

# TOWARDS A TRANSFORMATIVE SUSTAINABILITY SCIENCE: FUTURE EARTH AND OTHER FRONTIERS IN ENVIRONMENTAL STUDIES



A SERIES OF LECTURES OFFERED BY

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**OCTOBER-DECEMBER 2013**

**FRIDAYS 15:30-17:30** (Over for schedule)

The Lectures will be held in The MAIN LECTURE HALL at RIHN  
(Reception to follow each lecture)



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## SERIES ABSTRACT

In this lecture series, I will present my perspective on the history and future of sustainability studies, based on 25 years of fieldwork and theory development in Europe and the USA. I will cover: (1) how the development of human cognition enabled our technologies and societies to emerge and transform our environment, (2) how science has been part of this development, and (3) how it needs to change in order to help solve some of the present problems. I will argue that for this to happen, we need to (4) adopt a complex systems perspective that looks at processes, rather than phenomena, and at the emergence of the new, rather than the origins of the existing. To (5) fully enable us not only to learn from the past, but to also learn for the future (and thus to help solve some of the dilemmas we face) we also need to mobilize the new tools of information technology, and we (6) need to develop intellectual fusion across disciplines. I will conclude (7) with a summary of lessons learned and a perspective on the future of sustainability science.

### SESSION 1 INTRODUCTION AND OUTLINE (OCT. 18)

A few words about my personal intellectual trajectory, followed by an introduction to the topic, emphasizing the recent changes in sustainability-related science, from Planetary Boundaries to Future Earth, from an environmental perspective to a social science perspective.

### SESSION 2 HOW DID WE GET TO WHERE WE ARE NOW? (OCT. 25)

The importance of considering the long term in dealing with sustainability, illustrated by a brief history of human socio-environmental evolution over the last 2 million years, and concluded by some of the lessons to be learned from that history for our present predicament.

### SESSION 3 THE ROLE OF SCIENCE (NOV. 8)

From an anthropological perspective, practicing science is a community activity, and that activity has changed a lot over time. Some of those changes explain: (a) how that perspective has led to some of the current problems; and (b) what needs to be done to help solve them. The emphasis will be on the role of science over the last 60 years.

### SESSION 4 WHAT KIND OF SCIENCE NOW? (NOV. 22)

By means of an example (or two), the case will be made for a science of complex adaptive systems that allows us to: (a) better integrate natural, life and social sciences, but also technology and engineering; (b) not only learn from the past, but learn for the future.

### SESSION 5 WHY MODEL? (NOV. 29)

Learning for the future involves translating our observations into dynamic models, not to 'model reality', but to learn how to think in terms of dynamics. That capacity can then be used to design scenarios for the future, and to assess the risks that those scenarios might pose to it.

### SESSION 6 HOW TO GROW A TRANS-DISCIPLINARY COMMUNITY? (DEC. 13)

Based on practical experience in Europe and the USA, this lecture will look into some of the difficulties encountered in creating trans-disciplinary science, and present some of the ways I have tried to address these.

### SESSION 7 CONCLUSIONS ... AND OPENINGS? (DEC. 20)

A brief summary of the series, followed by a discussion about where sustainability science should be going in order to help us deal with humanity's largest challenges to date: to find a way to re-balance its development in harmony with that of nature.

## BIOGRAPHY

Sander van der Leeuw was trained as an archaeologist and medieval historian at the University of Amsterdam. He has held two Fulbright scholarships, as well as visiting positions at Australian National University, the Universities of Paris, Chicago, Modena (Italy), the Santa Fe Institute and most recently the Research Institute for Humanity and Nature in Kyoto, Japan.

He is the founding director of the trans-disciplinary School of Human Evolution and Social Change at Arizona State University, and he has just resigned as the dean of that University's School of Sustainability, the first of its kind, where he turned interdisciplinary theory into use-inspired research. He is currently co-director of ASU's Complex Adaptive Systems Initiative.

Prior to joining ASU, van der Leeuw conducted archaeological and environmental research in the Near East, the Philippines, Holland, France, and Mexico. An expert in complex adaptive systems, he coordinated a series of interdisciplinary research projects on socio-environmental co-evolution and human-nature interactions in all the southern countries of the European Union. Van der Leeuw's interests currently focus on the role of invention, innovation and sustainability in societies around the world, investigating how invention occurs, what the preconditions are, how the context influences it, what its role is in society, and how it leads to sustainability challenges.

A native of Holland, he is a corresponding member of the Royal Dutch Academy of Arts and Sciences and an external professor at the Santa Fe Institute. In 2012, the United Nations Environment Program named van der Leeuw the "Champion of the Earth for Science and Innovation" for his work on human-environmental relations.

