time, especially the finance and exchange land bank. The first reason this became possible was state support. The government is assisting in land consolidation projects to ensure that the structure in agriculture can be improved. Thus, state regulations represent an important factor in the success of land banks in the Republic of Moldova. The tasks of MAIA, necessary to make possible the use of the land bank are coordination and financing.

The second important reason highlighting the necessity to create a CLB is the overcrowded territory. There is currently a high pressure on the land market, including the agricultural land market, which requires a new and different way of maintaining land market projects and actions. The land bank represents a way to bring together different participants to collaborate and find solutions to common problems.

Appropriate legislation is needed for the successful operation of land banks. The law on spatial planning controls the way in which land use in rural areas is carried out and in which all authorities participate. First, the specialized ministry establishes the basic rules of planning, which serve as the starting point for spatial allocation. The districts then outline regional plans for these decisions. As a result, regional plans are already more precise. They determine the places of extension of the localities, as well as the spaces that are free for agriculture, nature and rest. The latter serve as a benchmark for local plans, which are the most detailed. The town halls determine the destination of each area within the locality. Such areas include those intended for housing, industry, recreation, etc. The town hall should review its zoning plan every ten years. Decisions related to land planning are taken at the level of local public authorities. According to the Law on Spatial Planning, the district's land use plan determines the possibilities of the land user. A primary task of area planning is to provide legal security for citizens. As a result, citizens gain certainty about the actions that can influence the market value of their land. Also, due to this, zonal planning provides a predictable framework for investment.

The practical tasks are mostly related to provide all the necessary premises for the creation of the land bank in the Republic of Moldova, as well as to determine its functions, functional subdivisions and finally, to elaborate its organizational structure Figure 2. Namely, the

implementation of these tasks requires substantial financial resources and a methodological framework focusing on the authority of rural decision-makers in order to create the CLB. In this context, it is worth mentioning that the basic tasks in implementing land reform are the following:

I. first of all, the possibilities of creating a Commercial Land Bank, although based on the state capital, were examined, which in addition to creating the land fund and conducting transactions on the land market, would be empowered with a wide and diverse range of functions, among the most important being those related to the preferential crediting of agricultural producers, especially for the procurement of agricultural land, but also the availability of mortgage loan, by pledging the land they have, and in case of non-payment of the loan, their land would be included in the composition of the land fund for subsequent transactions;

II. an obvious advantage of the CLB ensured by AIPA consists in the possibility to use the territorial cadastral organizations as subsidiaries of the land agency for the promotion of its policy and directions of activity in the territory.

It is proposed to reorganize the Agency for Land Relations and Cadastre as follows in the diagram presented in Figure 2. Given that the created Land Bank is a public organization, in order to successfully carry out its activity, it is necessary to allocate some amount from the State Budget, which would allow the Bank to begin the process of land procurement, which is necessary for creating the land fund, subsequently used in the implementation of the state policy in the field of agricultural land consolidation. It is obvious that the CLB be conceptually based on the mechanism for assessing economic performance in agricultural land consolidation and creating levers that stop the distortion of the land market according to the Lagrange model.

**Note.** This paper is published according to the research conducted at the State Agrarian University of Moldova. The scientific research project “The adjustment of agricultural education and research system in the Republic of Moldova to the conditions of contemporary society”, the project number 20.80009.0807.44 for the strategic direction “Social Challenges”.

## CONCLUSIONS

Though there has been much debate on the subject, it is clear that the agricultural land consolidation process takes place in compliance with the following basic principles:

a. free consent - adherence to the land consolidation process will be made with the consent of the landowner;

b. economic and social necessity - land consolidation will be carried out only in case of an economic need of the agricultural landowners, which will allow them to increase the efficiency of land use, to accumulate additional incomes and to improve the situation of the rural population;

c. respecting the interests of all landowners in the locality - this principle will not only promote land consolidation, but will also correspond to the interests of the community (village) as a whole;

d. economic interest - landowners will adhere to the process of agricultural land consolidation arising from personal economic interest;

e. democratization - this principle will mobilize the participation of the general public in the rebirth of rural communities;

f. multilateralism - land consolidation will include a complex of measures related to land improvements, land use planning, constructions (repairs), etc .;

g. transparency - the actions taken in the consolidation process will be brought to the attention of all owners;

h. staging - the activities related to the agricultural land consolidation will be carried out in stages. The initial stage may be the pilot project, based on which the legal framework will be developed. The second stage will be focused on the massive consolidation, which in turn will be carried out based of initial consolidation projects. Each project will also be carried out in stages;

i. environmental protection - any action related to the agricultural land consolidation will be carried out in compliance with the principle of environmental protection. The actions with ecological impact will be based on scientifically substantiated projects and will be controlled by the state.

The creation of a CLB, conceptually can be carried out in the Republic of Moldova only under the guidance of the nonparametric DEA mechanism for agricultural land consolidation as follows:

- land consolidation is a complicated process, which requires large financial resources, labor force and strict control over the results;

- the rapid consolidation of highly fragmented agricultural lands is possible respecting two basic requirements: ensuring a strong growth of the national economy and implementing a liberal agrarian policy;

- both land and labor productivity is decreasing along with the increase of the land fragmentation degree, expressed under the number of land parcels belonging to an agricultural farm;

- consolidation positively affects farmers' incomes by increasing the degree of trade, i.e. the share of production sold in the overall production of agricultural entities;

- sustainable development involves three important aspects: economic, ecological and social. Therefore, sustainable agriculture must be environmentally friendly, economically viable and socially responsible.

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