Project A Pre-reading and Reflection

Questions and Discussions:

A. What is the main cause of air pollution?

Burning fossil fuels is considered the main cause of air pollution because it contributes to both the development of ground-level ozone and PM2.5 (particulate matter with a diameter of 2.5 microns in size or less).

B. Why does LA have unhealthy air quality?

One of the reasons is that the city and surrounding area is densely populated. As a result, there are many vehicles driving in this area leading to traffic congestion and high emissions through the fossil-fueled motors. On top of that are the air pollutant emissions of all these individuals created through power consumption and household combustion (for example through a BBQ). Another reason is the booming shipping industry, with two of the biggest ports located in that county which also rely heavily on the burning of fossil fuels for transportation and energy. In addition, the environmental conditions of this area also contribute to air pollution. Due to generally dry conditions, strong Santa Ana Winds, highly flammable tree species, increasing hot temperatures and steep mountains, the are is very susceptible to big wildfires which also produce pollutants. The surrounding mountains can also trap the air pollution longer in the area in the summer due to a phenomenon known as marine inversion where warmer air towards the mountains traps cooler air coming from the ocean underneath itself, making it harder for the pollution to disperse.

C. What health problems are caused by air pollution?

PM2.5 has been linked to heart diseases, respiratory illnesses and premature death, and Ozone has been linked to the latter two. One of such respiratory illnesses can be asthma, which has been found in 1 of 10 children in LA County. Another health impact by air pollution is seen in the higher probability of cancer, which has increased by 900 for every million.

D. Has air quality improved in Los Angeles over the past 5 years?

Even though the air quality level in Los Angeles is still above the federal standard, it has seen improvement over the past 5 years, mostly due to local and state regulations that aim to reduce the emissions caused by motor vehicles and some major industries. The emphasis is put on electric vehicles and renewable energy to reduce the pollution caused by burning of fossil fuels.

E. What is the impact of COVID-19 to air quality?

When the pandemic first broke out in March 2020, Los Angeles had a stretch of exceptional clean air for three weeks, the best stretch ever recorded, which is likely because of the closing of business and the recommendation to stay at home, which reduced the traffic extensively.

F. What is your neighborhood air quality?

Looking at the air quality of Santa Barbara, it is generally better than the air quality in the area of Los Angeles, as it averages a level of “good” instead of “moderate”. The ozone levels are considered relatively good, however there has been an increase in short term PM2.5 pollution, which is likely due to the increase in wildfires.

G. How could we reduce air pollution in Los Angeles?

We can reduce air pollution in Los Angeles by pushing for renewable energy and reducing the burning of fossil fuel in the transportation and industry sector as mentioned above. In addition we can work on our own emissions and be mindful in our consumption of goods. For example, one should avoid constantly ordering things online from other countries as it contributes to air pollution through the transportation emissions. One might also consider trying to walk more, carpool or use public transportation to reduce traffic and vehicle emissions.

H. What are the major air pollutants?

The air pollutants that most people are concerned with are ozone and PM2.5. PM2.5 is directly created for example through the burning of fossil fuels, industrial processes or wildfire. Ozone on the other hand is created when sunlight reacts with nitrous oxides and organic substances, with the latter both especially being produced by vehicles burning diesel. Other air pollutants include nitrogen dioxide and PM10 (particulate matter with a diameter of bigger than 2.5 microns up to 10 microns).