



## **How our changing research arena can inspire innovative environmental research in developing countries (Alexander von Humboldt Medal Lecture)**

Johan Bouma

Em.prof.soil science, Wageningen University, the Netherlands, Johan.bouma@planet.nl

Alexander von Humboldt was a true pioneer by engagingly articulating an ecosystem-wide vision on environmental issues and research, connecting and moving beyond disciplinary boundaries. Focusing here on soil science as an important discipline within the geosciences, the work of our group has acted in the spirit of this approach by focusing on interdisciplinary systems research in different developing countries in close interaction with stakeholders, based on soil processes in a dynamic landscape context. But recent developments of internet and social media are drastically changing relations between science and society all over the world. Scientists have to continuously struggle to keep their “societal license to research”. Researchers in so-called developed countries would be well advised to communicate lessons learned to scientists in developing countries allowing them to leapfrog and avoid making time-consuming mistakes adhering to yesterday’s practices. Specifically, attention should be paid to: (i) more continuing interaction with stakeholders when planning and executing research. This takes time that should be allocated in research projects. ; (ii) the quality of a limited number of key papers rather than on the total number of published and cited scientific papers, when judging researchers; (iii) defining new research on the basis of proven inadequacy of existing techniques and methods, realizing that “new” is not necessarily “better” and that available research methods and procedures can solve many current environmental problems; (iv) showing the value of the scientific approach that does not articulate: “yet another opinion” but is essential to face the major environmental challenges of the 21st century. (v) demonstrate the crucial importance of interdisciplinary ecosystem research and innovation when addressing the seventeen UN Sustainable Developments Goals (SDG’s) that are attractive now as a focus for the scientific effort in land-related research. (vi) demonstrate the relevance of separate disciplines in the interdisciplinary effort investigating SDG’s by including results of baseline studies that omit or highly generalize input of that particular discipline and (vi) improve communication with stakeholders and policy makers applying psychological insights gained in modern communication theory.