

Global Sustainability Postdoctoral Researcher

Synthesis and analysis of scenarios and pathways towards achieving Sustainable Development Goals within planetary boundaries in 2050

1-year sabbatical based at Future Earth,
c/o Royal Swedish Academy of Sciences, Stockholm

Deadline 18 April

Future Earth is an international research programme for global sustainability. We are seeking a post doc to lead a targeted global-sustainability synthesis. The focus of the fellowship will be:

- Synthesis and integration of scenarios and pathways to a sustainable world by 2050
- Manage integration between three related initiatives, The World in 2050 (TWI2050), Analysis, Integration and Modelling of the Earth System (AIMES) and Future Earth's SDG Knowledge Action Network.

The successful applicant will manage a major synthesis effort, which may require some modelling, to provide policy-relevant new insights relating to meeting the Sustainable Development Goals within planetary boundaries by 2050. We are interested in the following areas:

- Planetary health: Feeding 9.7 billion people a healthy diet within planetary boundaries
- Rapid transformation from urban sprawl to sustainable cities
- Alternative pathways to zero emissions by 2050

We encourage applicants with deep knowledge of one of these areas who are seeking to expand their knowledge in other areas. However, we are willing to explore other avenues relating to SDG scenarios and pathways for example, with regards to: equity and equality, gender, education, resilience, consumption and production, technological diffusion, artificial intelligence.

The aim of the project will be to elucidate pathways and levers for deep transformations based on new research and synthesis and analysis of existing research to provide new insights. The successful candidate will develop the project with AIMES and TWI2050 principal investigators (Peter Cox, Sander Van der Leeuw, Nebojsa Nakicenovic and Johan Rockström) and other researchers and work closely with the Earth League's "Earth docs" based at Stockholm Resilience Centre, IIASA and the Potsdam Institute for Climate Impact Research. The Future Earth Fellow will also provide some coordination for related Future Earth activities. We are open to discussion about flexible arrangements regarding managing and merging existing projects/commitments.

The analysis and synthesis will entail meta-analysis and coordination of inter-comparisons. It is expected to lead to publications in high-profile interdisciplinary journals and other intellectual products. The position is a one-year sabbatical and is based at Future Earth's Global Hub working directly with Wendy Broadgate and Owen Gaffney at the Royal Swedish Academy of Sciences.

Profile

You are probably an early career researcher building your networks. You will have deep expertise in one of our focus areas, for example global food security, global urban trends or the carbon cycle, but want a deep immersion in full Earth-system thinking and integrated assessment models with some of the world's leading modelling groups and institutes. You may already be working on, or leading, a similar project at your home institute and feel this opportunity can greatly add value to that work.

Future Earth Fellow roles and responsibilities

- Coordinating a high-level synthesis and analysis relating to critical knowledge gaps
- Liaison with the AIMES research community providing a bridge between AIMES and TWI2050
- Connecting the SDGs Knowledge Action Network and TWI2050
- Connecting other Future Earth projects and activities to TWI2050
- Narrative development (Shared Socio Economic Pathways approach for successful outcome of the SDGs)
- Linking Earth observation data to TWI2050 initiative

Background

The Sustainable Development Goals (SDGs) were unanimously adopted by the United Nations in September 2015 and provide an aspirational vision of the desired future for human development within planetary boundaries – a world free from hunger, injustice and absolute poverty, of universal education, health and employment with inclusive economic growth, based on transparency, dignity and equity. These goals have been strengthened by the historic Paris Agreement adopted by the 21st Conference of the Parties in December 2015.

However, the world lacks a clear understanding of the pathways, deep transformations and trade-offs that arise – for sectors, regions and the world - to simultaneously meet the social, economic and Earth goals of the SDGs. The World in 2050 (TWI2050) is a major international research initiative designed to fill this gap and support the policy process.

TWI2050, a research initiative developed by a partnership including Future Earth, Sustainable Development Solutions Network, International Institute for Applied System Analysis (IIASA), Earth Institute at Columbia University and the Stockholm Resilience Centre at Stockholm University, aims to develop evidence-based, equitable pathways to sustainable development within safe planetary boundaries. It brings together the world's leading Earth system modeling teams, including AIMES and integrated assessment modelers with policymakers and analysts to collaborate in developing pathways toward sustainable futures and policy frameworks needed for achieving the needed transformational change.

TWI2050 intends to explore avenues to achieve sustainable development pathways, by 'back-casting' from desired development outcomes in the second part of the century to a more immediate future, building upon shorter-term achievements as defined collectively by the 17 SDGs. In that sense, TWI2050 is normative, but not policy prescriptive.

Instead of developing a new suite of analytical models, the TWI2050 initiative will combine recent advancements in Earth system governance, social, economic and technology advances and Earth system science (e.g., energy, food, population, education, macroeconomics, biodiversity, climate). It will use existing global assessments (e.g., IPCC reports, Global Energy Assessment, Human Development Report, World Economic Outlook, Global Biodiversity Outlook), recent advances in scenario building (e.g., RCPs and SSPs) national (e.g., the Deep Decarbonization Pathway Project) and integrated assessment models (e.g., MESSAGE, IMAGE, and IMPACT/ GLOBIOM/GAEZ) to evaluate the linked impacts of global food policy, population changes, ecosystem changes, climate change and energy use. TWI2050 will benefit from other scientific initiatives in advancing integrated assessment modeling and treatment of nexus problems such as the EU CD-LINKS initiative. In addition, it will use data from across the regional and national assessments, roadmaps and analytical scenarios as inputs to the global and regional perspectives. The contributions would range, for example in the case of decarbonization, from the INDCs to SDSN regional work.

Future Earth

Future Earth is developing a Knowledge Action Network (KAN) on the SDGs. This network will bring the scientific knowledge and processes of the Future Earth community into the efforts to implement and achieve the SDGs. The KAN will address key knowledge gaps related to implementation of the SDGs in integrated, system-based, solution-oriented and multi-scale (local to global) approaches.

Through the SDGs KAN, Future Earth aims to enhance the contribution of research in helping to achieve the SDGs through:

- Connecting the international research community to the SDG policy interface.
- Identifying and solving cross-cutting and cross-scale SDG delivery challenges, addressing institutional problems and systemic constraints.
- Synthesizing and proposing pathways based on research, including from the TWI2050
- Mobilizing an interdisciplinary scientific group to derive data and information to support the SDGs.
- Identifying critical research and funding streams for the SDGs and stimulate projects in these fields.

Applications

Applicants are requested to submit a curriculum vitae together with a cover letter describing their motivation for the position and how their skills and experience match the role. Please also include the name and contact details of two referees. Applications should be sent via email with 'TWI2050-Future Earth Fellow' in the subject line to zlatko@tresurs.se.

The closing date for applications is **18 April 2017** with a start date as soon as possible. For further information contact zlatko@tresurs.se.

For more information on Future Earth: <http://www.futureearth.org/>

For more information on The World in 2050 initiative: <http://twi2050.org/>