

Air pollution in Iraq and ways to reduce pollution

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ABSTRACT

Air pollution in Iraq is a major environmental and public health problem. The main sources of air pollution in Iraq include fossil fuel combustion, industry, power generation, transportation, heating, brick and cement industry, oil industry, transportation, agricultural fires, dust storms and domestic and public generators. Air pollution in Iraq has a significant negative impact on human health. Air pollution is estimated to cause tens of thousands of deaths in Iraq each year. Air pollution is also linked to a range of other health problems, including respiratory infections, heart disease, cancer and stroke.

Introduction

Air pollution is a significant environmental problem that has serious implications for human health and the ecosystem [1]. It is caused by various harmful gases and particles released into the air from sources such as household combustion devices, motor vehicles, industrial facilities, and forest fires [2]. These pollutants, including particulate matter, carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide, can have detrimental effects on respiratory health and are associated with diseases such as strokes, heart diseases, lung cancer, and respiratory illnesses [3]. Additionally, approximately 2.4 billion people are exposed to dangerous levels of household air pollution from cooking fuels [4]. Prolonged exposure to air pollutants can lead to long-term complications, including respiratory and cardiovascular diseases, neuropsychiatric disorders, skin diseases, and cancer [5]. Low- and middle-income countries are particularly vulnerable to the negative effects of air pollution because pollution levels often exceed recommended limits. In addition to affecting human health, air pollution also contributes to climate change [6]. Activities that pollute the air, such as burning fossil fuels, release greenhouse gases into the atmosphere [7]. Therefore, policies aimed at reducing air pollution can have beneficial effects on both climate change mitigation and public health. To effectively combat air pollution, sustainable measures

must be implemented. This includes promoting cleaner domestic energy sources for cooking and heating, implementing energy-efficient transportation systems, using renewable energy production methods, improving waste management in cities and applying sustainable land use planning by combining these strategies with sectoral policies related to energy, transport, housing and urban development, countries can significantly reduce the health risks associated with copper air pollution [8]. While contributing to global climate change goals. In conclusion, air pollution is an urgent problem that poses a serious threat to human health and the environment. It is caused by a variety of sources and leads to respiratory and cardiovascular diseases, cancer, and other long-term complications [9]. To combat air pollution, comprehensive strategies must be implemented to combat multiple sources of pollution and promote sustainable practices in sectors such as energy, transport and waste management. By prioritizing these initiatives, countries can improve air quality, protect public health and contribute to the global effort to combat climate change [10].

Importance of addressing air pollution in Iraq

Air pollution is a pressing problem in Iraq, caused by factors such as power plants, generators, transportation and waste burning [11]. Gaseous pollutants have reached alarming levels, leading to respiratory problems, reduced lung function, cardiovascular disease and increased risk of bacterial and viral infections [12]. Addressing air pollution is vital for public health, environmental sustainability and economic benefits. By implementing policies to reduce pollution, Iraq can improve public health, contribute to climate efforts and promote economic growth. Immediate action is needed to create a cleaner and healthier environment [13].

Sources of air pollution in Iraq

1. Fossil fuel combustion

The burning of fossil fuels is the main cause of air pollution in Iraq, releasing toxic gases and particles into the air [14]. These pollutants have a negative impact on human health, leading to various diseases and even cancer. Long-term exposure to poor air quality increases morbidity and mortality, especially cardiovascular and respiratory diseases. Major sources of emissions include industry, transportation, energy production, heating systems and agricultural wildfires [15]. Air pollution has increased significantly in cities such as Tehran and Ahvaz over the past two decades. To solve this problem, it is necessary to take practical measures such as implementing management policies with air quality standards, monitoring air quality in large cities, and imposing high taxes on those who pollute and improve public transportation to reduce dependence on private vehicles [16].

2. Industrial emissions

One major cause of air pollution in Iraq is industrial emissions that releases huge amounts of harmful gases and particles into the air [17]. There is an adverse impact on human and environmental health leading to respiratory problems, cardiovascular disease, and enhanced infection risk [18]. This necessitates the adoption of measures such as adoption of cleaner production; use of cleaner energy; improved public transport; improves in waste management system; and implementation of high emission regulation with tax. The country should tackle industrial emissions and take some measures in order to minimize air pollution that adversely impacts human health and the environment [19].

3. Energy production

Energy production dominates air pollution in Iraq by emitting CO, CO₂, NO_x, SO_x, O₃, suspended particles, polycyclic aromatic hydrocarbons and heavy metals [20]. For instance, these

pollutants are released as a result of combustion of fossil fuels, industry, transportation, energy production, heating, brick and cement manufacturing, oil, agricultural fires, dust storms, and domestic and public generators. It is very unfortunate that the quantities of these pollutants in most regions of Iraq often go above the national and international standards [21]. Addressing this problem will require a shift toward cleaner, renewable energy sources; stricter regulation of pollution from factories and vehicles; improved waste management practice to cut down open burning; and investment in public transport systems [22]. Some of these actions may reduce air pollution, and lower the adverse impacts on the atmosphere, and human health.

4. Transportation emissions

The air pollution in Iraq is largely contributed by motor vehicle transportation emissions [23]. These include carbon monoxide, nitrogen dioxide, and particles. Cars make up 80% of the air pollution in Tehran whereas motor vehicles significantly contribute to the CO gas emissions in Iraq as a whole [24]. The situation is however compounded by the use of nonstandard motor engines and carburetor vehicles. Therefore, cleaner forms of transport such as electric vehicles and vehicles equipped with sophisticated emission controls should be promoted to address the challenge. It is also important to improve the quality of fuel and introduce a higher standard for road vehicle emissions [25]. Public transportation systems also make a lot of investments on promoting the transition from private vehicles to green modes of movement. By using these approaches, Iraq will be able to decrease transport-related air pollution and enhance air quality for its citizens.

5. Heating emissions

Air pollution from heating emissions in Iraq is mainly a result of burning solid fuels for domestic use [26]. Insufficient ventilation makes it worse, especially when it comes to the indoor air pollution. It is recommended to limit the amount of time one spends in highly polluted regions, avoid rigorous exercise during severe pollution events and make use of efficient air filters for masks. There should be urban planning that takes serious pollution sources away from schools and hospitals [27]. Reduction of indoor pollution can be achieved by improving air filtration and ventilation systems in buildings. It is crucial that children have access to green spaces. The challenge to address air pollution in Iraq should entail reducing emissions from heating sources as well as protecting certain at-risk groups [28].

6. Brick and cement industry emissions

Iraq's brick and cement industry is a major source of air pollution, emitting gaseous pollutants, suspended particulates, and heavy metals into the atmosphere [29]. These gases released from the industry include CO, NO_x, SO_x, and O₃ in the atmosphere resulting from activities such as cement manufacturing and dust storms as part of the industry. PM_{2.5} levels from brick kilns from greater Dhaka surpassed the WHO guideline by 136 percent [30]. These pollutants are very toxic and cause respiratory and cardiac diseases, cancer and even birth defects. Addressing this problem requires tighter regulations on the combustion of fuels as well as appropriate dust control measures [31]. Moreover, they can encourage cleaner energy sources and invest in new technologies that will assist in reducing the concentration of pollutants in Iraq's air.

7. Oil industry emissions

Air pollution is an issue that is particularly prevalent in the oil industry of Iraq. Failure to protect in oil production has resulted into pollution and excess of natural gas that has caused asthma, lung diseases and cancer [32]. Second in the world today in greenhouse gas emissions

from flaring, Iraq. However, local organizations are calling for the cessation of flaring, among other environmentally conscientious practices. Despite the existence of legal measures to control pollution, they have no severe penalties or fines on the big polluters. It is necessary for environmental impacts to adequately be assessed and the burning of the gas [33]. The health and wellbeing of the population in Iraq requires addressing the oil industry induced air pollution [34].

8. Agricultural fires and dust storms

These are the agricultural fires and the dust storms that are contributing the air pollution in Iraq [35]. In particular, the year 2020 experienced severe air pollution due to climate change and farming techniques. Such events were repeated in other countries underlining the need for addressing climate change as well as air pollution. It is important to understand current air quality trends in order to develop appropriate mitigation measures [36]. The World Air Quality Report is important for 106 countries, including Iraq [37]. To reduce the adverse health effects of air pollution, immediate measures such as improved public health services, enhanced monitoring systems, investing in early warning systems and more research should be taken. It is also possible to lower the fine particulate matter which could cause health problems in major construction sites and brick kilns of Greater Dhaka [38].

9. Domestic and public generator emissions

In Iraq the air pollution is a serious problem which can be attributed to increase use of crude oil plants, dependence on domestic and public generators because of shortage of electricity [39], and also the rise in transportation. Other sources of pollution are fossil fuel use for heating and uncontrolled burning of solid waste. They cause pollution of the air, water, soil, crop productivity, and they also bring about health problems in human and animals [40]. In order to deal with this problem, there should be improved quality of Iraqi fuel, search for nonfuel options as well as development of other engines. Baghdad University's Energy and Renewable Energy Research Center are actively working to curb air pollution and enhance the environment in Iraq.

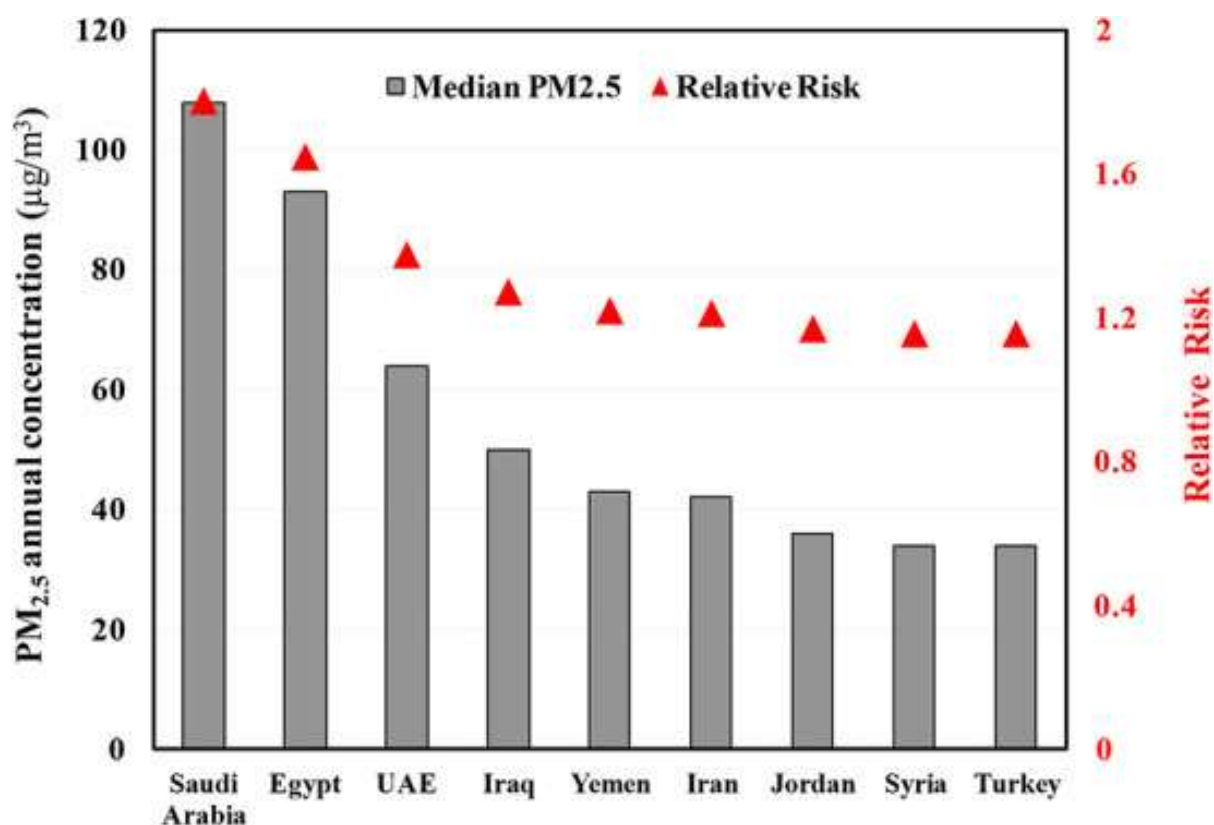


Figure 1: Relation between PM 2.5 concentration and the relative risk of total mortality. (source: reference[41]).

Impact of air pollution on human health in Iraq

1. High number of deaths caused by air pollution annually

Air pollution in Iraq is a major hazard to the health of the people resulting into many deaths every year [42]. According to a report by the World Health Organization, about 7 million people died early in 2012 due to air pollution all over the world, more than 400,000 of whom passed on in Eastern Mediterranean Region where Iraq is found. There are many diseases associated with air pollution including stroke, heart disease, respiratory diseases, cancer, and maternal and child health problems [43]. Air pollution is responsible for about one-fifth of related deaths due to stroke and heart disease. The International Agency for Research on Cancer also lists air pollution as a carcinogen of lung cancer. In order to address this, Iraq requires developing and strengthening national health institutions that shall do researches on and monitor the air pollution and its impacts [44]. There is a need of updated laws and regulations and good inter-departmental coordination. Comprehensive approaches should target indoor pollutants that arise from household activities such as cooking and heating using solid fuels. To fight air pollution, there should be strong laws, monitoring devices and citizens education programs. As a public health emergency, Iraq air pollution should be given priority and budget allocation for environmental protection [45]. The implementation of the foregoing measures by Iraq will lead to enhanced air quality, mitigate the number of mortalities associated with air pollution, and guarantee healthier future for Iraq's population.

2. Respiratory infections linked to air pollution exposure

Respiratory infections that are highly dangerous in Iraq are caused by air pollution [46]. In 2012, the WHO reports that about seven million persons breathed their last prematurely due to air

pollution with more than four hundred thousand mortality cases recorded among countries of the Eastern Mediterranean zone which includes Iraq. There are diverse health dangers associated with air pollution like stroke, heart and respiratory disease as well as cancers and pregnant women and the children's illness [47]. Extended contact with contaminated air could cause pulmonary complications for example, COPD, lung tumor and bronchitis. The air toxic particles from the air pollution may get into the bloodstream and trigger some blood-linked issues including blood clotting and stroke [48]. This means air pollution also affects the functioning of the brain. There are reports linking pollution exposure and cognition in children, developmental delays, behavioral problems associated with pregnancy-related excessive exposures to high levels of air pollution [12]. Controlling air pollutants is significant when it comes to the public's health within Iraq while matching with the SD G's of energy, transport, cities and health. Health has a critical role to lobby for policies for public health and action on climate change [49]. By reducing air pollution we will have not only better health, but also benefit economically with lower healthcare expenditure and more climate gain [50]. Air pollution became linked to good health with reference to covid-19 pandemic. Temporary improvements of air quality resulted from the lockdown measures which prove that collective actions are effective. In order to appropriately deal with air pollution in Iraq, it requires a joint action, taking into account links with current health agenda as well as cooperation involving sectors such as transport, energy, waste treatment and industry [51].

3. Association between air pollution and heart disease

Air pollution in Iraq is a serious menace to human health and is strongly related to heart disease [18]. These studies have linked strokes, heart related, respiratory diseases, cancer, and maternal and child health issues amongst others to air pollution. Unbelievably, 20% of deaths attributable to stroke and cardiac diseases result because of air pollution [52]. Recently, IARC (The International Agency for Research on Cancer) declared that air pollution can lead to lung cancers. Air pollution accounted for over 400,000 early deaths in eastern Mediterranean region in 2012. Hence, there is the need for immediate intervention. Air pollution is extremely critical not just for human health, but also converges with multiple crosscutting themes within the post-2015 development framework. Therefore, health sector can develop policies aimed at improving public health. Most of the times Air pollution is associated with unsustainable policies in transport [53], energy, waste management and industries. Healthier strategies could translate into economic benefits, as healthcare costs are reduced, and environmental improvements are attained [54]. Aside from WHO and health sector, it is necessary to convert the scientific evidence into effectual policy.

The health sector has tried to take a stand against air pollution through global efforts such as WHO's air quality guidelines, but more systematic and coordinated moves are needed. The health response that addresses existing health priorities should build on objectives for universal health coverage and a "health in all policies" strategy. The second notable factor here is that air pollution also plays a major role in climatic change.

4. Increased risk of cancer due to air pollution exposure

The high level of air pollution in Iraq especially the Baghdad city, is considered as one of the serious challenges against the public's health [55]. WHO lists some main air pollutants harmful to humans such as particle pollution, ground-level ozone, carbon monoxide, Sulphur oxides, nitrogen oxides and lead [56]. It causes people to become prone to multiple diseases such as cancer due to these pollutants [57]. These major pollutants are, however, not the only substances categorized as carcinogens and mutagenic agents contributing to cancer in Iraq. Examples of such

toxic substances are VOCs, PAHs, and others. Air pollution is also a cause of skin aging, organ damages, as well as developing autism spectrum disorder and neuroinflammation on children [58]. Other harmful consequences of poor air quality are related to immunity dysfunction and the development of some diseases. Nonstandard motor engine and traffic related source is responsible for air contamination by industrial vehicles in Iraq [59]. Air pollutants are known to contribute a large number of deaths annually, thus affecting public health in general. Air pollution reduction and air quality improvement present a daunting task for Iraq.

Air pollutants ^a	Major source of emission	Averaging time	Standard level	Health impact target organs
Particle pollutants				
PM _{2.5}	Motor engines, industrial activities, smokes	24 h	35 µg/m ³	Respiratory and cardiovascular diseases, CNS and reproductive dysfunctions, cancer
PM ₁₀		24 h	150 µg/m ³	
Ground-level ozone	Vehicular exhaust, industrial activities	1 h	0.12 mg/m ³	Respiratory and cardiovascular dysfunctions, eye irritation
Carbon monoxide	Motor engines, burning coal, oil and wood, industrial activities, smokes	1 h	35 mg/m ³	CNS and cardiovascular damages
Sulfur dioxide	Fuel combustion, burning coal	1 h	75 µg/m ³	Respiratory and CNS involvement, eye irritation
Nitrogen dioxide	Fuel-burning, vehicular exhaust	1 h	100 µg/m ³	Damage to liver, lung, spleen, and blood
Lead	Lead smelting, industrial activities, leaded petrol	3 months average	0.15 µg/m ³	CNS and hematologic dysfunctions, eye irritation
Polycyclic aromatic hydrocarbons [*]	Fuel combustion, wood fires, motor engines	1 year	1 ng/m ³	Respiratory and CNS involvement, cancer

^aAir quality standards according to the European Union; ^{*}PM_{2.5} is stand for PM of 2.5 µ or less. PM₁₀ is stand for PM of 10 µ or more. PM = Particulate matter, CNS = Central nervous system

Table 1: An external file that holds a picture, illustration, etc. Object name is JRMS-21-65-g001.jpg (source: reference[60]).

5. Connection between air pollution and stroke

The issue of air poisoning in Iraq especially for Baghdad is one of a serious concern to people’s lives in the country [61]. This means that the air quality in the country is unsafe and its particulate matter exceeds the recommended level. Some of these factors are automobile emissions, electricity generators, burning oil and gas refinery fires, as well as conflict-related pollution [62]. Air pollution can be harmful to the body especially on the skin in form of wrinkles and pigments. Organ damage due to inhalation or absorption by the organs of toxic air pollutants that are highly hepatocarcinogenic. Apart from affecting the skin, air impurity causes respiratory as well as cardiovascular disorders [63]. It may lead to infections such as allergies and chronic infections in the immune system. Air pollution immunotoxicants may elevate the serum levels of Igs as well as change antigen-presenting. Motor vehicle emissions are among the major contributors to air pollution which kills many people in Iraq every year [64]. The government should emphasize on control measures and updates in the regulations to mitigate the effects of air pollution on human health. The coordination should be led by an environmental protection organization and enough funds should be allocated for administration, research, development, monitoring and control measures. Air pollution reduction calls for inexpensive remedies and harmonization between different nations. Addressing Air Pollution in Iraq can reduce risks of stroke and related consequences which are also linked with bad air [65].

Strategies to reduce air pollution in Iraq

1. Improving vehicle emissions standards

It is essential for air pollution reduction in Iraq improve vehicle emissions standards [66]. Vehicle emissions as well as war-induced pollution among other causes such as generator use and refinery fires are already causing harmful particles’ reach dangerous level. Enforcement of strict

regulation is required mainly in traffic or industrial air pollution emissions. The usage of cleaner cook stoves may be an initiative towards reducing the indoor air pollution that comes about due to burning solid fuels [67]. Children could limit their exposure by staying away from highly polluted places and moving around when the air is less polluted. Children with respiratory problems are advised not to undertake strenuous outdoor activities. Additionally, it is important that they wear appropriate air filtration masks when extreme conditions arise. In order to eliminate such a pollution source, structural changes would have to be implemented, so that no big pollutant is created near schools and hospitals [68]. Upgrading of ventilation and air filtration equipment will help in controlling the pollution within indoor. The need for cleaner technologies for reducing emissions means that renewable energy options for replacing coal-fired generation are more desirable in this regard. Thus, the governments should work together with various sectors to enforce strict rules that will cut down the health impacts of air pollution in Iraq [69].

2. Promoting renewable energy sources

Air pollution can be minimized in Iraq by promoting renewable energy sources like wind and solar power [70]. Emphasis should be put on the phase out of coal, gas, and oil-based energy systems and incinerators. This could be a process of transitioning government-sponsored transportation towards greener power sources, and making a feasible and affordable public transport network [71]. It should establish more stringent air pollution regulation on their sources such as emission limits, as well as adopt new clean energy initiatives. Real-time information on pollution levels may be enhanced by expanding air quality monitoring or installing public monitoring stations so that citizens can become aware [72]. WHO's guidelines should determine stricter air quality limits. People can participate through avoiding outdoor activities in the periods of high pollution and using face masks, as well as keeping track of instant air quality info. The promotion of other cleaner sources like solar and wind as well as air pollution control need a concerted action by governments, organizations and individuals in Iraq as a team [73].

3. Enhancing industrial emission control measures

Improving industrial emission control techniques is essential when dealing with air pollution in Iraq that suffers from high levels of particulate matter above recommended standards [74]. Vehicle emissions being one of the leading sources as well as war-induced pollutions and the usage of generators because of poor electric systems. Governments must slowly retire coal-gas, oil-based and waste incinerations and at the same time promote wind and solar energies for combating this menace [75]. It will also assist in transition of government-funded transportation system to greener options. Public transport is made available to citizens at low fares. By so doing, other individuals can opt for the use of buses and bicycles in place of personal cars thereby reducing exhaust gases and traffic congestion [76]. These measures include formulation of stringent pollution sources regulations with lower emission limit and improved technology for energy saving. The air quality data generated by expanding government air quality monitoring, installing public monitoring stations, and supporting NGO's in operating them will be available instantaneously to the general population [77]. In addition, strict restrictions should be put in place on PM_{2.5} and other poisonous fumes.

4. Implementing stricter regulations for brick and cement industry

There is need to make some strict rules on the brick and cement industries so as to control air pollution in Iraq [78]. This is a developing country with very high levels of ambient air pollutants most especially PM_{2.5} which causes severe health impacts. Exposure to PM_{2.5} has been

found to contribute to respiratory and cardiovascular diseases as well as lung cancer and untimely death [79]. Air pollution in Iraq is majorly contributed by the brick and cement industry which releases a substantial amount of pollutants into the atmosphere. The smokestack emissions can also be reduced through the adoption of clean technologies, waste management procedures improved so as to capture Methane gas, and the use of low emission fuels [80]. Energy-efficient buildings and public transport can be made part of sustainable urban planning system [81]. Therefore, effective regulatory frameworks must be put in place as well as the need for partnership between policymaking bodies, the industry, and academic researchers. If Iraq adopts more tough regulations for the brick and cement sector, it can contribute a lot into minimizing air pollution and securing population health [44]. This will conform to the globally agreed upon standards of environmental conservation and also ensure provision of sound living conditions to both the present and future inhabitants.

5. Adopting cleaner technologies in the oil industry

It is necessary to apply the cleaner production technologies in Iraqi's oil sphere to solve issues of the air pollution. Oil pollution being a major cause of health problems in large parts of the country that is its prime sources of revenue [82]. The government should therefore phase out coal, gas, and oil based energy products as well as waste incineration and promote renewable energies like wind and sun [83]. It is crucial to switch transportation to cleaner power, as well as increase public transport systems and bicycle infrastructure. There should be regulations towards the air pollution sources like limiting their emissions and using energy efficient technologies [84]. It is essential to increase air quality monitoring and adhere to WHO guidelines regarding toxic emissions. People themselves can act in response to this problem by ensuring that their exposure to polluted air is reduced by minimizing outdoor activities or using pollution masks as well as maintaining fresh indoor environments by closing the windows and using A/C [85]. It is necessary to keep abreast of current air quality data and open windows at home when it gets better as a method of minimizing concentration levels.

6. Reducing agricultural fires through better land management practices

Controlling fires in agriculture can be helpful in fighting air pollution of Iraq that has suffered many severe pollution events associated with climatic changes and agricultural activities [86]. They create emissions of greenhouse gases, and cause increases in air pollution. The agriculture sector produces a lot of globally polluting gases such as those emanating from fossil fuels and industrialization; however, promoting better land management could cut down on agricultural fires and thus the overall output of emissions into the atmosphere [87]. Real time air quality information helps in trend analysis but there are few monitoring systems meaning most regions have little public knowledge about pollution levels. Non-governmental organizations and individuals may contribute towards cost efficient laser-based sensors. It is commonly hard to monitor pollution in developing countries as they lack the basic set-up for measuring pollution levels [88]. It is important to know the primary sources of pollution in order to address them. It is necessary to understand tradeoffs associated with air quality improvement and climate change, especially because electrification can reduce emissions, however depending on the sources of electricity, especially if they are fossil fuel based it would be inefficient [89]. In order to make most of it, South Asia needs regional cooperation's and not only "city-generated pollution". Among many others, the environment of Iraq is under stress by the degraded water quality, war time pollution, climatic changes. For effective actions, it is crucial to have better land management,

real time data access, source pollution understandings, as well as regional cooperation [90].

7. Improving dust storm forecasting and prevention measures

Reduction of air pollution in Iraq can be attained through improvement of dust storm forecasting and prevention [35]. These occurrences include extreme air pollution events such as wild fires and dust storms which cause the peak values of pollution concentrations and greenhouse gasses emissions [91]. The trends can easily be understood and action taken if they have access to real time air quality data. The utilization of laser-based PM_{2.5} sensors is a relatively affordable approach to increasing data resolution, inviting involvement from NGOs as well as single persons who are willing. While many places including Africa were not monitored closely, they had much of air pollutions. Thus, the world Air quality report 2020 stressed the importance of raising more alerts against airborne pollution worldwide [92]. Some of these urgent measures include improving public health services, promoting preventive health care, doing community level screens at the pollution hotspots, and close monitoring of air quality data to inform intervention strategies. It should consider the changes in climate, as well as, urbanization factors that lead to poor air quality affecting the health effects of air pollution [93].

Conclusion

1. Summarize the main points discussed in the essay

Air pollution in Iraq poses serious impacts on human wellness and safety of the environment and thus should be considered as an issue of high priority. These include the numerous wars that have taken place in the country and the use of internationally prohibited weapons which have led to increased pollution in the country. Air pollution has adverse effects on humans such as respiratory diseases, cardiovascular diseases, cancer, and infertility. Thousands of people die annually due to air pollution in Iraq. Air Pollution in Iraq is as a result of various causes such as vehicle exhausts, factories activities and gasses emitted from heater or stove. This particulate matter is harmful because it comprises of very small particles and they cause a number of diseases. The interaction of household pollution with ambient pollution contributes to more than four million early deaths worldwide annually. The management of air pollution involves integrated approaches. Some important measures necessary in dealing with key sources of ambient emissions include sustainable land use, cleaner household energy and transport, energy-efficient housing, power generation improvements, industry regulations, and better waste management techniques. WHO is an important agency that should address air pollution problems worldwide. It establishes and promotes sectoral policies that are healthy, offers technical assistance to its members states, creates normative guidance for health issues involving air pollution, monitors global changes in air quality, and reports on any observed alterations in health outcomes associated with action taken against air pollution. Therefore, Iraq should have environmental standards and guideline that can be used to mitigate air pollution effectively. It involves reinforcing existing laws which address environmental crimes and creating special legislations that ensure protection of the environment, its improvement and conservation. Iraq's success is in tackling two problems at once. The first is mitigating against the climate crisis while at the same time emitting SLCPs. Thus, reducing air pollution of Iraq entails addressing several sectors like energy, house, transport, urbanization and garbage disposal. Through sustainable approaches and emission reduction measures from different sources, Iraq can greatly enhance air quality, safeguard human health and add to worldwide struggles against climate change. The government and the major stakeholders should accord topmost priority to reducing air pollution and adopting long-run measures that will be beneficial

for a healthier future without pollution.

2. Highlight the importance of taking action to reduce air pollution in Iraq

Reducing the incidence levels of air pollution in Iraq, for the purpose of protecting the health of its population and the environment surrounding. However, the World Health Organization (WHO) has been doing their bit to inform people of the dangers of contaminated air and offer options as outlined earlier on. Children are an extremely susceptible population affected by air pollution, which leads to respiratory infections, cardiovascular diseases, and impairment of cognitive functions development. It also leads to global warming and causes ecological problems. Successful projects from low- and middle-income countries may be useful in providing a model for multisectoral interventions combining of investments, policy reforms, planning, monitoring, and evaluation. The tradeoffs involved in the objectives of air quality improvement and climate mitigation should be considered. Stakeholders must work together, such as governments, international organizations, non-state actors, and business companies. The importance of educating children on the dangers posed by air pollution and empowering them fight it out cannot be overstated. The only way forward is to take urgent steps to lower emissions if we are to have any chance of saving our planet.

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