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Dr. Christine K. Durbak, World Information Transfer

Introduction

There is an old saying that translates into many languages and it is “salud es riqueza” in Spanish; “zdorovia je majetok” in Ukrainian; and “Health is Wealth” in English.

In most cultures, we have long recognized the relationship between the health of a person and that person’s ability to accumulate wealth. More recently, the World Health Organization has conducted extensive research, which conclusively demonstrates that the health of a population is critical to poverty reduction, economic growth and long-term economic development. Many of the great development “takeoffs” in economic history—the rapid growth of the UK during the Industrial Revolution; the takeoff of the US South in the early 20th century; the rapid growth of Japan in the same period; and the dynamic development of southern Europe and East Asia beginning in the 1950’s—were all supported by breakthroughs in public health, disease control, and improved nutrition.

Conversely, the economic costs of avoidable disease, when taken together, are staggeringly high. Avoidable disease reduces the annual incomes of society, the lifetime incomes of individuals, and the prospects for economic growth. Life Expectancy at Birth (LEB) research, considered an excellent measure of the health of any society or nation state, has shown that each 10 percent improvement in LEB is associated with a rise* in economic growth. (*Improvement of 3/10th to 4/10th of a percentage point per year).

As a healthcare professional, I am most interested in the econometric models that consistently demonstrate the relationship between health and economic growth.

As a healthcare professional and as a student of environmental science, I am most concerned about several large-scale environmental trends that constitute a significant threat to human health and, therefore, to sustainable development.

Global Warming

The first of these trends is global warming. CNN recently reported that, “as the atmosphere heats up, the risks to human health pop up, like a mosquito-borne virus.”

Dr. Paul Epstein, the Associate Director of the Center for Health and the Global Environment at Harvard Medical School is one of the world’s leading experts on the correlation between global warming and increases in infectious disease. Writing last summer in *Scientific American*, Dr. Epstein warns us of the enormity of the health risk posed by global warming. He emphasized that:

As the atmosphere has warmed over the past century, droughts in arid areas have persisted longer, and massive bursts of precipitation have become more common. Aside from causing death by drowning or starvation, these disasters promote various means of the emergence, resurgence, and spread of infectious diseases. . . . That prospect is deeply troubling, because infectious illness is a genie that can be very hard to put back into its bottle. It may kill fewer people in one fell swoop than a raging flood or an extended drought, but once it takes root in a community it often defies eradication and can invade other areas.

Global warming has the potential to exacerbate water-borne diseases, including cholera, which causes severe diarrhoea. Drought enhances water-borne diseases by wiping out supplies of safe drinking water and concentrating contaminants that might otherwise remain diluted.

Mosquito-borne diseases are expected to increase because the agents are extremely sensitive to meteorological conditions. Diseases such as malaria, dengue fever, yellow fever, and several types of encephalitis are sounding the loudest alarms—alarms heard all over the world. To put the threat of increasing rates of malaria within a developmental context, consider recent WHO research on the matter. According to WHO, high prevalence of diseases like malaria is associated with persistent and large reductions in economic growth rates. High malaria prevalence, for example, has been shown to be associated with a reduction of economic growth of 1 percentage point per year or more!

Dr. Epstein states,

“I worry that effective corrective measures will not be instituted soon enough. Climate does not necessarily change gradually. The multiple factors that are now destabilizing the global climate system could cause it to jump abruptly out of its current state. . . . At any time, the world could suddenly become much hotter or even much colder. Such a sudden, catastrophic change is the ultimate health risk—one that must be avoided at all costs.”

Proliferating Synthetic Chemicals

The production and release of vast quantities of novel synthetic chemicals over the past 75 years has proven to be a great global experiment—one that now involves all life. Even before the Chemical Revolution moved into high gear at the end of World War II, the first warning sign appeared that some man-made chemicals might spell serious trouble. In 1944, scientists found residues of a man-made pesticide, DDT, in human fat. Seven years later, another study brought disturbing news of DDT contamination in the milk of nursing mothers. IN the early 1950s, naturalists saw thinning eggshells and crashing populations of bald eagles and other birds. By 1962, Rachel Carson documented the growing impact of persistent pesticides on wildlife and warned about hazards to human health.

Ironically, chemicals that were developed to control disease, increase food production, and improve our standard of living are, in fact, a threat to biodiversity and human health.

Let's consider, more specifically, the impact of one class of chemicals—pesticides—on human health and development in eastern Africa.

In Kenya, Uganda, and Tanzania, the use of harmful pesticides banned in developed nations has become a major health risk to farmers as reported by the East Africa Pesticide Network Group, an NGO based in Nairobi, Kenya.

A recent study published in the *African Journal of Health Sciences* shows that 204 different types of chemical pesticides are being used in East Africa alone. The most used product is DDT.

DDT, unlike many other pesticides, is a synthetic chemical that resists the normal process of degradation. Such chemicals are referred to as persistent organic pollutants (POPs). POPs share four characteristics:

1. High Toxicity. Toxins are dangerous to human health at high and low concentrations. All POPs are endocrine disruptors—e.g., chemicals that can interfere with the body's own hormones.
2. Persistence. POPs are highly stable compounds that resist degradation and, as such, have long half-lives in the body where they can accumulate overtime. Unfortunately, POPs are now pervasive in the food web.
3. Affinity for Fat. POPs accumulate in the body fat of living organisms and become more concentrated as they move from one creature to another onward and upward in the food web. For example, the tissue of herring gulls in Lake Ontario may contain 25 million times the concentration of PCBs found in the lake's water!
4. Global Travellers. POPs are compounds that are semi-volatile, a property that allows them to occur either as solid or a vapor depending on temperature. This characteristic allows POPs to “hop scotch” around the world, evaporation in warm conditions and settling in cool conditions. Accordingly, POP concentrations are omnipresent, found even in remote islands in the Pacific Ocean where these synthetic compounds have never been used.

In the developing world, the World Health Organization estimates that about 25 million people suffer symptomatic pesticide poisoning with more than 220,000 deaths recorded annually. Throughout the world, we do not yet know how the POP concentrations in our bodies will manifest their presence as we age, nor do we know the toll that the transmission of POPs will have on unborn generations.

Conclusion

Since health is indeed wealth, it is increasingly clear that environmental degradation and its impact on health may make the world's population much sicker and therefore much poorer if we don't decontaminate and restore our habitat to a sustainable condition.

The United Nations' efforts towards sustainable development, in particular to control the proliferation of POPs and to mitigate the impact of global warming, is the direction towards which all member states should move.

Thank you.