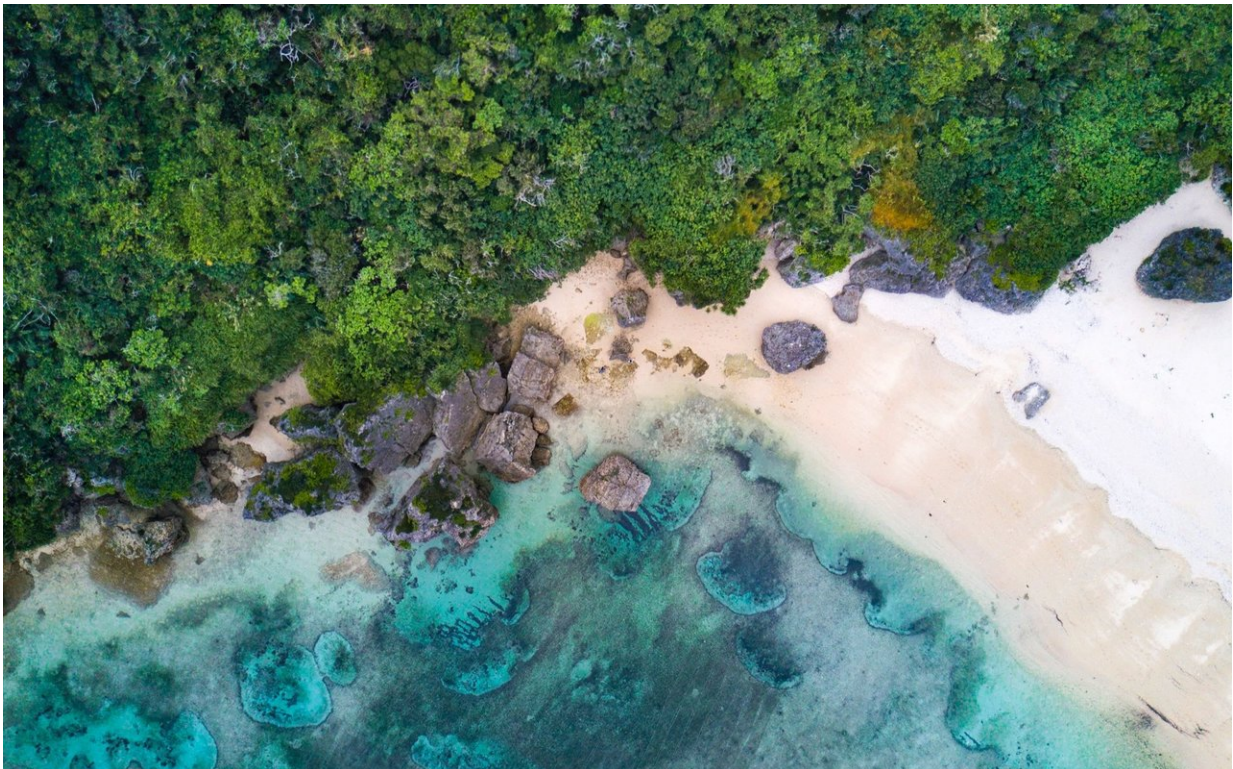


Can a unified path for development and conservation lead to a better future?

October 16 2018



Land meets sea. Credit: Uruma City, Japan © Ryo Yoshitake

The U.S. city of Louisville, Kentucky isn't known as a hotbed of environmental action and innovation, but that could change as it has recently become home to a first-of-its-kind collaboration between environmentalists, city leaders and public health professionals. The

Green Heart Project, funded in part by the United States National Institutes of Health, will plant trees in neighborhoods throughout the city and monitor how they affect residents' health. It's a boundary-pushing medical trial—a controlled study of nature as a medical intervention.

Green Heart is just one project in one city, but it represents a new way of thinking about the role of conservation in solving human problems. It is part of an emerging model for cross-sector collaboration that aims to create a world ready for the sustainability challenges ahead.

Is this world possible? Here, we present a new science-based view that says "Yes"—but it will require new forms of collaboration across traditionally disconnected sectors, and on a near unprecedented scale.

Many assume that economic interests and environmental interests are in conflict. But new research makes the case that this perception of development vs. conservation is not just unnecessary but actively counterproductive to both ends. Achieving a [sustainable future](#) will be dependent on our ability to secure both thriving human communities and abundant and healthy natural ecosystems.

The Nature Conservancy partnered with the University of Minnesota, CIRES at the University of Colorado Boulder, and 11 other organizations to ask whether it is possible to achieve a future where the needs of both people and nature are advanced. Can we actually meet people's needs for food, water and energy while doing more to protect nature?

A False Choice

To answer this question, we compared what the world will look like in 2050 if economic and human development progress in a "business-as-usual" fashion and what it would look like if instead we join forces to

implement a "sustainable" path with a series of fair-minded and technologically viable solutions to the challenges that lie ahead.



The Sustainability scenario aims to show how environmental conditions and human well-being can be improved through expansion of several leading conservation strategies, such as (a) transitioning from fossil fuels to renewable energy sources, and siting new renewable energy infrastructure on already converted lands; (b) protecting native habitat at levels that meet national commitments to the Convention on Biological Diversity; (c) shifting agricultural crops within growing regions to where they grow best; and (d) sustainably harvesting all fisheries. Credit: D Lauridsen and G Dian Balan/TNC Photo Contest 2018

In both options, we used leading projections of [population growth](#) and

gross domestic product to estimate how demand for food, energy and water will evolve between 2010 and 2050. Under business-as-usual, we played out existing expectations and trends in how those changes will impact land use, water use, air quality, climate, protected habitat areas and ocean fisheries. In the more sustainable scenario, we proposed changes to how and where food and energy are produced, asking if these adjustments could result in better outcomes for the same elements of human well-being and nature. Our full findings are described in a peer-reviewed paper—"An Attainable Global Vision for Conservation and Human Well-Being"—published in *Frontiers in Ecology and the Environment*.

These scenarios let us ask, can we do better? Can we design a future that meets people's needs without further degrading nature in the process?

Our answer is "yes," but it comes with several big "ifs." There is a path to get there, but matters are urgent—if we want to accomplish these goals by mid-century, we'll have to dramatically ramp up our efforts now. The next decade is critical.

Furthermore, changing course in the next ten years will require global collaboration on a scale not seen perhaps since World War II. The widely held impression that economic and environmental goals are mutually exclusive has contributed to a lack of connection among key societal constituencies best equipped to solve interconnected problems—namely, the public health, development, financial and conservation communities. This has to change.

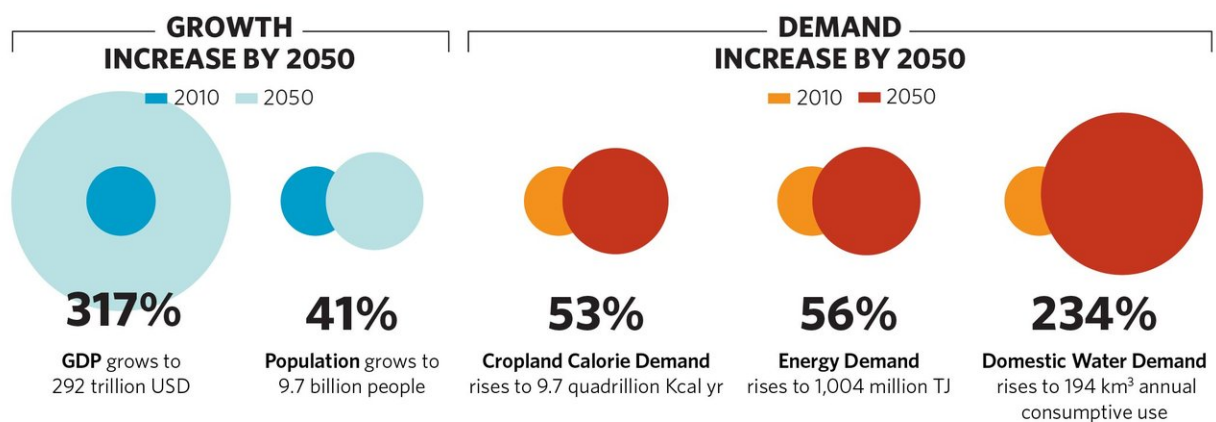
The good news is that protecting nature and providing water, food and energy to a growing world do not have to be either-or propositions. Our view, instead, calls for smart energy, water, air, health and ecosystem initiatives that balance the needs of economic growth and resource conservation equally. Rather than a zero-sum game, these elements are

balanced sides of an equation, revealing the path to a future where people and nature thrive together.

Two Paths to 2050

This vision is not a wholesale departure from what others have offered. A number of prominent scientists and organizations have put forward important and thoughtful views for a sustainable future; but often such plans consider the needs of people and nature in isolation from one another, use analyses confined to limited sectors or geographies, or assume that some hard tradeoffs must be made, such as slowing global population growth, taking a reduction in GDP growth or shifting diets off of meat. Our new research considers global economic development and conservation needs together, more holistically, in order to find a sustainable path forward.

Projected Growth in Population and Resource Demands by 2050



Over the next 30 years, we know we'll face rapid population growth and greater pressures on our natural resources. The statistics are sobering -- with 9.7 billion people on the planet by 2050, we can expect a 54 percent increase in global food demand and 56 percent increase in energy demand. Credit: The Nature

Conservancy

What could a different future look like? We've used as our standard the United Nations' Sustainable Development Goals (SDGs), a set of 17 measures for "a world where all people are fed, healthy, employed, educated, empowered and thriving, but not at the expense of other life on Earth." Our analysis directly aligns with ten of those goals. Using the SDGs as our guideposts, we imagine a world in 2050 that looks very different than the one today—and drastically different from the one we will face if we continue in business-as-usual fashion.

To create our assessment of business-as-usual versus a more sustainable path, we looked at 14 measurements including temperature change, carbon dioxide levels, air pollution, water consumption, food and energy footprints, and protected areas.

Over the next 30 years, we know we'll face rapid population growth and greater pressures on our natural resources. The statistics are sobering—with 9.7 billion people on the planet by 2050, we can expect a 54 percent increase in global food demand and 56 percent increase in energy demand. While meeting these growing demands and achieving sustainability is possible, it is helpful to scrutinize where the status quo will get us.

The World Health Organization, World Economic Forum and other leading global development organizations now say that air pollution and water scarcity—environmental challenges—are among the biggest dangers to human health and prosperity. And our business-as-usual analysis makes clear what many already fear: that human development based on the same practices we use today will not prepare us for a world with nearly 10 billion people.

To put it simply, if we stay on today's current path, we risk being trapped in an intensifying cycle of scarcity—our growth opportunities severely capped and our natural landscapes severely degraded. Under this business-as-usual scenario, we can expect global temperature to increase 3.2°C; worsened air pollution affecting 4.9 billion more people; overfishing of 84 percent of fish stocks; and greater water stress affecting 2.75 billion people. Habitat loss continues, leaving less than 50 percent of native grasslands and several types of forests intact.

However, if we make changes in where and how we meet food, water and energy demands for the same growing global population and wealth, the picture can look markedly different by mid-century. This "sustainability" path includes global temperature increase limited to 1.6°C—meeting Paris Climate Accord goals—zero overfishing with greater fisheries yields, a 90 percent drop in exposure to dangerous [air pollution](#), and fewer water-stressed people, rivers and agricultural fields. These goals can be met while natural habitats extend both inside and outside protected areas. All signatory countries to the Aichi Targets meet habitat protection goals, and more than 50 percent of all ecoregions' extents remain unconverted, except temperate grasslands (of which over 50 percent are already converted today).

What's Possible

Achieving this sustainable future for [people](#) and nature is possible with existing and expected technology and consumption, but only with major shifts in production patterns. Making these shifts will require overcoming substantial economic, social and political challenges. In short, it is not likely that the biophysical limits of the planet will determine our future, but rather our willingness to think and act differently by putting economic development and the environment on equal footing as central parts of the same equation.

More information: Heather M Tallis et al, An attainable global vision for conservation and human well-being, *Frontiers in Ecology and the Environment* (2018). [DOI: 10.1002/fee.1965](https://doi.org/10.1002/fee.1965)

Provided by University of Colorado at Boulder

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