



Review Article

## The World's Fight Against Covid-19 in the Age of Global Climate Change

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### Abstract

Since December 2019, the world has been coping with the virus epidemic, which is transmitted from animal to human (zoonotic) and started in China. The virus, which spreads rapidly via respiratory tract and contact, causes many people to die. Biological warfare claims are still on the agenda as the reason for the emergence of the virus; However, population growth, industrialization, deforestation, urbanization, reduction of green areas, fossil fuels such as oil, coal and natural gas, which have found excessive doses since the 18th century, pollute the air by increasing carbon emissions in the atmosphere and cause global climate change. These human activities facilitate the spread of the epidemic by wild animals, which are known to be effective species in transporting viruses, while dragging them to find new habitats because they disrupt their natural habitats. It has been determined that the number of Covid-19 cases is high in places with high air pollution. While the reduction of air pollution during the mandatory isolation period of the whole world enables us to experience what will happen when fossil fuels are abandoned, it has revealed that clean air is an indispensable element for human health. The decrease in the cost of renewable energy sources has started to be considered by some countries as an opportunity to combat the climate crisis and epidemic. In this study; the link between climate change and Covid-19; air pollution, drought, water crisis and food security with aspects have been addressed.

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### KÜRESEL İKLİM DEĞİŞİKLİĞİ ÇAĞINDAKİ DÜNYANIN COVID-19'LA MÜCADELESİ

#### Özet

Dünya, yaklaşık dokuz aydır hayvandan insana geçerek (zoonotik) Çin'de başlayan virüs salgını ile baş etmektedir. Solunum yolu ve temas ile insanlar arasında hızla yayılan virüs birçok insanın hayatını kaybetmesine yol açmaktadır. Virüsün ortaya çıkma sebebi olarak biyolojik savaş savları da halen gündemde yer almakta; fakat nüfus artışı, sanayileşme, ormansızlaşma, şehirleşme, yeşil alanların azalması, 18. yüzyıldan itibaren kullanımı aşırı dozları bulan petrol, kömür, doğal gaz gibi fosil yakıtlar atmosferde karbon emisyonlarını arttırarak havayı kirletmekte ve küresel iklim değişikliğine sebep olmaktadır. Bu insan faaliyetleri, canlıların doğal habitatlarını bozması nedeniyle onları yeni yaşam alanı bulmak için göçe sürüklerken virüsleri taşımakta etkin türler olduğu bilinen yaban hayvanlarının salgını yaymasını kolaylaştırmaktadır. Hava kirliliğinin yüksek olduğu yerlerde Covid-19 vaka sayısının fazla olduğu saptanmıştır. Tüm dünyanın zorunlu izolasyon döneminde hava kirliliğinin azalması, fosil yakıtlar terk edildiğinde neler olacağını tecrübe edinmemizi sağlarken temiz havanın insan sağlığı için vazgeçilmez bir unsur olduğunu ortaya

Anahtar Kelimeler

Covid-19  
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Salgın

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koymuştur. Yenilenebilir enerji kaynaklarındaki maliyetin düşmesi, kimi ülkeler tarafından iklim krizi ve salgın ile mücadelede fırsat olarak değerlendirilmeye başlamıştır. Bu araştırmada; iklim değişikliği ile Covid-19 arasındaki bağlantı; hava kirliliği, kuraklık, su krizi ve gıda güvenliği yönleriyle ele alınmıştır.

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## INTRODUCTION

After the first case was seen in China in the last month of 2019, the spread of Coronavirus to the world took place in a short period of time. As of June 08, 2021, the total number of Coronavirus cases in the world was 173.331.478, and the total number of deaths was 3.735.571 [1]. The first case was seen in Turkey 11 March and after that the total number of cases reached 5.300.236, and the total number of deaths live up to 48.341. [2]. In order to prevent the deadly virus from spreading between humans, curfews were imposed and almost all workplaces were closed. Staying at home until June 2020, the economy slowing down; the decrease in greenhouse gas emissions caused by the use of fossil fuels from travel and domestic modes of transport reduced air pollution. The high number of Covid-19 cases in areas with high air pollution increases the risk of infection [3]. Another problem tackling air pollution is global climate change. Factors such as excessive use of fossil fuels such as coal, petroleum and natural gas, uncontrolled population growth, industrialization, deforestation, urbanization, changes in the use of agricultural lands increase greenhouse gas emissions and accelerate climate change. Since the integrity of the ecosystem is disrupted due to deforestation, viruses are transported while living things migrate to new habitats. In addition, pesticides used in agricultural products pollute the soil and water resources; exposure to air pollution in addition to staying on food weakens the immune system and increases the rate of catching the virus. If emissions increase is not prevented and action plans for climate change are not implemented, more epidemics will be encountered in the coming years; the only thing that changes will be the names of the epidemics.

As the global energy demand declined, oil prices dropped this much for the first time in history. Less use of fossil fuels not only reduces global greenhouse gas emissions, but also enables many countries to prioritize renewable energy sources, to shut down coal-fired power

plants, to focus on bicycles and public transport in world cities and to try to reduce automobile emissions. Covid-19 shows how important air quality is for a healthy life. In the fight against the virus, each country reacts differently and takes measures, and there is a process in which the most radical decisions have to be made. Scientists' climate change forecasts should be taken into account before it is too late, climate change action plans should be prepared and implemented immediately, investment in renewable energy resources should be made in the economy packages for the exit point from the epidemic, and green and breathable cities should be designed.

The aim of this study; is to reveal that there is a close relationship between climate change and Covid-19 and that the solution to these two global problems goes through the same path. In other words, it was aimed to draw attention to the fact that if the climate crisis can be stopped, the Covid-19 epidemic will also ease. Air pollution, drought, water crisis and food security issues have been examined in detail to reveal the tight relationship between Covid-19 and climate change.

## **DISCUSSION**

Since December 2019, with the emergence of the new type of coronavirus epidemic in the animal market in Wuhan, China and spreading in other countries, a state of emergency has been declared by the World Health Organization (WHO), taking into account public health, curfews in many countries, especially China and Italy. A ban has been imposed. Since the virus epidemic was seen in China, it is stated that the highest number of cases and deaths are over 60 years old. Scientific Committee Member Prof. Dr. Ateş Kara explained that most of the cases are seen in people over 40 years of age [4]. According to the data of the Ministry of Health, 67% of those who lost their lives due to the epidemic in Turkey are men and 33% are women [2]. 0.8% of cases in Germany are under 5 years old, 2% are 5-14 years old, 70.6% are 15-59, 19.2% are 60-79, 7.4% are 80 constitutes the age. That is, the average age of contracting the disease is 49; but deaths are mostly seen at the age of 60 and above. In Turkey, 70% of those caught in the epidemic are under the age of 60, as a result, there is no age for the epidemic, which has been tried to be presented as an elderly disease from the very beginning [5].

According to a report of a study conducted in the USA, it highlights the concept of biological weapons in revealing new viruses. [6]. From the moment the new type of Coronavirus turns into a deadly disaster, conspiracy theories have been produced such as the biological weapon produced in laboratories by the USA or another country, or the pandemic being transmitted

from animals to humans because animals such as mice, snakes and bats were consumed in China [7]. According to Sheridan, the existence of countries with a secret biological armament calendar such as China, Russia, North Korea and Iran is correct; but Covid-19 virus is not a biological war [8].

In a study conducted by Jones et al. (2008), 71.8% of animal-to-human (zoonotic) viruses originate from wild animals, and it was found that 60% of infectious diseases occurring for 80 years are zoonotic [9]. In the study of Osman Sağdıç et al. (2020), no data was found showing that the Covid-19 virus, which started zoonotically, is transmitted by human-to-human contact and respiration, is transmitted from food [10].

### **COVID-19 AND CLIMATE CHANGE**

It is possible to classify climate-related infectious diseases as the common cold, flu and Covid-19 that spread directly among humans, or diseases such as malaria and West Nile virus are transmitted by mosquitoes. Under normal conditions, mosquitoes are not a concern for our country as they are not seen at low temperatures. However, due to the increase in temperatures and changing climatic conditions, there is a possibility of epidemic diseases such as malaria in the future. In tropical areas, outbreaks spread over a whole year; because the temperature is close to each other in all seasons. The temperature is likely to increase with the effects of climate change in Turkey with a year to virus epidemics spread of disease and the frequency is expected to decrease the severity [11]. As a result of the data collected from 149 different provinces, including China, it has been stated that even if the temperature increases in the Northern hemisphere decreases the amount of Covid-19 cases, there will not be a significant decrease [12].

Until 2070, it is predicted that diseases such as West Nile virus will be seen frequently due to climate change and approximately 1 billion people will be affected [13]. Industrial animal husbandry practices, environmental pollution and climate change cause the new type of Coronavirus to be mutated [14 and 15].

Factors such as industrialization, urbanization, opening up agricultural lands, deforestation, and draining wetlands cause climate change. Increasing epidemics is among the known effects of climate change. While the changing climate causes living things to migrate to find other habitats, it is possible for any virus to be transported to different regions. However, viruses that infect animals and plants as well as zoonotic viruses may increase. In such a scenario, it is

inevitable that the use of chemical pesticides to eradicate harmful species will pollute soil and water, while naturally resulting in the decrease of food production and restriction of food access [16].

Deforestation, opening up agricultural areas, commodification of natural resources, etc. Common causes that accelerate climate change and the illegal sale of wild animals disrupt ecosystem integrity, facilitating the spread of viruses. Therefore, stopping the sale of wild animal species, preventing the extinction of flora and fauna species, ensuring the protection of habitats, recovering damaged ecosystems, donating sustainable agricultural activities, shifting at least 50% of economic investment targets to renewable energy after the epidemic, the aim should be to reduce its domination [17].

According to Türkeş, the damage caused by people to the environment such as deforestation, ecosystem destruction, biodiversity loss, climate change, soil, water and air pollution has a great effect on the transformation of the Covid-19 epidemic into a global health crisis, which seems to be the hottest years in the past five years [18]. Experts state that we are approaching the worst climate projections of the IPCC, melting six times more than 1990's glaciers in Greenland and Antarctica. Antarctica and Greenland lost 6.4 tons of ice from 1992 to 2017 [19]. The Copernicus Climate Change Service announced that the global temperature in 2020 was recorded as the warmest year, equaling the data from the record holder 2016 [20]. It is predicted that the increases to be seen in sea levels will drag millions of people living in coastal areas to flood disaster [19].

Climate change has been on the agenda for years; but it is just one of our global problems that is not taken seriously. The main reason for the 1°C temperature increase is that, despite the warnings made on this issue, everything remains in the contracts and in words. Extreme climatic events such as forest fires, drought, floods and storms have recently increased their frequency and intensity due to only 1°C increase [13]. Professor Richard Betts states that more frequent climate disasters will become the 'new normal' when global temperatures rise by 3°C [21]. In a study conducted by Legendre and others in the frozen lands of Siberia, two viruses that remained from 30 thousand years ago and were active were detected, if the increase in greenhouse gases is not controlled, the rising temperatures may reach a point that cannot be solved if the frozen soil melts [22].

#### **COVID-19 AND AIR POLLUTION**

The study, which was investigated a link between viruses and air pollution, was the first one in 2018. Industrial activities that have emerged since the Industrial Revolution are of human

origin and cause air pollution. Air pollution caused by humans is encountered especially in urban settlements. The increasing spread of cities, the triangle of climate change and air pollution, increases the risk of infection that causes viruses [23].

Coronavirus isolation has reduced the amount of CO<sub>2</sub> in China by 25%. This rate accounts for half of the UK's annual greenhouse gas emissions. According to Monk, vehicles are responsible for 80% of nitrogen dioxide (NO<sub>2</sub>) emissions in the UK [24 and 25]. It is observed that the rate of nitrogen dioxide (NO<sub>2</sub>) in the UK increases Covid-19 deaths in places where traffic-related greenhouse gas emissions, industrial pollution and air pollution are high. As the air quality decreases, the risk of catching Covid-19 increases [26].

According to Vincent-Henri Peuch, director of the Copernicus Atmosphere Monitoring Service, air pollution causes chronic respiratory, heart and lung diseases. Peuch believes that significant reductions in atmospheric air pollution will only provide short-term benefit at the moment when we are tackling the virus outbreak [27]. According to Kadioğlu, the virus is known to affect the lung, and thanks to quarantine, both air pollution and respiratory diseases are reduced. Therefore, it is a fact that the epidemic contributed to the climate change caused by fossil fuels. But we cannot say that it will stop climate change; because even if we reduce all greenhouse gases to zero as of now, it is expected that the existing greenhouse gases will continue their effect for another 100-200 years [28].

The Covid-19 outbreak that occurred in Wuhan, China, caused the death of many people in Italy. When the squares of Italy, which is one of the countries under curfew to reduce deaths, became empty, especially Venice became a frequent destination for dolphins and swans, and wild animals such as foxes and pigs are also displayed on the streets [29]. As the quarantine continued, the Venetian canal became clearer, as there were no gondolas. Thus, many sea creatures such as jellyfish can be seen clearly [30].

Worldwide air pollution, the average life expectancy of 3 years, 2 years in Turkey decreases. Without fossil fuel-induced greenhouse gas emissions, life expectancy is expected to increase by 1.1-1.7 years worldwide. Air pollution constitutes only one of the global health problems, it almost causes the death of people and it is in a great struggle with smoking. According to WHO, 7.2 million active and passive smokers die in the world due to smoking. Stricter air pollution measures in Australia result in the lowest Covid-19 deaths [31]. In a study conducted, it was found that individuals who are more susceptible to viral infections, formerly and currently smokers, and are over 60 years old [32].

When coronavirus-induced deaths were investigated in 66 regions of Italy, Germany, Spain and France, it was found that the death rate was high in places with high nitrogen dioxide



(NO<sub>2</sub>) rates in cities such as Northern Italy and Madrid, where 78% of air pollution is high. The pollution caused by the vehicles is also taken as the benchmark [33]. In Northern Italy, one of the dirtiest regions, air pollution is quite interestingly clustered in the Alps, at the end of the Po Valley. The amount of nitrogen dioxide (NO<sub>2</sub>) decreased by 40% in Milan and Northern Italy only in the second week of the quarantine [31 and 34]. Air pollution is one of the reasons why there are so many deaths in northern Italy. For this reason, while the Covid-19 mortality rate is 12% in the northern region with high air pollution, it is 4.5% in the rest of Italy. No matter how healthy and young individuals are, chronic respiratory diseases come to the fore if they are in the area of air pollution for a long time [35].

In the USA, 1 mgr PM 2.5 increase in m<sup>3</sup> increases the Covid-19 mortality rate by 15%. Exposure to even a small increase in air pollution for 15-20 years can lead to death, while the mortality rate due to Coronavirus is 20 times higher with the increase of PM 2.5. During the Covid-19 health crisis and after the crisis is over, it is important to manage air pollution in order to protect public health [36].

According to the latest research of the Center for Energy and Clean Air Research (CREA), quarantine decisions taken in the process of dealing with Coronavirus, the share of coal in electricity generation has decreased to 37%, air pollution is noticeably reduced and air quality is 11,000 early in Europe prevented death. The 1.3 million decrease in the daily work pace prevented 600 preterm births, 1,900 emergency patients with asthma attack complaints and 6,000 new asthma diagnoses in children. It is experienced how air quality and quality of life increase when fossil fuels are removed from our lives, even if not consciously. At the end of the epidemic, it is a great opportunity for states to offer a life without fossil fuels to communities and to turn to renewable energy sources [37].

Paul Monk, professor of air pollution at the University of Leicester, simulates that we suddenly find ourselves in the middle of a global experiment. The trailer of a carbon-free life (Either Zero Carbon or Zero Future), which is the first request of climate strikes, which has been described in Climate Summits for years and is being supported by each country, is being shot. Who knows, maybe the global pandemic threat helps us find the right way; remember nature again [25].

April 4, 2020 day, was more than the population covered by the measures taken against Coronavirus in Turkey in 30 metropolitan cities on the grounds, it was explained that in addition to the Zonguldak province removed the lungs and on the basis of their high respiratory diseases inputs and outputs. While it is reasonable to isolate 30 metropolitan cities in order to prevent crowds and protect social distance, the inclusion of the city of Zonguldak

in isolation does nothing but coal. In a study conducted in 2018, data was obtained that the air pollution in four coal-fired thermal power plants in Zonguldak is well above the values accepted by WHO [38]. Coal powders, wastes from the mine [38]; Toxic fumes from thermal power plants pollute fertile agricultural lands, forests and water reserves; upset the habitats of flora and fauna. As if coal-fired thermal power plants increase the risk of chronic lung diseases such as asthma, bronchitis and COPD caused by poor air quality, cancer cases are also increasing.

It is worth to remember that the majority of electricity generation is provided from coal in Turkey. The health bill paid by coal-fired power plants to our country; The onset of approximately 3,823 chronic bronchitis in adult individuals, 4,311 admissions to health facilities, 637,643 lost working days occur as premature deaths of 2,876 people each year [39]. In Zonguldak, despite the struggle of the people, it is known that coal-fired thermal power plants were built, and an oncology hospital was built nearby for the care of patients with respiratory failure as if mockingly [40]. While the operation of the old power plants, which have been working for years without changing their filters, has not been stopped, the Minister of Energy and Natural Resources Fatih Sönmez stated that in 2018, 101.5 million coal was mined and a record was broken in the history of the Republic [41], ex-minister Albayrak's press statement that more hard coal and lignite will be used for electrical energy as the goal of 2023 [42]; In order to protect public health during the pandemic period, taking strict measures by "becoming aware of" the city of Zonguldak, which breathes this polluted air, while trying to form a national energy policy and reduce energy dependence on other countries, it brings fossil fuels to the forefront and makes people think about what will happen to human health.

#### **COVID-19, DROUGHT AND WATER CRISIS, FOOD SECURITY CYCLE**

Water is life, and 3 out of every 10 people in the world cannot reach clean water [43]. 25% of the global population is currently experiencing a water crisis, and it is predicted that this rate will reach 60% by 2025 [44]. Excessive use of water should be avoided nowadays, where the importance given to cleaning is increasing. Emergency action plans should be prepared for future water shortages. According to data from 2017, approximately 1.5 million people lost their lives due to insufficient sanitation and limited clean water. Today, 22% of health institutions in underdeveloped countries cannot even meet simple water services and 2.2 billion people live without reliable water resources. In the face of the Covid-19 virus crisis, it is seen that all institutions and countries cooperate for public health. When the epidemic is



over, water is a right for all people, and plans such as global fair distribution, protection of water resources, improvement of health conditions, increasing the number of beds in the hospital and creating a more sterile working environment should be established [45].

TEMA Foundation Deputy General Manager Dr. Hikmet Ozturk said that approximately 47% of agricultural land in Turkey was under threat of desertification because of erosion. Erosion is observed in 64% of pastures and 59% of agricultural lands. The top layer of soil is very valuable, and productivity decreases due to the loss of 640 million tons of soil every year. The use of chemical fertilizers generally destroys the soil to increase the reduced yield. Climate scenarios indicate that precipitation in our country will decrease by 25% by 2050. As of 2019 in Turkey (DSI) freshwater amount of 112 billion m<sup>3</sup>. Kadioğlu, by saying that we will be using this entire amount in 2023, draws attention to the importance of saving, which 70% of water resources are used in agriculture [46].

It is stated that the invasion of desert locusts, which occurred with the rains seen in Somalia, Kenya, Djibouti, Eritrea, Tanzania, Sudan, South Sudan and Uganda in Africa a while before the coronavirus, was the biggest disaster experienced since 1950. Grasshoppers, which can move 150 kilometers every day, have been devastating the fields for months. It is known that approximately 40-80 million locusts consume 35 thousand people in a day. Because people's food security is at great risk, most people think that locusts are more dangerous than the Coronavirus. The Food and Agriculture Organization of the United Nations (FAO) has announced that the locust infestation has damaged 200 thousand hectares of agricultural land in Ethiopia. The second expected grasshopper infestation wave is expected to have a 20 times greater impact than the first [47, 48, 49]. Desert locusts roam in herds and reproduce more frequently in places where temperature and water resources are high. The fact that Turkey climate does not allow the locusts in living conditions for the moment, especially in the summer months if adaptation measures to climate change that does not mean they will not be the locusts our country [50].

According to the World Health Organization (WHO), 250,000 deaths are predicted annually due to heat, malnutrition, malaria and diarrhea during 2030-2050 due to the changing climate [51]. The pandemic shows that the global food order that has been going on for years should be questioned and now something needs to change. The fact that seeds, fertilizers and pesticides are held by companies (such as Monsanto, Bayer) that will not exceed the fingers of one hand causes countries to abandon production and become dependent on other countries. In many countries, food exports to Turkey, which unfortunately continues to manufacture import-pass ratio. Whereas cooperation with local governments providing new,

sustainable agricultural policies created if Turkey could meet the former leading manufacturer country [3].

While trying to cope with the World Coronavirus epidemic, nature has been in trouble with the Olive Leprosy, which is known to be seen for the first time in 2013. The disease, which started in Italy and spread to Portugal after Spain, caused the death of more than 1 million trees. Leprosy, which also infects other tree species, has now made Greece risky. Ensar Aytakin, CHP Balıkesir Deputy, said that leprosy would leap from European countries and look like Covid-19 if no action is taken as soon as possible; however, it expresses that it will bring the threat of an agricultural crisis to the brink [52].

Considering that the elderly population is the age group most affected by Coronavirus, it is a normal result that this population will be more affected if the weather is warmer. The risk of forest fire increases with the decrease in rainfall, excessive increase in temperatures, we are entering a period of caution as the smoke generated during the fire will put people with respiratory diseases in a difficult situation in terms of health, weakening the immune systems by affecting the lungs and increasing the rate of catching the virus [53].

Bundelkhand - India has experienced drought threats 13 times in the past two decades. Every year, 297,000 children (0-5 years old) around the world die from lack of reliable water supply and hygiene. In India, 82% of rural settlements, a total of 146 million residences do not have access to city water [54]. The UN states that if this epidemic spreads in underdeveloped countries with limited access to clean water and adequate food, millions of people could die. Parallel to the fact that the world population is around 11 billion in 2100, the food requirement is expected to increase. With the opening of more agricultural areas in order to meet production, the change in the use of lands is a factor that accelerates the increase of both climate change and species loss. When the change of climate changes the habitats of living things, species can migrate and accumulate in another area, and species that cannot keep up can disappear completely. As the natural habitats of the creatures are destroyed, wild animals such as bats and mice are quite successful in carrying viruses, but they are clustered in different regions and spread epidemics [18].

Quarantine measures in Italy coinciding with the harvest of agricultural products (2020) and since 1960, Italy's driest spring season puts food security at risk [55]. Last year, the quarantine coinciding with the harvest and planting of agricultural products could have caused sustainability issues in our access to food. Crop diversity and climate in Turkey, where imports are increasing, are suitable for purchasing products several times a year. Agriculture

and economy writer Ali Ekber Yıldırım says that if there is a sudden food shortage in the country, wrong policies will be responsible for this shortage [56].

With the closure of the country borders, which is one of the measures taken by the governments with the coronavirus, the international food supply order is suspended and it is understood how important domestic production is. Floods, inefficiency of soils, changing climate and drought increase the dimensions of the food crisis [57]. During the quarantine process, people flock to the markets with the urge to go store food and eat food at home; that will make you feel the pressure of climate change effectively and extensively in natural resources, Turkey is waiting at greatest risk because of desertification [18].

Turkish Agriculture Engineers Association Chairman Fehmi Kiraz, farmers' villages, not to go to the city to leave their fields will increase the return on profit of agricultural production in the next few years, as today foreseeing the experienced health and food crisis, the national food production in Turkey and in the world he stated that it will come to a very important point [58].

In this period when Covid-19 affects every sector, Bulgaria makes it compulsory to sell local products in markets to protect the rights of farmers and to ensure food sustainability. 90% of milk and dairy products sold in supermarkets must be locally produced, and the products purchased to producers will be paid within two weeks at the latest. Moreover, it has been announced that companies that buy peppers, tomatoes and cucumbers from certain producers' greenhouses will be donated to cover their expenses. However limited seed in Turkey assistance is made and grants of 2019 is not yet paid, we have to return to domestic production, the doors are opened to imports by reducing the tax on us sufficiency opportunity while some agricultural products [59].

The world population is increasing in parallel with meat consumption. It is seen that fertile agricultural lands or forests are reserved for animal husbandry in order to meet the meat demand. According to Food Engineer Bülent Şık, pesticides used in excessive amounts during soy and corn production, which are used as feeds for the animals in question, decrease biological diversity and decrease productivity in production; it causes pollution of soil and groundwater. Each year, 3 million tons of pesticides is much used worldwide, this ratio is 60 thousand tons per year in Turkey [60]. Stylish, minimizing the use of toxic substances in agricultural production, production methods that allow a wide range of biodiversity, transition to cooperatives providing regional production and consumption, protection of vulnerable profile groups such as refugees, elderly and children in rural areas, all of which are the rings of the chains. The presence of toxic chemicals (pesticides) on food in agricultural products,

exposure to bad air quality in the living area for a long time increases the risk of developing epidemic diseases by collapsing the body's immune system. As a matter of fact, if the use of toxic substances such as pesticides, the impact of biological diversity and the destruction of forests continue, it is not surprising that only epidemic diseases, whose names have changed, will continue to increase [61].

In the Amazon region and Australia, forest fires, triggered by deforestation, extreme heat and drought, started in the summer of 2019 and lasted for months, which are very difficult to control. According to the Brazilian Space Research Institute (INPE) data, there were more than 83,000 forest fires in the Amazon in 2019 [62]. It is known that the area of 800 km<sup>2</sup>, which was ash until April 2020, causes 55% more forest loss than the same period of 2019. It is underlined that in the fires that occurred in the Amazon, 2,000 km<sup>2</sup> of forest was destroyed and forest fires increased by 83% in 2019 [63]. Climate expert Katharine Hayhoe's discourse, "We see that what we say will happen is happening in real life" [64], signals that if we cannot continue to use fossil fuels and reduce the CO<sub>2</sub> ratio in the atmosphere to the desired level, we will go on an irreversible path [18].

The forest fires that broke out in Australia in September before the Covid-19 new type of virus could only be controlled in mid-February. The biggest factors in the inability to extinguish fires are hot weather and drought. The drought is expected to increase food prices drastically in Australia by about 3.2% within five and a half years [65]. In the forest fires in Australia, which lasted for months, 33 people, 8 thousand koalas and 1.25 billion wild animals lost their lives, 113 animals lost more than 30% of their feeding areas, 11 million hectares of forest were wiped from the earth. It is known that 67 thousand people were evacuated in Victoria when more than one house was destroyed, and the property damage exceeded 700 million Australian dollars (485 million US dollars). [66 and 67]. The starting point of forest fires in the Amazon is a dry and dry summer climate besides the uncontrolled cutting of trees.

The health of the tribes is also disregarded as if it was not enough for the people involved in the deforestation to disrupt the ecosystem and affect the sustainability [68]. For example, on April 9, 2020, a 15-year-old boy died on Amazon due to Coronavirus. Amazon society has very limited access to water, food and healthcare. Since they live a life far from the civilizations in the periphery, their immunity against infections is weak. Despite travel restrictions and calls to stay home, oil extraction and the continuing legal and illegal mining activities suggest that illegal miners may have infected the region [69].

If the drought in Germany since 2018 continues, it is predicted that the farmers will be in a difficult situation and an economic crisis may occur. Closing the borders within the scope of coronavirus measures reduces food security to a dangerous position. In addition, the fact that drought will cause large forest fires raises concerns [70]. Siberia, Canary Islands, Alaska, Denmark, in addition to Amazon and Australian bushfires; In Turkey, Mardin, Çanakkale, Bursa, Balıkesir, Eskisehir and forest fires occurred in Izmir. General Directorate of Forestry (OGM) states that by the last quarter of August in 2019, 1,377 forest fires broke out, 3,191 hectares of land were destroyed in these fires and approximately 8-10 thousand hectares of forest land were burned every year in our country [71 and 72].

On 26 April 1986, one of the reactors at the Chernobyl Nuclear Power Plant is one of the biggest environmental destruction due to a huge explosion occurred in Turkey from this historic event, which is greatly influenced. It is known that the forest fire that broke out in Ukraine on April 4, 2020 reached the place where the nuclear waste was accumulated in the Chernobyl power plant and affected an area of 3500 hectares in four days [73].

When we classify according to the type of disaster is a long time in Turkey and the world geological disasters (earthquakes), biological disasters (epidemics) and social disasters (fires, migration) are struggling with [74]. The conclusion that the latent danger awaiting the world may be climatic disasters (heat / cold waves, drought, typhoon, flood, air pollution) is not considered unfair if it is evaluated in a current framework that increases the impact and frequency of global climate change; But scientists have been highlighting what awaits our planet in climate studies for years and underlines the need to take measures with an orange highlighter like the rapid increase in global temperature values. Covid-19 shows that we should be prepared in advance for the next threat, global climate change. The rightful predictions and findings of scientists should be followed and action should be taken as soon as possible.

## **CONCLUSION**

Since December 2019, the new type of Coronavirus, which has emerged in the animal market in Wuhan, China, where the wild animal trade is carried out, has become a global epidemic and causes the death of many people. Climate change, another global problem that has been going on for years, is still up-to-date because bold steps have not been taken. Factors such as urbanization, reduction of green areas, industrialization and deforestation, which cause climate change, seem to be mainly related to the virus. Industrialization and the stagnation of transportation cause less use of fossil fuels and decrease in air pollution. As air pollution increases, the rate of catching the virus increases, which makes the importance of clean air

visible. Countries that take Covid-19 as an opportunity are accelerating the transition to renewable energy sources and giving more space to bicycle paths to purify cities from vehicle emissions. In order to prevent climate change, which is the next threat awaiting the world, the climate crisis, like the Coronavirus, must be taken seriously and critical measures must be taken. Renewable energy sources are now low cost. For this reason, energy demands should be met with solar and wind energy, coal-fired thermal power plants should be completely shut down, fossil fuels should be left underground. Creating green areas for people to breathe, creating wide bicycle paths, reducing the need for private vehicles by providing metro routes to everywhere in the city, and planning cities in a healthy and sustainable way will increase the life expectancy of people and increase the quality of life.

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