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Environment, Pollution

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ENV213: RESEARCH REPORT

Egypt is a Bad Place to Breathe

Figure 1: accumulation of excess carbon iv oxide in the atmosphere as a result of burning of rice straw.

(Ramadan 2008).

Abstract

The recent advances in urban infrastructure and developments have lead to a global increase in air pollution. The harmful gases that are always emitted into the atmosphere from various industries pose great danger. Such increase in hydrocarbons into the atmosphere has led to the gradual warming of the Earth thereby increasing the global temperature. Research shows that most of the gases which cause gradual warming of the earth come from the industry.

This report shall investigate the effects associated with air pollution. Some of the specific towns which shall be put on the limelight include Egypt's bustling capital city of Cairo. In this city, the paper shall investigate the sources of air pollution and their effects both to the environment and to the citizens living around the city and in the city. Some of the findings in relation to the effects of excess emission of the green house gases into the atmosphere include: destruction of agricultural products in Egypt, increase in skin cancer as a result of increased global warming. It is also prudent to note that the Egypt's atmosphere is observed through the hazardous incident of the black cloud that hovers over Cairo's air every year in autumn. Research shows that global warming is as a result of excess emission of hydrocarbons into the atmosphere. Other effects of air pollution include formation of the black

cloud which eventually traps layers of smog due to dense air that moves over the warm lighter air. In a nut shell, this report aims at examining some of the effects of pollution in some parts of Egypt and Cairo in particular.

Air pollution

The term pollutants refers to those substances which are poisonous to humans, animals or the vegetation, have an object able odour or irritate our senses, obscure visibility or damage the property. Such pollutants can always results from natural processes or be the direct result of human activities. Therefore, when these gases that tend to pollute the air accumulate in excess, then such condition is known as air pollution. According to Creamer 2012, 4), air pollution is the release of harmful substances or gases into the air. Many scientists define air pollution as the existence of “ foreign substances” in the air whether in the form of gases or particles, while harmful to surrounding living organisms (Agarwal 2009, 4-5). In the modern society and urban area in particular, air pollution can be categorized in the form of dust, fumes, smoke and other visible air pollutants as described above.(Agarwal 2009, 5).

According to Agarwal 2009, 4-5), air pollution can be categorized into three main types: that is Personal, Occupational and Community air pollution. Personal air pollution affects an individual’s health directly. In this case pollution is achieved through deliberate smoking which in turn leads to lung cancer. Lung cancer is a dangerous disease which can easily lead to death. Occupational air pollution is the exposure of harmful gases and fumes from one’s working environment. When gases such as sulphur and carbon monoxide are exposed into the environment where people work, its effects

can be very tremendous. Carbon monoxide is very dangerous to human health. Such a gas when combines with hemoglobin leads to the formation of carboxihaemoglobin a stable compound which interferes with the smooth supply of oxygen in the body. This can easily results into death. Community air pollution is the exposure of diverse pollutants amongst a wider collective of people and environment (Agarwal 2009, 7). Because, the main concern of the report is to explore the effects of air pollution in Egypt, the next paragraphs shall critically and comprehensively unfolds the effects of air pollution in Egypt.

Air pollution effects upon earth's atmosphere

There exists different ways through which Air pollution could cause damages and affects the earth. Some of the effects of air pollution include increased global warming. This results from the accumulation of excess green house gases such as the carbon IV oxide in the atmosphere. This leads re-radiation of the sun's rays into the atmosphere thereby leading to global warming. (Creamer 2012, 6). Also air pollution could cause acid rain. The acid rain is very dangerous to people, animals and the vegetation at large. (Creamer 2012, 7). Acid rain can lead to death of various wildlife which is crucial in economic development of the country (Our Nation's Air 2010, 3). Consequently, air pollution has major effects on human health. As already described above, excessive accumulation of carbon iv oxide in the atmosphere is very dangerous to the health of an individual. Intake of excess carbon iv oxide into the body leads to the formation of stable compound (carboxyhaemoglobin) which in turn hinders the smooth supply of oxygen

into the body. This can lead to death since oxygen is necessary for life. (Our Nation's Air 2010, 3).

Egypt's atmosphere

Geographically, Cairo which is the capital city of Egypt lies in a valley which is surrounded by hills. These hills holds poisoned air just like water in a bowl. In it believed that temperature inversion do take place in this areas further contributing to global warming. This happens when the warm and lighter air moves over the cold denser air thereby trapping a layer close to the ground. The inversion stills the winds thereby creating a stagnant soup of unmoving air between mountains creating a barrier of smoke emissions and pollutant air particles. Its dense population and large number of cars available in the city raises the fumes emitted daily into the atmosphere. Of equal importance is the number of industries available in the city. These industries too release excess carbon IV oxide into the atmosphere thereby increasing the concentration of carbon IV oxide above normal. These gases have drastic effects to the animals, human beings and the vegetation which may be available in the area. Excess carbon iv oxide in the atmosphere leads to global warming which in turn burn the nearby vegetation hence destroying them (Leitzell, 2011).

According to the 2007 World Bank report, Cairo's air was ranked as the worst air in the world for pollution by particulates, the tiny fragments of soot or dust which are the most damaging factor to the human lungs. According to the report by NASA organization, the black cloud is very different form the pollution which plagues the city daily. Such cloud appears only once a year in September or October at times. Such pollution is more intense compared

to the regular pollution. It darkens the sky into foreboding smog. The black cloud then contributes to pollution ten times than the limits already set by the world Health Organization and it can persist for days or weeks at times.

Figure 2: sources of air pollution in Egypt

(Abdelkhalek 2007)

- Burning of Agriculture: an episode of “ Black cloud” forming in Egypt that mainly happens from burning of agriculture that cause for dioxins presence. According to the report by NASA organization, the black cloud is very different from the pollution which plagues the city daily. It is believed that such clouds do appear only in September or October. Its darkens the sky into a foreboding smog. The black cloud then contributes to pollution ten times than the limits already set by the world Health Organization and it can persist for days or weeks at times. This is very dangerous to the survival of different organisms.

According to Charmin of the state-run Abbasiya chest hospital, Abdel Majed have identified the main source of this pollution as being burning of rice. According to him, this pollution poses great risk to the health of various citizens in Egypt. This is because such pollution can result into various types of diseases such as respiratory diseases which might result to respiratory failure. (IRIN, 2010). Research shows that as a result of the increase in respiratory diseases, the number of patients in the hospitals has increased significantly. Research shows that burning rice straw has been seen as normal phenomenon in Egypt. This is always done in order to get rid of the excess rice straw that are left after harvesting rice. They always find burning it important irrespective of the risk it may pose on the environment and

people. Alternatively, rice straw can be used in a better way by converting it to animal fuel. (IRIN, 2010).

The rice straw burning appears once every year but it’s more dangerous than the other forms of air pollution which takes place in Egypt. According to (Leitzell 2011), approximately 42% of the air pollution is contributed by burning of the rice straw. Black cloud is denser than the regular pollution in Egypt as the black cloud makes the sky to get darker and foreboding smog (Leitzell, 2011). The black cloud increases pollution levels to become ten times more intense than the limit set by World health organization, as it can continue and carry on the polluting for days or weeks (Leitzell, 2011). All of these things also help to cause an increase of health risks such as asthma attacks, exacerbated lung function and may lead to cancer or premature death in worst cases (Leitzell, 2011).

Figure 3: The diagram showing accumulation of chlorofluorocarbon In the atmosphere in Egypt at different height.

Leitzell 2011.

As it can be seen from the (MISR) image above, most of the smoke is centered on Cairo city. The colored dots are showing measurements of plume height and of the green and blue colored dots are showing the smoke is low to 500m of the atmosphere (Leitzell, 2011).

The (MISR) assist in finding out the level of smoke that is present in the atmosphere. It can also be used to detect the possible causes of pollution in the atmosphere. (Leitzell, 2011). In Egypt, Sunset is the best time to measure pollution in Cairo. This is because, it is during this time that pollution reaches Cairo and it is also the time when temperature inversion

begins. (Leitzell, 2011). Also as it has been mentioned above, the (MISR) image shows the smoke is located low around 500m in the atmosphere that makes it very close to the ground (Leitzell, 2011). The more it gets closer to the ground the more the temperature increases.

Figure 4: Simultaneous observations of one hour-average SO2 AND CO concentration at El-Gomhoriya street during 2006.

(Moussa, 2007).

The y axis shows the concentration of SO2 in the atmosphere per hour while the X axis shows the concentration of CO in the atmosphere per hour in that street during that year.

There are different types of vehicles and traffic modes that can cause an increase for pollution and also cause different kind of pollutions (Mousa & Abdelkhalek, 2007).. As it can be seen from figure3, CO and SO2 observation has the highest concentration (Mousa & Abdelkhalek, 2007). When SO2 concentration is high and CO concentration is relatively low that is a way of showing the influence from busses while they move they generate high SO2 emission which is highly toxic for humans (Mousa & Abdelkhalek, 2007).. Most of these cause pollution and has an impact on human health as they can easily breathe all these gases from the air (Mousa & Abdelkhalek, 2007).

3. Industrial emission

The areas Tabbin and Shoubra El-Kheima are both areas impacted greatly by industry air pollution in Egypt. The industries present in Tabbin, such as the coke factory, chemical industries and power plant contribute to its highest SO2 concentration when wind blows from their southern location (Mousa &

Abdelkhalek 2007, 3(2): 14). Furthermore, north of the area, is a cement factory that equally emits harmful microscopic particles called “ coarse particles” that can enter the lungs.

Conclusion

In this report it has been explained what is air pollution in general sense, air pollution affects upon earth’s atmosphere, main factors causing air pollution such burning agriculture with giving a full episode of the black cloud, vehicles exhaust and industrial emission. According to the world back in 2007 it has classified Cairo’s air ias one of the worst air pollution in the whole entire world (Leitzell, 2011). Cairo’s air mostly full with particulates, soot and dust that have a major impact on human lungs (Leitzell, 2011). Also, as long as the farmers still burning the rice straw during rice straw season the more damage they cause to the humans health, and since the black cloud form to a lower atmosphere level (500m) which is extremely close to the ground it might get closer and closer in the next few years causing more damages and health risks to humans. A serious action has to be taken into consideration to stop these farmers to keep on burning these large amounts of rice straw which might help to keep Egypt’s air much clearer for the humans and decrease the number of patients who’s suffering with breathing and has other chest problems due to the air pollution.

Independent analysis of the data presented.

Other things which cause air pollution in Egypt include high concentration of PM10. The dry climate, desert areas and the windy conditions in most parts of Egypt do generate large particles in the form of dust fall. These dust falls

pollute the air and can easily results to health diseases among people. It can also causes accident along the roads because it prevents clear vision. The following figure just shows how the falling dusts can cause accidents along the busy highways.

Figure 5: effects of air pollution along the highways

(Cairodining. com. 2013)

The above diagram shows how air pollution in Egypt resulting from dust fall can prevent air vision and then causes accidents along the highway. It is believed that the volume of dust fall could rise in Egypt in future and this could easily lead to more and more accidents if not properly checked in good time.

WORDS: 2593.

References:

- IRIN. 2010. Egypt: Black cloud season sees rise in health problems http://www. irinnews. org/Report/91009/EGYPT-Black-cloud-season-sees-rise-in-health-problems (accessed 25th June 2012)

- Agarwal, S. K. 2009. Air Pollution. APH Publishing Corporation: New Delhi.

- Creamer, Kaitlin 2012. Air pollution (health and environment). World Technologies.

- Moussa, M. I. & Abdelkhalek, A. M. 2007. Meteorological Analysis for Black cloud (Episodes) Formation and its Monitoring by Remote Sensing.

- Leitzell, k. 2011. A Black Cloud cover Cairo. NASA’s Earth Observation System data and Information System (EOSDIS). http://earthdata. nasa. gov/featured-stories/featured-research/black-cloud-over-Cairo (accessed 28th June 2012)

- Our Nation’s Air. 2010. Air Pollution. Health, Environmental, and Climate Impacts. http://www. epa. gov/airtrends/2010/report/airpollution. pdf (accessed 28th June 2012).

- Cairodining. com. 2013. http://www. cairodining. com/articles/Waiting-to-Exhale%3A-Air-Pollution. (accessed 11th April 2013).