

Man-made Pollution

Humans exacerbate other natural environmental problems. In Saudi Arabia, sandstorms combined with combustion exhaust from traffic and industrial waste has lead the World Health Organization (WHO) to declare Riyadh as one of the most polluted cities in the world. It is this "human contribution" that has become an immediate cause of worry. Coal fumes coming out of industries and settling down in surrounding areas contaminated 20 percent of China's soil, with the rice lands in Hunan and Zhuzhou found to have heavy metals from the mines, threatening the food supply. Greenpeace India reported that in 2015, air pollution in the entry was at its worst, aggravated by the Indian government's inadequate monitoring system (there are only 17 national air quality networks covering 89 cities across the continent!). Furthermore, 94 percent of Nigeria's population is exposed to air pollution that the WHO warned as reaching dangerous levels, while Gaborone, the capital of Botswana, is the 7th most polluted city in the world. The emission of aerosols and other gases from car exhaust, burning of wood or garbage, indoor-cooking, and diesel-fueled electric generators, and petrochemical plants are projected to quadruple by 2030.⁹¹ Waste coming out of coal, copper, and gold mines flowing out into the rivers and oceans is destroying sea life or permeating the bodies of those which survived with poison (mercury in tuna, prominently). The biggest copper mine in Malanjkhand in India discharges high levels of toxic heavy metals into water streams, while in China, the "tailings" from the operations of the Shanxi Maanqiao Ecological Mining Ltd., producing 12,000 tons of gold per year, "have caused pollution and safety problems." Conditions in China have become very critical as the "toxic by-products of production processes...are being produced much more rapidly than the Earth can absorb." Meanwhile, for over a century, coal mines in West Virginia have pumped "chemical-laden wastewater directly into the ground, where it can leech into the water table and turn what had been drinkable...water into a poisonous cocktail of chemicals." The system "goes back generations and could soon render much of the state's water undrinkable."¹⁹² Pollution in West Africa has affected "the atmospheric circulation system that controls everything from wind and temperature to rainfall across huge swathes of the region." The Asian monsoon, in turn, had become the transport of polluted air into the stratosphere, and scientists are now linking Pacific storms to the spread of pollution in Asia.¹⁹³ Aerosol is tagged the culprit in changing rainfall patterns in Asia and the Atlantic Ocean. These climatic disruptions have similarly caused drought all over Asia and Africa and accelerated the pace of desertification in certain areas. Twenty years ago, there were over 50,000 rivers in China. In 2013, as a result of climate change, uncontrolled urban growth, and rapid industrialization, 28,000 of these rivers had disappeared.¹⁹⁴ People's health has been severely compromised. An archived article in the journal Scientific American blamed the pollution for "contributing to more than half a million premature deaths each year at the cost of hundreds of billions of dollars." The International Agency for Research on Cancer blamed air pollution for 223,000 lung cancer deaths in 2010.¹⁹⁵ In Indonesia and Malaysia, the link between forest fires and mortality had been well-established. The aforementioned coal mining in West Virginia (mentioned above) has also made people sick, some with "rare cancers, little kids with kidney stones [and] premature deaths," and children born with congenital disabilities and adults having shorter life expectancy.¹⁹⁶ It has been the poor who are most severely affected by these environmental problems. Their low income and poverty already put them at a disadvantage by not having the resources to afford good health care, to live in unpolluted areas, to eat healthy food, etc. In the United States, a Yale University

research team studying areas with high levels of pollution observed that the "greater the concentration of Hispanics, Asians, African-Americans, or poor residents in an area, the more likely that dangerous compounds such as vanadium, nitrates, and zinc are in the mix of fine particles they breathe." In India, studies on adults health revealed that 46% in Delhi and 56% of in Calcutta have "impaired lung function" due to air pollution. In China, the toxicity of the soil has raised concerns over food security and the health of the most vulnerable, especially the peasant communities and those living in factory cities. In 2006, 160 acres of land in Xinma, China was badly poisoned by cadmium. Two people died and 150 were known to be poisoned; the entire village was abandoned. Hong Kong faces the same problem.²⁰⁴ In Metropolitan Manila, 37 percent (4 million people) of the population live in slum communities, areas where "[t]he effects of urban environmental problems and threats of climate change are also most pronounced...due to their hazardous location, poor air pollution and solid waste management, weak disaster risk management, and limiting coping strategies of households." Marife Ballesteros concludes that this unhealthy environment "deepens poverty, increases the vulnerability of both the poor and non-poor living in slums, and excludes the slum poor from growth.²⁰ One of the major ironies of urban pollution is that the necessities that the poor has access to are also the sources of the problem. The main workhorse of the public transport system is the bus. However, because it runs mainly on diesel fuel, it is now considered "one of the largest contributors to environmental pollution problems worldwide. This problem is expected to worsen as the middle classes and the elites buy more cars and as the road systems are improved to give people more chance to travel. The other mode of transportation that the poor can afford is the motorbike (also called the two- and three-wheeled vehicles). According to the Centre for Science and Environment in Delhi, India, "two-wheelers form a staggering 75%-80% of the traffic in most Asian cities." Motorbikes burn oil and gasoline and "emit more smoke, carbon monoxide, hydrocarbons, and particulate matter than the gas-only four-stroke engines found in newer motorcycles. Finally, adding to this predicament is the proliferation of diesel-run cars. These vehicles usually command a lower price because of their durability and low operating cost, and hence affordable to the middle class. However, they also release four times the toxic pollution as the buses.

"Catching Up"

These massive environmental problems are difficult to resolve because governments believe that for their countries to become fully developed, they must be industrialized, urbanized, and inhabited by a robust middle class with access to the best of modern amenities. A developed society, accordingly, must also have provisions for the poor-jobs in the industrial sector, public transport system, and cheap food. Food depends on a country's free trade with other food producers. It also relies on a "modernized" agricultural sector in which toxic technologies (such as fertilizers or pesticides) and modified crops (e.g., high-yielding varieties of rice) ensure maximized productivity.

The model of this ideal modern society is the United States, which, until the 1970s, was a global economic power, with a middle class that was the envy of the world.²⁰⁹ The United States, however, did not reach this high point without serious environmental consequences. To this very day, it is "the worst polluter in the history of the world," responsible for 27 percent of the world's carbon dioxide emissions.²¹⁰ Sixty percent of the carbon emission comes from cars and other vehicles plying

American highways and roads, the rest from smoke and soot from coal factories, forest fires, as well as methane released by farms and breakdown of organic matter, paint, aerosol, and dust.

These ecological consequences, however, are far from the mind of countries like China, India, and Indonesia, which are now in the midst of a frenzied effort to achieve and sustain economic growth to catch up with the West. In the "desire to develop and improve the standard of living of their citizens, these countries will opt for the goals of economic growth and cheap energy," which, in turn, would "encourage energy over-consumption, waste, and inefficiency and also fuel environmental pollution." With their industrial sector still having a small share of the national wealth, these countries will be using first their natural resources like coal, oil, forest and agricultural products, and minerals to generate a national kitty that could be invested in industrialization.

These "extractive" economics, however, are "terminal" economies.²¹³ Their resources, which will be eventually depleted, are also sources of pollution. In Nigeria, Niger Delta oil companies have "caused substantial land, water, and air pollution." Nigeria is caught in a bind. If it wants "to maintain its current economic growth path and sustain its drive for poverty reduction, [the very polluting] oil exploration and production will continue to be a dominant economic activity." If the United States lets its environment suffer to achieve modernity and improve the lives of its people, developing countries see no reason, therefore, why they could not sacrifice the environment in the name of progress. This issue begs the question: How is environmental sustainability ensured while simultaneously addressing the development needs of poor countries?