The Sustainable Development Goals aim to end poverty, improve health and education, and ensure sustainable modes of living. What scientists need to do to accelerate progress on the SDGs

Drilling down into why the UN Sustainable Development Goals are so hard to achieve, and showing policymakers pathways to follow, will help the planet and save lives.

This year marks the halfway point of the United Nations Sustainable Development Goals (SDGs), which were agreed in 2015, to be reached by 2030. As an independent group of scientists appointed by the UN to assess progress and recommend how to move forwards, we have a stark message: the world is not on track to achieve any of the 17 SDGs and cannot rely on current rates, it will take 300 years to attain average global temperature rise. And, at the climate agreement's 1.5 °C 'safe' guardrail on climate action, it will take 300 years to attain. Global leaders must act now to remove key roadblocks to progress. To break the logjam, scientists need to find what is impeding system-wide changes in different places and sectors, and identify rapid ways to overturn those obstacles. Most research has so far focused on a few sectors, such as energy, and predominantly on high-income nations. The lessons are difficult to transfer to low- and middle-income countries.

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But it has taken decades. If the world is to accelerate progress, governments need to play a more active part, by stimulating innovation, shaping markets and regulating business. Precisely how depends on local contexts. For example, it might be more politically feasible to transition to net-zero emissions in service-based economies, such as Switzerland and Singapore, than in economies with large fossil-fuel-based assets such as Australia and many Middle Eastern countries. Governments need to be ready to support a clean-energy transition if it provides better access to cheap power, but might lack the finance, supporting infrastructure or institutions needed to make it happen. Each nation and sector will need a tailored approach for navigating such major transitions. To help them, researchers should provide evidence on the optimal routes to substantial and rapid changes in technologies, policies and behaviours. Ideally, these approaches would reinforce one another to trigger positive change across many SDGs. For example, to shift societies towards a diet that is also healthy for the planet, one approach could be for governments to invest first in R&D to develop cost-effective alternatives, then use public money to buy them, and deploy market incentives and awareness campaigns to encourage uptake and boost commercial viability. They should also use market interventions such as taxes and regulations to scale up adoption quickly. Research on positive tipping points should also be harnessed and expanded. For example, enabling solar and wind energy to reach price-parity with fossil-fuel energy has flipped

“Reducing environmental hazards, such as wildfires, also benefits human health.”

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improvements in irrigation and fertilizer use. For human development goals, scaling up investments in social policies would help. For example, doubling budgets for public health, social welfare, education, R&D and infrastructure along with improvements in participatory governance and control of corruption could, by 2030, lift 124 million more people out of poverty and leave 113 million fewer people malnourished. Researchers need to examine feedbacks, synergies and trade-offs to help inform coherent strategies that make the best use of available resources and manage unintended side effects. For example, investments in health and education can improve economic productivity and growth, people’s incomes and government revenue, yet they could also increase consumption and thus resource demand, environmental degradation and pollution, as well as exacerbating inequalities. Equitable energy-transition programmes that seek to reduce emissions, improve energy security, access and affordability, and create jobs, but they also need to navigate potential risks in land use and supply chains. Identifying sweet spots, where most benefits could be gained with the most cost-effective solutions, would help to use resources as judiciously as possible. One modelling study in Tanzania shows how subsidies for photovoltaics would enable progress on affordable and clean energy, while also supporting other goals — such as education by allowing students to study longer, health by reducing air pollution from solid fuels, and climate action by reducing emissions.

Policymakers want national detail about actions and costs. For example, modelling in Australia shows that quick gains on S2 SDG targets can be made by following a green-economy pathway. This would include investing an extra 1% of GDP annually to improve energy and water efficiency, sustainable agriculture and transport, and biodiversity protection. It could be financed through taxes on consumption. In addition to the green investment, spending an extra 2.5% of GDP per annum on health, education and social subsidies and transfers, along with policies to address inequality, would boost average progress on the SDGs to 70% by 2050. This compares to just 42% progress if governments focus only on delivering more-rapid economic growth. However, it has proved hard to translate analytical exercises into policy advice because the studies have not always involved policymakers, and the methods and results might remain too high-level or abstract, or unlinked to policy processes. One way to bridge this gap would be to embed SDG analyses in existing assessments of major policy reforms, new legislation or big programmes or public investments. For example, guidelines adopted in Denmark require that new government bills be screened and assessed to evaluate their consequences for achieving the SDGs.

Governments and businesses should review their structures and processes (regulatory, budgeting, planning and auditing) to identify areas where SDG analyses are needed. National systems should also be enhanced, particularly in low- and middle-income countries — for example, by setting up cross-governmental feedback loops.

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Find feasible and cost-effective pathways Although sustainable energy and food-system transitions have featured strongly in recent research, little is known about policy pathways that aim to achieve all the SDGs simultaneously. Policymakers need practical guidance on cost-effective interventions as well as managing trade-offs. Models have shown how addressing the SDGs together can be beneficial, especially around energy, the economy, climate and land, for which coupled models are already well developed. For example, many SDGs could be achieved by 2050 through more-ambitious action! This would include a mix of interventions — such as a price on carbon, redistribution of carbon revenues to alleviate poverty, increasing the supply of clean energy while phasing out coal, electric-vehicle mandates, a transition to sustainable diets, protection for biodiversity hotspots, and efficiency improvements in irrigation and fertilizer use.

“Models have shown how addressing SDGs on energy, economy, climate and land together can be beneficial.”

Comment

There are ongoing obstacles to change. Uptake of electric vehicles might stall if supporting infrastructure is lacking or policy support is withdrawn over a backlash from change-averse car makers. More-stringent policies such as phasing out fossil-fuel cars or coal-fired power stations can face resistance from powerful interest groups. Importing technologies and practices in one SDG area can have downsides in others. For example, mining critical minerals for batteries damages the environment, and the decline of jobs in fossil-fuel sectors can affect livelihoods in some communities. Researchers need to study ways to build momentum for tougher interventions, overcome resistance to change and manage negative side effects. This will require more support from funders, research institutions and publishing houses to promote and feature research on the SDGs, especially to study goals that are lagging, such as on equality and productivity and growth, people’s incomes and government revenue, yet they could also increase consumption and thus resource demand, environmental degradation and pollution, as well as exacerbating inequalities.

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coordination offices and expert units for generating, synthesizing and packaging specialized evidence.1

Strengthen governance and accountability

SDG progress relies upon the effectiveness of governance processes, but these span a wide spectrum. What’s more, the SDGs are not legally binding and each nation, sector and other stakeholder has engaged with them in its own ways. Myriad processes have sprung up, including Voluntary National Reviews (VNRs) and Voluntary Local Reviews (VLRs), to track and report progress on the SDGs. These reviews are undertaken by national or local authorities to report on progress and share experiences, successes and lessons learnt in implementing the SDGs.

The VNRs are presented annually to the UN High-level Political Forum for Sustainable Development in New York City, which reviews SDG commitments and provides a forum for countries to share best practices. But accountability from governments remains weak — expressed political support for the SDGs has often failed to translate into strategic public policy processes, especially long-term budgets and investment. For example, a recent review of national budgets in 74 countries showed that only 13 integrated the SDGs into budget lines or allocations.2 The effectiveness of SDG processes, policies and strategies has also received little scientific validation.

Scientists need to develop criteria to assess the impact of different SDG governance processes. Policies, processes and programmes need to move from being ‘accommodative’ — the equivalent of painting SDG targets on to existing strategies — to ‘transformative’, with norms and structures redesigned to align with SDG outcomes.3 Stronger action would probably result if the SDGs were fully integrated in strategic planning, legislative and budget processes. For example, the governments of Mexico and Colombia have linked their national budgets to the SDGs to improve alignment of expenditure with outcomes. This provides opportunities for researchers to evaluate whether such approaches result in tangible improvements on the SDGs.

Researchers should also provide guidance to enhance accountability — for example, by providing systematic and empirical insights on the design of effective national accountability mechanisms for the SDGs. These are highly context specific, but might use parliamentary inquiries, auditing agencies, or human rights institutions to evaluate the adequacy of implementation and provide recommendations. Or countries could embed the goals in legislation or include them in the mandates for existing independent and ongoing reporting institutions and initiatives.

For example, national supreme audit institutions in the Netherlands, Lithuania and Tanzania have evaluated and provided recommendations to government on preparedness for implementing the SDGs. Finland uses several mechanisms to increase accountability, including a national multi-stakeholder sustainable development commission and an annual citizens’ panel on sustainable development, and is developing an approach to apply the SDGs to all relevant national auditors. Popularizing the goals can also increase government interest and social accountability.

Without accelerated action, the ambitious plan that the world signed up to in 2015 will fail. Scientists, institutions and funders must do their part to save the SDGs — and the planet and human society.

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