Managing the fertility of Africa’s soils: the case for collective action

Any business that loses an estimated US$ 4 billion per year clearly cannot sustain itself – the management would have been fired, the business taken over by more efficient competitors and the process of righting past wrongs would have begun. For Africa’s soils, which lose those dollar equivalents in nutrients, there is no such speedy redemption. They continue to bleed unsustainably. For instance, it is estimated that Zambia loses about 3 million tons of top soil per year, while South Africa loses two orders of magnitude more with losses of 300-400 million tons! Add to this the losses of vegetative cover and the potential to lose even more soil – faster - becomes very apparent.

In the past, responses have been fragmented, often promoting single technological solutions across wide areas (the blanket solution approach). This failed to take into account the broad diversity of African soil constraints as well as the complementarities and synergies in using multiple soil fertility management practices. However, there are now intensified efforts to coordinate actions amongst those who are trying to respond to this severe crisis. On a continent that uses on average just 10% of the fertilizer per hectare that the rest of the world uses, where 65% of people are directly affected by soil degradation, it is high time that there is concerted action on behalf of Africa’s soils, the basis for its agriculture and development.

There has been collective action to develop principles and tools to tackle the problem of soil infertility in Africa. Integrated soil fertility management has been demonstrated as a viable new paradigm by many of the CGIAR Centres. For instance the benefits of micro-dosing of fertilizers, or using legume intercrops, improving manure management, through conservation agriculture to improved fallows have been tested singly and in combination by CGIAR centers across eastern and southern Africa. Likewise, there has been collective action to enrich the low state of knowledge of where different soil constraints manifest themselves in African landscapes and farms. Recent findings demonstrate the heterogeneity of soil physical, chemical, and biological properties at landscape level, but also at micro scales – within communities and households. This is critically important for designing appropriate intervention strategies. So collective action on technology development and its targeting is already under way and will continue.

The need for collective action is most acute however at multiple, nested scales. This is because soil degradation is the result of many ecological, social and economic interactions at variable, often nested, scales such as those of sub-regions (e.g. the Sahel) to river basins (such as the Nile or the Limpopo) down to a farmer’s field or a recently deforested patch being readied for agriculture.

In the last two years a number of initiatives have started addressing the challenges to Africa’s soil fertility at appropriate scales and across several interacting dimensions. For instance TerrAfrica is now poised to move forward in 28 African countries, using an initial Global Environment Facility grant of $150 million and leveraging over $1 billion in total funds. It aims to bring together a wide range of projects, programmes, and organizations working on issues of sustainable land management in Africa, with a view of enhancing coalitions, knowledge sharing and synergizing funding. This initiative is currently the major Sustainable Land and Water Management activity of NEPAD’s (New Partnership for Africa’s Development) Comprehensive African Agriculture Development Program. The Alliance for a Green Revolution in Africa (AGRA) has just launched its Soil Health Programme, which aims at ramping up investments in soil management practices and fertilizer use efficiency in 11 African countries, at the level of about $200 million over 4 years.

Recently, under the auspices of the World Bank’s TerrAfrica group, three CGIAR Centres are undertaking joint work on farmer/community perceptions of climate change and responses in four countries, assessing the effectiveness of institutional and technological responses (IFPRI, ICRISAT and ICRAF). The Tropical Soil Biology and Fertility Institute (of the International Centre for Tropical Agriculture – CIAT) and the World Agroforestry Centre are implementing the African Soil Information Service project funded by the Bill and Melinda Gates Foundation and AGRA. The project will collect and analyze soil information and assess management practices in 60 sentinel sites across 24 countries of Sub-Saharan Africa.

But there is need for much more collaboration between the CGIAR and the new development initiatives to seize the opportunity for learning by creating ‘field laboratories’ of unsurpassed scope. One area is the design of promising land management interventions that could be tested on a wider scale. While the race against soil nutrient bankruptcy may have begun in earnest, for Africa’s soil health let us hope these initiatives have the speed, determination, talent and endurance of its runners!

For more information contact Frank Place (fplace@cgiar.org) or consult the following web resources:


http://www.springerlink.com/content/wf53n5sh3lijd5/1p?1=24ec6398071af47c36dd8bf8573d39b4b&ap=3

The Collective Action: Five CGIAR Centres together with a large number of other organizations have been involved in researching the technical basis for integrated soil fertility management.