


Planetary Boundary pioneer Johan Rockstrom wins 2024 Tyler Prize for environmental achievement

 downtoearth.org.in/news/environment/amp/planetary-boundary-pioneer-johan-rockstrom-wins-2024-tyler-prize-for-environmental-achievement-94752

Planetary Boundary framework determines limits within which humanity can safely operate within natural world

2024 Tyler Prize for Environmental Achievement winner Johan Rockstrom. Photo: Jadranko Marjanovic / Tyler Prize

The 2024 Tyler Prize for environmental achievement will be awarded to Johan Rockstrom for his groundbreaking contributions and pioneering work to the development of the Planetary Boundaries framework, the science for defining the safe operating space for humanity on Earth.

Rockstrom is director of the Potsdam Institute for Climate Impact Research (PIK) and co-chair of the Earth Commission. The framework provides boundaries for world development and a basis for human justice, PIK said in a statement on February 29, 2024.

The prestigious Tyler Prize is often described as Nobel Prize for environment. Rockstrom will receive the award on May 17, 2024, in a ceremony in Potsdam, Germany.

The Planetary Boundaries is an international collaboration across multiple Earth system science disciplines. The theory establishes defined boundaries for nine Earth systems, emphasising the critical importance of their stability and resilience in preserving life as we understand it.

The framework, published in 2009, defines these systems as: Climate change; rate of biodiversity loss (terrestrial and marine); interference with the nitrogen and phosphorus cycles; stratospheric ozone depletion; ocean acidification; global freshwater use; change in land use; chemical pollution; and atmospheric aerosol loading.

“The framework tried to identify the Earth-system processes and associated thresholds which, if crossed, could generate unacceptable environmental change,” said Rockstrom in 2009. Transgressing too many Planetary Boundaries could, according to him, risk “reaching tipping points that will undermine the Earth’s life-support systems.”

“Push the Earth system too far and we risk critical biological and physical systems, like forests and ice sheets, crossing a tipping point, fundamentally shifting their state and functions,” Rockstrom said, citing the deforestation of the Amazon rainforest as one example.

Established in 1973, the Tyler Prize for Environmental Achievement recognises global leaders in environment and sustainability.

According to Tyler Prize Chair Julia Marton-Lefèvre, Tyler Prize Executive Committee awarded a \$250,000 prize to Rockstrom for his “science-based approach to sustainable development for people on a stable and resilient planet,” emphasising the need for a holistic, interdisciplinary approach to the mounting environmental crises.

“He (Rockstrom) has elucidated the essential environmental limits within which humanity must operate to ensure a sustainable future, while his scientific achievements, coupled with his ability to influence policy and engage with the public, have made an invaluable contribution to our planet’s welfare,” said Marton-Lefèvre.

The recognition is significant since humanity is “well outside of the safe operating space” on six of the nine Planetary Boundaries, according to the latest update on it published September 2023 by Katherine Richardson, professor of oceanography at University of Copenhagen.

Katherine Richardson is among various scientists who have contributed in advancing the science of Planetary Boundaries over the last 15 years, according to Rockstrom. His statement also acknowledged that Will Steffen, Australian professor in Earth system science, worked with him in advancing the original theory and methods of defining and quantifying it. Steffen passed away in 2023.

A book, *Breaking Boundaries: The Science of Our Planet*, co-authored by Rockstrom, became a documentary on over-the-top streaming service *Netflix*, narrated by renowned British biologist and natural historian Sir David Attenborough.

In fact, the framework has also contributed to shaping public responses to climate change and sustainable development, including the United Nations-mandated Sustainable Development Goals (SDG). The SDGs explicitly include four of the nine Planetary Boundaries: Freshwater (SDG 6), climate (SDG 13), oceans (SDG 14) and biodiversity (SDG 15).

“As a matter of urgency, we must recognise and act upon the vast scientific evidence that patient Earth is unwell as human pressures on the planet continue to rise, breaching Planetary Boundaries. We are at risk of destabilising the entire planet,” stated Rockstrom.

Since 1973, the Tyler Prize for Environmental Achievement has recognised global leaders in environment and sustainability. Past winners include Jane Goodall, Michael Mann, Daniel Pauly, and Gretchen Daily, among others.

Last year, two fisheries experts, Daniel Pauly and Rashid Sumaila, won the prize. In 2020, it was awarded to Pavan Sukhdev, Indian economist who formulated Green Economy and Gretchen C Daily, conservation biologist.

Subscribe to Weekly Newsletter :

Donate Now