Секция 2. Природообустройство и водопользование

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ANALYSIS OF THE TECHNICAL CONDITION OF RECLAIMED LANDS AND DRAINAGE STRUCTURES

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В статье анализируется техническое состояние рекультивированных земельных и дренажных сооружений в Литве. В статье анализируются состояние освоенных земель, основных и защитных рвов. В статье рассматривается не только состояние мелиоративных структур, но и основные причины ухудшения и износа. В статье представлены восстановленные и реконструированные лимиты дренажной системы (га) в зависимости от амортизации и финансирования. Анализируемые данные охватывают период в 17 лет.

Introduction

The drainage efficiency much depends on drained soil permeability and the construction of the used drainage measures. Unfortunately, in many cases, the most fertile soils have heavy mechanical composition and low permeability to water. Therefore, measures allowing to control groundwater levels in these areas are important to people who work in agriculture as well as to those handling urbanized areas in construction and elsewhere.

Over time, drainage systems are aging. The average age of drainage systems in Lithuania is about 60 years (normative clay pipes age – 30-50 years) [3]. According to the drainage depreciation rates approved by the Government, the average drainage serving life is between 50 and 80 years, and an average of about 65 years [2]. It is argued that Lithuanian land reclamation systems deteriorate after about 20 years of serving [2], and many of them will become dysfunctional due to the deterioration of their technical condition [1]. Therefore, part of the country's drainage systems are already in need of urgent reconstruction, which currently are subject to environment-friendly technologies, efficient from the drainage and economic point of view.

Due to social, demographic and economic reasons, significant land areas in the country are no longer used for agricultural production. Reclaimed lands fall into those areas as well. Reclamation structures are not eternal: they wear out, deteriorate, decay. They require regular maintenance, repair, reconstruction and recovery. Currently, it is a very important issue. Neglected and not repaired land reclamation structures decay very quickly. With the decrease of maintenance funds

for land reclamation the technical condition of ditches, drainage and other structures have deteriorated over the past decade [4].

Drainage structures deteriorate by 2 per cent annually, or their value is reduced to 29 million Eur. You need to assess that the country's average age of drainage structures is about 35 years, when the drainage system average serving life is 65 years, the average age of main ditches – 37 years, of earth dams – 60 years. The average depreciation of drainage structures reaches 55 percent.

The aim of this work: to analyze the technical condition of reclaimed lands and drainage systems in Lithuania

Work methodology

The data collected covers the whole territory of Lithuania. Mathematical statistics methods, such as data systematization, grouping, survey data graphic expression methods were used for the research.

The information publications of the State Land Survey Institute on reclaimed lands and drainage structures for the period of the years 2000 – 2017 were used for the research [5].

Rezults and their discussion

The total area of the land used for agricultural purposes in Lithuania covers 3.95 million ha. Agricultural land – arable land, orchards, meadows and natural pastures, accounted for the largest part of the land used for agricultural purposes in Lithuania. This is 3.36 million ha of the 51.6% of the total area of Lithuania.

In Lithuania, during the analyzed period from 2000 to 2017, the area of agricultural land slightly, but gradually decreased, and in 13 years decreased only by 3.82 ha. The majority of these lands decreased during the final 2011 and 2017 years, and this was influenced by an abundance of new construction and afforestation on unused agricultural land.

In Lithuania, from 2000 to 2004, 1600 km of drainage systems were installed, later, the length of systems shortened to 900 km. It was due to drainage failure and wear and tear. Since 2006, with an increase in funding, 2.000 km of drainage systems were installed by the year 2012. During these 17 years, Lithuania was equipped with a total of 2.700 square km of drainage.

Each year, with the decrease in the amount of funds allocated, drainage system operation efficiency is falling. Currently, the drainage network condition is bad, the depreciation is the highest since 2000 in Lithuania – 58%.

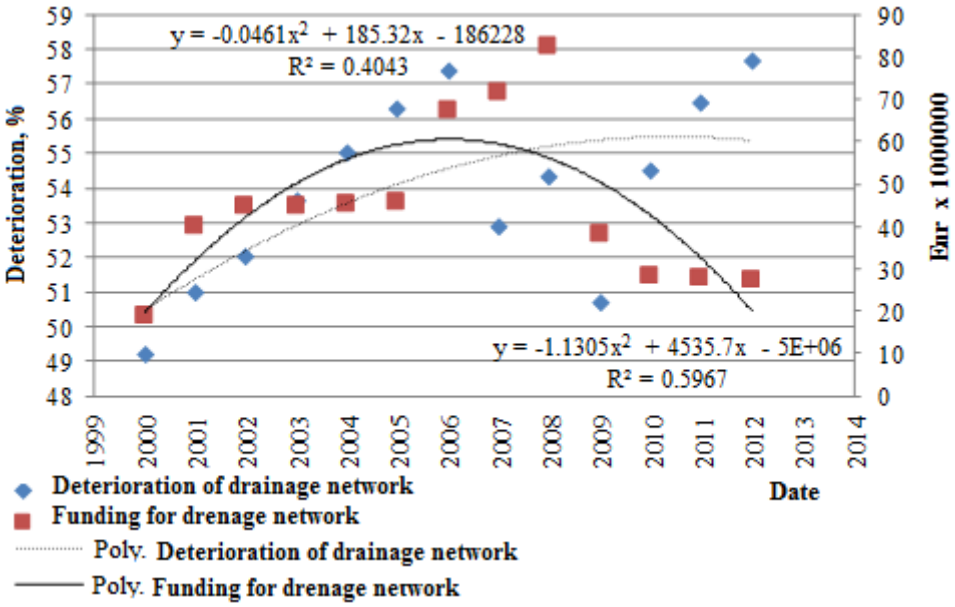

Fig.1 – *Dependency of the drainage network technical condition on the funding in Lithuania*

From Figure 1 we can see that the funding for drainage systems is decreasing in Lithuania, if the decline continues drainage systems will not perform their functions.

In Lithuania, drainage system reconstruction works are carried out each year. Until 2003, all funds were allocated only for reconstruction, and later until 2012 more funds were allocated for repairs, with the exception of the year 2008. After that the largest number of drainage systems had been reconstructed for over 13 years – 4521.6 ha, because the biggest funding was allocated – 82.4 million. The majority of drainage systems were renovated in 2004 – 4620.8 ha.

In Lithuania, since 2000 up to now 459.2 km of main ditches were installed. By 2011, approximately 7.7 km were installed annually, and in recent years even 366.47 kilometers were installed.

A large part of the funds were intended not for maintenance, reconstruction or renovation, but for the installation of new ditches, therefore in Lithuania at present there is a total of 52,848.12 km of main ditches. The condition of main ditches in Lithuania is worsening approx. by 2% every year, and funds continue to diminish. Now main ditches are in poor condition because the wear and tear reaches as much as 77%.

Currently, there are 63789 pcs. of culverts in Lithuania with a carrying value of 1,12612,38 Eur., depreciation – 71,775.88 Eur. – 63.74%. The technical condition of culverts in Lithuania is getting worse every year by 1-2%. During 12 years the technical condition of culverts in Lithuania deteriorated by 8%. Now in Lithuania the wear and tear of culverts reaches 63.7%.

Conclusions

With the decrease of allocated funds drainage systems are deteriorating every year. Currently, the condition of drainage network is bad, depreciation is the highest since 2000 in Lithuania – 58%.

Condition of main ditches in Lithuania is getting worse every year approx. by 2%, and funds continue to diminish. Now main ditches are in poor condition because of the depreciation in Lithuania, i.e. 77%.

The technical condition of culverts in Lithuania is getting worse every year by 1-2%. In Lithuania, during the period of 17 years the technical condition of culverts deteriorated by 9%. At present, in Lithuania culverts depreciation reaches 63.7%.

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ОЦЕНКА СОДЕРЖАНИЯ МЕДИ В ВОДЕ РЕКИ ПРИПЯТЬ

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The article presents the research results of copper content in the water of the Pripyat river. The concentration dependence of the runoff of the Pripyat River is established. In some years there is excess of MPC.

Введение

Правовую основу управления водными ресурсами составляет Водный кодекс Республики Беларусь, который охватывает широкий круг вопросов, направленных на рациональное использование и охрану водных ресурсов [1].

Государственный водный кадастр создается для систематизации данных государственного учета вод и определения имеющихся для использования водных ресурсов.

Загрязнители поверхностных вод в пунктах гидрохимических наблюдений делятся на две группы. Все эти вредные вещества, загрязняющие поверхностные воды, поступают с атмосферными и талыми водами с сельскохозяйственных угодий, промышленных предприятий, с городскими сточными водами.

Основная часть