

The challenge for soil research to establish creative interaction with stakeholders and policy makers

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Abstract

The need for scientists to interact more effectively with various stakeholders and policy makers is widely acknowledged in literature and strategic reports. This need is particularly relevant for soil scientists as they are intimately involved with research focused on societal issues covering various aspects of sustainable development. Starting with the classic Gibbons *et al.* paper of 1994, defining mode-1 and mode-2 research, many other studies have been made introducing new terms, such as finalization science, strategic research, post-modern science, innovation systems, academic capitalism, post academic science, Triple Helix, transition management and communities of practice. All these academic endeavours have produced new insights but not as yet operational procedures that are applicable in practice. Perhaps soil scientists, in particular, are in a unique position to “come down to earth” and explore possibilities to improve our ability to effectively interact with various stakeholders and policy makers with the overall objective to improve our impact on society and public awareness. This paper explores some possibilities.

Key Words

Education, sustainable development, public awareness.

Introduction

There is by now general agreement that research aimed at societal problems needs a different approach than the classical one where researchers define the problem to be studied, perform their research and present results without any particular concern about follow-ups. In agricultural research, extension services have been effective in communicating research results to various users but commercialization of extension services has led to their disappearance in many countries, forcing researchers to be more involved themselves. But they feel uncomfortable in this position and developments since have resulted in a rather unsatisfactory condition where too many research projects are poorly connected to user demands while policy makers complain about research being “ivory-towery” or worse. Social scientists have picked up this theme since the middle 1990’s and a large number of theoretical and conceptual papers have appeared. But in practice not too much has changed. Soil scientists are perhaps in a good position to allow this discussion to: “come down to earth” and this paper will explore some possibilities (see also Bouma, 2020). Attention is paid to: (i) a brief literature review; (ii) a discussion of stakeholder demands and the way to approach them, (iii) same for policy makers, and (iv) some conclusions and recommendations for future research and its organization.

Theoretical and conceptual considerations

Hessels and van Lente (2008) have provided an interesting review of papers defining “new” types of research that would be more in tune with modern demands. Bohme *et al.* (1983) speak about Finalization Science; Irvine and Martin(1984) about Strategic Research and Functowicz and Ravitz (1983) introduced the term Post-Modern Science. Edquist (1997) defines Innovation Systems, while Slaughter and Leslie (1997) introduced Academic Capitalism. Ziman (2000) speaks about Post Academic Science and Etzkowitz and Leydesdorf (2000) introduced the Triple Helix concept. Rotmans *et al.* (2001) describe Transition Management and, finally, Wenger (1998) introduced the concept of Communities of Practice. As stated above, main emphasis in these papers is on theoretical and conceptual aspects and practical feasibility nor applicability are hardly covered, nor are specific examples presented.

The main reference is by Gibbons *et al.* (1994) who define mode-1 research versus mode-2 research. Mode-1 is academic, monodisciplinary, homogeneous, has autonomy and classical quality control (peer review); Mode-2 , on the contrary is research in the context of application; transdisciplinary (where researchers work together right from the start with stakeholders), heterogeneous, where social accountability and novel forms of quality control are enforced.

The stakeholders

The stakeholders are a highly diverse group of citizens or organizations in any project that deals with soil research with a societal impact, which would include most projects using land in some way. There are citizen groups, farmers, entrepreneurs, industries, non-governmental organizations, environmental action groups and others. All groups or individuals involved in a given project should be clearly identified right at the start.

This implies that groups that do not involve themselves should be approached by researchers right at the start if they are potentially important for the problem being studied. In addition, a systematic inventory should be made of their suggestions for and expectations of research to be performed. Only part of these expectations will be expressed: many are hidden. An effort should be made – if needed over a drink- to obtain ideas about such hidden objectives because they often turn out to be important in the end. Just asking stakeholders what research they would like to see performed without also probing their expectations is not satisfactory, nor is an incomplete cover of all stakeholders and stakeholder-groups involved.

In order to survive, researchers should be aware that they cannot possibly satisfy all expectations. So they must devise an approach that will allow them to answer questions in a satisfactory manner for at least a significant part of the stakeholders without relaxing their scientific standards. There are too many examples of studies where a particular selection of stakeholders is blindly embraced by researchers, where researchers lose their independence and get clobbered in the end. Researchers have a powerful tool in remaining independent by defining options for a given problem rather than a single solution (e.g. Bouma *et al.*, 2008 with illustrations). In mode-1, there is a problem (identified by researchers) with a solution that is communicated (or thrown over the hedge). In mode-2, a better procedure for scientists is to say: “Anything goes!” “There is no such thing as a bad or wrong idea (what is bad or wrong today may turn out to be a major innovation tomorrow!) and your idea is certainly one of the options we will analyse”.

This means that all consequences of an idea will be shown and it pays for researchers to assist stakeholders in not only generating ideas but also to clarify them as they develop. This approach is counter-intuitive: it would appear to be logical to rapidly filter out clearly wrong or irrelevant suggestions. Then, however, we often find that such ideas start to lead a separate existence in the margin of the discussions as a haven for professional nay-sayers. This can frustrate the general process. It is better to take it all along (except for unethical ones) and make the overall process transparent by showing systematically what the consequences would be if the given option would be realized.

The sustainability concept is attractive here to characterize options as it involves environmental (Planet); societal (People) and economic (Profit) considerations. Some environmentalists ignore economic aspects; social scientists tend to be weak on environmental and economic aspects and economists sometimes ignore environmental considerations. Looking systematically at all three for any option is an attractive approach to give all participants their day in court and give scientists a clear and independent possibility for objective evaluation. The ultimate “solution” of the particular problem being studied is a compromise choice from one of the options, each one of them with particular trade-offs involved. By offering “options” rather than “specific solutions” researchers can maintain their scientific independence and maintain a certain distance to the stakeholder and political arena where ultimate decisions are made.

The policy makers

Policy makers are, again, a highly diverse group operating at local, regional, national or international levels. Different political parties have different programs and there may be a next party in charge next year. Researchers should therefore be careful to not attach themselves to a particular party. Usually politicians are elected for a limited period of time and they want to have left at least some marks on society by the time they move on. This is reasonable enough. Researchers should avoid, again, to be “his-masters-voice” for policy makers and strive for independence. If they are, rightly or not, too much associated with a particular group of stakeholders, they lose credibility with other stakeholders and with politicians. If, on the other hand, they are seen as spokespersons for politicians, they lose credibility with the stakeholders. Being a researcher in the 21st century implies being able to perform a delicate balancing act! Defining options, as discussed above, is attractive in this context and joint development of options is particularly attractive when working with politicians. A touch of Macchavellian manipulation may be useful here: “I have heard that...; if you would do this or that, then...etc. In the end, research will be judged in terms of what has been accomplished.

Conclusions

Just like with the stakeholders, the joint research approach can ideally result in a feeling that :”we have a problem and we try to solve it as best as we can” rather than a “them” versus “us” situations in which the scientists may lose their shirt. When scientists succeed in working interactively they may also have an important function in bridging the gap between citizens and politicians that is widening right now because of lack of trust. In summary, the procedures loosely sketched here may ideally strike four birds in one stroke: (i) stakeholders feel that their concerns are taken seriously; (ii) policy makers feel that scientists help them within reason to achieve at least some of their objectives, (iii) scientists are effective in applying their science and keep their independence, and (iv) scientists make a contribution towards bridging the gap between science and society, as exemplified in the mode-1 approach. The key-word of all of the above is continuous engagement. Current research programs do not allow for this nor does the current soil-research community have the expertise to realize this transdisciplinary approach. Also, many of our educational programs still follow the mode-1 approach. If all our strategic plans emphasizing the need for more interaction with society are to be taken seriously, our research planning and infrastructure and our education programs should therefore change significantly. Bouma (2008) has in this context made a plea for the establishment of “Communities of **Scientific Practice**” in which the science community should get its act together by including applied and basic scientists , as well as specialists in communication and interaction in their research teams. More time should be dedicated to guard and guide the interaction process from project initiation, as discussed above, to implementation afterwards. We don’t simply deliver information to our users, we develop it jointly along a bumpy track while demonstrating all the time that the scientific community provides major and decisive input into the learning process. This could be the way forward for soil science in the 21st century.

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