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Soils, science and the politics of knowledge: How African smallholder farmers are framed and situated in the global debates on integrated soil fertility management☆

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ABSTRACT

The paper addresses an important and often overlooked cultural aspect of smallholder agriculture in sub-Saharan Africa (SSA). This relates to how different policy organisations conceptualise soil management problem, its causes and solutions and how these framings intersect with, and incorporate smallholders' indigenous knowledge. The article provides a brief review of the positionality of modernists and post-modernists on knowledge production and the politics which the process entails. Considering the ideology of some continental and global initiatives on integrated soil fertility management (ISFM), the paper identifies and addresses institutional framings of soil fertility problem in SSA. It also analyses the political economy [and ecology] of soil management in SSA; and investigates how farmers' knowledge are incorporated into ISFM in the sub-continent. Drawing from some empirical evidences, the paper suggests that there is need for an economically viable and socio-culturally acceptable framework for the integration of both western and local knowledge in ISFM.

Introduction

The importance of soil fertility in food production cannot be over-emphasised. Widely claimed, it is one of the most critical problems now facing agricultural development and food security in the sub-Saharan Africa (SSA) region. Thus, soil management and its attendant problems in SSA have continued to receive attention amongst development experts. Some international initiatives and donor programmes are underway to address the problem of soil fertility decline in the sub-continent.

This paper, therefore, analyses some of these continental and global initiatives and debates on integrated soil fertility management (ISFM) in SSA. In general, it addresses the overarching question of how African smallholder farmers' knowledge in soil management is perceived and situated within different framings of the problem. Essentially, the essay intends to answer specific questions as to what the institutional framings of selected organisations are regarding their perceptions and definitions of SSA soil problems; the nature of the political economy [and ecology] of soil fertility management in the region; and how farmers are mainstreamed in the entire process of problem-solving and knowledge production in soil fertility management, in an attempt to strengthen their [farmers'] knowledge systems.

Using secondary information obtained from archives of relevant institutions, the paper employs a discourse analysis to examine the viewpoints and activities of selected international [policy] institutions working in ISFM in the SSA region. Also, empirical data are used to strengthen the analysis on the smallholder farmer's own culture. Following the introduction, Section 'Critical issues in soil fertility problems in sub-Saharan Africa: Rising to the challenge?' addresses the current debates on soil fertility management in SSA. Section 'Post-modernism and the politics of knowledge' is a brief review of the positionality of the modernists and post-modernists on the politics of knowledge production. In addition, this section also addresses the distinction between local and scientific knowledge. By focussing on how smallholder farmers' knowledge[1] is situated within the global debates on ISFM, Section 'Small farmers'

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[1] The term farmers' knowledge is used interchangeably as local or indigenous knowledge throughout in the paper. By its nature, the concept of local knowledge is autochthonous. Admittedly, local knowledge is not mutually exclusive to the South economies; it is pervasive in the local communities of both the West and the South.

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knowledge and global debates and initiatives on ISFM in sub-Saharan Africa' specifically identifies and addresses institutional framings of soil fertility problem in SSA. It then goes further to analyse the perceived political economy [and ecology] of soil management and further sheds light on how farmers' knowledge are engaged in the process of achieving ISFM in the sub-continent. The concluding section presents a brief summary of the key issues raised in the paper. It then underscores the need for devising an appropriate and practically oriented framework for the integration of both western and local knowledge in ISFM as well as finding a more suitable platform for the enhancement of farmers' knowledge.

Critical issues in soil fertility problems in sub-Saharan Africa: rising to the challenge?

As earlier noted, the decline in soil fertility has been described as one of the most crucial problems facing agricultural development and food security in SSA (Sanchez, 2002; Vanlauwe et al., 2006). Comparing them with soils in other continents, problems peculiar to SSA soils are 'nutrient deficiency, low organic matter, moisture stress, and high erodibility' (CIAT/TSBF/ICRAF, 2002). The causes of these associated problems are not far-fetched. As generally believed, continuous cropping without nutrient replacement, overgrazing and other poor management practices (leading to leaching, water evaporation, wind and water erosions) are primarily the causal factors of poor soil condition in the region. Essentially, farmers' effort to engage in a process of soil improvement and productivity is dependent on a number of intervening variables. Being aware of the precarious condition of their farmlands, their perception about the marginal situation in which they find themselves, seeing reasons to effect a change in the face of besieging pressures, and their willingness to invest in labour and capital in soil improvement [in the hope for good returns on investment] may motivate them to embark on an innovative soil improvement process (Kolawole, 2001; Scoones and Toulmin, 1999).

Nonetheless, contrary to Scoones and Toulmin's claim that farmers are not likely to respond to changes informed by soil degradation and nutrient losses except for some perceived economic benefits (1999), their [farmers'] actions are more importantly guided and partly influenced by certain socio-cultural belief systems and the importance attached to land for their survival (Kolawole, 2002). Regardless of the good intentions of external agencies and government institutions to improve his or her soil conditions, little or no desirable result is achieved if the socio-cultural life of the smallholder is not fully taken into consideration. Farmers' preference goes beyond mere economic pressure and demand. The meaning they assign to social phenomena around them and their perception about life itself are crucial in their decision-making processes, including the willingness to improve on soil conditions. For instance, a South African community believes that soil degradation [in form of erosion] is an act of God to which nothing could be done (Cartier van Dissel et al., 1998 in Kolawole, 2002)! In North-central Nigeria, certain folks would also have nothing to do with inorganic fertiliser as they strongly believe that incorporating any 'foreign' materials into their soil would jeopardise its health and of course, bumper harvests (Kolawole, 2006). Elsewhere in Ghana, a small farmer's perception about the role of culture in farming activities supports the above claim. The Ghanaian farmer said that the viewpoints of 'his Ancestors' on any agricultural technology [seen as economically superior to local technologies] automatically supersede any economic gains. Without mincing words, he said '[i]n no way would he compromise his Ancestors for an increase in productivity, no matter how great the increase' (Millar, 2007).

In order to further verify the validity of this argument, we held a focus group discussion with some yam-producing smallholder farmers in *Iwara* and *Ilosi* communities in South-western Nigeria in early February 2009. Asked how appropriate the use of inorganic fertilisers in soil management was, they perceived the use of chemical fertilisers in the production of certain crops [particularly yam and other root tubers] to be grossly inadequate and ineffective. Although farmers acknowledged that yam tubers grown under such conditions are most of the time bigger in size, this translates to little or nothing in their thinking if the yam taste is bad and its shelf life is short. In other words, apart from the farmers' notion that chemical fertilisers are dangerous to the health of soil microbes, they (farmers) generally believe that growing yam with chemical fertilisers has adverse effects on yam tuber preservation and its taste as well. Noted for their preference for pounded-yam as a prestigious and culturally popular delicacy, the farmers would discountenance yam grown with inorganic fertiliser because 'the colour of pounded yam made from such tubers turns dark as against its normal white or yellow colour'.

A good case study showing the interplay between culture, soil fertility and agricultural production is also captured in Kolawole and Okorie's (2008) work on the new yam festival of the *Igbo* people of south-eastern Nigeria thus:

> [T]he earth goddess, *Njoku-ji*, is to *Igbo* people what the queen of heaven is to the Jews with regard to their agricultural production. Failure to appease the earth goddess, the *Igbo* people believe, would engender death, sickness, famine and poverty. *Igbo* people strongly believe that yam [just like any other crop] is under the direct control of the earth goddess, *Njoku-ji*. . . [T]he rituals involved in the New Yam festival are meant to express the community appreciation to the earth goddess for making the harvest of new yam possible. During the [annual] ceremony, blessing is sought of the earth goddess. . . A respondent had this to say in respect of the utterances for the ritual: Eat this kolanut (Sic) [pointing the kola nut to the goddess shrine] and help the yam in the small farms such that if the rains be too much, they may not drown and if the rain be too scanty, it may not cause them to wither. . . (see also Achebe, 1958: 22).

The above account [similar to what obtains in the *Goemai* land of Plateau state in north-central Nigeria] about the need to appease the gods in return for bumper harvest (Kolawole, 1990) strongly attests to the role of culture in soil fertility management and agricultural production in SSA. Regardless of what the development agent brings, certain folks would still find some solace in their ancestors and gods. Ultimately, any outsider's solution is secondary to their firm belief. Given that culture – the totality of the way of life of a people, which is 'acquired, learnt and constructed' (Rapport and Overing, 2007:109) – is fluid and subject to [social, economic, technological, etc.] change over time in the face of modernisation, certain philosophies, norms and belief systems of local community people are hard to break. In other words, while the material dimension of culture is somewhat dynamic, its non-material aspect is somewhat rigid and difficult to alter. It takes a great effort and education (in this case, non-formal) to alter certain ideas, which are culturally imbibed over time by the people. But this is achievable in an atmosphere of mutual trust and respect. More importantly, a genuine starting point for any meaningful institution-clientele partnership is a good understanding [from the on-set] of the dynamics of the elements and processes of the farming community (see Loomis and Beegle, 1975). The ability of the change agency to arm itself with the cultural

The age-long tendency of the dominant ['scientific'] knowledge to suppress this body of knowledge sets it apart from the former.