RESEARCH INTO IMPACTS OF AGRICULTURAL LAND CONCENTRATION ON UKRAINIAN ENVIRONMENT AND SOCIETY
RESEARCH INTO IMPACTS OF AGRICULTURAL LAND CONCENTRATION ON UKRAINIAN ENVIRONMENT AND SOCIETY:

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Background

Issues around agricultural land concentration have been the subject of increased focus among the academic community and the public recently, although they have been discussed within the national and macro-regional policy landscape for some time.

The effect of land concentration has also been addressed in the context of the 2030 Sustainable Development Goals (SDGs), specifically, to comply with the provisions of the EU’s Green Deal, and to preserve and restore the natural environment, social welfare, and food security, among others.

This research aims to objectively analyse the process of land concentration in Ukraine, its driving factors, and the changes that occur in rural areas as a result of the activities of agricultural holdings. The findings will be used to inform the identification of prospects as well as to make recommendations for the regulation of the land market and the formation of a relevant sectoral policy.

Generally, the term ‘land concentration’ is used to denote large-scale purchases or leasing of agricultural land, predominantly by private and public investors and agribusinesses in order to manufacture agricultural products. In quantitative terms, ‘land concentration’ should be understood as concentration of significant tracts of land in the ownership of one or more individuals or legal entities. This process was boosted by both the efforts of the World Bank to liberalise agricultural policy (since 2008) aiming to solve the problem of hunger in emerging countries, and as a result of increasing demand for agricultural products.

The Tirana Declaration, which is aimed at ‘segregating land access for the poor in times of intensified natural resources competition,’ defines land grabbing as ‘acquisitions or concessions that are one or more of the following:

1 https://www.globalagriculture.org/report-topics/land-grabbing.html

2 https://d3o3cb4w253x5q.cloudfront.net/media/documents/Tirana_Declaration_2011_EN.pdf
in violation of human rights, particularly the equal rights of women;
not based on free, prior and informed consent of the affected land-users;
not based on a thorough assessment, or are in disregard of social, economic and environmental impacts, including the way they are gendered;
not based on transparent contracts that specify clear and binding commitments about activities, employment and benefits sharing; and
not based on effective democratic planning, independent oversight and meaningful participation.

The Global Observatory of the Land Matrix plays a key role in the monitoring of land concentration processes, collecting data about deals that:

- entail a transfer of rights to use, control or own land through sale, lease or concession;
- have been initiated since the year 2000;
- cover an area of 200 hectares or more;
- imply the potential conversion of land from small holder production, local community use or important ecosystem service provision to commercial use.

Today, land concentration is rapidly gaining momentum. According to the Land Matrix, almost 50 million hectares have been covered by large-scale foreign investments, a little less than a third of which has taken place in the last five to six years. Africa remains by far the most targeted continent, with 422 concluded agricultural deals involving a total area of almost 10 million hectares. Asia has the second largest number of deals, with 305 deals involving 4.9 million hectares. For instance, significant changes in land use are underway in South-East Asia, where land that was used for the production of food crops is being converted to land for biofuels production, and forest land has increasingly become used for the production of biofuels or food for export markets. Latin America is represented with 146 deals and 4.5 million hectares, while in Europe, land use problems are becoming progressively acute, although their geographical distribution is uneven.

In its research paper, the European Parliament’s Committee on Agriculture and Rural Development points out that ‘land grabbing within the EU is concentrated in the Eastern European member states, with initial findings suggesting that Romania, Bulgaria, Hungary and Poland are particular hotspots.’ In post-Soviet Eurasia, for example, drastic social and economic transformations — against the background of complete unreadiness and poor awareness of the population, together with an underdeveloped regulatory framework — meant that foreign businesses succeeded in acquiring large tracts of land. However, in post-Soviet countries, including Ukraine, a painful transition from collective to private ownership delayed the emergence of global trends in the region. On the other hand, it led to a number of hidden, shadow problems, and shaped extremely non-transparent schemes of land use, as seen in the effects of the moratorium on the sale of land in Ukraine. The moratorium, which indirectly contributed to lower rents and long-term lease agreements with low public awareness, ultimately led to large tracts of land being concentrated in the hands of agricultural holdings. In fact, ‘since most of the land is leased and thus not controlled by the original land-
owners, the moratorium serves only as a formal prevention of land deals.9

Indeed, according to the Land Matrix, as of 2020, approximately 4 million hectares of land primarily used for crop production were concentrated in the hands of investors. The scale of operations of agricultural holdings in Ukraine was already becoming evident in the early 2000s, with official statistics revealing that 180 agribusinesses, which only account for 0.4% of their total number, held almost 20% of the Ukrainian land bank in 2018. A rating of the largest agricultural holdings shows that 13 of them, each holding an acreage exceeding 100,000 hectares, account for nearly 15% of the Ukrainian land bank, collectively holding 30% of the total national land area — and yet, the share of farms barely reaches 2%. It should be noted, however, that the restrictions of land ownership (setting a 100-hectare limit) were finally introduced in 2020 by the Ukrainian Act, thus amending certain legislative instruments of Ukraine on the turnover of agricultural land. The impact of large agricultural and industrial businesses and regional and local effects of their activities in decentralised environments becomes particularly relevant in the context of discussions around the shaping of land relations, whereby major trends can be seen with (i) an analysis of a number of indicators describing the aspects of agriculture and economic, social, demographic, and environmental situations in rural areas, depending on the type of business entities involved; and (ii) a general assessment of activities of large businesses-agricultural holdings.

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10 Land Matrix.
11 Ukrainian Agriculture (Сільське господарство України), an annual statistics publication.
12 Calculated using the data from https://latifundist.com/rating/top100#271.
Findings of the analysis

The emergence and rapid growth of the influence of agricultural holdings in Ukraine are not only due to global trends, but also to a number of problems in the development of the agricultural and industrial complex during the period of market transformations.

Today, the top 117 agricultural holdings in Ukraine cultivate 16% (or 6.45 million hectares) of the country’s agricultural land, according to the Latifundist website. This includes more than 10 foreign agricultural holdings, which control approximately 3 to 4 million hectares of agricultural land. Furthermore, Ukrainian owners often have their agricultural holdings registered abroad for tax optimisation purposes, and in 2020, 36 of the 100 largest agricultural holdings operated a land bank exceeding 50,000 hectares and had 4.5 million hectares concentrated in their hands, which was slightly less than in 2012 (39 companies and 5.3 million hectares, respectively).

When it comes to districts, land concentration areas can be clearly observed in the Vinnytsia, Ivano-Frankivsk, Kyiv, Sumy, Ternopil, Kharkiv, Kherson, Khmelnytsky, Cherkasy, and Chernihiv regions (Fig. 1). Most deals have been made in the Kaniv district of the Cherkasy region.
It is important to note that there is a significant relationship between a number of the deals and the area of agricultural land within a region, and a remarkable concentration in regions where most TOP-100 agricultural holdings are present—the Kyiv, Chernihiv, Poltava, and Khmelnytskyi.

### Table 1

The largest agricultural holdings by land bank size (thousand hectares)

<table>
<thead>
<tr>
<th>Name</th>
<th>Land bank, thousand hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2020</td>
</tr>
<tr>
<td>Kernel</td>
<td>530</td>
</tr>
<tr>
<td>Ukrlandfarming</td>
<td>500</td>
</tr>
<tr>
<td>MHP</td>
<td>370</td>
</tr>
<tr>
<td>Agroprosperis</td>
<td>300</td>
</tr>
<tr>
<td>Astarta Kyiv</td>
<td>235</td>
</tr>
<tr>
<td>Continental Farmers group</td>
<td>195</td>
</tr>
<tr>
<td>Epitsentr K</td>
<td>160</td>
</tr>
<tr>
<td>HarvEast</td>
<td>127</td>
</tr>
<tr>
<td>IMC</td>
<td>123</td>
</tr>
<tr>
<td>Ukrprominvest agro</td>
<td>120</td>
</tr>
</tbody>
</table>

13 Calculated using the data from https://latifundist.com/rating/top100#294.
Subject to potential limitations of collecting information about the quantity and locations of the deals, this data has been compared to the information obtained from the State Statistics Service of Ukraine which may, however, may disregard some concentrations (Fig. 2).

It is important to note that there is a significant relationship between a number of the deals and the area of agricultural land within a region, and a remarkable concentration in regions where most TOP-100 agricultural holdings are present — the Kyiv, Chernihiv, Poltava, and Khmelnytskyi. Statistical data also demonstrates that nine large agribusinesses (each operating an area of more than 10,000 hectares) collectively have 223,000 hectares registered in Kyiv. It is not uncommon that subdivisions of agricultural holdings are not registered at a place of their business either, subsequently resulting in lost revenues for local budgets.

We will touch in more detail on some measures of existing and potential impacts of large agribusinesses, including socio-economic (intensity of agricultural production, changes in the labour market, demographics in rural areas, community-owned infrastructure, and land use aspects) and environmental (share of agricultural land, adverse exogenous processes, and changes in landscape diversity).

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14 Calculated using the data from https://latifundist.com/rating/top100#294.
We will touch in more detail on some measures of existing and potential impacts of large agribusinesses, including socio-economic (intensity of agricultural production, changes in the labour market, demographics in rural areas, community-owned infrastructure, and land use aspects) and environmental (share of agricultural land, adverse exogenous processes, and changes in landscape diversity).
Measures used to look into the relationship between land concentration and the intensity of agricultural production included agricultural production output; the manufacture of products by agribusinesses; agricultural production output per capita; the application of mineral fertilisers; the dynamics of application of mineral fertilisers; the crop yield of rapeseed, soybean, sunflower, corn, and wheat and changes therein; and the exports of grain per unit of cropped land. The analysis confirmed that the concentration of land is an important factor that tangibly affects the intensity of agriculture (Fig. 3).

As can be seen from Fig. 3, the Ukrainian Podilia regions (Vinnytsia, Khmelnytskyi, and Ternopil), Kyiv Dnipro regions (Kyiv, Zhytomyr, Cherkasy, and Chernihiv), and Sumy and Lviv regions stand apart. Accordingly, it follows that the concentration of land is one of the factors that led to an increased production of many crops and boosted agricultural exports.

The measures used to study the impact of land concentration on the labour market included the number of people employed in agriculture; labour productivity in agriculture; the number of hired employees in agriculture and changes in their quantity; nominal salaries; unemployment rate in rural areas; the average duration of job search; and the number of unemployed in rural areas and its changes (Fig. 4).
A significant relationship was established between land concentration and the productivity of labour, the number of employees in the region, and nominal salaries. It can be assumed that the lack of a strong correlation with unemployment rates in rural areas is related to the migration of the population, including its migration to cities and other regions, and hence labour shortage in rural areas. This is especially true for western regions of Ukraine, which are heavily affected by external migration.

The aspects analysed as part of the investigation into the possible impact of land concentration on demographics in rural areas of the Ukrainian regions included the share of (and changes in the share of) children and youth aged 0–29 years; natural population growth; the average life expectancy of men and women; the ratio of female to male population in rural areas; a ratio of female to male population aged 0–29 years and the dynamics of changes in such ratio; the migration of the population per 10,000 existing inhabitants (all flows and interstate migration); and migratory increases and decreases in the population (Fig. 5).

A study of correlation relationships has demonstrated that land concentration generally has little effect on demographic processes for a number of reasons. First, it bears mentioning that Ukraine has been experiencing a demographic crisis for a long time, which has led to a critical demographic situation in the country as a whole, and particularly in rural areas. In addition, demographic processes are characterised by a fairly high inertia.
Certain relationships have been established in respect of the change (decrease) in the share of children and youth aged 0–29 years in the period 2010–2020, including the dynamics of the ratio of females to males and the level of interstate migration. Furthermore, a high inverse correlation with land concentration has been recorded in respect of natural population growth and the female to male ratio of the total population, and a median inverse correlation has been established in respect of the share of children and youth in the age structure of the total population. Such data indirectly points to the adverse effect of land concentration on the demographic structure in rural areas. For instance, depopulation rates have proved to be the highest in the areas of presence of agricultural holdings — the Chernihiv, Sumy, Cherkasy, Khmelnytskyi, Poltava, Vinnytsia, and Kyiv regions.

To explore the possible impact of land concentration on the rural infrastructure development, statistical data on the percentage of apartments in residential and non-residential buildings in rural areas, which are connected to water supply, gas supply, and sewerage services, was analysed (Fig. 6).

In general, the highest connection ratios have been detected in four western regions of Ukraine’s Carpathian region, the Kyiv metropolitan area, and the Kherson and Odesa regions in the south of the country. The residential infrastructure in the Vinnytsia, Zhytomyr, Kirovohrad, and Chernihiv regions has been found to be the least developed. Following the calculations, no correlation has been discovered between land concentration and the level of residential infrastructure development. This could be explained...
assessments, a significant relationship has been established between land concentration and soil-depleting crops in general. This relationship is, however, heavily determined by corn. The profitability of production is an additional underlying impact driver for the expanding share of soil-depleting crops in all regions of Ukraine (Fig. 7a; b). This lays the foundation for a rapid increase of cropped land for growing industrial crops at the expense of less profitable buckwheat, sugar beets, flax, and so forth.

Findings of the assessment of land concentration impacts on the cropped land structure dynamics are demonstrated by Figure 8.

The aggregate share of soil-depleting crops in the structure of cropped land increased by 2.71% in Ukraine as a whole between 2017 and 2020, and decreased only in five regions: Kherson,
Figure 7a, 7b

Figure 7a. Share of key soil-depleting crops in the general structure of cropped land in Ukraine, 2017

Figure 7b. Share of key soil-depleting crops in the general structure of cropped land in Ukraine, 2020
Donetsk, Kirovohrad, Odesa, and Zaporizhzhia. The highest increase in the share is observed in the western (L`viv, Volyn, and Rivne) and north-east (Chernihiv and Sumy) regions. In general, growth in the share of soil-depleting crops in the country is driven by land concentration, however, the dynamics of cropped land, that is, where some of those crops are grown, is influenced by economic factors, including primarily a level of profitability.

It is quite logical to assume that there is intense competition between agricultural holdings and farms. Although there are adaptation mechanisms, the prospects for farming in Ukraine are limited enough without government support. For the time being, an insignificant inverse correlation exists between the number of land deals and the quantity of farms. This is also confirmed by more thorough studies conducted to define the types of farmers\textsuperscript{15} in as much as the regions, where the activities of agricultural holdings are intensive enough, remain among the regions with sustainable farming development (the Cherkasy, Vinnytsia, Khmelnytskyi, and Zhytomyr regions). In addition, territories where the development of farming is delayed and unbalanced

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include many regions that are not strongly influenced by land concentration. Nevertheless, the effects may intensify in the future, considering the increasing number of deals and a long-term trend towards decrease in the number of farms. While the beneficial effects of farming should be regarded from a socio-economic rather than environmental perspective, since such businesses generally require more labour, diversify the sector, and often are conscious of local values, they may equally contribute to the degradation of land resources.

Since the 2000s, land concentration in Ukraine has become increasingly intensive. The key agents of the process were foreign and national agricultural holdings, which, using the effects of concentration and possessing significant financial resources, ensured highly efficient agricultural production and a high competitiveness in the domestic and global markets. However, investigations into their activities often reveal adverse effects, such as reduced number of farms, increased rural unemployment, local community budgeting problems, insufficient infrastructure investments, growth in single-crop production, and degraded soil and other environmental components. It can even be said that, occasionally, rural areas or communities are being ‘monopolised’.

An analysis of key development indicators for Ukraine’s agriculture shows that such signs are visible, and their manifestations become more intensive, but the aspects that shaped this situation had been determined in the Soviet era with its many depressed villages, difficult market transformations, and flawed national policy. Indeed, these still hamper the recognition of the activities of agricultural holdings as a dominant factor of adverse transformations. The same is true for the concentration itself. Soviet collective farms intensively developed and used Ukrainian agricultural land. The National Report on Soil Fertility says that ‘the heaviest loss of humus was observed in the 1960s to the 1980s as a result of an intense agricultural production reached with increased arable land used, primarily, for growing sugar beet and corn.’ At that time, 0.55 to 0.60 tonnes of humus were lost per hectare annually. Accordingly, the advent of new entities did not produce any significant effect on the area and balance in the use of ploughed land. The lack of government support became the key material factor affecting rural communities in many regions, which was compensated in a selective manner by large businesses and farmers.

Today, agricultural holdings’ monopolisation of the agricultural market poses an evident threat as control over them is concentrated in the hands of few owners. A trend towards the suppression of traditional Ukrainian crops (flax, buckwheat, sugar beet) is evident, too. There are some positive developments too, however, including the introduction of new technologies driven by increased attention to the demonstration of social and, sometimes, environmental responsibility.

Special attention should be paid to those of the abovementioned threats which are related to the environmental condition of the territory. An area comprising administrative districts (according to the administrative organisation of the territory that existed before 2020) where land lease deals were made has been configured to analyse the possible impacts of land concentration on the environmental condition of the territory. The timeframe of the analysis of the
possible impacts of land concentration on the environmental condition of the territory covers the period from 2000 (when the first deals were entered into the Land Matrix database) to 2019 (when the up-to-date information became available). In Ukraine, land concentration actively manifests in its flat terrain regions. Broad-leaved and pine (mixed) woodland area has been found to be less attractive in this regard (Fig. 1+4.1. Places of execution). In the mixed woodland area, so-called ‘forest islands’ in the Chernihiv and Zhytomyr Polissia are of the most interest for farmers as their natural conditions are close to those of the forest-steppe territories.

Land concentration in Ukraine is taking place under the conditions of complete, human-induced reorganisation of the national landscapes\textsuperscript{16}. The main factor behind the transformation involves the devastation of soil and its intensive use for agricultural purposes. Fertile soil landscapes and landscapes with geomorphologic conditions favourable to agriculture experienced the heaviest transformations. The intensive use of land for agricultural purposes activates the degradation of natural landscapes, resulting in, among other things, reduced natural vegetation area or a complete replacement of natural vegetation (forest and grass biotopes) with agricultural land; fragmented natural habitats and, consequently, lost biodiversity in the territory; silted and degraded minor rivers; and highly erosion-endangered and degraded soil cover, which leads to the deterioration of soils, including the compaction of soils and the destruction of their structure, the loss of humus and macro- and micro components necessary for plant nutrition, and contamination with pesticides and heavy metals. The risk of soil degradation in vast territories is quite significant due to a high vulnerability of soils of the land concentration area to human-induced loads (according to the Global Assessment of Human-induced Soil Degradation (GLASOD))\textsuperscript{17}.

To identify the actual state of use of the territory and to trace major trends of human-induced changes in the landscapes, which are related to the impacts of land concentration on the environmental condition of the territory, an analysis of land cover data may be performed (Land Cover)\textsuperscript{18}. To determine possible effects of land concentration, sets of geospatial data, which describe the types of land cover within the covered land concentration area in the period 2000 to 2019, have been compared\textsuperscript{19}.

The area of land concentration in Ukraine, which is underway under the conditions set forth above, is marked by an unusually high share (nearly 80%) of land interpreted as agricultural land. However, this figure varies significantly depending on a given region (Fig. 9). Over the analysed period, the share of agricultural land slightly decreased by 2.7% from 81.5% in 2000 to 78.8% in 2019 within the covered land concentration area in general. While the share of agricultural land reduced significantly enough from 2000–2004, since 2004, there have been no major changes in the agricultural land area, although it tends to slowly reduce by 0.1% to 0.2% in annual terms. Changes in the share of sites with mosaic land cover (agricultural land with herbaceous vegetation and fragmented shrub and tree vegetation) are not significant either. According to the Land Matrix, the signing of deals reached its peak in Ukraine in 2012
Figure 9
The share of agricultural land in the land concentration area as of 2000 and 2019 (calculated on the basis of the land cover data provided by ESA)
and remained markedly active in the subsequent years. However, this fact is not traced through the dynamics of land, which, according to the land cover data, is defined as agricultural land.

A more detailed analysis of the share of agricultural land and its changes within the covered areas from a perspective of deals signed and approximate quantities of contracted land does not provide a straight answer as to the impacts of land concentration on the increase or decrease in the agricultural land area and related environmental effects (Figures 9 and 10). The highest decrease in agricultural land has been observed within the districts’ neighbouring cities, which might be related to an active development of suburban areas. In particular, the Kyiv-Sviatoshynskyi district neighbouring Kyiv and the Pustomytivskyi district neighbouring Lviv deserve special attention. An almost 9% reduction in ploughed land has been recorded for those districts, and the share of agricultural land only increased slightly in the steppe zone. Nevertheless, an analysis of geospatial data sets covering various periods has shown that the area of agricultural land increased at the expense of herbaceous vegetation sites. This is a red flag, as it may point to the devastation of environmentally valuable steppe sites, and (warrants further large-scale investigation).

One of the possible adverse effects of land concentration on the environmental condition of the territory is the loss of topsoil as a result of

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**Figure 10**

Figure 10. Changes in the share of agricultural land in the land concentration area as of 2019 compared to 2000 (with reference to deal locations)
erosion, which is the most widespread type of soil degradation. Washing away the topsoil results in a significant loss of humus and nutrients, leading to poor and low fertility soils. The most intensive erosion occurs on steep slopes.

An analysis of land use from the perspective of erosion hazard has allowed us to determine general aspects of the territory relating to both the erosion hazard and current trends regarding its changes within the covered land concentration area. The following general trends have been observed for the land concentration area:

- the share of land with herbaceous and tree vegetation, which limits the washing away of soil, is significantly higher for erosion hazard slopes compared to flat terrain and tends to grow; and
- the share of agricultural land on erosion hazard slopes is substantially lower and tends to decrease in connection with taking degraded and low-productivity land out of agricultural use.

Grassing and/or forestation of erosion hazard slopes is an important factor preventing indirect adverse effects of climate change from occurring, as changes in the nature of atmospheric precipitation into predominantly heavy precipitation\(^2\) is a precondition for intensifying water erosion processes and washing away the soil.

A calculation of the Shannon diversity index (SHDI) has demonstrated that nearly 60% of the land concentration area has low landscape diversity, resulting from, as previously mentioned, the high share of ploughed land. Within the covered territory, the lowest landscape diversity has been observed in the forest-steppe zone of the Dnipro left bank area and the steppe zone. The right bank area of the forest-steppe zone, the broad-leaved area, and the Polissia have been found to have the highest landscape diversity due to the natural aspects of those territories, which define the specifics of their agricultural use. Generally, high landscape diversity is incidental to landscapes, the condition of which is close to a natural one (flood land, large forest areas in the Polissia).

The subtle changes in the types of land cover from 2009 to 2019 determined, among others, the dynamics of landscape diversity indicators.

In general, territories with very low landscape diversity reduced, while areas with median and high levels of landscape diversity increased.

Overall, positive developments in the landscape diversity impacted the entire territory covered, although they are dispersed in their nature and driven by an increased share of thin contours of forest vegetation against the background of agricultural land (Fig. 11). Landscape diversity decreased insignificantly and has only been recorded for 1% of the territory. Such changes are attributed to both forest areas (the domination of one type of vegetation) and agricultural land (the disappearance of thin contours with tree and herbaceous vegetation). Individual manifestations of landscape homogenisation in the Polissia are apparently a result of devastation of abandoned fields with herbaceous or tree vegetation. There are, however, no grounds for arguing that there is a clear connection between reduced landscape diversity within agricultural landscapes in individual territories and the effects of land concentration, as there is no data that would allow for establishing a link between these territories and land taken on lease by investors.

**Figure 11**

*Figure 11. Dynamics of landscape diversity in the land concentration area (2000 compared to 2019)*
The current state of land possession and use can be described using a SWOT-analysis matrix (Table 2).

**Table 2**

**SWOT-analysis matrix in respect of land possession and use**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A significant body of legislative instruments governing land relations, the manufacture of agricultural products, and the support for development of rural areas.</td>
<td>A lack of consistency between legislative instruments and low implementation of many adopted documents.</td>
</tr>
<tr>
<td>The introduction of the State Land Register (Cadastre) and land evaluation approaches.</td>
<td>Agricultural holdings’ disinterest in full compliance with the provisions of the EU-Ukraine Association Agreement.</td>
</tr>
<tr>
<td>A gradual harmonisation with the EU standards with respect to Chapter 17 (Agriculture and rural development) of Section V of the EU-Ukraine Association Agreement and the use of the EU quotas.</td>
<td>Weak government regulation of large corporations.</td>
</tr>
<tr>
<td>A better institutional environment, international project deliverables, and the availability of information about agriculture best practices and risks.</td>
<td>The monopolisation and concentration of large tracts of land in the hands of a small group of legal entities (approximately 150 agricultural holdings in total or nearly 30 agricultural holdings each having with the largest land bank).</td>
</tr>
<tr>
<td>The presence of competitive manufacturers of agricultural products.</td>
<td>Trends towards generation of an excessive value of large agribusinesses against the background of parallel deterioration of the situation in the labour market and rural demographies.</td>
</tr>
<tr>
<td>The strengthening of farms through the gaining of experience, the improvement of government support mechanisms, and the establishment and operation of sector associations.</td>
<td>A higher vulnerability of farms to market fluctuations compared to agricultural holdings.</td>
</tr>
<tr>
<td>A partly shaped environmental consciousness and awareness of the population of issues of land relations.</td>
<td>Weak control over environmental effects of the activities of agricultural holdings and confirmed cases of adverse environmental effects.</td>
</tr>
</tbody>
</table>
### Opportunities

- Improved regulatory policy, taxation mechanisms, and social responsibility of large agricultural production entities.
- The adaptation of the principles of the EU Common Agricultural Policy in Ukraine and the implementation of the provisions of the Association Agreement.
- Stronger government support for farms.
- Further raising of public awareness of issues of land relations.
- Diversified agricultural production in terms of business pattern and product types.
- Increased land rent to drive a rise in living standards for the owners of land shares and to discourage the growth of agricultural holdings’ land bank.
- An improved territorial (spatial) planning system and the quality conduct of strategic environmental impact assessments.
- Completed arrangements for the State Land Register (Cadastre) and land assessment.
- Working out the mechanisms of regulation of the activities of agricultural holdings in terms of, primarily, taxation and social responsibility.

### Threats

- Further monopolisation of the agricultural sector, territorial community management, and continued land concentration process.
- Deteriorated demographics, increased rural unemployment, and distressed rural areas.
- Failure of the decentralisation reform in certain regions and communities; an increased number of incapable communities.
- The degradation of land resources caused by intense agricultural production and resulting erosion processes, the loss of humus, contamination, and under-recognised climate change and its effects.
- The degradation and contamination of other environmental components (surface and ground waters, biodiversity).
- The loss of certain traditional and most favourable (from the perspective of environmental conditions) plant and animal production sectors.
- Losses and lost opportunities for the development of rural tourism and organic farming.
Based on the findings of the SWOT-analysis and expert assessments, three major scenarios for the agricultural sector development in the upcoming decade can be projected. These are optimistic, pessimistic, and neutral scenarios.

The most important impact driver for the first (optimistic) scenario relates to expectations for a higher land rent with the opening of the land market\(^22\), according to the expert community. For the time being, it is hard to predict the extent of possible increases in the rent and the degree of its likely impact (a preliminary forecast suggests that the price of agricultural land will vary from 1,000–2,000 US dollars per hectare after the lifting of the moratorium, and from 1,500 to 4,000 US dollars after the opening of the land market)\(^23\). However, should this be the case, the land bank of the largest agricultural holdings will reduce in their attempt to avoid excessive costs and some of the land shares will be released. The released land may provide a basis for the development of small farms consolidated into cooperatives and the formation of specific clusters in rural areas. The prospects anticipated in the case of development of the optimistic scenario include the demonopolisation, in part, of agriculture production, improvement of competitiveness of farms, development of green and rural tourism, social and economic growth in rural areas, preservation and recovery of the traditional cultural landscape, and a lower human-induced impact on the environment.

The pessimistic scenario is a different story. If this scenario materialises, it will allow agricultural holdings to further gain power. Although foreign investors’ excessive interest in Ukrainian land is denied, land shares may, instead of being released, be redistributed between agricultural holdings, including foreign-owned ones (through subsidiaries or if the result of the referendum officially supports the opening of the land market to foreigners). Land and its shares, which have not yet been let on lease and will become community-owned property, may also eventually fall into the hands of large users. Such developments pose a threat to the food and economic security of the state and to the survival of farms, and, ultimately, make the development of territories and communities excessively reliant on large capital.

It appears that the occurrence of the neutral (‘status quo’) scenario is also possible. This scenario suggests that agricultural holdings will retain the existing territories and impacts, subject to some repartition of, but without any significant changes in, the market structure. This means that some territorial communities and even regions will remain heavily impacted by large agribusinesses and that the risks mentioned in the previous sections will grow, specifically with regard to increased levels of unemployment, internal and external migration, higher disparities in the demographic structure, and, finally, degraded socio-economic and natural landscapes of the Ukrainian countryside.

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Proposals (Recommendations)

Despite certain criticism of the EU’s Common Agricultural Policy in terms of its approaches to differentiating support provided to different farmers in different member states — and in spite of uncertainties about the efficiency of some of the approaches (for example, the need for the equal co-financing of measures related to rural development plans and adaptation and environment preservation measures) — the policy remains, beyond all doubt, an important and efficient tool to maintain small- and medium-scale agricultural production, local economy, and food security in the EU member states.

It is proposed that the following nine objectives should be set for the period until 2027:

- To provide fair income to farmers;
- To increase competitiveness;
- To balance impacts that occur in the creation of additional value in the food sector;
- To take measures to address the climate change;
- To preserve the environment;
- To preserve landscapes and biodiversity;
- To support the generational change;
- To develop self-sustainable rural areas; and
- To protect food quality and health.

It is therefore important for Ukraine to find mechanisms for the reallocation of financial resources, including excess profits of agricultural holdings, in order to increase the resilience of farms to market fluctuations and changes in weather and macroeconomic conditions.

Attention should also be paid to indicators that are subject to monitoring to ensure the achievement of the 2030 Sustainable Development Goals, such as income from agriculture with respect to the annual unit of labour; government support for research and development work in the agriculture sector; organic farming areas; harmonised risk indicators for pesticides; agricultural ammonia emissions; and calculated soil erosion (as further harmonised with national strategies).

Enabling transparent and quality planning is equally important for addressing the land problem. It is a question of ensuring that the environmental component be factored in social and economic development strategies and strengthened in spatial development plans. Many EU member states tackle the latter problem using a landscape planning tool. By its nature, this is a kind of spatial planning aimed at strengthening the environmental component of territorial plans and assessing environmental components subject to subsequent substantiation of recommendations for the implementation of conservation objectives. It is also a valuable tool for conducting strategic environmental impact assessments.

In the context of the EU’s Green Course, this mechanism directly addresses such components as climate change, biodiversity conservation, zero pollution, green agricultural policy, and, in general, guidelines for the protection, conservation, and strengthening of the EU natural capital.

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and the protection of public health and well-being from environmental risks and impacts.

Harmonisation with the principles of the EU’s Common Agricultural Policy and the implementation of the Association Agreement are strategic guidelines for Ukraine’s national policy.

Specific measures to be taken with the support of government and other stakeholders include:

- Controlling and monitoring titles to, and uses of, land, on the basis of the State Land Register (Cadastre).
- Providing an efficient strategy for the development of the agricultural sector in the new programming period.
- Supporting the development of farms and small- and medium-sized agricultural businesses; improving the availability of financial resources and technologies; and establishing favourable conditions for the creation of so-called growth points and poles in rural areas.
- Incorporating the matters of regulation of agricultural holdings into the agricultural development strategy, primarily with respect to creating a stricter taxation system, defining the scope of social responsibility (most notably in the field of infrastructure maintenance and development and quality of labour conditions and products), exercising environmental control, and paying taxes at a place of business.
- Supporting research into rural development (especially the so-called ‘case studies’), the assessment of the effects of operation of public or private businesses, and innovations in agricultural production.
- Conducting major studies of the condition of landscapes with an express reference to land plots in terms of which deals have been made, subject to discovering information about the owners (lessees) and locations of land plots used for agricultural purposes and falling within the definition of ‘land concentration’.
- Monitoring the use of land based on decoded high-resolution space images subject to verifying the results of decoding; developing a system of indicators that would reasonably diagnose the environmental condition of territories (soil erosion indicators, shares of and ratios between, the types of land use, etc.); and determining an optimal set of landscape measures to address the said tasks. The results of the monitoring should be published and continuously updated to avoid conflicts with investors and to provide transparent information to individuals.
- Developing recommendations for communities urging them to cooperate with large corporate entities.
- Supporting the development of strategic and spatial planning documents in communities and strategic environmental assessment procedures, and monitoring compliance with priorities and restrictions set.
- Providing broad information support for the land reform; raising public awareness of the condition of the land market, business opportunities, and the procedures for obtaining microloans.
The problem of land concentration, which is common across the globe, has become increasingly relevant in Ukraine over the past several years too. Our research has demonstrated that there is a trend towards an excessive expansion of large, vertically-integrated corporate entities — agricultural holdings, the monopolisation of agricultural production, and a number of consequences of such activities for rural areas and residents. The strategies of agricultural holdings and the aspects of their impacts, as well as the models of government response, significantly vary depending on a given market. However, according to expert assessments, land concentration is generally considered to have adverse effect from the perspective of shaping strong local economies and influencing ecosystems.

In the Ukrainian context, an emphasis should be placed on the existence of certain factors that determined the establishment of agricultural holdings in the first place:

- Opportunities for the non-transparent primary accumulation of capital.
- Barriers preventing foreign investors from entering the market.
- Throwbacks of the collective (Soviet) system of management (agribusinesses, which appeared to replace collective farms, are not always able to operate beyond the centralised economy); the unprofitability of agricultural production.
- the Ukrainian countryside, which was transformed to a certain degree and where the traditions of entrepreneurship, management, and individualism were eradicated with the collectivisation and the Holodomor (famine genocide). This, together with the slow development of relevant legislation, complicated and slowed down the establishment of farming.
- The establishment of large tracts of uncultivated land (land shares that were not cultivated by their owners for some reason or other, failed agribusinesses) and the resulting availability and partial depreciation of this resource.
- Unemployment and unsatisfactory living conditions in rural areas (conveniences, health services, education, ease of travel), which accelerated the departure of youth and middle-aged people to cities (district and regional centres of Ukraine) and abroad.
- The moratorium on the sale of land; the slow development of the necessary legal framework; the dubious efficiency of implementation of adopted initiatives and development of regulations (from the perspective of supporting farms and small- and medium-sized businesses) and, on the
other hand, preferential tax treatment and government subsidies that were available to large businesses.

- The virtual absence of control and monitoring over agribusinesses, especially with respect to their environmental impacts.

Today, we can therefore see an increase in the land bank used by agricultural holdings, most of which are domestic businesses (although the top 10 also include foreign ones). This is accompanied by enhanced influence of these entities on regional and local economies, intense agricultural production, and a somewhat deteriorated demographic situation. It is beyond any doubt that agricultural holdings are focused on growing, in addition to grain, technical crops, which may further lead to a significant deterioration of soil quality. However, the share of soil-depleting crops also prevails in the cropped land of many farms due to the business environment in the end markets and the vulnerability of many crops to changing weather conditions. On the other hand, it should be borne in mind that surveys conducted on the basis of regional statistics and information on land taken on lease by large users might not reflect the situation in local communities, which are mainly controlled by agricultural corporations. This hypothesis is confirmed by individual case studies published in the media as some examples of acute problems caused by agricultural holdings in the rural areas of Ukraine. It would therefore be appropriate to study the effects and impacts of such activities on individual communities to obtain an objective assessment.

The environmental aspect of the ‘corporate land use’ deserves special attention. Land concentration is confined to the regions of Ukraine, which — from the perspective of their natural specifics — are the most favourable for agriculture, including sites located in the forest-steppe and broad-leaved forest areas. These areas are also marked by an unusually high share of ploughed land (nearly 80% in the aggregate). According to Land Matrix, due to a high original share of agricultural land as of the commencement of land concentration in 2000, there were effectively no free territories that could have been used to increase the ploughed land area. It seems clear that the subject of the deals was the existing agricultural land with designated functional use. That was more a redistribution of property and

Without measures to ensure that proper soil protection is put in place, and subject to the active cultivation of soil-depleting crops, land concentration may lead to an increased manifestation of a wide range of adverse effects associated with the deteriorated environmental condition of the territory. These include the degradation of soil cover, the deterioration of ground and surface waters, the disappearance of watercourses (streams and minor rivers), and the decline of landscape and biotic diversity of the territory. Such a sequence of events is quite possible, as land concentration in Ukraine is taking place under the conditions of complete, human-induced reorganisation of the national landscapes.
disposition rights than an expansion to unoccupied land and bringing it to cultivation. Minor changes in the use of land for agricultural purposes today, which are identified by the ratio between the types of land cover and a landscape biodiversity indicator, point to the fact that the share of agricultural land remains excessively high. The human-induced pressure on the environment continues to be intense and the structure of land use remains extremely unbalanced, failing to ensure environmental stability.

An analysis of Ukrainian agricultural law has revealed that, similar to laws governing many other sectors, it contains a significant body of draft legislative instruments that are not always consistent with each other and ready for direct implementation. The topical unit related to the development of and support for farms calls for special consideration. After the changes lifting the moratorium on the sale of land take effect, there will be room for the recovery and growth of small- and medium-sized businesses, according to one of the development scenarios. However, this will require unconditional and large-scale government support in the form of loans, taxes, and information policy.

The principles of the EU’s Common Agricultural Policy and the implementation of the Association Agreement should become strategic guidelines for Ukraine’s national policy from the perspective of responding to the challenges of monopolisation and preserving and recovering rural areas and the environment in Ukraine. Today, the EU’s Green Course (Deal)—the most recent initiative aimed at the achievement of the 2030 Sustainable Development Goals — becomes especially relevant.