

Deep transformations needed to achieve sustainable development goals

August 26 2019



Credit: CC0 Public Domain

The Sustainable Development Goals and the Paris Agreement on Climate Change call for deep transformations that require complementary actions by governments, civil society, science, and

business. IIASA contributed to a new study outlining six major transformations that will be required to achieve these ambitious goals.

The UN Sustainable Development Goals (SDGs) focus on time-bound targets for prosperity, people, planet, peace, and partnership—collectively known as the five Ps. By adopting the 2030 Agenda with its 17 SDGs and the Paris Climate Agreement, UN member states effectively created a framework for national action and global cooperation on sustainable development, while the Paris Agreement committed signatory countries to achieving net-zero greenhouse gas emissions by the middle of the century. SDG 13 on [climate change](#) specifically links to the Paris Agreement noting that the UN Framework Convention on Climate Change "is the primary international, intergovernmental forum for negotiating the global response to climate change." Despite the interconnectivity and clear aims of these global goals, stakeholders seem to lack a shared understanding of how the 17 SDGs can be operationalized.

Building on previous work by The World in 2050—a global research initiative established by IIASA—the authors of the study published in the journal *Nature Sustainability* propose six transformations to organize SDG interventions through a semi-modular action agenda that can be designed by discrete, yet interacting, parts of government. According to the paper, the proposed framework may be operationalized within the structures of governments while still respecting the strong interdependencies across the 17 SDGs. The authors also outline an action agenda for science to provide the knowledge required for designing, implementing, and monitoring the SDG Transformations.

"The 2030 Agenda and the Paris Agreement have given the world an aspirational narrative and an actionable agenda to achieve a just, safe, and sustainable future for all within planetary boundaries. The six transformations provide an integrated and holistic framework for action

that reduces the complexity, yet encompasses the 17 SDGs, their 169 targets, and the Paris Agreement. They provide a new approach to shift from incremental to transformational change; to identify synergies using sustainable development pathways; formulate actionable roadmaps; and a focus on inter-relationships to uncover multiple benefits and synergies," explains study co-author Nebojsa Nakicenovic, executive director of The World in 2050 (TWI2050) research initiative at IIASA.

In their paper the researchers considered which key interventions would be necessary to achieve the SDG outcomes and how their implementation might be organized into a limited set of six transformations namely education, gender, and inequality; health, wellbeing, and demography; energy decarbonization and sustainable industry; sustainable food, land, water, and oceans; sustainable cities and communities; and digital revolution for sustainable development. To simplify the discussion of interlinkages between interventions and SDGs, the authors further identified intermediate outputs generated by combinations of interventions, which in turn contribute to the achievement of each SDG. Each SDG [transformation](#) describes a major change in societal structure (economic, political, technological, and social) to achieve long-term [sustainable development](#), while also each contributing to multiple SDGs. Excluding any of them would make it virtually impossible to achieve the SDGs.

Pursuing the six transformations will require deep, deliberate, long-term structural changes in resource use, infrastructure, institutions, technologies, and social relations, which have to happen in a relatively short time window. Previous societal transformations, like industrialization in 19th century Europe, were initiated by technological changes like the steam engine and were largely undirected, while 20th century technologies like semiconductors, the Internet and Global Positioning Systems, were promoted through directed innovation to meet military aims. The authors emphasize that it is crucial that SDG

transformations are formally directed in order to meet time-bound, quantitative targets, such as net-zero carbon emissions by mid-century.

"By achieving change in these six key areas, we can save both people and planet. To deliver on both ambitious climate targets and meet all the Sustainable Development Goals, we identify very concrete levers that governments can pull. For instance, investing in agriculture with known technologies and management practices can enable both food security, human health, and climate mitigation. Investing in young children's education is another example. It improves human wellbeing, increases [economic development](#), and stabilizes population growth," says study co-author Johan Rockström from the Potsdam Institute for Climate Impact Research in Germany. "The six transformations in this paper have the ultimate goal of enhancing human prosperity and reducing inequalities. This is of course not easy. In fact, it is the largest human endeavor of all time. Science is here to provide governments with a fact-based framework. If political leadership fails to act, however, we would face unprecedented risks for the stability of societies, and for our Earth system."

More information: Six Transformations to achieve the Sustainable Development Goals, *Nature Sustainability* (2019). [DOI: 10.1038/s41893-019-0352-9](#) , [nature.com/articles/s41893-019-0352-9](https://www.nature.com/articles/s41893-019-0352-9)

Provided by International Institute for Applied Systems Analysis

Citation: Deep transformations needed to achieve sustainable development goals (2019, August 26) retrieved 3 May 2024 from <https://phys.org/news/2019-08-deep-sustainable-goals.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.