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Johan Rockström, is the Executive Director of the Stockholm Resilience Centre, a Professor in Environmental Science with Emphasis on Water Resources and Global Sustainability at the Stockholm University. Johan Rockström is an internationally recognized scientist on global sustainability issues, he led the recent scientific development of the new Planetary Boundaries framework – a groundbreaking way to look at the sustainability issues at hand. He is a leading scientist on global water resources, and strategies to build resilience in water scarce regions of the world. He serves on several scientific committees and boards, and he chairs the visioning process on global environmental change of the International Council for Science (ICSU). Johan also serves on the Swedish Prime Minister's Commission on the Future. He has published numerous books and articles and is a frequented keynote speaker.

Resilience for Human Development in the Anthropocene

There is growing recognition, based on major scientific evidence accumulating over the past 30 years, that life support systems on Earth, which underpin human wellbeing, can undergo abrupt changes and potentially regime shifts, if critical control variables are pushed too far. In its core, resilience is a measure of the capacity of a system to withstand disturbance while maintaining its structure and function – in simple terms the ability to remain in a stable state when put under stress. Resilience also involves the ability of social-ecological systems to adapt to changing conditions, and to transform into a new trajectory in case of crisis. The growing insights that ecosystems and biomes can have multiple stable states, where inbuilt biophysical processes and feedbacks determine their resilience to shocks, has put into question our current social and economic development paradigm, which is based on the assumption that “nature” changes slowly, linearly, and in predictable and thereby controllable ways. This obsolete notion has laid the foundation for our world development paradigm, which embraces efficiency and optimization, and the assumption of growth without limits. With growing empirical evidence of regime shifts and risks of abrupt changes in feedback processes (e.g., accelerated melting of the Arctic ice sheet; risk of rainforest to savannah transitions), together with evidence of a narrowing global ecological space for development due to resource scarcity, global warming and ecosystem decline, a real worry is arising within science that we now face the urgent need to explore a new global development paradigm. Humanity may have entered the Anthropocene, a new geological era where the human enterprise constitutes a global force of change at the Planetary scale. At this juncture – with exponential growth of pressures on the planet (the

Anthropocene) and growing risks of abrupt, potentially catastrophic regime shifts, together with growing social-ecological turbulence in a world approaching 9 billing people – there is a clear basis for a deeper rethink. The world needs a transition to global sustainability, which will require transformative changes in the way we govern and manage interacting planetary boundaries, to allow humanity to move from a predominant paradigm of “growth without limits” to a paradigm of “growth within limits”. This new paradigm will require a recognition of the virtue of redundancy as a risk minimizing strategy, the need for reconnecting of the human enterprise with the biosphere and the exploration of social pathways geared towards a safe operating space that sustains Earth resilience as a critical core component of Global sustainability.