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THE CONSOLIDATION OF THE AFFORESTED AGRICULTURAL LAND

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Abstract. *The article addresses the question of the optimization of forest and agricultural land tenure in the environment of natural afforestation in accordance with the aims of sustainable development. The topicality of the research is predefined by the need for the increase of areas occupied by forests according to the legislative initiatives, need for the improvement of agricultural land, the improvement of ecology in the environment of insufficient afforestation. The resolving of the problem of self-afforested agricultural land plots in the process of land consolidation has been suggested. Approaches to the problem of natural agricultural land afforestation have been singled out, advantages and perspectives of land consolidation as compared to other approaches have been substantiated. The involvement of land plots defined as escheated inheritance and non-recalled land shares to the process of land reallotment at land consolidation has been suggested. The adjustment of the land reallotment methodology at land consolidation in the environment of natural afforestation of agricultural land has been suggested. As the result of reallotment, trees were kept on the afforested land plots, a joint consolidated forest mass was formed, the configuration of land plots was improved, road network was improved. The results can be used at the implementation of the Large-scale Afforestation of Ukraine environmental initiative, and in the following scientific research on land tenure and use spatial improvement.*

Key words: *land afforestation, land consolidation, land plot exchange, land reallotment, agricultural land.*

Rationale.

At the current stage, insufficient forest cover of the territory of Ukraine is one of urgent issues in the field of environment and natural resources conservation which have a negative impact on human health and ecosystem stability [1]. With the Decree on Some Measures on the Conservation and Rehabilitation of Forests, the President of Ukraine has ordered to launch the realization of the Large-scale Afforestation of Ukraine environmental initiative from 2021. The spatial aspect is the key issue among the problems of afforestation. It is search and legal substantiation of the involvement of land which can help gain the preset goal [2]: to increase the forest areas by one mln ha in 10 years.

Usually, reserve, degraded, marginal and derelict land is subject to afforestation. Nowadays, considerable attention is paid to self-afforested land plots: according to expert estimates, there are 300 to 500 thousand hectare of unaccounted young forest in Ukraine [3]. Legislation in effect [4] suggests identification of self-afforested and fit for afforestation land plots specifically of state and communal ownership. According to expert estimates, most of self-afforested land plots are in state or communal ownership, a big share of them is agricultural land. The substantiation of the involvement of privately owned land plots, which have been afforested due to absence of cultivation, is a subject of discussion.

In the context of sustainable development, it is suggested to address the problem of the enlargement of afforested territories from the point of view of the optimization of spatial characteristics of agricultural and forest land tenures. With this aim, a new approach is suggested which is the resolving of the issue of self-afforested land plots, keeping the self-afforestation and increasing the territories covered by forest with the help of land consolidation.

Analysis of latest researches and publications.

Nowadays, the issue ofland consolidation in the complicated conditions is extensively scrutinized by A. Hendricks, A.Vitikainen, D. Demetriou, R. Giovarelli, D. Bledsoe, M. Hartvigsen, J. Thomas; forest land consolidation - by N. Neykov, U.

Kies, M. Koch, K. Kolis. However, the issue of land consolidation in the environment of natural afforestation has not been sufficiently addressed.

The purpose of this paper is to substantiate land consolidation aiming at the resolving of the issue of natural agricultural land afforestation.

Materials and methods.

Nowadays, the issue of self-afforestation of agricultural land borders on the problem of insufficient forest cover. Such processses are one of the most urgent issues undermining agriculture effectiveness [5], causing extra costs for agricultural rehabilitation. For naturally afforested land tenures, the following issues arise: the practicability of land designated use alteration and its introduction into forestry fund lands [6].

The issue of natural agricultural land afforestation can be resolved in several general ways (Fig. 1). In most cases, afforested agricultural land plots are assarted.

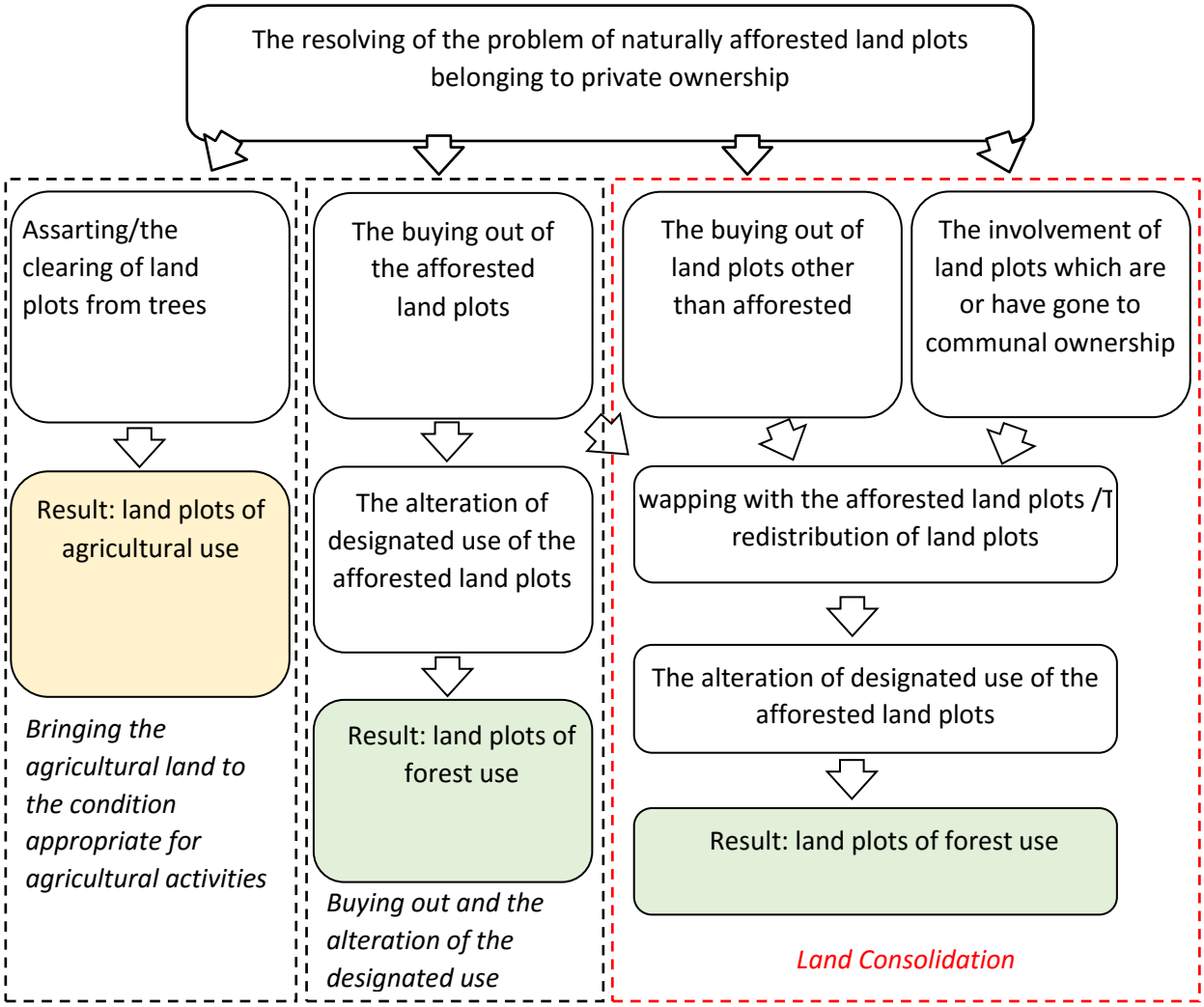

Fig. 1. Basic approaches to the issue of natural agricultural land afforestation

Transfer of afforested land plots to forest reserves, i.e., land use type alteration is another option. Such alternative is extensively scrutinized, however, it has some drawbacks, in particular, considering private land tenure [7].

For private land plots, land use type alteration should be initiated by the owner. According to existing researches, in reality, land owners are not interested in it [7], initiatives on private forests in Ukraine are at the stage of discussion.

The conservation of agricultural land natural afforestation is possible through buying out the afforested land plots. Such approach is risky at the stage of buying negotiation and defining the redemption price. Land owner's commitment for selling their land plot is of key importance.

Keeping the naturally afforested land plots and their introduction to forest land with the help of land consolidation has been suggested. It allows for a complex resolving of a set of problems connected to agricultural land tenure spatial drawbacks [8]. These measures are based on land reallotment [9, 10]. It is about the afforested land plots exchange with the non-afforested land plots, previously bought out by the territorial community; and afforested land plots exchange with non-afforested land plots, formed on reserve territories. At the final stage, land reallotment is carried out. As the result, the designated use of afforested communal land plots is altered to forest land. In case there is a sufficient supply of land plots for sale (including the non afforested ones) or reserve land of government and communal ownership, the presented approach has advantages as compared to alternative approaches.

In the process of land consolidation it has been suggested to involve reserve land and land plots defined as escheated inheritance, non-recalled land shares, and land plots, which will appear in the course of reallotment at land tenure optimization (for example, at road network optimization). Escheated inheritance and non-recalled land shares comprise a significant share of agricultural land. According to expert estimates, escheated inheritance comprises about 10-15% of land plots of each agricultural land mass, circa 1 mln ha total.

According to the Civil Code of Ukraine [11], land plots found escheated inheritance by the court, become the ownership of local territorial community.

It has been specified that [11] in case the owner of a non-recalled land share or their heir did not registrate the ownership for their land plot up to the 1 of January, 2025, they are considered to have given up the right of land plot acquisition.

A non-recalled land share is granted to local territorial community communal ownership through the established procedure after it has been shaped as a land plot. In the space of 7 years from the date of communal ownership right state registration, such land plot may not be privatized but for the non-recalled land share owner or their heirs [11].

Research results.

Aiming at the realization of the goals, the general reallotment methodology has been adapted [12]. The land consolidation project is aimed at both keeping trees on the afforested land plots and the development of a joint consolidated land mass, land plots configuration improvement, and road network optimization [9]. A preliminary plan is developed according to the reallotment objectives (forest and agricultural project land masses are formed). At the following stage, the buying out of the afforested land plots is initiated (with the land owners' concent), reserve territories are involved, buying out of non-afforested land plots is carried out with the total land area allowing to carry out the reallotment. Reallotment modeling based on the heuristic method [13, 14] or optimization method [15] is carried out.

At the final stage, the characteristics of reallotted land plots (area, configuration, placement) are defined, the development of land plots in the project land mass is carried out – the final plan is formed [12].

Conclusions and prospects.

Urgent issues for Ukraine are low forest area, fragmentation, irrational configuration of the agricultural land tenure as well as the issue of agricultural land natural afforestation. We suggest land consolidation aiming at agricultural and forestry land tenure rationalisation. Forest land area enlargement through the afforested land plots exchange and land plots reallotment has been suggested. The involvement of escheated inheritance and non-recalled land shares has been suggested.

As the result of reallotment keeping trees on the afforested land plots and the development of a joint consolidated land mass, land plots configuration improvement, and road network optimization is achieved.

Land consolidation has the following advantages: the possibility of maximal involvement of land plots through land reallotment mechanisms, possibilities of forming forest and agricultural land tenures with spatial characteristics, which correspond to the objectives of the sustainable development of territories.

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КОНСОЛІДАЦІЯ СІЛЬСЬКОГОСПОДАРСЬКИХ ЗЕМЕЛЬ, ЯКІ ЗАЗНАЛИ ЗАЛІСНЕННЯ

Анотація. *У статті розглядається питання оптимізації лісогосподарського і сільськогосподарського землекористування в умовах природного заліснення*

відповідно до цілей сталого розвитку. Актуальність дослідження обумовлена необхідністю розширення площ під лісами відповідно до законодавчих ініціатив, необхідністю упорядкування сільськогосподарських земель, покращення стану навколишнього природнього середовища в умовах недостатньої лісистості. Запропоновано вирішення проблеми самозаліснених земельних ділянок сільськогосподарського призначення у процесі консолідації земель. Виокремлено підходи до вирішення проблеми природного заліснення сільськогосподарських земель, обґрунтовано переваги та перспективи консолідації земель, порівняно із іншими підходами. Запропоновано залучення земельних ділянок, віднесених до відумерлої спадщини та невитребуваних паїв до процесу перерозподілу земель при консолідації земель. Запропоновано адаптувати методику перерозподілу земель у складі консолідації земель до умов природного заліснення сільськогосподарських земель. У результаті перерозподілу досягнуто збереження дерев на заліснених земельних ділянках, формування єдиного консолідованого масиву лісу, покращення конфігурації земельних ділянок, оптимізовано дорожню мережу. Отримані результати можуть бути використані в при реалізації екологічної ініціативи «Масштабне залісення України»; в наступних наукових дослідженнях які стосуються просторового впорядкування землеволодінь і землекористувань.

Ключові слова: *заліснення земель, консолідація земель, обмін земельних ділянок, перерозподіл земель, сільськогосподарські землі.*