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Environmental Issues

Environmental Justice & Poverty



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INTRODUCTION

Environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, income, or geographic range, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. It is based on the notion that a certain group of society should not have a different share of negative influence of environmental degradation¹.

The World Bank, in 2012, announced that 1 out of 8 premature deaths caused by air pollution; for a total of 7 million premature deaths that year². In 2016, the International Economic Forum announced that among the major cities with more than 14 million people comes Cairo and New Delhi to be considered the two most polluted cities around the world³. Having set the poverty line in Egypt at LE 482⁴ (\$ 24), 27.8%⁵ of Egyptians are below the national poverty line, which is below the World Bank's global poverty line of \$ 1.90 a day⁶, or \$ 57 per month (42%). In view of the inflation rate that hit 31.92% in August 2017⁷, poverty has become a threat to the middle class, whose resources are shrinking due to the deteriorating economic conditions, whereas the middle class became only 5% of the population

1 US EPA. (2014). Environmental Justice | US EPA. [online] Available at: <https://www.epa.gov/environmentaljustice> [Accessed 10 Mar. 2017].

2 Jasarevic, T., Thomas, G. and Osseiran, N. (2014). WHO | 7 million premature deaths annually linked to air pollution. [online] Who.int. Available at: <http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/> [Accessed 10 Mar. 2017].

3 Shirley, A. (2016). Which are the world's most polluted cities?. [online] World Economic Forum. Available at: <https://www.weforum.org/agenda/201605/which-are-the-world-s-most-polluted-cities> [Accessed 10 Mar. 2017].

4 Daily News Egypt. (2018). EGP 482 per month becomes new poverty line - Daily News Egypt. [online] Available at: <http://www.dailynewsegyp.com/201627/07/egp-482-per-month-becomes-new-poverty-line> [Accessed 10 Mar. 2017].

5 UNDP in Egypt. (2017). About Egypt. [online] Available at: <http://www.eg.undp.org/content/egypt/en/home/countryinfo.html> [Accessed 10 Mar. 2017].

6 World Bank. (2015). FAQs: Global Poverty Line Update. [online] Available at: <http://www.worldbank.org/en/topic/poverty/brief/global-poverty-line-faq> [Accessed 10 Mar. 2017].

7 Central Bank of Egypt. (2017). Monthly Inflation Note. [online] Available at: <http://www.cbe.org.eg/ar/MonetaryPolicy/Pages/MonthlyInflationNote.aspx> [Accessed 7 Mar. 2017].

of Egypt⁸, according to an economic definition of the middle class adopted by Credit Suisse⁹.

8 (2016) Egypt is the most destructive of the middle class.. 2016 procedures ensure its lead [online] Aswatmasriya.com. Available at: <http://www.aswatmasriya.com/index.php/news/details/71464> [Accessed 10 Mar. 2017].

9 Credit Suisse defines the middle class as the class that owns assets, making it resilient to economic changes. It is at a lower risk of poverty. In the case of Egypt, the members of the middle class are those have wealth ranges between \$14.5 thousand and \$145 thousand, according to the dollar price in 2015.

This report is designed to address the effect of environmental pollution in one of the most polluted countries on the steadily increasing poor stratum. Even though it is difficult to find a direct causal relationship between pollution and poverty, evidence suggests that the impact of pollution and environmental degradation on different social strata varies. This difference is due to a number of factors, including exposure to pollution and lack of resources to eliminate pollution and adapt to its effects.

The effects vary at the local, national and global levels. For example, the developing countries are considered the most vulnerable to the effects of climate change; including natural disasters, resource degradation and exposure to extreme weather events¹⁰. At the national level, some research in the United States and Europe has shown that the poorest regions and those inhabited by minority ethnic groups are more vulnerable to pollution and its effects¹¹. Despite the high pollution levels and poverty rates in developing countries in general, the statistics on poverty and pollution over and above their effects on each other are non-existent.

In Egypt, for example, environmental policies tend to be based on classism and marginalization. For instance, the 2014 Environment Law stipulates that «Burning coal for industrial purposes or generating electricity of any kind in any residential community is prohibited. For reasons of necessity and public interest, the establishments existing before the provisions of this resolution may be exempted in accordance with the approval of the Council of Ministers to study the assessment of environmental impact after receiving the offer from the Minister of Environment¹²». By this provision, it discounts the economic, social, health and environmental effects of coal on communities, especially the marginalized ones that may be located on the city limits. In addition to that, coal fired power plants are being built nearby.

The different themes that may explain the interconnected relationship between pollution and poverty are discussed as follows.

10 Unfccc.int. (2007). Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries. [online] Available at: <https://unfccc.int/resource/docs/publications/impacts.pdf> [Accessed 10 Mar. 2017].

11 Massey, R. (2004). Environmental Justice: Income, Race and Health. [online] Ase.tufts.edu. Available at: http://www.ase.tufts.edu/gdae/education_materials/modules/Environmental_Justice.pdf [Accessed 10 Mar. 2017].

12 Decree of the Prime Minister No 964 of 2015, published in official gazette, issue 16 bis (a), 2015.

First: Exposure to Pollution

The concept of exposure differs from sensitivity or vulnerability. However, each concept is closely related to the another; thus, it is necessary to distinguish between them. The high level of exposure does not necessarily mean that the level of sensitivity and vulnerability is high; or even the high level of vulnerability does not necessarily mean that the exposure and sensitivity's levels are high. Exposure means the presence of pollution in specific areas in general. For example, the exposure level increases in residential areas near factories or power plants. Vulnerability indicates the degree of susceptibility to pollution with the extent of adaptation to it and its effects. The exposure may be low, but the vulnerability is high. Hence, the effect of pollution becomes high, although it is not widespread. Lastly, sensitivity refers to external elements that contribute to the increase of pollution impact, although pollution is not directly linked. An example of that is through chronic diseases. To talk more about these concepts, it is necessary to address the rest ones; and at the same time, it is necessary to distinguish between them owing to the difference of their impact on poverty and pollution. For example, a study conducted on the population of Rome, capital of Italy, found that upper-class citizens are more susceptible to pollution because they live in the center of the city, where congestion and large numbers of cars are. On the contrary, people living on the outskirts are less affected by pollution. Nonetheless, the study suggested that the inhabitants on the outskirts increasingly suffer from diseases caused by particles of less than PM10, such as heart diseases and clogged arteries diseases. It concluded that this is because of their increased sensitivity to pollution, and this was the result of the lifestyle and nature of their work as well as some daily habits, such as smoking and lack of movement¹³. The exposure, sensitivity and vulnerability vary according to the social level for several reasons, some of which are described below.

13 Cesaroni, G., Badaloni, C., et al(2013). Long-Term Exposure to Urban Air Pollution and Mortality in a Cohort of More than a Million Adults in Rome - ProQuest. [online] Search.proquest.com. Available at: <http://search.proquest.com/openview/0eae305bc51900daa9f5d749deb957d01/?pq-origsite=gscholar> [Accessed 10 Mar. 2017].

Poverty & Pollution-related Areas of Work:

- **Agriculture & Industry**

Agriculture and industry¹⁴ are the two most areas through which workers are vulnerable to pollution; in addition, poverty¹⁵ is increasingly pervasive in these two areas. In Egypt, 25.8% of total workers work in agriculture and fishing, while 11.2% work in manufacturing¹⁶. Those who work in agriculture are exposed to methane¹⁷ emissions due to livestock and animal farts. They are also exposed to nitrogen oxides emissions resulting from the use of fertilizer as well as other agricultural practices. Methane replaces oxygen in the air and lungs, inducing suffocation and damage to the lungs that cause many chronic diseases in the long term¹⁸. As well, nitrogen oxides absorb oxygen from the body and cause suffocation, asthma and other respiratory diseases; pulmonary edema¹⁹ is the most dangerous one. Industry workers are exposed to both nitrogen oxides emissions from burning fuels and other greenhouse gases as well as particles of (PM10²⁰ and PM2.5). These particles endanger the human health in the long term. According to the World Health Organization (WHO), the particles cause asthma and allergies when exposure for a few hours occurs. The constant exposure to particles cause many heart and lung diseases. A study conducted by WHO has shown that the spread of particles in residential areas is closely associated with high hospital admissions²¹. In addition to the emissions produced from the two areas' practices, workers in agriculture and some areas of industry are exposed to polluted air, unlike office workers. They are exposed to pollution resulting from congestion or burning of wastes and other causes of air pollution, while workers in other areas are not

14 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

15 Adli, H. (n.d.) Poverty & Public Policies in Egypt. [online] Www1.aucegypt.edu. Available at: http://www1.aucegypt.edu/src/pdr/Research_Briefs/Poverty.pdf [Accessed 14 Mar. 2010].

16 CAPMAS, Annual Bulletin of the Labor Force, 2015.

17 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

18 Gov.uk. (2010). Methane: General Information. [online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/318336/hpa_Methane__General_Information_v1.pdf [Accessed 15 Mar. 2017].

19 Dnrm.qld.gov.au. (n.d.). Health Effects of Nitrogen Dioxide. [online] Available at: https://www.dnrm.qld.gov.au/__data/assets/pdf_file/00202/212483/health-effects-of-nitrogen-dioxide.pdf [Accessed 15 Mar. 2017].

20 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

21 Euro.who.int. (2013). Health Effects of Particulate Matter. [online] Available at: http://www.euro.who.int/__data/assets/pdf_file/0006189051/Health-effects-of-particulate-matter-final-Eng.pdf [Accessed 15 Mar. 2017].

exposed to at least during working hours. Their work outdoor, whether in fields or industrial parks, also means their exposure to weather fluctuations that affect their health in general and their susceptibility to pollution in particular²².

• Geography of Pollution and Poverty

In 2015, Dr. Laila Iskander, then Minister of State for Urban Renewal and Informal Settlements, said that 40%-50%²³ of Egyptians live in informal areas that are not subject to the same quality requirements as the planned areas, including adequate insulation to prevent pollution and weather fluctuations; the lack of an integrated sewage system and access to clean water; and the potential use of toxic substances in the construction, which may increase the sensitivity of the inhabitants of those areas. Inhabitants of the so-called informal areas²⁴ are exposed to all types of severe weather events and fluctuations due to the lack of proper insulation in these buildings. They also are exposed to bacteria owing to the deteriorating sewage system, leading to the spread of some diseases, such as cholera, typhoid, bilharzia, gastrointestinal diseases and hepatitis²⁵. In addition, wet, hot weather resulting from the lack of proper insulation creates a fertile environment for bacterial and viral growth. Moreover, the inhabitants of these areas are exposed to a bigger percentage of emissions from various means of transport; whereas many of these areas are near highways as well as there are many public transport stations in them that embrace dilapidated vehicles causing carbon monoxide emissions, which induce oxygen deficiency in the body and leads to fatigue and nausea²⁶. Also, the congestion in those areas contributes to the rapid spread of epidemics²⁷.

22 Kalkstein, L. and Valimont, K. (n.d.). Climate Effects on Human Health. [online] Ciesin.org. Available at: <http://www.ciesin.org/docs/001338-001/338-.html> [Accessed 15 Mar. 2017].

23 Al-Bahrawi, M.(2015) Minister of Urban Renewal: Half of Egypt's population lives in informal areas [online] Almasryalyoum.com. Available at: <http://www.almasyalyoum.com/news/details/754516> [Accessed 15 Mar. 2017].

24 The term «slums» has incorrect notions about inhabitants of the unplanned areas, which are not random, but are characterized by the fact that the people of the area are planning and building, not the government and officials. Despite the widespread poverty and pollution in these areas, it enjoys the independence of its people in the construction and planning of their areas, which deprives the city residents in the planned areas.

25 Cep.unep.org. (n.d.). Wastewater, Sewage and Sanitation — Caribbean Environment Programme. [online] Available at: <http://www.cep.unep.org/publications-and-resources/marine-and-coastal-issues-links/wastewater-sewage-and-sanitation> [Accessed 15 Mar. 2017].

26 Greiner, T. (n.d.). Carbon Monoxide Poisoning: Health Effects. [online] Abe.iastate.edu. Available at: <http://www.abe.iastate.edu/extension-and-outreach/carbon-monoxide-poisoning-health-effects-aen-166/> [Accessed 15 Mar. 2017].

27 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

In terms of housing, the ability to change the place of residence is a way of pollution control. At the time that the poor do not have the resources to change the place of residence permanently or temporarily, the rich can permanently change the place of residence when exposed to severe pollution. The ability to change the place of residence during holidays reduces the exposure to pollution of the city, instead of the continual exposure throughout the year; it halts a few months²⁸ of the year. A study conducted in Los Angeles over 30 years revealed that the areas inhabited by the poor and ethnic minorities were targeted by industries and facilities polluting the environment for their easy penetration, and their inability to challenge these industrial facilities, especially when it comes to violating environmental laws. This situation is similar to that of the poor in Egypt and in many countries of the world as well. If²⁹ the poor had the freedom to choose, they would not have chosen to live in the polluted areas, nor accepted their poverty and living damage it would cause.

Social & Economic Resources and Lifestyle:

One of the most important factors that contributes to the creation of a gap in the uneven distribution of the environmental burden is the separation between slums and affordable areas. This separation creates a clear change in the level of services, compliance with laws and local community participation³⁰. Affordable areas often have direct or indirect pull through one of its inhabitants, or secondary one through the different social relationships, making it easier for them to hold facilities that pollute the environment or obtain quality services accountable. Hence, the power of influence prevails over entire districts and areas, while there is no such influence in poorer neighborhoods, particularly if they are separated from one another³¹.

Although some 50% of Egyptians are covered by health insurance in one way or another, they still bear 72% of their treatment costs, according to the World Bank. The health services in government hospitals are deteriorating because of their low funding, the lack of resources, and the low wages of doctors employed by the health sector. Therefore, many citizens have to resort to private hospitals, where the cost of treatment is high. In turn, these hospitals in many cases refuse

28 Previous reference

29 Euro.who.int. (2010). Environment and Health Risks: A Review of the Influence and Effects of Social Inequalities. [online] Available at: http://www.euro.who.int/__data/assets/pdf_file/000378069//E93670.pdf [Accessed 20 Mar. 2017].

30 Previous reference

31 Previous reference

patients in case of the non-payment of the invoice before treatment³². Owing to the high cost of treating those diseases caused by pollution, such as heart-related diseases and respiratory diseases, the ability of the poor to adapt to their effects is reduced by the deterioration of the level of service available. In some cases, some areas lack those services or provide the quality service with high cost. The daily lifestyles contribute to the increase of the poor communities' sensitivity, including daily habits such as smoking, unhealthy foods, and the inability of the poor to do sports. Research has shown that obese individuals inhale a high proportion of pollutants. They averagely inhale 50% of air, more than the average, which means that they are exposed to a higher proportion of sulfur oxides, ozone gas, carbon monoxide and other gases that cause lung diseases and their impact on cases of diabetes spread among cases of obesity³³. Finally, the lack of green spaces and the hygiene of streets play an important role, doubling the health conditions resulting from pollution among the poor³⁴.

32 World Bank. (2015). Egypt: 72% of health care costs are out of the Egyptians' pockets. [online] Available at: <http://www.albankaldawli.org/ar/news/video/201510/03//egypt-72-percent-of-healthcare-costs-are-out-of-pocket> [Accessed 20 Mar. 2017].

33 Bushak, L. (2014). Obesity And Air Pollution: Overweight People Breathe In More Contaminants. [online] Medical Daily. Available at: <http://www.medicaldaily.com/obesity-and-air-pollution-overweight-people-breathe-more-contaminants-268584> [Accessed 20 Mar. 2017].

34 Euro.who.int. (2010). Environment and Health Risks: A Review of the Influence and Effects of Social Inequalities. [online] Available at: http://www.euro.who.int/__data/assets/pdf_file/000378069//E93670.pdf [Accessed 20 Mar. 2017].

Gender :

The way that the limited ability of the poor affects their movement and their ability to prevent exposure to pollution sources, the conservative nature of Egyptian society similarly restricts the ability of women to move from one dwelling to another for work or study purposes, except for minimum circumstances. Accordingly, their ability to move from polluted areas is restricted, unlike their male counterparts that do not need a social motivation, such as marriage, to move from one dwelling to another; in addition to the limited movement due to social considerations and the lack of safe open spaces because of which obesity rate hit 39%³⁵ among females; 18% more than the obesity in men. As mentioned above, obesity causes increased sensitivity to pollutants.

Pregnant women are among the groups that are more sensitive to the effects of pollution. Some research found that exposure to high rates of pollution leads to endometritis, which causes medical complications during and after pregnancy for both mother and child. Exposure to pollution also poses pregnant women to the risk of premature birth³⁶, which exposes infants to the risk of incomplete growth and mental retardation; moreover, it makes the mother more susceptible to mental illness. The cost of premature birth owing to the air pollution in the USA averaged \$ 4 million³⁷ annually. Finally, a study in the US state of Pennsylvania has shown that children exposed to particles of PM2.5 during pregnancy and postpartum were 1.5 times more likely to be susceptible to autism than children who were not exposed to high levels of pollution³⁸.

Additionally, women's working conditions are one of the factors to be added to the element of vulnerability. As we mentioned above, agriculture is one of the areas through which workers suffer from high rates of pollution due to the gases produced from fertilizers and others. 41% of Egypt's women work in agriculture³⁹; i.e. 41% of women are exposed to these emissions on a daily basis. The women working in agriculture increased from 35% in 1991 to 41% in 2015, while men's

35 Ellabany, E. (2018). Community based survey study On Non-communicable diseases and their Risk Factors. [online] Who.int. Available at: http://www.who.int/chp/steps/STEPS_Report_Egypt_200506-.pdf [Accessed 20 Mar. 2017].

36 Desmon, S. (2016). Air pollution during early pregnancy can harm babies - Futurity. [online] Futurity. Available at: <http://www.futurity.org/air-pollution-premature-births-1150022/> [Accessed 20 Mar. 2017].

37 March, D. (2016). Preterm births in U.S. tied to air pollution cost \$4 billion - Futurity. [online] Futurity. Available at: <http://www.futurity.org/premature-births-air-pollution-1127402/> [Accessed 20 Mar. 2017].

38 Posar, A. and Visconti, P. (2016). Autism in 2016: The Need for Answers. [online] Scielo.br. Available at: <http://www.scielo.br/pdf/jped/v93n27557--0021/jped-930111-02-.pdf> [Accessed 20 Mar. 2017].

39 Data.worldbank.org. (2017). Employment in agriculture, female (% of female employment). [online] Available at: <https://data.worldbank.org/indicator/SL.AGR.FMPL.FE.ZS> [Accessed 5 Jan. 2018].

employment in agriculture decreased from 31% to 22%⁴⁰. This may be owing to two reasons. The first reason is cited above with regard to the social considerations that restrict women's ability to move among different jobs, and limit their opportunities to leave agricultural areas to access jobs in urban districts. Thus, their vulnerability increases. The second reason is that there is a wage gap in the agriculture sector between males and females estimated at 33.4%⁴¹, which makes women's employment in agriculture economically feasible, compared to men's employment. This is why it limits their ability to adapt to the effects of pollution from agriculture sector.

Effects of Pollution:

- **Health Effects**

The health effects of pollution are obvious and easier to measure. All pollutants from industrial pollution, agricultural drainage and sewage system have known and clear effects that can be measured from their sources. For example, particles of (PM 2.5 & PM10) that are mainly from heavy industries, which are among the leading industries in Egypt⁴² such as iron, steel, cement and ceramics, increase the risk of lung and chest diseases; including lung cancer and asthma. They also cause high blood pressure and cardiovascular disease⁴³. In addition, heavy industries combined with exhaust emissions contribute to the emissions of sulfur oxides that affect all types of bacteria and viruses, increase endemic diseases, affect the respiratory system and increase the symptoms of asthma. Some research has shown that there is a direct relationship between the long-term exposure to sulfur oxides, visits to hospitals and mortality⁴⁴. The heavy industries, also, induce nitrogen oxides emissions that affect blood oxygenation and blood pressure, and cause cardiovascular disease⁴⁵. Some studies have found that prolonged exposure to air pollution causes increased risk of mental disorders, such as anxiety

40 Data.worldbank.org. (2017). Employment in agriculture, male (% of male employment). [online] Available at: <https://data.worldbank.org/indicator/SL.AGR.EMPL.MA.ZS> [Accessed 1 Jan. 2018].

41 Khairy, A. (2015). An Analysis of the Gender Pay Gap in the Egyptian Labour Market. [online] Iariw.org. Available at: <http://iariw.org/egypt2015/amalkhairy.pdf> [Accessed 25 Mar. 2017].

42 Economywatch.com. (2010). Egypt Industry Sectors. [online] Available at: http://www.economywatch.com/world_economy/egypt/industry-sector-industries.html [Accessed 25 Mar. 2017].

43 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

44 Szyszkowicz, M., Porada, E., Tremblay, N. and Grafstein, E. (2012). Sulfur Dioxide and Emergency Department Visits for Stroke and Seizure. [online] Hindawi.com. Available at: <https://www.hindawi.com/journals/srt/2012824724/> [Accessed 25 Mar. 2017].

45 Rodsky, J. (1986). Adverse Effects of Nitrous Oxide. [online] Ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/3537624> [Accessed 25 Mar. 2017].

that is induced by a decrease in oxygen in the blood, as well as stress resulting from insomnia due to pollution, which increases the likelihood of individuals sufferings, particularly those who do business without specific working hours and who belong to the less privileged classes⁴⁶. Research shows that there is a direct correlation between multiple risk factors and poverty. The more poverty increased and resources decreased, the more risk factors increased and became multiple. A study indicates that the socioeconomic situation is the second most important factor affecting health after smoking⁴⁷.

According to the United States Environmental Program (USEP), air pollution is one of the world's biggest health risks, causing 6.5 million deaths every year over and above one in four premature deaths⁴⁸. WHO announced that 1.7 million deaths of children under the age of five⁴⁹ are caused by pollution every year. It also causes more than a third of the world's deaths from strokes, lung cancer, and chronic respiratory diseases, and is also responsible for a quarter of heart attack deaths⁵⁰. According to WHO, diarrhea caused by water pollution and the poor quality of sanitation services in Egypt leads to 10,000 deaths a year, while air pollution causes 15,000 deaths a year⁵¹.

• Economic Effects

The health effects of pollution may be the most obvious, but pollution also has economic effects that are often overlooked for the lack of clarity concerning the direct causal relationship between them. At the time that economic cost, according to some, is a consequence of stringent environmental regulations, international organizations point out that the real cost of environmental pollution is very high and, most importantly, that the main victims of this cost are the government and the poorer classes of citizens. As for the state, studies conducted by the Ministry of Environment indicate that air pollution costs the state between 1.1% and 3.2% of gross national income, while water pollution costs between 0.7% and 1.2%⁵². In

46 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

47 Previous reference.

48 Who.int. (n.d.). The Equation is Simple. [online] Available at: http://www.who.int/sustainable-development/LR_APmain_6July2016.pdf [Accessed 25 Mar. 2017].

49 who.int. (2017). Public Health, Environmental and Social Determinants of Health. [online] Available at: <http://www.who.int/phe/news/march-2017/en/#CEHreports> [Accessed 25 Mar. 2017].

50 Previous reference.

51 Who.int. (2009). Country profile of Environmental Burden of Disease. [online] Available at: http://www.who.int/entity/quantifying_ehimpacts/national/countryprofile/egypt.pdf?ua=1 [Accessed 25 Mar. 2017].

52 Ec.europa.eu. (2016). Links Between Noise and Air Pollution and Socioeconomic Status. [online] Available at: http://ec.europa.eu/environment/integration/research/newsalert/pdf/air_noise_pollution_socioeconomic_status_links_IR13_en.pdf [Accessed 15 Mar. 2017].

other words, the cost of avoiding this pollution may be to save public money. On the other hand, exposure, sensitivity and vulnerability are affecting the ability of poorer citizens to work, particularly those who are freelancers or do turnover, and thus their ability to gain money. Furthermore, these citizens bear the high health cost of the health effects of pollution, particularly in the case of poor quality of health services available, as it is currently in Egypt under years of austerity in public spending⁵³.



CONCLUSION

In the current economic and social context, pollution is emphatically a class problem. The most vulnerable classes are the poorest, which are least able to adapt to pollution and its effects and treatment. What makes matters worse is that many of the children of this class are employed in the polluted industries, which means that the approach used to reduce pollution must guarantee the economic right to work without compromising the social right to health. Although some governments are moving industrial facilities out of the city, the consideration must be given to the difficulty of transporting workers and adding the burden of car pollution. Some argue that the diverse geographical distribution of different classes may contribute to the solution of the problem⁵⁴. This means the distribution of social capital, but while this solution addresses the symptoms, pollution remains where it goes. According to the Ministry of the Environment, there are still many outstanding questions regarding the effects of pollution on health and economy and their different economic and social impacts; adding to them the questions related to mental health and its impact by pollution. In addition, these risks and victims of them should be taken into consideration when introducing new policies, whether environmental or investment policies.

54 Previous reference

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- Cesaroni, G., Badaloni, C., Gariazzo, C., Stafoggia, M. and Sozzi, R. (2013). Long-Term Exposure to Urban Air Pollution and Mortality in a Cohort of More than a Million Adults in Rome - ProQuest. [online] Search.proquest.com. Available at: <http://search.proquest.com/openview/0eae305bc51900daa9f5d749deb957d01/?pq-origsite=gscholar> [Accessed 10 Mar. 2017].
- Daily News Egypt. (2018). EGP 482 per month becomes new poverty line - Daily News Egypt. [online] Available at: <http://www.dailynewsegypt.com/201627/07//egp-482-per-month-becomes-new-poverty-line> [Accessed 10 Mar. 2017].
- Data.worldbank.org. (2017). Employment in agriculture, female (% of female employment). [online] Available at: <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS> [Accessed 5 Jan. 2018].
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