

# PROBLEMS OF RECLAMATION OF DISTURBED LAND IN UKRAINE

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**Abstract.** The article considers the problems and features of reclamation of disturbed lands of Ukraine in terms of regions, describes the need and importance of land protection in Ukraine and the world and the implementation of measures for reclamation of disturbed lands. The number of disturbed and reclaimed lands in Ukraine as of January 1, 2021 was analyzed and reclamation works were carried out for 2020. The main issues of legislative conflicts that arise during the reclamation of disturbed lands or "non-reclamation" are highlighted. The measures of state control over the use and protection of lands of all categories and forms of ownership conducted by the Main Departments of the StateGeoCadastre in the regions for the period 2017 - 2020 are analyzed. An example of the use of a spent limestone quarry for construction is given on the example of the Dalhalla Theater and why such foreign experience cannot be applied in Ukraine. The administrative responsibility for "failure" to rehabilitate disturbed lands is highlighted. The problem that arises when accepting already reclaimed lands by local governments or public authorities has been identified.

Recommendations are given for the introduction of more effective measures for the restoration of disturbed lands.

**Key words:** land reclamation, land protection, rational use, negative consequences, non-reclamation, measures, restoration, state control.

**Relevance.** Natural resources as a source of raw materials and livelihoods of people, the basis of industrial and agricultural production necessary to meet the material and cultural needs of people.

Environmental protection and rational use of all natural resources is one of the challenges facing both Ukraine and the world. Anthropogenic soil disturbances lead to negative consequences and threats to the environment.

The most significant and difficult to restore changes in natural landscapes are caused by the mining industry, especially the open method of development of mineral deposits, which destroys phytocenotic, zoocenotic, soil, lithological, geomorphological and hydroclimatic systems. All types of material and energy metabolism are disturbed - mineral, water, air and biogenic. Adjacent to the development of land is also negatively affected, as the balance of groundwater can be disturbed in areas that are 25 times larger than the area of the quarry itself. [1]

Therefore, when carrying out works that lead to damage to the soil profile, it is extremely necessary to rehabilitate the disturbed lands.

The analysis, identification of problematic issues in the reclamation of disturbed lands and the formation of a proposal to improve the situation to reduce disturbed lands in Ukraine will have a positive impact on the environmental, economic and social spheres.

**Analysis of recent research and publications.** In the study of issues related to the legal regulation of land reclamation can be identified works of such scientists as Misinkevich AL, Gavrish NS, Vivcharenko OA Researched the problems of reclamation of landscapes disturbed by industrial activity, Kondpatiuk E.H.,

Peva ML, Baklanov BI, Polyakov AK The issue of construction on the territory of reclaimed quarries was studied in the dissertation of Rudenko M.A. At the same time, some issues related to land reclamation remain out of the attention of both scientists and the authorities.

The purpose of the study is to highlight the issues of legal regulation of land reclamation, analysis of the current state of reclamation of disturbed lands and state control in this direction. Based on the information received from the State Service of Ukraine for Geodesy, Cartography and Cadastre, a comparative analysis

of disturbed and reclaimed lands in 2020, the implementation of state measures for land protection.

**Materials and methods of research.** The study used a theoretical method, modeling, analysis, synthesis, comparison and generalization. The theoretical basis was normative-legal acts, research of scientists on theoretical and scientific-methodical bases on reclamation of disturbed lands. The information base for the analysis and comparison of phenomena was the data of the State Service of Ukraine for Geodesy, Cartography and Cadastre.

**Research results and their discussion.** According to the operative information of the StateGeoCadastre, which is received from territorial bodies, the total area of disturbed lands on the whole territory of Ukraine as of 01.01.2021 is about 142.7 thousand hectares (Table 1). During 2020, 51.25 hectares of disturbed lands were rehabilitated, of which more than 85% are agricultural lands, which is 42.38 hectares (Fig. 1). If we take into account that the lands of industry, the purpose of which has been changed from agricultural lands, also have in fact agricultural lands (arable land, pastures, hayfields), the area should be many times larger. The total area of land under reclamation is 7,000 hectares in Ukraine.

**Table. 1 Information on disturbed and reclaimed lands on the territory of Ukraine as of 01.01.2021 \***

	<b>Administratively- territorial unit (region)</b>	<b>Total disturbed lands, hectares</b>	<b>including disturbed during the current year</b>	<b>Reclaimed land during the current year, ha</b>
1	Vinnytsia	725,98	10,00	4,7
2	Volyn	5846,51	0	0.0
3	Dnipropetrovsk **	37949,19	0	0,0
4	Donetsk	25277,34	48,44	31,1
5	Zhytomyr	5717,0	0	0,0
6	Transcarpathian	1046,11	9	1,4

7	Zaporozhye	2193,9	0	0,0
8	Ivano-Frankivsk	1491,24	0	1,6
9	Kyiv	2904,4	0	0,0
10	Kirovograd	4786,64	0	0,0
11	Luhansk	10633,73	0	0,0
12	Lviv	10735,50	4,97	0,0
13	Mykolayivska	3198,36	13,96	0,0
14	Odessa	2421,82	0	0.0
15	Poltava	6710,29	0	3,1
16	Rivne	2568,8	0	0.0
17	Sumy	2750,22	10,57	0.0
18	Ternopil	2099,88	0	0.0
19	Kharkiv	1773,50	12	7,9
20	Kherson	1700,71	0	0.0
21	Khmelnysky	2764,11	0	0,0
22	Cherkasy	3536,19	2,24	0,0
23	Chernivtsi	456,19	0	1,5
24	Chernihiv	3133,82	0	0,0
25	m. Kyiv	275,0	0	0,0
	<b>Total</b>	<b>142695,82</b>	<b>110,97</b>	<b>51,25</b>

\*Formed according to the StateGeoCadastrе.

\*\* There is no information on the Dnipropetrovsk region for 2020 in the StateGeoCadastrе.

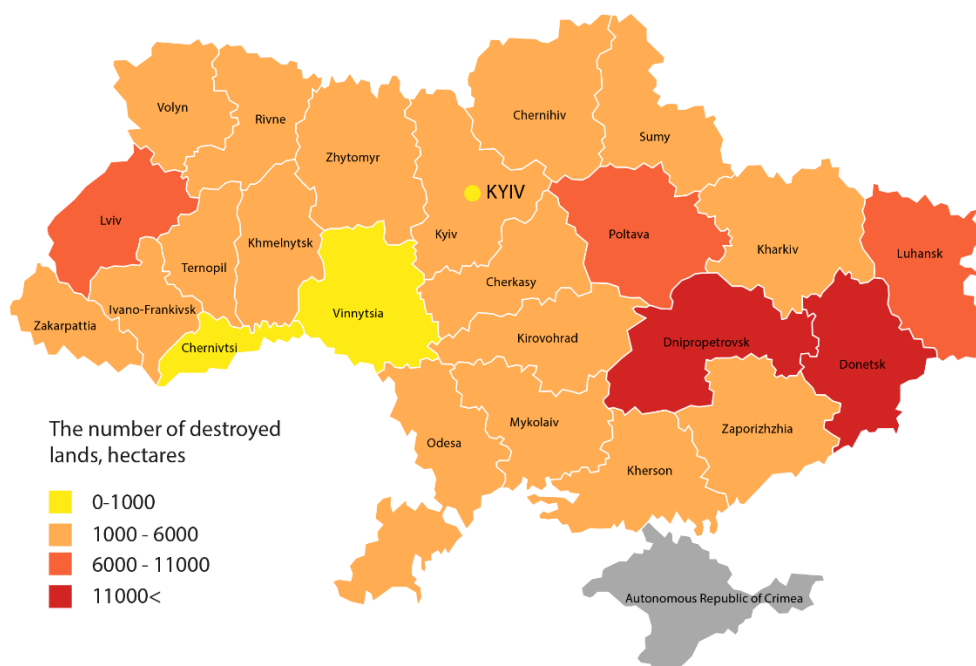


Fig. 1. Disturbed lands on the territory of Ukraine in terms of regions as of 01.01.2021 \*.

\* Information on Dnipropetrovsk region is not available in the StateGeoCadastre.

Almost half of the land violations in 2020 occurred in the Donetsk region. Figure 2 presents information on the number of disturbed lands in Ukraine during 2020.

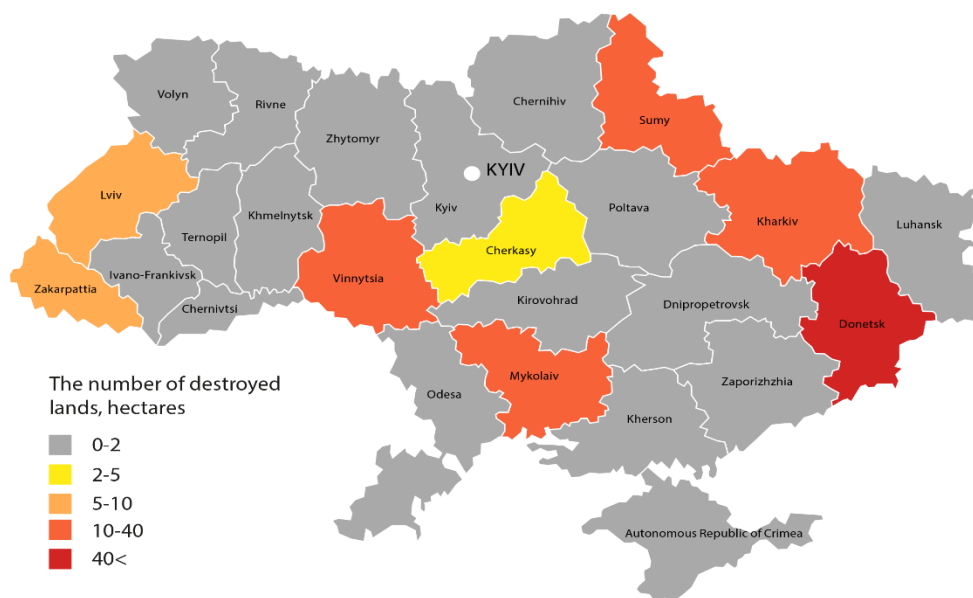


Fig. 2. Disturbed lands on the territory of Ukraine in terms of regions during 2020 \*

\* Information on Dnipropetrovsk region is not available in the StateGeoCadastre.

In total, the disturbed lands were recultivated on the area of 51.25 ha throughout the territory of Ukraine, of which 31.1 ha and the territory of the Donetsk region were reclaimed (Fig. 3). We must state that this is unacceptably not enough in comparison with the total area of disturbed lands on the territory of Ukraine - 142,695.82 hectares.



Fig. 3. Information on the number of reclaimed lands on the territory of Ukraine in terms of regions for 2020 \*

\* Information on Dnipropetrovsk region is not available in the StateGeoCadastre.

According to Article 166 of the Land Code of Ukraine (hereinafter - the Code), reclamation of disturbed lands is a set of organizational, technical and biotechnological measures aimed at restoring soil cover, improving the condition and productivity of disturbed lands. [2]

When carrying out reclamation works are guided by the agreed working project of reclamation (when there is a removal and transfer of a superficial ground cover (fertile layer of soil) of the land plots and the project of excavation works

(project of reclamation of a quarry) where project decisions as carrying out excavation works, carrying out reclamation works, and preservation and use of the removed fertile layer of soil of land plots.

Thus, we can say that after proper reclamation there is a possibility of reuse of the disturbed land for other needs.

To date, there are almost no proposals for renovation and construction of quarries, the current practice provides for their mechanical reclamation. The construction of used quarries will allow us to consider the industrial region as a promising landfill for the study of architectural and planning organization of public buildings and structures. [3]

Involving a public function in quarries that have lost their industrial functions will allow to restore the harmful environment of the quarry and involve it in the structure of the city. The development of principles for the formation of public buildings and structures on the territory of quarries will give impetus to further research into low-value areas and renovation of industrial buildings in industrial cities, which will significantly reduce potentially dangerous environmental factors and involve disturbed areas in the city's functional structure. [3]

With the modern development of construction technologies, reclamation of industrial zones of already mined quarries is possible for construction. For example, one of the world's most unusual musical venues is the Swedish Theater Dalhalla, which was built at the bottom of a spent limestone quarry, giving it natural acoustics. The Dalhal Theater is located in central Sweden in the municipality of Rattvik in the province of Dalarna. The theater was opened in 1993. The theater is one of the most popular concert halls in Europe and an example of the rational use of space (Fig. 3).

But, as mentioned above, in accordance with the requirements of current legislation of Ukraine, the reclamation of disturbed lands is aimed at restoring soil cover, improving the condition and productivity of disturbed lands. Therefore, when using Swedish technologies on the territory of Ukraine when building used



quarries, there is a problem of applying the norms of Ukrainian legislation, which can be interpreted as "failure" to rehabilitate disturbed lands.

Another problem in the reclamation of disturbed lands, which arises in the legal field. Currently, the current legislation of Ukraine does not provide for the Procedure for the acceptance of reclaimed land, which must be determined by the Cabinet of Ministers of Ukraine, or be regulated by laws and regulations. Which, in turn, creates a legal conflict and makes it impossible to exercise state control over the already carried out reclamation of disturbed lands (acceptance of reclaimed lands), namely quality control of reclaimed lands.





Fig. 3. Theater Dalhalla, which was built at the bottom of a spent limestone quarry

When carrying out activities related to the violation of the surface layer of the soil, landowners and land users must remove, store, store the surface layer of soil and apply it to the area from which it was removed (reclamation), or other land to increase its productivity and other qualities (Article 168 of the Code) [2].

In turn, non-reclamation of disturbed lands is a failure to implement a set of organizational, technical and biotechnological measures aimed at restoring soil cover, improving the condition and productivity of disturbed lands in accordance with the approved land management documentation [2].

Article 211 of the Land Code of Ukraine provides for liability for violation of land legislation, in particular, failure to rehabilitate disturbed lands [2].

For non-performance of reclamation works, unauthorized deviation from land management projects, the guilty persons are brought to administrative responsibility provided by the current legislation.

According to the second part of Article 54 of the Code of Administrative Offenses, failure to rehabilitate disturbed lands - entails a fine of five to ten non-taxable minimum incomes and officials - ten to thirty non-taxable minimum incomes [4].

Currently, state control over land use and protection is entrusted to the State Service of Ukraine for Geodesy, Cartography and Cadastre [5].

The results of state control over the use and protection of land of all categories and forms of ownership conducted by the territorial bodies of the State Geocadastre in the regions for the period 2017-2020 are shown in Table 2.

**Table. 2. Information on the results of state control over the use and protection of lands of all categories and forms of ownership conducted by the Main Departments of the State Geocadaastre in the regions for the period 2017 – 2020**

<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Territorial bodies of the StateGeoCadaastre conducted 15 594 inspections of compliance with land legislation, of which 7 587 were identified in violation of land legislation.	Territorial bodies of the StateGeoCadaastre conducted 24 290 inspections of compliance with land legislation, of which 14 114 were identified in violation of land legislation.	Territorial bodies of the StateGeoCadaastre conducted 27 603 inspections of compliance with land legislation, of which 16 005 were identified in violation of land legislation.	Territorial bodies of the StateGeoCadaastre conducted 24 072 inspections of compliance with land legislation, of which 17 173 were identified in violation of land legislation.

For non-reclamation of disturbed lands, the responsibility for which is provided by Article 54 of the Code of Administrative Offenses of the State Service of Ukraine for Geodesy, Cartography and Cadastre conducted 168 inspections throughout Ukraine for the period from 2018 to 2020. [5].

Information on the number of inspections and detected violations under Part 2 of Article 54 of the Code of Administrative Offenses, which were conducted for the period 2018 to 2020 is given in Table 3.

**Table. 3. Information on the number of inspections and detected violations under Part 2 of Article 54 of the Code of Administrative Offenses, which were conducted for the period 2018 to 2020**

Types of violations	Checks performed		Violations were revealed during the reporting period		Fines were collected		Sent materials to the prosecutor's office, pre-trial investigation or inquiry	
	total	planned	quantity	area	quantity	Soum, hrn	total	including the order, transferred to Art. 253 of the Code of Administrative Offenses
1	2	3	4	5	6	7	8	9
Non-reclamation of disturbed lands (Part 2 of Article 54 of the Code of Administrative Offenses)	2018 year							
	<b>89</b>	73	<b>49</b>	148,281	<b>27</b>	9095	<b>10</b>	0
	2019 year							
	<b>51</b>	43	<b>16</b>	25,9309	<b>17</b>	5100	<b>0</b>	0
	2020 year							
	<b>28</b>	23	<b>4</b>	13,6081	<b>2</b>	680	<b>0</b>	0

**Conclusions and prospects.** The analysis of land reclamation problems in Ukraine showed that there are more than 142 thousand hectares of disturbed lands in the country, and only 51.25 hectares were reclaimed in 2020, which is unacceptably small. It can be stated that there are problems of "failure" of reclamation of disturbed lands and, accordingly, the impossibility of their use in other areas.

When analyzing the implementation of state control over the use and protection of land, we can see a tendency to reduce each year the number of inspections in the "failed" reclamation of disturbed land and, accordingly, identify violations that lead to impunity for landowners and land users who do not to restore the soil cover.

To ensure the rational use of land resources and the proper implementation of legislation in the field of land protection, it is necessary to strengthen state supervision over the use of industrial land and increase the level of responsibility for failure to rehabilitate disturbed lands.

In addition, more effective schemes of measures for the restoration of disturbed lands, in particular, insurance, should be introduced.

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**ПРОБЛЕМИ ЩОДО РЕКУЛЬТИВАЦІЇ ПОРУШЕНИХ ЗЕМЕЛЬ В УКРАЇНІ**

*В статті розглянуто проблеми та особливості рекультивації порушених земель України у розрізі областей, описано необхідність та важливість охорони земель в Україні та світі та проведення заходів з рекультивації порушених земель. Проаналізовано кількість порушених та рекультивованих земель в Україні станом на 01.01.2021 року та які проведено роботи з рекультивації за 2020 рік. Висвітлено основні питання законодавчих колізій, які виникають при проведенні рекультивації порушених земель або «непроведенні» рекультивації. Проаналізовано заходи здійснення державного контролю при використанні та охороні земель усіх категорій та форм власності проведених Головними управліннями Держгеокадастру в областях за період 2017 - 2020 роки. Наведено приклад використання відпрацьованого вапнякового кар'єру під забудову на прикладі театру Дальхала (Theatre Dalhalla) та чому такий зарубіжний досвід не може бути застосовано в Україні. Висвітлено адміністративну відповідальність за «непроведення» рекультивації порушених земель. Визначена проблема, яка виникає при прийнятті вже рекультивованих земель органами місцевого самоврядування або органами державної влади.*

*Надано рекомендації щодо запровадження більш дієвих заходів щодо відновлення порушених земель.*

**Ключові слова:** *рекультивація земель, охорона земель, раціональне використання, негативні наслідки, непроведення рекультивації, заходи відновлення, державний контроль.*

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**ПРОБЛЕМЫ РЕКУЛЬТИВАЦИИ НАРУШЕННЫХ ЗЕМЕЛЬ В УКРАИНЕ**

*В статье рассмотрены проблемы и особенности рекультивации нарушенных земель Украины в разрезе областей, описано необходимость и важность охраны земель в Украине и в мире, а также проведения мероприятий по рекультивации нарушенных земель. Проанализированы количество нарушенных и рекультивированных земель в Украине по состоянию на 01.01.2021 года и количество проведенных работ по рекультивации за 2020 год. Освещены основные вопросы законодательных коллизий, возникающих при проведении рекультивации нарушенных земель или «непроведении» рекультивации. Проанализированы меры государственного контроля при использовании и охране земель всех категорий и форм собственности, которые проведены Главными управлениями Гогокадастра в областях за период 2017 - 2020 годы. Приведен пример использования отработанного известнякового карьера под застройку на примере театра Дальхала (Theatre Dalhalla) и почему такой зарубежный опыт не может быть применен в Украине. Освещена административная ответственность за «непроведение» рекультивации нарушенных земель. Определена проблема, которая возникает при принятии уже рекультивированных земель органами местного самоуправления или органами государственной власти.*

*Даны рекомендации по внедрению наиболее эффективных мер по восстановлению нарушенных земель.*

**Ключевые слова:** *рекультивация земель, охрана земель, рациональное использование, негативные последствия, непроведение рекультивации, меры восстановления, государственный контроль.*