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Triggering regime change: A comparative analysis of the performance of innovation platforms that attempted to change the institutional context for nine agricultural domains in West Africa

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ABSTRACT

The article synthesises the experiences of innovation platforms (IPs) that engaged in open-ended experimental action to improve the institutional context for smallholder farm development in West Africa. The IPs sought change at the level of the institutional regime covering an entire agricultural domain (such as cocoa, cotton, oil palm or water management). Their purpose was therefore not to 'roll out' farm-level technologies across rural communities. The IPs's outcomes were documented and analysed throughout by means of theory-based process tracing in each of seven of the nine domains in which regime change was attempted. The evidence shows that by means of exploratory scoping and diagnosis, socio-technical and institutional experimentation, and guided facilitation IPs can remove, by-pass, or modify domain-specific institutional constraints and/or create new institutional conditions that allow smallholders to capture opportunity. The article describes the 5-year, €4.5 million research programme in Benin, Ghana and Mali, covering theory, design, methods and results. It is the sequel to Hounkonnou et al. in AGSY 108 (2012): 74–83.

1. Introduction

The development of African smallholder agriculture has long been framed in terms of the promotion and adoption of technologies, and agricultural research has played a leading role in setting this agenda. The Sub-Sahara Africa Challenge Programmes of CGIAR managed by FARA (Adekunle et al., 2016; Pamuk et al., 2014), Integrated Agricultural Research for Development (IAR4D) (Hawkins et al., 2009; Sanyang et al., 2014) and similar initiatives (e.g., Vall et al., 2016) implicitly assume that research drives agricultural development. In recent years, there has been some shift toward *creating conditions* that enable technology adoption. For example, the Alliance for a Green Revolution in Africa (AGRA) has launched a US$180-million programme supporting value chain development (input distribution, credit, distribution of seed packages, etc.) (*New Scientist* 223 (2985): 12–13, 6 Sept. 2014). If technology drives agricultural development, the appropriate criterion variables for assessing impact are adoption of innovations, yields per hectare, farm incomes, or aggregates of such measures i.e. criterion variables that are based on the implicit assumptions of methodological individualism according to which societal outcomes result from the *aggregation* of countless *individual* decisions, instead of from attributes of the collective (such as institutions).

The research reported upon in this article has taken a different line inspired by four considerations. The *first* is the failure of the Green Revolution in Africa, i.e. pervasive disappointment with technology adoption by smallholder farmers, the persistent under-performance of the

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smallholder sector in terms of feeding Africa's growing cities, and the under-utilisation of the productive resources under African smallholder management (e.g., Djurfeldt et al., 2005; Bold et al., 2015).

The *second* is the history of the development of industrial agricultures. Their phenomenal agricultural productivity growth occurred at least half a century *after* major and deliberate institutional development had created enabling conditions in terms of land tenure, land development, regulatory frameworks, value chain development, fiscal policies, credit, extension, etc. (Hounkonnou et al., 2012). For example, in The Netherlands, the tenure law of 1917 for the first time made it attractive for tenants to invest in land improvement, 40 years *before* the take-off of farm productivity in that country. Collective management of ground water levels allowed modern farm machines to operate on peat land and is said, by some, to be responsible for at least half of the productivity increase of Dutch agriculture since World War 2. Nowadays, industrial farms are embedded in, and would be unable to survive without, dense institutional networks, including farmer organisations with political clout, elaborate value chains, research, regulatory frameworks, public sector support in terms of energy and other subsidies, land development, water management, transport and other infrastructure, and political tolerance of cost externalisation in terms of emissions, ecological degradation and toxification. We do not imply that the development pathway of WA farms necessarily is the same as that of industrial agriculture and are fully aware of the contested nature of 'sustainable intensification' (Kuyper and Struik, 2014). We realise that rapid productivity increase coupled to scale enlargement gives rise to serious second-generation problems, such as high rates of dropout and destruction of ecosystem services. But we highlight the importance of enabling conditions in agricultural development that have been more or less totally ignored as a result of the blinding experience of the diffusion hybrid maize in the US in the early forties and the focus on internal rates of return to investment in agricultural research and extension ever since the *Science* article by Evenson et al. (1979).

The *third* is the work of institutional economists, such as North (1990) and Williamson (2000), and anthropologists such as Douglas (e.g., Hood, 1998), who created broader and deeper understanding of norms, rules, agreements and other attributes of collectivities, and anthropologists such as Blundo and Olivier de Sardan (2006) who have analysed the institutional constituents of corruption in West Africa.

The *fourth* consideration is the experience of the predecessor of the research programme reported here, called Convergence of Sciences (CoS, 2002–2006). It had experimented with participatory technology development (PTD) in Benin and Ghana and concluded that farmers' windows of opportunity were too small to capture significant benefits from 'appropriate' technology. In other words, farmers did not have the required access to land, labour, credit, inputs and markets to utilise the technology. Sterk et al. (2013) who carried out an impact study four years after the end of CoS found that technologies whose use by farmers depended on external conditions were no longer used. The PhD students involved in the eight CoS PTD projects had started to experiment with institutional innovations (Van Huis et al., 2007), such as formal agreements between tenants and landowners that would allow former to invest in the land instead of mining it out of fear that the latter would take it back.

These four considerations led us to ask: What if change at system levels higher than crop, field and farm is a crucial necessary condition for smallholder development (see also Schut et al., 2016)? What if the pervasive assumption that technological innovation is sufficient for such development for decades has held back African agricultural entrepreneurship?

The article synthesises performance assessment across nine innovation platforms (IPs) in Benin, Ghana and Mali. They formed the core of an experimental action research programme (€4.5 million, 2008–mid 2014), called Convergence of Sciences–Strengthening Innovation Systems (CoS-SIS, www.cos-sis.org), to establish whether multi-stakeholder interaction on an IP can trigger institutional change, that is, change in rules, norms, values, regulatory frameworks, governance and other forms of human coordination. The IPs focused on enabling smallholder innovation through changing institutions that condition opportunity beyond the crop, field and farm and correcting 'the pervasive bias against the small farm sector' in Africa (Djurfeldt et al., 2005:4). Hence the purpose of the present article is to examine whether, and if so under what conditions, the IPs brought about institutional change. The article presents the outcomes of the research, as a follow-up to Hounkonnou et al. (2012) who grounded the programme in the international literature on the state of African agriculture. By way of summary, Table 1 compares IPs that aim to promote adoption of science-based technologies by individual farmers and the kind of IPs that are the object of the study reported upon below (see also Toillier et al., 2013).

The objectives of the current article are (1) to examine whether the IPs enacted change in domain-wide institutional regimes, (2) to report the researching process that was used to assess performance across the IPs, and (3) to discuss the wider applicability of these experiences.

2. Materials and methods

2.1. Domains

In each of three countries, the domains for experimental action were chosen from a short-list of national development priorities, which had been provided by senior national agricultural decision makers. They included major export crops (cocoa, cotton), indigenous cash crops (oil palm, Shea nut (Karité)) and important issues (water management, food security, crop/livestock integration). (See Table 2 and the map in Fig. 1 for location of the domains.)

The Programme considered a domain as a potential system of interest and action among professional and political actors who have a stake in the domain, i.e. as a potential space for negotiation and concerted action (Ison, 2016; Röling et al., 2014). This use of domain is conceptually different from a 'recommendation domain', defined as 'a group of roughly homogeneous farmers with similar circumstances for whom we can make more or less the same recommendation' (Byerlee et al., 1980). A recommendation domain comprises a population of farmers who are homogeneous in terms of the appropriateness of some practice, typically based on technical criteria (goodness of fit with soils, climate, cropping system), but sometimes also on the availability of markets and other socio-economic characteristics. Scaling in this latter frame means 'rolling out' the technology across the domain.

If, as we assumed in CoS-SIS, not only technology adoption but also the enabling context explains variance in farm output, and development is also a question of institutional innovation, a domain is better seen as the context for multi-stakeholder interactions and relationships among those engaged in purposive development processes. An IP, from this perspective, is an opportunity for selecting, convening, and fostering interaction and concerted action among selected stakeholders, who have an interest in developing the domain. Evaluations of programmes that use IPs to promote the adoption of, for instance, HYVs by individual farmers through arranging access to seeds, inputs, credit and markets, often report unexpected social dynamics at scales beyond the individual farm (e.g., Sanyang et al., 2014). The IPs on which we report were deliberately set up to optimise such dynamic effects.

When domains are considered as systems of interest, the following issues become relevant:

- The extent to which IP members come to agree on the boundaries of the domain, share some vision or objective for its development and are willing to give priority to domain interests;
- The extent to which they form, build on and use differentiated but inter-linked networks that create synergy by building on complementary contributions (they might be linear as in a value chain, or involve multiple cross-cutting relationships);

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