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# **NEGATIVE ENVIRONMENTAL IMPACT OF INTENSIVE INDUSTRIALIZATION OF AGRICULTURE OF UKRAINE IN 1960–1980s**

*The article deals with characteristics of land use system in Ukraine during agriculture intensive industrialization period in 1960 – 1980s. Based on archival and statistical data it is proved that inefficient land use was one of the factors of low productive farming in Ukraine in the 80's. and food program failure in 1982, and has led to current environmental problems in Ukraine's agriculture.*

**Keywords:** *land use system, agricultural policy, Food program, agrolandscape, ecosystem, soil erosion, land improvement, intensification, use of chemicals in agricultural production.*

The real technical intervention in the countryside began with the end of 1950, when the country's leadership has set a target to convert agriculture into an industrial basis.

**The aim of the study** negative environmental effects of intensive industrialization of agriculture in Ukraine in 1960 – 1980s is the current state of the agricultural sector of Ukraine.

To achieve this goal it is necessary to solve the following **task**:

- determine the theoretical foundations of the study of ecology Ukraine;
- analyze the main factors that led to the emergence and spread among farmers new agricultural achievements of Ukraine.

Many publications were devoted to this issue. Yes, H. Kryvchyk, I. Rybak in their writings reveal deformations in the socio-cultural development in rural areas under the rule of communist bureaucracy [1]. Work S. Padalky more devoted to problems of logistics Ukraine agricultural production, labor in the countryside during this period [2]. In the works P. Panchenka thoroughly elucidated the causes of the crisis in the agricultural sector of Ukraine in this period [3].

The author of this article wants to show that the current environmental problems threatening agricultural Ukraine is the direct consequence of the low culture of agriculture in 1960 – 1980s.

As a result of collectivization taking away land from the original owners – the farmers, the state legally obtained ownership of it and began to give it to the use of collective and state farms. Since then the soils have become the object of irresponsible exploitation. The absence of the owner combined with the powerful technical equipment generated arrogant attitude toward the ground.

The real technical intervention in the countryside began with the end of 1950, when the country's leadership has set a target to convert agriculture into an industrial basis. The task of the party to establish mass production of high-speed and powerful agricultural machinery was executed. Thus, during the 1965 – 1985 biennium in collective farms and state farms of SSR the number of tractors increased from 184 to 433.6 thousand, that is 2.4 times the number of harvesters from 65 to

94.9 thousand pieces and every generation of agricultural machines was characterized by higher capacity compared to previous ones. Thus, the tractor DT-75, which went to Ukrainian fields in the 1960 – 1970 biennium, had the power 42-55 horsepower and weight – 6.5 tons in the early 1970s. He was replaced by the T-150 with a capacity of 150-165 horsepower and weighing 8 tons since the mid-1970s «flagship fields» was C-700, which absorbed power of 300 horses and weighed 13.5 tons [4, 38].

The main drawback of these machines, as T-150, K-700, Don-1500 was their excessive weight. As evidenced by the data of many research institutions under the wheels of these cars because of great pressure on the ground destroyed its structure. Thus the yield of crops was reduced by 15-20%, consumption increased compared with tractors DT-75 by 15-30%. It turned out that all the increase of harvest, which gave the selection, destroyed by a lot of weight machines and additional consumption of resources.

For example, during the 80s the cost of tractor T-150 was at 2.8 times higher than the cost of tractor T-74, and its productivity increased only 1.6 times. During the same period, the wholesale price of grain harvesters «Niva» from 5.3 to 15.5 thousand rub., although its performance remained unchanged. Combine harvester Don 1500 in 1980 was worth 12.5 thousand rub., and in 1990 – 46 thousand rub., that is 8.6 times more than the combine SK-5 and «Field» [5, 60].

There was no commercial production of types of machinery needed to complete the comprehensive mechanization of agricultural production. Thus, according to the developed in the late 1970s – early 1980s system of comprehensive mechanization of agricultural production village were necessary machines and various instruments of 3 thousand items. However, the agricultural machinery produced at the time of about 1.4 thousand items [6, 135]. Gaps in the mechanization of production processes reduced the efficiency of the machine park and increased loss of agricultural production.

As a result, a huge army of equipment not provided as productivity growth, as absurd exploration of vast areas. Thus, at the end of the 1980s. Agricultural lands occupy 70% of the territory of Ukraine, including plowing – 56.9%, plowed farmland was 80% (in Vinnytsia, Kirovohrad and Cherkasy regions – more than 90%), but that does not brought solve the food problem. For comparison, plowing the land in the US was 16.9, in Britain – 29.6, France – 32, FRG – 32.3% [5, 13].

Considerable attention was paid to the USSR soil protection from destruction. The work was carried out on their protection in accordance with the General scheme of erosion control measures in 1967 and of soil protecting contour reclamation of the territory. In addition, republic was created database of soil – land cadastre. Soil and land registry system containing all the required structured data made it possible to make optimal use of farmland, and to consider potential land resources of farms in the planning of the mandatory state order for them to sell to the state of crops. However, despite calls for the preservation of land that is often heard from the rostrum in land use practice, little has changed. Proper control over the execution of their duties entities conservation of soil and environmental hardly implemented. And the farmer, whose administrative-command system of economic relations in the countryside has turned into worker mercenary forgotten how to treat the earth gently.

Soil protecting measures undertaken by collective and state farms, proved sufficiently effective, and new ways to improve land use retarded at every turn. This happened with the mold by tillage, farmers proposed Poltava region. Experience showed significant advantages of this method (grain yield was 40–50 kg/ha, sugar beet – 400–500 kg) on the plow, however, farmers, scientists, once justified way of doing feasibility plowing strong resistance. Therefore, despite the fact that according to science-based farming systems to 1990 square mold processing planned to increase to 11–12 mln. hectare on specific areas of expertise not spread [7, 7].

An enormous damage to Ukrainian black earth was caused by wind and water erosion. Almost 17 million hectare, or 43% of all agricultural land at the end of the 1980s. Ukraine had eroded, washed away the earth made up – 10 million hectares. Land one third had high acidity. The annual loss from erosion accounted for about 1.8 mln. rub. [8, 32].

Despite the fact that the causes of this dangerous phenomenon were in the approach to the planning of agricultural production without considering the quality of local soils, in the 1980s this didn't change. Thus, in 1986 according to the plans of production and sale of agricultural products sector Lviv region had over 20 thousand hectare of sugar beet, flax, potatoes and vegetables placed on sloping land with a slope of more than 70 [9, 18].

In 1980s in the Republic much of winter cereals placed on the steering predecessors and large areas of crops grown on tilled erosion dangerous slopes. For example, each year in the farms of Cherkasy region on moderately and severely eroded soils hosted 5.7 thousand hectares of sugar beet, 1.4 thousand hectare of sunflower, 2.7 thousand hectares of corn [10, 15].

As a result of erosion annual loss of humus totaled 20 mln. tons (an average of 0.5–0.6 tonnes per hectare), or three times more than was defined using organic fertilizers that were made farms. This has led to a shortage of organic matter in soils, which in the late 1980s was more than 4 tons per hectare of arable land [11, 25].

This degradation of soil fertility masked massive use of fertilizers. Chemisation in 1960 – 1980s was considered to be a major factor elevation crop. Production of mineral fertilizers was constantly growing. Thus, in 1960 – 1990 production in Ukraine increased by 5.7, crop protection chemicals – 11 times. If in 1970 under a hectare of cultivated areas were introduced 55 kg of active ingredient, in 1980 – 109 kg [12, 10].

However, it was not taken into account that fertilizer providing increase plant yield by chemical complex power while reducing the natural biological activity and viability of the land.

And even more damage to nature and people inflicted irresponsible, illiterate agronomic use and storage of plant protection products, herbicides, often dangerous poisons, long banned in the civilized world. In addition, they were introduced in the 1980s – 60% of farms and 80% of rural farms using aircraft. Hazardous chemicals getting into the water, forests, caused great damage to nature [13, 20].

So, as a result of such criminal attitude to the lands, Ukraine was on the verge of ecological disaster. In 1990 pesticides and nitrates were found in agricultural products without exception regions of Ukraine. In particular in the Donbass unhealthy agricultural products produced in 428 households with 432 [5, 63].

Due to the above factors, the soil lost Ukraine proper structure, have high acidity, stretched, losing its natural fertility. As a result – the average yield of crops, compared with those of neighboring countries has been quite modest. For a long time the neighboring European countries on land that is significantly inferior to the quality of Ukrainian black earth, due to the high culture of sustainable agriculture received 50–60 cent. of grain per hectare intensive field. We also particularly good years corn field productivity reached 35 kg/ha [14, 53].

Despite the lack of effectiveness of measures to intensify grain production, the gross grain harvest in Ukraine in the late 1980s. Thanks to a record yield two consecutive years (34.8 c/ha in 1989 and 37 kg/ha in 1990 compared to 25 kg/ha in 1981 – 1985) managed to bring 50 mln. tons, and from 60s to 80s the gross grain harvest in Ukraine has increased by half [14, 22].

Behind these figures lies the hard work of millions of Ukrainian farmers, scientists, breeders, specialists, is certainly a matter of great respect. However, this victory in the «Battle of the harvest» was taken too high a price. Chemical-technical means intensification of agricultural production, which increasingly supplanted natural, were unable to play in agricultural landscapes costs of growing the crop. However, such significant human's impact exhausted the natural potential of the soil, destroying their structure.

So the unsettled state laws on land tenure, lack of interest households in carrying out anti-erosion measures, no legal responsibility for the safety of land during the period of industrialization of agriculture Ukraine led to the fact that at the end of the 1980s. Extent of environmental problems in the agricultural sector became threatening and continued to accumulate. As a result, today unique ecosystem in Ukraine is under threat of total pollution and depletion, which is directly linked with the health of the citizens of Ukraine.

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### **НЕГАТИВНІ ЕКОЛОГІЧНІ НАСЛІДКИ ІНТЕНСИВНОЇ ІНДУСТРІАЛІЗАЦІЇ СІЛЬСЬКОГО ГОСПОДАРСТВА УКРАЇНИ В 1960–1980-х РОКАХ**

*Стаття присвячена характеристиці системи землекористування в Україні в період інтенсивної індустріалізації сільського господарства у 1960–1980-х роках. На основі архівного та статистичного матеріалів доведено, що нерациональність землекористування стала одним із чинників низької продуктивності землеробства в Україні у 1980-х рр. а також стала причиною сучасних екологічних проблем у сільському господарстві України.*

**Ключові слова:** *система землекористування, аграрна політика, Продовольча програма, агроландшафт, екосистема, ерозія ґрунтів, меліорація, інтенсифікація, хімізація сільськогосподарського виробництва.*

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### **НЕГАТИВНЫЕ ЭКОЛОГИЧЕСКИЕ ПОСЛЕДСТВИЯ ИНТЕНСИВНОЙ ИНДУСТРИАЛИЗАЦИИ СЕЛЬСКОГО ХОЗЯЙСТВА УКРАИНЫ В 1960–1980-х ГОДАХ**

*Статья посвящена характеристике системы землепользования в Украине в период интенсивной индустриализации сельского хозяйства в 1960–1980-х годах. На основе архивного и статистического материалов доказано, что нерациональность землепользования стала одним из факторов низкой продуктивности земледелия в Украине в 1980-х гг. и невыполнения заданий Продовольственной программы 1982 г., а также стала причиной современных экологических проблем в сельском хозяйстве Украины.*

**Ключевые слова:** *система землепользования, аграрная политика, Продовольственная программа, агроландшафт, экосистема, эрозия почвы, мелиорация, интенсификация, химизация сельскохозяйственного производства.*