

AIR POLLUTION IN KAZAKHSTAN

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What could be done to reduce smog in Kazakhstan?

The problem of air pollution in Kazakhstan is becoming more and more urgent. According to a World Bank study released in December 2021, Kazakhstan loses 6,000 to 9,360 individuals prematurely each year because of poor air quality (*Air Quality and Decarbonization: How to Balance Two Important Issues*, 2022). Thus, the main goal of the study is identifying and propose effective measures to reduce the risks caused by smog and improve air quality in Kazakhstan. The study assesses the current state of air pollution in the country and looks for practical recommendations to reduce smog level and associated environmental and health risks. In addition, with the help of primary sources, especially by conducting a survey that collects information about the experiences of residents and analyzes them from the perspective of residents.

In a result, the survey and study found that reducing potential pollution and improving air quality in Kazakhstan requires a multifaceted approach, including stricter vehicle emission regulations, industrial technology upgrades, promotion of renewable energy sources, and improved energy efficiency (*About the Concept for the Transition of the Republic of Kazakhstan Towards a Green Economy*, 2013). The current actions of the commitment to carbon Neutrality and initiatives to expand the renewable energy market are positive steps towards reducing air pollution and achieving sustainable development in the country (*First Ever Local Auction to Boost Kazakhstan's Renewable Energy Market*, 2020), but unfortunately not all citizens are informed about these actions of the state. "Decarbonizing the energy sector can bring two benefits: reduce carbon emissions and contribute to mitigating climate change; and by switching to cleaner fuels, reduce emissions of pollutants into the atmosphere from fuel combustion," notes Andrey Mikhnev, World Bank Resident Representative in Kazakhstan (World Bank in Kazakhstan, 2023). Residents, in turn, fully understand the harm and causes of smog, further public support will help citizens to individually take action in the fight against smog.

How to reduce the industry's impact on pollution

Secondly, outdated industry technologies have a strong negative impact on air quality. In Kazakhstan, where almost 70 percent of electricity is generated from coal, PM_{2.5} levels are 4.4 times higher than the WHO recommended levels. The main sources of air pollution in cities are stationary types of thermal power plants, boiler houses, vehicle emissions, construction sites, cement plants and asphalt concrete plants. Andrey Mikhnev, World Bank Representative in Kazakhstan notes: "Today, the energy sector accounts for approximately 80% of carbon emissions in Kazakhstan. Therefore, decarbonizing the energy sector can have two benefits: it can reduce carbon emissions, which helps mitigate climate change, and it can reduce air pollution from fuel combustion through a switch to cleaner fuels" (World Bank in Kazakhstan, 2023). Moreover, energy efficiency is a measure of a country's industrial sector's potential to impact air quality. indicates the use of outdated technologies that tend to emit more air pollutants (United Nations Environment Programme, 2016). By 2030, alternative solar energy could provide up to 15% of Kazakhstan's energy needs, making it an important alternative energy source for the rural population within a decade. Currently, 2.3 percent of the total energy production in the country comes from renewable sources (First-ever local auction for the development of the renewable energy market in Kazakhstan, 2020).

Conclusion

To summarize, technological advances have now brought us to one of the major problems of air pollution. Dust is classified as hazard class three, but there may be toxic chemical elements in general urban dust, which unfortunately hygienists rarely take into account. Therefore, to protect citizens, the causes must be fully investigated, and measures taken to clean the air as much as possible. It is not only eco-activists who are involved, but also the state. For example, to counteract the adverse effects of accelerated economic growth, the Government of Kazakhstan adopted a new Environmental Code on 9 January 2007, which regulates all aspects of processes affecting the environment, in particular emissions of gases and other pollutants into the atmosphere, contains general rules used to control and industrial emissions in Kazakhstan. Despite this, the country's emission standards are significantly higher than in Europe (*About the Concept for the Transition of the Republic of Kazakhstan Towards a Green Economy*, 2013).

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