Committee: UNEP (UNITED NATIONS ENVIRONMENT PROGRAMME)

Topic: the Influence of COVID-19 on the Environment

Country: Iran

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COVID-19 is spreading globally, which is not merely a health problem, but also affects the world economy and the environment in diverse ways.While COVID-19 is causing severe damage to economies and societies, it has augmented the environment as pollution has reduced significantly. Due to COVID-19, governments have imposed restrictions on the movement of people, vehicles, and suspended industrial activities. The consequences of such lockdowns have been remarkable, as pollution levels have dropped significantly; for instance, greenhouse gas emissions, nitrogen dioxide, black carbon and water pollution have decreased drastically.

The first novel coronavirus case was confirmed in Iran in mid-February 2020. This followed by the enforcement of lockdown to tackle this contagious disease. This study aims to examine the potential effects of the COVID-19 lockdown on air quality in Iran. From 21st March to 21st April in 2019 and 2020, The Data were gathered from 12 air quality stations to analyse six criteria pollutants, namely O3, NO2, SO2, CO, PM10, and PM2.5. Due to the lack of ground-level measurements, using satellite data equipped us to assess changes in air quality during the study on Iranian megacities, especially in Tehran. In this city, concentrations of primary pollutants decreased with spatial variations. Although, still SO2, NO2, and PM10 exceeded the WHO daily limit levels for 31 days, 31 days, and four days, respectively. Conversely, O3 and PM2.5 increased by 0.5–103% and 2–50%. In terms of the national air quality, SO2 and NO2 levels decreased while AOD increased during the lockdown. Unfavourable meteorological conditions hindered pollutant dispersion. Moreover, reductions in the height of planetary boundary layer and rainfall were observed during the lockdown period. Despite the adverse weather conditions, a decrease in primary pollutant levels, confirms the possible improvements on the air quality in Iran.

The current study showed the COVID-19 lockdown positively affected Iran's air quality, especially Tehran. Due to the reduced road traffic and economic activities, a reduction in the level of CO, NO2, SO2, PM10 despite the unfavourable weather conditions was observed in Tehran. In contrast, the Ozone and PM2.5 concentrations were increased. It is necessary to mention that the effect of weather conditions on pollution levels needs further analysis in the future. The pandemic lockdown in Iran clearly showed that it is possible to have significant air pollution reduction in megacities by effective traffic control programs along with the promotions of green commuting and the technologies to expand remote working. Iran believes that in order not to encounter an increase in the air pollution and warmth, we should have a lockdown for a given period.