

CHAPTER 31

Challenges and Opportunities for a Sustainable Planet



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Summary We know that population and consumption are the two primary drivers of dangerous environmental changes. And we already possess the technologies and capabilities required to address them. It is well past time for us to translate that into determined global action. Politically, we must shift from a nation-based approach to one of true global solutions. Socially, we must realize that the world is already over-developed and that averting crisis means reducing unsustainable consumption as well as improving the lives of the poor. Technologically, as we pursue innovations that will take us back to sunshine as the dominant source of energy, we must also develop ways of sharing and distributing renewable energy across borders. It is not too late for us to turn things around, but we do not have much time left.

Introduction

Some years ago, on a long-haul flight, I struck up a conversation with the business-woman sitting next to me. She was interested in my work on climate change and sustainability, so I explained to her that it really came down to population and consumption.

I said that between 1900 and 2000, the number of people in the world grew by four times, while the amount that each person consumed doubled. This meant, of course, that human consumption overall grew eightfold within a century.

This is dangerous on a planet of finite space and resources, I explained. The Earth might seem rather big to us, but humans really only inhabit a thin layer of it, like the skin of an apple. And our voracious appetite for resources and our dumping of waste has already put a tremendous burden on this thin layer.

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Two Forms of Pollution

Today, this burden is manifested in two forms of pollution. One is visible: the air pollution that is literally choking our cities and killing people.

The Lancet Commission on Pollution and Health just released its landmark report, which concluded that, despite being a neglected topic for decades, “pollution is the largest environmental cause of disease and death in the world today, responsible for an estimated 9 million premature deaths.” The report found air pollution to be the deadliest of them all, having caused 6.5 million premature deaths in 2015. In my native Taiwan, it is estimated that over 9% of deaths can be attributed to air pollution.

The second form of pollution is less visible but no less dangerous: greenhouse gases that have contributed to an energy imbalance in the Earth system. More energy is coming in than going out. We have heard the incredible numbers from the likes of former US Vice President Al Gore—that the heat being trapped by greenhouse gases is equal to 400,000 Hiroshima-class atomic bombs going off every single day and is driving dangerous environmental changes.

An Unsustainable Trajectory

At the root of both forms of pollution is the rising number of people in the world and the rising amount of resources they are consuming. And this is by no means a new insight. In 1994, 58 academies of sciences from around the world had already published a statement pointing out that “If current predictions of population growth prove accurate and patterns of human activity on the planet remain unchanged, science and technology may not be able to prevent irreversible degradation of the natural environment and continued poverty for much of the world.”

The trajectory we are on will take us past 9.5 billion people globally by 2050, over 470 ppm in atmospheric CO₂ concentration, and a ruinous level of consumption. The potential impacts have been well covered, including by the participants of this important book: mass coral reef and forest die-off, extinction of a substantial fraction of the species on Earth, ever more frequent and extreme weather events, sea-level rise, a sharp decline in food production, and so forth.

What Are We Doing About It?

As you might imagine, my conversation with that businesswoman on the plane was not the most cheerful. But she continued anyway. She asked me: “So, if it really comes down to population and consumption, then that must be what your organization is working on right?”

I thought for a moment, and I said, “No.”

I was the president of the International Council for Science (ICSU), and we were doing a lot of important work, but we were not working directly on population and consumption.

She had a point. We already know what the key drivers of environmental change and unsustainable development are. We already possess technologies and capabilities to begin addressing them. But taken together, all of our efforts across the world are still insufficient to make our development sustainable. Collectively, all of the intended nationally determined contributions would still be insufficient for us to avert the climate crisis.

So how do we do better? I would like to offer five points for consideration.

Global Responses for Global Problems

First, climate change has regional and local manifestations, but at its heart it is a global problem, and it requires global solutions. The intended nationally determined contributions (INDC) are a prime example of this. Each country has determined for itself the level of its contribution to cutting emissions, based on factors like its domestic economic goals and politics. But it is ultimately the global-level result that will matter. If all the nationally determined efforts succeeded in taking us to 2.5 °C, we would still be in deep trouble. So our solutions must be global.

Another example is in energy. Getting to 100% renewable energy is quite a different challenge depending on where you live. In California, the population density is about 90 people per square kilometer, while in my native Taiwan, we have over 650 people per square kilometer. That is a whole lot of energy demand and not much land to deploy renewable energy supplies. And Taiwan is hardly alone in this regard.

Left to their own devices, densely populated places will have a hard time getting to a fully renewable future. So it would be wise for us to develop a cross-border system for trading renewable energy.

Back to Nature, Back to Sunshine

Second, whatever solutions we devise, they must take us back to nature and back to sunshine. Our societies and governments are used to putting the economy at the center of our decision-making. Even when sustainable development is on the agenda at the UN, and people talk about the economic, the social, and the environmental, everyone knows that the economy sits at the top. The first five sustainable development goals are clearly economic and social.

But all this must change. We must come around to the realization that without the environment, there would be neither society nor economy. We must put the environment at the center of our decision-making. This will require a deep decarbonization of our societies and economies by, for instance, establishing a carbon tax or fee.

And we have to go back to sunshine. Instead of digging down for more fossil-based energy, we must now reach up for solar energy. It is the most powerful fuel source we have. One hour of sunlight on Earth can meet one year of global energy needs! We must restore the direct relationship between people and the sun.

Live Better for Less

The third point is that while we need to improve the lives of billions of people, we can do so in a way that uses far fewer resources than the rich countries are using today. For instance, we can design our systems to be radically efficient in their use of resources. We can design our buildings to be net producers of water and energy. And we can design our neighborhoods so that all of our daily needs are easily met by walking or short public transit rides.

Innovators have proven again and again that human life can be improved by using fewer resources, not more.

Control the Population Explosion

Fourth, we need to reduce the explosive growth in human numbers. This has been a rather unpopular and neglected topic in sustainability discussions. Whenever we make projections for the coming decades, we almost take it as a given that global population will shoot past 9.5 billion and even 10 billion by 2050. And we calculate resource needs based on that. But is this really inevitable? Is it really fate? I would be inclined to say no.

We can bring human numbers to a more sustainable level by, for instance, improving the economic conditions of the poor and needy around the world. Some people argue that we should worry about consumption rather than population, but that is a false dichotomy. Humans are collectively having such an enormous impact on the environment that we must work on both population and consumption.

Improve Inequality Around the World

Fifth and finally, reducing inequality is a priority, but there are different ways of going about it. When we look at the discussions around sustainable development and the Sustainable Development Goals, the idea seems to be that we should reduce inequality by pulling the poor's living standards up to those of the rich.

But what would that do to the environment? And while we are busy getting the poor up to a higher level of consumption and income, the rich are getting richer still.

What about curtailing the unsustainable consumption of wealthy societies? If we wish to avert environmental catastrophe, then as we reduce inequality and improve the living standards of the poor, we must also curtail the unsustainable consumption of wealthy societies. That would be the proper way to reduce global inequality.

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