ADDIS ABABA – Sustainable development means achieving economic growth that is widely shared and that protects the earth’s vital resources. Our current global economy, however, is not sustainable, with more than one billion people left behind by economic progress and the earth’s environment suffering terrible damage from human activity. Sustainable development requires mobilizing new technologies that are guided by shared social values.

United Nations Secretary-General Ban Ki-moon has rightly declared sustainable development to be at the top of the global agenda. We have entered a dangerous period in which a huge and growing population, combined with rapid economic growth, now threatens to have a catastrophic impact on the earth’s climate, biodiversity, and fresh-water supplies. Scientists call this new period the Anthropocene – in which human beings have become the main causes of the earth’s physical and biological changes.

The Secretary-General’s Global Sustainability Panel has issued a new report that outlines a framework for sustainable development. The GSP rightly notes that sustainable development has three pillars: ending extreme poverty; ensuring that prosperity is shared by all, including women, youth, and minorities; and protecting the natural environment. These can be termed the economic, social, and environmental pillars of sustainable development, or, more simply, the “triple bottom line” of sustainable development.

The GSP has called for world leaders to adopt a new set of Sustainable Development Goals, or SDGs, that will help to shape global policies and actions after the 2015 target date for achieving the Millennium Development Goals (MDGs). Whereas the MDGs focus on reducing extreme poverty, the SDGs will focus on all three pillars of sustainable development: ending extreme poverty, sharing the benefits of economic development for all of society, and protecting the Earth.

It is, of course, one thing to set SDGs and quite another to achieve them. The problem can be seen by looking at one key challenge: climate change. Today, there are seven billion people on the planet, and each one, on average, is responsible for the release each year of a bit more than four tons of carbon dioxide into the atmosphere. This CO2 is emitted when we burn coal, oil, and gas to produce electricity, drive our cars, or heat our homes. All told, humans emit roughly 30 billion tons of CO2 per year into the atmosphere, enough to change the climate sharply within a few decades.

By 2050, there will most likely be more than nine billion people. If these people are richer than people today (and therefore using more energy per person), total emissions worldwide could double or even triple. This is the great dilemma: we need to emit less CO2, but we are on a global path to emit much more.

We should care about that scenario, because remaining on a path of rising global emissions is almost certain to cause havoc and suffering for billions of people as they are hit by a torrent of droughts, heat waves, hurricanes, and more. We have already experienced the onset of this misery in recent years, with a spate of devastating famines, floods, and other climate-related disasters.
So, how can the world’s people—especially its poor people—benefit from more electricity and more access to modern transportation, but in a way that saves the planet rather than destroys it? The truth is that we can’t—unless we improve dramatically the technologies that we use.

We need to use energy far more wisely while shifting from fossil fuels to low-carbon energy sources. Such decisive improvements are certainly possible and economically realistic.

Consider the energy inefficiency of an automobile, for example. We currently move around 1,000 to 2,000 kilograms of machinery to transport only one or just a few people, each weighing perhaps 75 kilograms (165 lbs.). And we do so using an internal combustion engine that utilizes only a small part of the energy released by burning the gasoline. Most of the energy is lost as waste heat.

We could therefore achieve huge reductions in CO2 emissions by converting to small, lightweight, battery-powered vehicles running on highly efficient electric motors and charged by a low-carbon energy source such as solar power. Even better, by shifting to electric vehicles, we would be able to use cutting-edge information technology to make them smart—even smart enough to drive themselves using advanced data-processing and positioning systems.

The benefits of information and communications technologies can be found in every area of human activity: better farming using GPS and micro-dosing of fertilizers; precision manufacturing; buildings that know how to economize on energy use; and, of course, the transformative, distance-erasing power of the Internet. Mobile broadband is already connecting even the most distant villages in rural Africa and India, thereby cutting down significantly on the need for travel.

Banking is now done by phone, and so, too, is a growing range of medical diagnostics. Electronic books are beamed directly to handheld devices, without the need for bookshops, travel, and the pulp and paper of physical books. Education is increasingly online as well, and will soon enable students everywhere to receive first-rate instruction at almost a zero “marginal” cost for enrolling another student.

Yet getting from here to sustainable development will not just be a matter of technology. It will also be a matter of market incentives, government regulations, and public support for research and development. But, even more fundamental than policies and governance will be the challenge of values. We must understand our shared fate, and embrace sustainable development as a common commitment to decency for all human beings, today and in the future.

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