

MONDAY, NOV. 2, 2015, 18:30-20:00
CONFERENCE CENTER LAXENBURG
SCHLOSSPLATZ 1, 2361 LAXENBURG
FREE BUS FROM/TO VIENNA



THE SOLUTIONS UNDERFOOT - THE POWER OF SOIL

Kerner von Marilaun Lecture
jointly organized by KIÖS | IIASA | GFZ



PROGRAM

WELCOME

Gerhard Glatzel | Chairman of the Commission for Interdisciplinary Ecological Studies (KIÖS), ÖAW

Michael Obersteiner | International Institute for Applied Systems Analysis (IIASA)

Bernd Uwe Schneider | German Research Centre for Geosciences (GFZ)

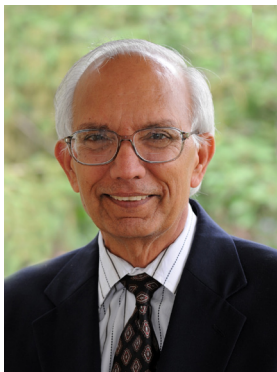
LECTURE

Rattan Lal | Distinguished Professor of Soil Sciences at the Ohio State University, USA

SOLUTIONS UNDERFOOT: THE POWER OF SOIL

Among the global issues of the 21st Century, and those driven by the growing and increasingly affluent population (7.3 billion in 2015 and projected to be 9.7 billion by 2050) are: increasing atmospheric concentration of greenhouse gases and the attendant change in global climate, growing energy demand, excessive water withdrawal and pollution of water resources, tropical deforestation and conversion of natural to agro and urban ecosystems, soil degradation and desertification, food and nutritional insecurity, and growing civil strife and political instability. The solution to these and other issues lies in soils, their sustainable management, and restoration of degraded and depleted soils. Indeed, soil matters, and must never be taken for granted. Soil functionality and the ecosystem services provisioned by it also impact water security, energy security, climate security, food/nutritional security, health security, environmental security, political security, and national/international security. The health of soil, plants, animals and humans is interconnected and indivisible. Elimination of hunger and hidden hunger (i.e. deficiency of some essential micronutrients) can be achieved by restoring the quality of soils. Thus, agriculture must be nutrition-sensitive. Soil is also a large reservoir of biodiversity, and microorganisms in soil are the source of most antibiotics. Being the largest repository of C among the terrestrial pools, prudently managed and judiciously restored soils are sink of atmospheric CO₂ and critical to any strategy of adaptation and mitigation of climate change. The technical potential of sequestration of soil organic carbon in the top

30 cm depth is about 2.8 Gt per year. In addition, there also exists potential of sequestration of soil inorganic carbon as secondary carbonates, and of leaching of bicarbonates in lands irrigated with good quality water. Recarbonization of the terrestrial biosphere, soil, and vegetation, can off-set some anthropogenic emissions. Rather than bringing new land under cultivation or expanding irrigation, the strategy is to enhance agronomic production from existing lands by adopting sustainable intensification of agroecosystems; enhancing rhizospheric processes; creating disease-suppressive soils; following the nexus approach to harness synergistic effects; and managing phytobiomes. Urban agriculture must include roof gardens, space/sky farming, and soil-less culture using aquaculture, hydroponics, aeroponics etc. Natural/undisturbed soils must be protected for nature conservancy and other non-agricultural uses for generations to come. Thus, development of synthetic or artificial soils may be important to management of urban landscapes and adopting soil-less culture. The terrestrial soil resources must be used, improved and restored. Thus, soil stewardship and care must be embedded in every fruit and vegetable eaten, in each grain ground into bread consumed, in every sip of water engulfed, in every breath of air inhaled, and in every scenic landscape cherished. Soil is the essence of all terrestrial life. It can convert death into life. Thus, soil is life and life is soil.



Rattan Lal is Distinguished Professor of Soil Science at the Ohio State University. He was Senior Research Fellow with the University of Sydney, Australia (1968-69) and Soil Physicist at IITA, Ibadan, Nigeria (1969-87). His research focus is on climate-resilient agriculture, soil carbon sequestration, sustainable intensification, enhancing use efficiency of agroecosystems, and sustainable management of soils of the tropics. He was included in the Thomas Reuters 2014 list of World's Most Influential Scientific Minds (2002-2013). He was president the Soil Science Society of America (2005-2007), and is President Elect of the International Union of Soil Sciences, Vienna, Austria (2014-), and is Chair of the Advisory Committee to UNU-FLORES, Dresden, Germany (2014-). He has mentored 105 graduate students and 54 postdoctoral researchers, and 143 visiting scholars. He has authored/co-authored more than 1850 research publications including 728 refereed journal articles and 404 book chapters, has written 12 and edited/co-edited 58 books.

Title photo: In many areas of the world soil erosion impairs food production and water retention. (Photo: G. Glatzel, Ethiopia 2006)

ORGANISING COMMITTEE:

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REGISTRATION IS ABSOLUTELY REQUIRED – The participation is free!

There will be a bus leaving at 16:40 from Museum für angewandte Kunst (Stadtpark entrance), Weiskirchnerstrasse 3, 1010 Vienna, and returning to Vienna at 20:10.
RSVP by October 28, 2015 (indicating also whether you need a bus transfer):
Email: pitner@oeaw.ac.at