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Preface to 'Planetary Overload: Global Environmental Change and the Health of the Human Species'

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Preface

The most serious potential consequence of global environmental change is the erosion of Earth's life-support systems. Yet, curiously, the nature of this threat to the health and survival of the world's living species – including our own – has received little attention.

Over aeons, the evolution of life has gradually transformed the environment that clothes the planet's surface. The lower atmosphere's composition has changed; stratospheric ozone has formed from oxygen emitted by plants; soil has been created by oxidation, plants and microbes; and forests speed the recirculation of rainwater. Life's genetic diversity confers a capacity for adaptive change. However, this fabric of life-supporting mechanisms is now starting to unravel, in a brief geological moment, as the cumulative global impact of human activity escalates.

We fret about the more easily understood effects of environmental damage upon national economies, property values, amenities and pristine nature. In its 1992 Report, the World Bank says: 'Soils that are degraded, aquifers that are depleted, and ecosystems that are destroyed in the name of raising incomes today can jeopardize the prospects for earning income tomorrow.'¹ The report also notes, *en passant*, that local environmental pollution by toxic chemicals may impose costs to human health that retard economic development. This exemplifies how we typically overlook the more fundamental fact that Earth's natural systems provide the essential life-support services that enable organisms to remain healthy and to breed. Today's unprecedented global environmental changes – particularly climate change, ozone layer depletion, land degradation and loss of biodiversity – may therefore have profound effects upon the health of human populations.

This is unfamiliar territory. Overloading the biosphere can affect

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population health in ways that differ fundamentally from the local, direct-acting, toxicity of environmental pollutants such as sulphurous fumes in air and heavy metals in food. Rather, such overload reduces the stability and productivity of the natural systems that support life. We have created environmental agencies to address the familiar type of toxic pollutant problem highlighted at the 1972 UN Environment Conference – such as those due to air pollutants, contaminated drinking water, toxic waste sites and garbage disposal. Today, however, we face environmental problems that reflect ecological disruption, transcend national and regional boundaries, and pose a more profound, albeit longer-term, threat to health.

The political consequences are as complex as the science. For example, we may soon live in a world in which global warming, caused mainly by industrialised and industrialising countries, causes inundation of coastal communities in Bangladesh and increased spread of malaria to highland communities in Latin America and Africa. For such reasons, some governments have begun examining the health impacts of greenhouse-induced climate change and ozone layer depletion. The World Health Organization submitted to the 1992 UN Earth Summit a report on the health impact of current patterns of energy use, urbanisation, industry and agriculture. The UN's Food and Agricultural Organization now acknowledges that the combination of soil erosion, desertification, climate change and population growth portends more food shortages.

Overall, however, our response has been tentative. I think this is largely because we still have a shallow understanding of the ultimate dependence of our health upon the integrity of ecosystems. We talk about 'life-support' systems, but, frankly, the idea that the survival of *Homo sapiens* depends upon the sustaining of ecosystems still seems a bit far-fetched. Most developed countries have cultures characterised by religions with anthropoid gods, where the notion of Man as Master endures. Relatedly, under modern, internationalised, capitalism – now uncontestedly the dominant influence on world trade and national economies – we have conferred upon the market economy a life of its own, and, by defining our social purpose within this framework, we further distance ourselves from the rhythms of natural systems.

Those working in the health sciences, too, have been slow to perceive the significance of ecological disruption for population health. Some aspects seem clear enough – ozone depletion will enhance skin cancer rates and temperature rises will enlarge the habitat of malarial mosquitoes – but those are only the tip of a much bigger iceberg. Below the water-line loom wider-ranging hazards to human health. Meanwhile, despite the many

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uncertainties, the world's vital signs appear to be generally negative. The ozone layer is thinning faster than we expected. The 1980s was the hottest decade on record, sustained into the early 1990s. After three buoyant decades the world's per-person food output has recently faltered, and land degradation is occurring widely. The extinction of species and loss of genes, many directly useful to our future survival as food and pharmaceuticals, continues to accelerate. The arms race has yielded increasingly dreadful weapons that can destroy whole ecosystems. Underlying all of these, the burgeoning world population and the debilitating burden of Third World poverty and desperate subsistence agriculture weigh heavily on the environment.

These seemingly disparate problems arise from the sheer scale and intensity of human economic activity. If these problems continue, their impact will be geographically uneven. Land degradation, deforestation and climate change will occur mostly in poor countries at low latitude; direct exposure to increased ultraviolet radiation will increase most in rich countries at high latitude. Eventually, however, weather instability, climatic impairment of crop yield, rising seas and loss of genetic resources would affect the health of human populations everywhere. Of course, there is much that scientists do not yet understand about these ecological disturbances and their consequences. But we cannot ignore the probability that these global environmental changes will have various adverse effects upon the health and wellbeing of *Homo sapiens*.

Some of the predicted effects may not become serious for a generation or two. Much of the impact of today's environmental excesses will be to impoverish the environment in which future generations must live. This would be the first time, at a global level, that one generation has conferred a *negative* legacy upon future generations. That poses an unprecedented moral problem, since the usual expectation of human society (in particular, modern western society) has been that each generation will increase, or at least preserve, the store of scientific knowledge, technological skills and the material infrastructure of society for future generations.

Finally, a more personal comment. Writing about environment and health within an ecological framework has required ranging over a wide terrain – further widened by the need to consider political, social and ethical aspects. Although no-one can hope to be fully informed over so wide a terrain, I am reassured by the comment of an Australian philosopher, John Passmore, who, in *Man's Responsibility for Nature*, says: 'Everybody who writes about ecological problems is, in respect to certain of the topics he is discussing, an amateur.'² The import of

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Passmore's remark is that these problems cannot be meaningfully addressed *unless* they are considered within a multidisciplinary context. Passmore goes on to say: 'So far as the Western tradition discourages communication between specialists, it presents an obstacle to the adequate examination of ecological problems. Inter-disciplinary investigations are in this area not a luxury, but a necessity.'

Accordingly, I have attempted a broad analysis which I hope will provide a useful synthesis, particularly for those who have not previously thought much about human population health within an ecological context. This should inform and strengthen our response to the challenge posed by global environmental overload. Many commentators judge that we may not have long to develop the far-reaching social responses required to solve these problems. If a clearer understanding of the risks to human health facilitates such responses, this book will have achieved something worthwhile.

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2. Passmore J. *Man's Responsibility for Nature*. London: Duckworth, 1974 (Second Edition, 1980).

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