

# Portfolio

## Personal details

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Prof. Dr. Matthias Langensiepen  
Born 6.8.1963 in Bonn

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As an environmental scientist and agronomist, I have more than three decades of international research experience in a wide range of fields, from environmental physics, plant ecology and crop science to environmental policy and environmental psychology. I enjoy using this experience to explore the relationships between technical-scientific and socio-ecological aspects in environmental systems, and to develop solutions to the pressing issues of climate change, agriculture and the environment. Recently, I have developed a new approach to wetland policy design in East Africa, a new approach to integrated plant physiology, and a new theory for studying farmer-land relationships. I have extensive methodological skills in modelling, data processing and environmental measurement techniques.

The collaborative research projects I was working on have ended. I am currently looking for new employment.

## Expertise

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### Professional

Human-land relations (since 2011)

Environmental Policy-Making (since 2008)

Research Integration and Management (since 1998)

Ecological Environmental Protection (since 1994)

Environmental Physics (since 1990)

Agroecology (since 1984)

Farming (since 1981)

### Methodological

Solution-oriented research and theory development

Artificial intelligence and data science (certified 2024)

Mixed data analysis, modelling and information design

Transdisciplinary cooperation and field research

Python, Tensorflow, PyTorch, R, SQL, Java

### **Further expertise**

Scientific policy advice in East-Africa (since 2008)

University Teaching: Environmental sciences (since 2003)

PhD supervision (since 2003)

Member of several collaborative research projects in various functions (since 1998)

Operation, improvement and development of environmental instrumentation (since 1984)

International Environmental Research (since 1984)

### **Major contributions**

New theory for understanding farmer-land relations (2024)

New method “Cognitive-driven information design” for environmental policy-making (2023)

New policy-process theory for environmental policy-making (2023)

Conceptualizing new human-environmental theories and study methods (2020-2024)

Integrated plant-physiology concept (2020)

Improved plant-functional type parameterization of the Community-Land Model CLM (2015)

Improved heat-balance method for measuring sap-flow in plants (2014)

New closed chamber method for measuring canopy gas-exchange (2012)

Validation of the CERES crop growth model (2008)

Tree energy-balance model (2006)

Validation of the Penman-Monteith equation in contrasting climates (1997)

Characterizing light extinction and microclimate at small forest streams (1995)

### **Education**

Professor of Modelling Plant Systems (2005)

PhD with distinction: Cultural Engineering and Water Management (1997)

Diplom Ecological Environmental Protection (1995)

Diplom International Agronomy (1992)

Farmer Journeyman (1987)