

THEORETICAL BASIS OF THE EFFECTS OF AIRPORT ACTIVITIES TO THE ORGANIC FARMING

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ABSTRACT

This article aims to show the negative impact of airport activities on organic farming and food production in Uzbekistan and to show modern solutions to preventive measures and to define the methodology of the study of the industry. The study examines the results of research on key areas of the system based on a comparative analysis, and provides appropriate methods and practical recommendations for research in this area.

Keywords: Greenhouse gas emissions, Harmful toxins in the soil, Airlines, Environmental pollution, Ecology.

INTRODUCTION

Various pollutants emitted from aircraft and trucks have a negative impact on agricultural production and organic farming. Aircraft engines also emit gases, noise, and particles into the atmosphere, like various factories fumes pollute the atmosphere[1]. As a result of such harmful effects, the negative impact on global and local air quality is leading to environmental pollution. Airlines are one of the biggest subjects which pollute atmosphere and the surrounding soil with heavy metals[1]. Pollutants produced by vehicles are carbon monoxide, carbon dioxide, hydrocarbons, nitrogen oxides, sulfur oxides, and various heavy metal particles[2]. The radiation exposure of the aircraft is estimated to be 1.3-1.4% of CO₂, excluding the induced cirrhosis cloud[3]. In 2018, global commercial operations accounted for 2.4 percent of CO₂ emissions. Scientific studies show that from 1967 to 2007, jet liner fuel savings increased by 70%, and today CO₂ emissions per kilometer are 48% higher than in 1990. More precisely, CO₂ emissions now average 88 grams of CO₂ per passenger per kilometer. The aviation industry is evolving over time, engines are being improved, and their fuel economy is increasing. However, as air traffic increases, the total amount of harmful gases and emissions is increasing. By 2021, aviation emissions are projected

to increase by 70.3% compared to 2005, and by 2050, their volume is projected to increase by 300% [4].

Over the years, our economy has been developing and living standards have been improving. Of course, these changes are respectable. However, there is a second issue related to development, which is the negative impact of development on the environment and ecology. However, the development of the economy - heavy and light industry causes, various services, agriculture and all other sectors, directly affecting the environment, enriching the soil with harmful wastes and toxins, and the atmosphere with gases. In the near future, the number of flights in our country is growing every year. If we compare the number of airport flights in Samarkand today with the last 5 years, we can see that it has increased 4 times.

This research is a study of the negative effects of transportation in the country on agricultural production and organic farming, as well as a scientific assessment of the damage to the soil around the airport. Before conducting scientific analysis, we analyzed the scientific studies to determine the level of study of this problem in our country and the harmful effects of transport on the soil.

The following is a theoretical analysis of the negative effects of CO₂ emitted from vehicles on the environment, atmosphere and organic farming, comments on the results of scientific experiments of foreign scientists and the trajectory of scientific abstraction.

The ecological situation in the world and the advantages of organic farming

Looking at the impact of global energy consumption and industrial performance, global CO₂ emissions are set to reach their annual peak in 2021. Based on a detailed analysis by the International Energy Agency in France by region and by each type of fuel, the latest official national data and open energy, economy and weather-based data show that by 2020 in 2021 its total emissions reached 36.3 gigatons, an increase of 6 per cent. We can see that the growth trend of CO₂ in the last one year alone is equal to the amount of growth in 1900-1950 (Figure 1).

Compared to the types of fuels, CO₂ emissions have dropped dramatically during the Covid-19 pandemic. During the pandemic, traffic was restricted and most flights were canceled. Oil consumption has fallen, and as a result, demand for oil has fallen to more than 6 million barrels per day. In 2021, international aviation-related CO₂ emissions are estimated to be only 60 percent (370 Mt) of pre-pandemic levels. In 2021, transport activity returned to pre-pandemic levels, leading to a further increase in global CO₂ emissions to 600 Mt. As a result, oil emissions have reached the level of 2019 and CO₂



emissions have increased by 7.8%. This is the highest level in recent times (Figure 2).

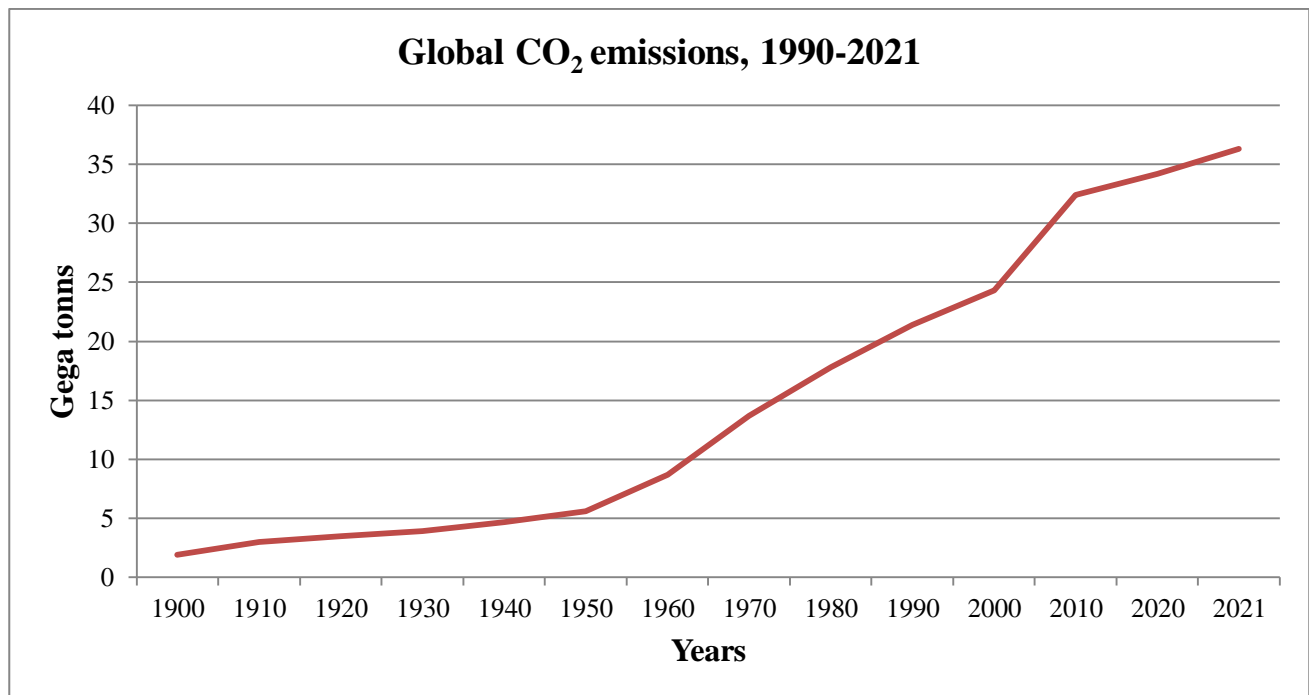


Figure 1. Dynamics of CO₂ atmospheric changes due to global energy consumption and industrial impact[5].

Airliners have a direct effect on the atmosphere, resulting in various harmful gases (carbon dioxide, water vapor, nitrous oxide or carbon monoxide - bound to oxygen and converted into CO₂) into various particles (incompletely burned hydrocarbons, sulfur oxide, black carbon)[6]. However, aerial liners make up the bulk of greenhouse gas emissions into the atmosphere.

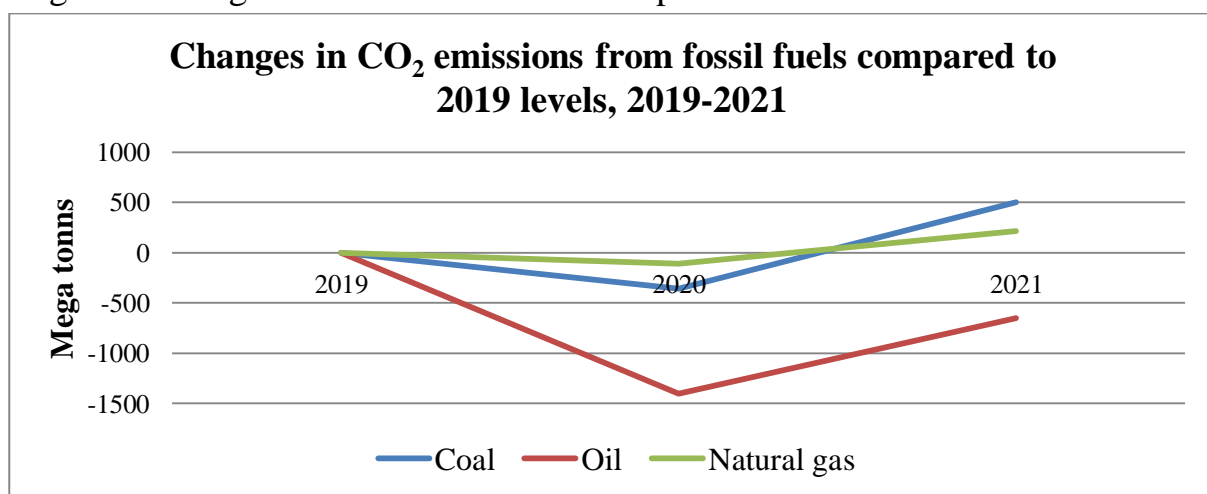


Figure 2. Changes in CO₂ emissions from fossil fuels compared to 2019, 2019-2021[7].

Typically, soil microplastics, oil spills, mining and other heavy industry activities, acid rain, intensive farming, agrochemicals, such as pesticides, herbicides and fertilizers, petrochemicals, industrial accidents, road wastes, soil contaminated surface water drainage, chemicals and waste disposal. The greatest damage to the soil by these harmful substances is the damage caused by burning oil products. Heavy metals and other soil contaminants adversely affect the activity of soil microorganisms, species composition and quality, as well as soil functions such as the biochemical changes of carbon and nitrogen[8].

As the ecology and environment deteriorate, the use of chemicals in agricultural production is increasing. As a result, the composition of agricultural food products is changing and the production of consumer goods is increasing. Organic farming is actually an agricultural system that uses organic fertilizers such as animal manure, green manure, and bone meal, and is a part of the agricultural production culture that focuses on crop rotation methods[9]. Organic farming is now being developed by a variety of farmers. Biological control of pests, crop rotation, is designed to allow the use of natural substances while banning or strictly restricting synthetic substances in organic standards[10].

Organic products usually require less energy, but require more land to produce enough[2]. According to scientists conducting research on organic farming, organic agriculture is a closed food cycle, mitigating the effects of biodiversity and climate change and even restoring climate change to its original state, and extracting oil and natural resources. gas can reduce fuel emissions[11].

LEVEL OF UNDERSTANDING OF THE PROBLEM

Harmful substances from airlines have a negative impact on organic farming. It is estimated that by the end of the twentieth century, air transport in Europe and America was estimated at 250 million a year. tons of fuel are known[8]. Combustion of this amount of fuel has led to the release of large amounts of exhaust gases into the atmosphere, including solid particles, hydrocarbons, nitrogen oxides, sulfur, lead and other harmful compounds. The scientists found an increase in heavy metals and possible changes in the amount of heavy metals in the agricultural lands around Hatay Airport in Turkey. Pb), cadmium (Cd), nickel (Ni), chromium (Cr), carbon monoxide (Co), (Al), (Fe), (Cu), (Mn), (Zn) and other substances were found in the soil[7].

A study around India's Indira Gandhi International Airport, a major component analysis and isomer pair ratio, found a 2.58-

fold increase in polycyclic aromatic hydrocarbons in the soil around Indira Gandhi International Airport[12]. In another study, Jordan assessed the level of metal contamination and damage in urban soil around Queen Alia Airport. The results of the analyzes showed that the POV, Cd, and Cu samples from the ANOVA test showed significant differences between the samples, i.e., increased around the airport, but the amount of other metals in the analysis did not show significant differences. Factor Impact Analysis Contaminated soil occurred mainly in areas around steel mills.

To date, many studies have been conducted by local scientists on the composition of soils and the conditions of their damage. In particular, NV Kimberg, A.Z. Genusov BV, Garbunov, N.I. Shuvalov, V.G. Popov, M.A. Pankov, M.B. Bokhadirov, A.M. Rasulov, H.M. we can list. Although many positive results have been achieved in their research, soil structure, organic farming, and environmental risks have increased in recent years.

Indeed, today the ecological condition of the planet is of great concern to many developed and developing countries. Various environmental contaminants have been observed during air transport, including flight and airline maintenance, airport operations, and aircraft repair operations. We have discussed the negative consequences of this in the scientific conclusions and recommendations of scientists.

CONCLUSION

The key to sustainable economic development is to ensure a favorable ecological balance and the constant protection of nature and the environment, as well as organic agriculture and food security. Our theoretical analysis shows that in recent years there has been an increase in the use of petroleum products in the economy and many negative effects of environmental pollution.

The analysis of the soils around the highways used for road transport was carried out from the studied literature. However, the analysis of soil changes around the airport has been neglected by our scientists.

In subsequent studies, we believe it is important to study the areas around the airport, identify harmful cosines in the soil, and draw appropriate conclusions for the implementation of organic farming.

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