



Science – our best bet to achieve the SDGs?

Science has pushed the boundaries of what is possible throughout history. From mapping DNA to the invention of electricity to the adoption of penicillin in modern medicine; science has shattered barriers and expanded human potential. With just eight years left to 2030, we must act now to accelerate needed transformations. Science is likely our best bet to achieve the 17 Sustainable Development Goals.

There is very little time left to tackle massive global challenges like growing poverty and hunger, and the triple threat of climate change, biodiversity loss and pollution.

Science can evolve quickly when the stakes are high and when people come together in collaborative ways to face a shared challenge. This was observed in real time during the COVID-19 crisis when the flow of information and the pace of action matched the urgency, with new vaccines being developed on an unprecedented timeline.

But the link between science and human progress is not automatic. Science can be applied in ways that generate new inequalities or exacerbate existing ones; it can be used

for individual gains rather than the public good; and it can push imbalances between humans and nature further toward tipping points.

How can we use science to achieve the SDGS?

First, we must more equitably share the gains of science. The distribution of the very vaccines that were developed from research driven by decades of public and philanthropic funding remains vastly unequal. Unless the solutions generated through science are shared and applied everywhere, problems will persist and even multiply.

Second, science should be mission-driven with focused funding and capacity building. Aligning science with the 2030 Agenda and the Paris Agreement on Climate Change is no less urgent than directing science toward recovery from COVID-19 for long-term human resilience.

Third, multi-stakeholder cooperation will continue to be key to strengthening the science-policy-society interface and building trust in science.

All of these topics and other important aspects of science for sustainability will take center stage during the 7th Annual Multi-stakeholder Forum on Science, Technology and Innovation taking place on 5-6 May at the United Nations headquarters in New York. The event is guided by the theme “Science, technology and innovation for building back better from the coronavirus disease (COVID-19) while advancing the full implementation of the 2030 Agenda for Sustainable Development”.

Learn more about the event and register [here](#).



EXPERT VOICES



Making waves for a blue economy

Our ocean is critical for all life on Earth. It regulates the climate and provides livelihoods for millions. But our ocean's health is in danger. How can the blue economy help restore and protect this vital planetary resource? Ahead of the 2022 UN Ocean Conference this June, we spoke with UN DESA's Madhushree Chatterjee who explains.

What do we mean when we talk about the blue economy?

“The blue economy, also known as the sustainable ocean-based economy, comprises a range of economic sectors and related policies that aims to foster economic and social progress while maintaining the health of our oceans and coasts. For instance, the ocean food sector provides up to 237 million jobs globally and provides key nutrients and protein to over 3 billion people. In fact, food from the sea is the primary source of protein to over 50 per cent of the population in least developed countries. Coastal and marine ecosystems contribute up to 11.5 billion USD to global tourism, while also protecting our coasts from storms and floods, providing habitat for biodiversity, carbon storage, and detoxification. In terms of the global economy, around 90 per cent of all internationally traded goods are shipped by sea, and the market value of marine and coastal resources

and industries is estimated at US\$3 trillion per year or about 5 per cent of global gross domestic product. Sustainable use of ocean, seas and marine resources, as set out in SDG14, lies at the center of a sustainable blue economy, though common principles are yet to be determined.”

Why does this matter in our efforts to save our oceans?

“A sustainable blue economy offers a vision for countries’ efforts to build back better from the COVID-19 pandemic by shifting away from business as usual and embracing the more sustainable development patterns associated with a blue economy. Despite our reliance on the ocean and its resources, our current global economic system has contributed to the rapid degradation of ocean health through poor management and unsustainable exploitation of marine resources, destruction of marine and coastal habitats, and pollution. From traditional sectors such as fisheries, aquaculture, tourism, marine transportation to emerging sectors such as ocean renewable energy and marine genetic biotechnology, a sustainable blue economy offers a much-needed solution to bring economic benefits and create jobs while safeguarding marine ecosystems and protecting the ocean.”

The UN Ocean Conference is taking place on 27 June-1 July this summer. How will this event play a role for the blue economy?

“As the UN Secretary-General said in his letter to Heads of States and Government inviting them to participate in the 2022 UN Ocean Conference, the ocean is home to up to 80 per cent of all life in the world. It contributes to the social and economic well-being of people by playing a significant role in poverty eradication, shipping and trade, climate resilience, food security, job creation, and the sustainable blue economy. The UN Ocean Conference to be held in Lisbon in June 2022, will build on the success of the first UN Ocean Conference in 2017 and galvanize action through solution-oriented partnerships, financial pledges, and voluntary commitments aimed at reversing the decline in the health and productivity of the ocean. As mandated by all UN Member States, the blue economy features directly in the official programme of the Conference through the interactive dialogue on “Promoting and strengthening sustainable ocean-based economies, in particular for Small Island Developing States and Least Developed Countries”. There will also be a special event on the Sustainable Blue Economy and Investment Forum, co-organized by the co-hosts of the Ocean Conference Kenya and Portugal. This event intends to connect all stakeholders and launch a process for designing sustainable blue economies global standard to be used as financial instruments, and in investment decisions and business.”

What action can we as ordinary citizens take to promote a blue economy?

“Recent years have seen growing interests among policy makers and stakeholders in developing the blue economy, notably since the 2017 UN Ocean Conference. Numerous voluntary commitments under the Ocean Conference registry directly contributed or referred to sustainable blue economy. However, various challenges remain, such as access to affordable long-term financing at scale, lack of capacity, technology and enabling environment and addressing environmental concerns. These challenges cannot be overcome without participation of all stakeholders. Voluntary commitments – a key outcome of the 2017 Ocean Conference – offers a way for individuals to be part of the solution and do their part to promote a sustainable blue economy through awareness raising, identifying gaps and bringing innovative and scalable solutions.”

Learn more about the blue economy, the UN Ocean Conference and ways to get involved:
[2022 UN Ocean Conference](#)





6 big questions for a global recovery in 2022 and beyond

In a world challenged by intertwined crises, the [UN High-level Advisory Board on Economic and Social Affairs \(HLAB\)](#) is stepping up to offer advice on how the world can recover and make progress towards sustainable development. On 25 May, you will be able to explore their

solutions in the volume *“Six Big Questions about the Global Recovery from COVID-19: The UN High-level Advisory Board Q&A Compendium”*. Here are their 6 main takeaways:

1. How do we get the economy on track?

A robust and equitable global recovery will not be possible until the pandemic is under control, and policies must address the continuing disparity of access to vaccines and fiscal resources among countries to better respond to the crisis. The way we measure our recovery and growth needs to be reexamined. It must reflect what is truly valued to better inform policy decisions globally.

2. How do we finance the recovery?

There needs to be new thinking on debt. We must reassess the importance and productive role of public spending, especially for the recovery, in the post-pandemic era. We need to change the excessive focuses on the risks associated with fiscal deficits, so that countries can mobilize resources and spend more productively for long-term opportunities, that are also better aligned with the SDGs.

3. What about inequality?

We need to pay more attention to our economic security as one of the key driving factors in tackling inequality. From its inception, the United Nations has recognized the significance of economic security for wellbeing, stating that everyone has the right to an adequate standard of living *“and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”* (Article 25 of [the Universal Declaration of Human Rights](#)) Policies must respond to guarantee these rights, tailored to specific situations people face. This transition process should be pursued through increasing the voice and agency of workers.

4. Can we still save the planet?

The world is not on track to meet the objectives of the Paris Agreement on Climate Change. The public sector has a role and responsibility in changing this trajectory, while ensuring a just and inclusive transition that does not cause major disruption or dislocation. We need to bolster further leadership by developing countries and ensure that the narrative in support of climate action is adapted to local contexts to also address specific concerns, such as the loss of biodiversity, deforestation, and depletion of local resources, which have a real impact on communities in the developing world.

5. What is the role of technology in the recovery?

Frontier technologies like artificial intelligence (AI) can be deployed to benefit societies and can contribute to the public good, if the right policies are in place. It is therefore critical

to pay attention to both progress and drawbacks of technologies, as well as its directionality, to ensure that the benefits are evenly spread throughout society. Public interventions should also ensure that new technologies such as AI are used to augment labor, rather than replace it.

6. What are the implications of population ageing for the future?

Population ageing is occurring in almost all countries of the world, albeit at different levels and with different speeds. In many developing countries, the population is still relatively young but is ageing faster than developed countries did. While population ageing is a sign of reductions in mortality and fertility associated with socioeconomic development, it also leads to fiscal pressures that will affect public pension systems and other social protection measures. We will need to pay more attention to the role of care economy, as well as the interlinkages between population growth, ageing and migration.

Lastly, we need to ask ourselves the most fundamental questions of our time: *“How can the world be better prepared for future crises?”* and *“How can the world make the move away from short-termism towards long-term thinking in building future-oriented policies and cooperation mechanisms?”* Find out in more detail what HLAB members have to say in the upcoming Q&A Compendium, which will be made available soon on the HLAB website: <https://www.un.org/en/desa/about-us/advisory-board>.





An inclusive vision of computing will help us accelerate progress on the SDGs

By Josiah Hester, Assistant Professor, Northwestern University, and Director of the Ka Moamoa Ubiquitous and Mobile Computing Lab

Computing is all around us – health trackers on wrists, flow sensors on water mains, smart meters on power lines, pedestrian counting cameras in cities – sensors and smart devices are everywhere. This computational fabric is only growing and is crucial for sustainable development. Yet, the current generation of computing devices are not designed for sustainability and longevity, are not accessible, available, or usable outside of developed countries, and are not adaptable for inclusive and community-driven applications. Adding insult to injury, the developed world’s endless turnover of perfectly fine electronics for the newer model exacerbates our electronic waste problem. If we hope to meet the Sustainable Development Goals (SDGs), we must first reimagine the Internet-of-Things backbone of sustainable development. We must develop sustainable computational things.

Imagine a bracelet – comfortable, fashionable – that alerts you when your blood oxygen is low, monitors your blood pressure over time, and informs a treatment plan (SDG 3 – Good Health and Wellbeing). Now, think of a wireless sensor node deployed in a city or community, monitoring air quality, weather, and habitat health markers like the presence of pollinators (SDG 15 – Life on Land). The sensor acts as an early warning system for flooding and hazards – as well as provides data for scientists, journalists, and city planners to inform their work (SDG 11 – Sustainable Cities and Communities). These devices are not far-fetched; they exist already– but they are rarely found outside highly developed, high-resource countries.

Why? Because today’s devices are not designed for the constraints of sustainable development. Smart devices have short battery lifetimes, require constant recharging or replacement, and rarely last a couple of years. Most devices cannot function without internet connectivity, reliable power grids, and cloud-based service providers (i.e., payment and data brokers). [More than a third of the world has never been online](#), and reliable power is still a problem even in developed countries due to aging infrastructure and extreme weather effects. Finally, the COVID-19 pandemic further exacerbated gaps in connectivity and reliable power. The design of modern smart devices, borne out of a privileged view of the world, barring a vast portion of the global population from the expected benefits of these devices.

But there is a way forward: let’s reimagine those examples considering the constraints. Take the bracelet, for example. Instead of using a battery, we can power the device purely by harvesting the mechanical energy generated by the arm swinging while walking. Instead of connecting to the internet, the bracelet computes blood oxygen and blood

pressure on the device itself. Without a battery to recharge, the device never has to be taken off, providing rich, continuous data for years.

The other example, an outdoor wireless sensor, can be powered by a small solar panel or by converting microbial activity in the soil into electricity. The sensor forms a network with other sensors just like it. The network alerts cell phones in the community when any sensor detects a hazard (like flooding or drop in air quality). With no batteries to replace, the community can focus on how to best use the data and devices to create a safe, sustainable neighborhood.

When devices no longer need batteries, reliable power grids are not as crucial. When devices don't need to offload tricky calculations to the cloud, internet connectivity and data plans become unnecessary. Unwinding these requirements enables rapid deployment of smart devices to rural and less developed places, reduces the need for maintenance, and enables long-term monitoring applications—for example, sensors for measuring how climate change affects habitat/biodiversity or a wearable for managing chronic hypertension. This is not science fiction. My own work has demonstrated devices that safeguard clinical workers' health [by turning a mask into a heart rate tracker](#) that harvests energy from breath, that support environmental justice with [soil-powered sensors](#), and even provide joy with a [battery-free clone of a Nintendo Game Boy](#) that runs forever.

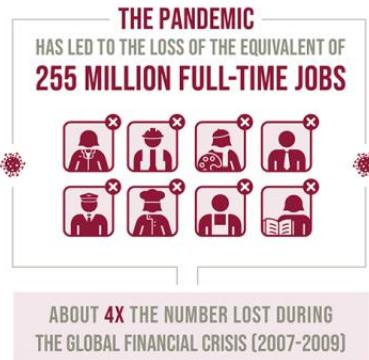
This vision of smart devices and computing — one with fewer batteries, with an eye on the embedded carbon costs of computing, and with aims to build computing devices that last for decades, not just years — will have a profound beneficial impact on our ability to meet the SDGs. By lowering the barrier to deploying computing and sensing technology, democratized community-driven efforts become possible. Long-term sensors measure ecosystem diversity, give insights into personal wellness, inform civic action, and provide data to hold governments and businesses to account for pollution and pesticides in our air and water.

As a Native Hawaiian (a member of the Indigenous Polynesian people of the Hawaiian Islands), I was brought up to expect long-term solutions that better steward scarce resources, honor the land, and support the next seven generations. Computing is an essential tool for this. Currently, this tool is inaccessible to most of the world, reducing our global ability to meet our sustainable development goals. Reinventing the tool that is the Internet-of-Things to be sustainable and inclusive is a tall order. Policymakers can encourage longer-term use of electronics, device manufacturers can integrate energy harvesting and optimize for longevity, software developers can extend support for older systems, and development funds can support large-scale deployments. It is a tall order, but it is worth the effort and investment, as these sustainable computational things will serve generations to come.

** The views expressed in this blog are the author's and do not necessarily reflect the opinion of UN DESA.*



SDG 8 IN NUMBERS



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