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The "context" for smallholder farming is a political ecology of agrarian change

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Keynote II by Ken Giller argued that the "context" for smallholder farming has a significant effect on livelihood outcomes and the success of technological interventions. "Context" includes adaptive skill, and a wide set of constraints. African farmers are quite capable of managing their own genetic resources, innovating, finding markets and diversifying livelihood systems in the absence of severe structural constraints, as Paul Richards, Mike Mortimore, Robert Netting and others have argued. But the "constraints" operating in African and Asian farming systems have been magnified in recent decades by large scale land acquisitions, conflicts over land tenure, city growth, environmental challenges and displacement through civil war and rebel groups. Responding to these problems is a necessary precursor to achieving any widespread success through external technical interventions; food security and 'Climate Smart Agriculture' first involves recognising, understanding and tackling different forms of vulnerability, and the role of states, corporations and elites in creating it. I develop some ideas about how to do so, based on studies in Timor Leste, Niger and Burkina Faso.

Introduction

Thanks for the welcome and the opportunity, and to Ken Giller for mentioning the word 'context' in his plenary.

As my bio says I have lived and worked in Niger and Burkina Faso, East Timor and New Caledonia as well as the US, UK and Australia. I am also married to a former farmer and development worker with much more practical experience than me. These experiences colour my remarks about agricultural sustainability.

Sustainability and access in context

Some years ago I worked on SWC and agricultural knowledge in West Africa, alongside extension agents and project officials. In northern Burkina I came to see a Mossi village as a base for operations that spanned West Africa, rather than as a tightly bounded 'farming system'. As a result of dealing with drought, adaptation involved diversification - people, crops, and animals *moved*. This experience was invaluable and it forced me to engage with

ideas of agrarian *change* rather than agricultural *production* in semi-subsistence societies relying on millet and sorghum as staples –forces outside communities were changing what was, and was not possible. I was also forced to revise some of the populist sentiment I had as a student Burkina's socialist period under Thomas Sankara– social levelling and gender equality did not endure or was not in place, and external aid donors were still needed. But they were not 'imperialists' as Sankara had occasionally called them. Working alongside one donor, I researched the impact of SWC techniques.

In Burkina and in Niger local livelihoods were planned out to some extent by careful consideration about the year ahead, dealings with aid agencies and their offerings, and financial and labour considerations. But 'performance' (innovation through practice) was essential – the application of contextual knowledge and skill to local environmental and social changes, and sometime pretty quickly, notably to drought and labour shortage in a rainfed agricultural environment.

In post-independence E Timor, the dominant crop is maize but there is also urban and overseas migration from communities that were extremely poor in the mid 2000s, while in the francophone Pacific, Kanak Melanesian communities in northern New Caledonia remain much more involved in the market economy [and mining] despite maintaining their root crops, citrus trees, etc. New Caledonia has the highest incomes of the four countries, and is still not 'decolonised'.

So my argument is that these *contexts* probably have greater importance for sustainable futures than efforts to introduce new crop varieties tested in labs and in trials. Back in the 1990s we talked about, and saw, 'improved' varieties like 60 day millet penetrating into a few communities – now the buzzword is 'Climate smart agriculture' [a grammatically incorrect term, I should say]. The latter, anchored in low carbon farming, actually has support from global and industrial firms, who are unlikely to provide technologies and expertise for free. And Chandra et al (2017:836) warn that "vulnerabilities among the most marginalized at local and global levels will amplify if 'climate-smart' policies sidestep issues related to smallholder farmer rights, equitable distribution of agricultural resources and hegemonic power relations. CSA interventions need to move beyond the farm level and target inequality, unequal power relations and injustice beyond the farm to address socio-political processes influencing livelihoods, food production, and vulnerability". CSA should, if it is to have any real meaning, place **production in societal context**. The role of agricultural science in my view is about expanding the 'practical range of choice' [a term coined by the geographer, [Gilbert F White](#)], not diffusing a [commercial] technology that locks anybody into using a costly product. The direction of flow of agricultural knowledge can change from farm to lab. I am talking about small scale farms in Africa, of course, not those locked into supply chains.

Several years spent in an agriculture faculty at the University of Melbourne reinforces my view that this point needs to be made repeatedly. The School of Land and Environment, disbanded in the early 2010s, was an interesting venue for frequent debate between researchers who work with farmers and Indigenous people in context on matters of justice and access, and crop scientists some of whom worked only in the lab, but were concerned

about global food security. The former were concerned about justice, fairness and access; the latter with production enhancements. *Context* could have been the bridge.

Social sustainability or livelihood sustainability is the essential element of interest to small scale farmers. Farming is not just about producing, but about living. This means having sufficient food and water (access to resources), an absence of significant threats (human and environmental), room to experiment which means room to adapt and diversify. Amartya Sen calls these 'freedoms' and DfiD used to call them 'capitals', in the Sustainable Livelihoods model which was briefly in vogue in British and globally in NGO development policy (Batterbury 2008). Placing production in context was a good thing in the SL approach and its 'outcomes' and 'pressures/risks' were usefully considered.

Access to resources in agricultural systems frames the context for social sustainability and the endurance of livelihood systems. *Closure* of access is the 'context' for many rural lives, resulting in demographic and economic pressures on remaining land or forests or fresh water.

A sustainable livelihood does not involve depletion of livelihood chances by more powerful actors or institutions. So in studying local agricultural innovation, we also need to recognise the unpleasant actions of powerful actors. Without this, technical innovations in agricultural systems risk being wiped out, or become meaningless.

Denial of access

Access to resources is not an additional concern for the social scientists to look at, but central to everything to do with small scale farming systems. In SW Cameroon for example, the fate of local farming systems, with women producing the majority of the food crops and men the majority of commercial crops, is bound up not only in local dynamics of rights and obligations, but also the effects of large scale land grabbing on some of Africa's most fertile soils, to produce oil palm (Ndi and Batterbury 2017). Fallowed and forest land allocated by government is not 'empty' and available for foreign-owned plantations. More generally, technologies to improve food productivity like new or manipulated crop varieties are unlikely to succeed unless access to land is addressed, which means national-level land reform policies, attention to local corruption over land deals [instituting regulations equivalent to the best practice in western countries, but not necessarily through privatization], and conflict reduction mechanisms for local disputes. We found that in Cameroon many local people, particularly women denied access to markets, did not mind some oil palm production, but that wanted to control it themselves, without the corporate control, which disenfranchises them.

East Timor has some of the most chaotic land tenure in the world, due to Portuguese colonialism, Indonesian occupation, UN mandates, and independence. Thus, communal land tenure management was the de facto system operating since full independence in 2002, with traditional conflict resolution mechanisms dating back thousands of years [including prohibitions on fallowed land, and dispute resolution]. Trust in these traditional and communal systems, which work, has ended until this year when a land Law was finally ratified after almost 10 years in preparation, allowing private titles. Support for better

access to land, rather than privatisation, came from many civil society groups (Batterbury et al 2015). The Land Law is not a progressive solution to access, because it gives the state too much power to usher in private and corporate agribusiness. In my time working there, crop productivity was rarely raised as an issue – Chris Shepherd and others have shown that maize farming, introduced by the Portuguese, has remained productive, although negatively influenced by the colonial demands to produce cash crops (Shepherd and Palmer 2016).

‘Performance’ and innovation

This is not to deny individuals are paralysed by ‘contextual’ constraints on their livelihood security. An example is the upland rice research in Sierra Leone that Paul Richards talked about in his *Indigenous Agricultural Revolution* (1985) – farmer knowledge of rice varieties, he found, was sufficient to select for field trials many varieties that could outperform all plant breeding genotypes when trialled in field conditions. Knowledge is also gendered, with women at the forefront. Richards developed this close scrutiny of ‘technologies in use’ into ‘technography’ – the ethnography of technology (Richards 2010). His argument, latterly, was that practice or ‘performance’ generated learning, and knowledge. This is what farmers in tune with the natural environment and context do, the world over.

Therefore, scientists could learn much more from farmers, who still may have need of their expertise.

Social sustainability of livelihood systems

If we focus on the *social* sustainability of livelihood systems, we have a much more holistic view of how to make an entire system sustainable. This involves in most cases, keeping option for ‘exit’ open, in terms of formal and informal employment for men and women. Particularly in non-equilibrating dryland environments, farming and pastoralism depends on spatial and temporal flexibility, not so much on high yielding crop varieties and fertiliser/pesticide packages.

Sustainability, in my view, is not about maintaining a given crop yield on a fixed land area over time, but about maintaining a particular livelihood that allows for access to the necessary resources, and social satisfaction, within the envelope of environmental limits.

We can say that many small scale farming systems, of the sort described by agrarian sociologists and ethnographers from the Himalayas to the Amazon, did have sustainable agricultural systems – even if they were not in a steady state and occasionally exceeded local ecological limits. Robert Netting, Mike Mortimore, Eugene Anderson and many others have shown this.

Most remarkable are the Sahelian farms I worked with through drought, the Timorese who managed to grow food despite being bombed from the sea and chased by pro-Indonesian militias in the 1980s and 90s, and the tribes of southern Arizona I met who farmed maize in under 100mm of rainfall. This, when I lived in Tucson, occurred while we were eating pesticide-laden vegetables trucked in from Sonora in Mexico.

Crop output-maximising measures of sustainability are really more of interest for agribusiness, and commercial production systems. Within small scale farming systems

supplying mainly local needs, we need to redress historical injustices and the vulnerabilities created by denial of access. This is what [groups](#) like ours at LEC are concerned with. The political ecology of small scale agriculture, which requires us explain why social differentiation advances along with the commodification of rural places (Bernstein 2010), gives us a sanguine attitude to economic growth imperatives as well, asking – who benefits from the spread of production for the global market and [more locally] Africa's 38% urbanised population?

Conclusion

Responding to these problems is a necessary precursor to achieving any widespread success through external technical interventions; food security and 'Climate Smart Agriculture'. This first involves recognising, understanding and tackling different forms of vulnerability, and the role of states, corporations and elites in creating it. Secondly, expanding the 'practical range of choice'.

I wonder as I peruse agriculture journals, if these lessons have been learned although I am sure people at this meeting are aware. Plant breeding experiments need to be built on field experience, not a few token visits to see field conditions, but seeing through a whole agricultural cycle. This could help avoid the dialogue of the deaf in agricultural research [yep I guess farmers and critics alike could be invited to lab experiments too, and occasionally have] , and allows witnessing first-hand variability, intra-field soil fertility, erosion, pests, and how these are managed in terms of labour, and the effects of that on class and gender. There is good work – a favourite of mine is Andy Carlton working in Uganda, supporting Twin Trading' Fairtrade coffee, cocoa and nuts cooperatives from Tanzania up to remote highland communities in DRC, exposing farmers to trading relationships that they can control if they wish. And alternative farming efforts in the UK exist too, 'off the treadmill' and with food growing and sharing. Richards and others have constantly reminded us of the power of quotidian agricultural knowledge, but uptake by agronomists is rare (see however: Glover et al. 2016, Sumberg and Thompson 2012; Hubert et al. 2013). Awareness of differentiation resulting from technology and crop choice is essential. The "context" for smallholder farming is a political ecology of agrarian change.

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