



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

## Local institutions in southwestern Uganda: the role of integrated agricultural research for development

R Kalibwani\*

Department of Economics and Statistics, Kyambogo University, Kyambogo, Uganda. E-mail: rmkalibwani@yahoo.com

B Fungo

National Agricultural Research Organisation (NARO), Mukono, Uganda. E-mail: bfungo1@yahoo.com/  
bfungo@forest.mak.ac.ug

M Tenywa

Makerere University Agricultural Research Institute, Kabanyolo (MUARIK), Uganda. E-mail: tenywamakooma@yahoo.com

J Tukahirwa

African Highlands Initiative (AHI) World Agro-forestry Centre (ICRAF), Kampala, Uganda. E-mail: j.tukahirwa@cgiar.org

S Mutabazi

Ministry of Agriculture, Animal Industry and Fisheries, Entebbe, Uganda. E-mail: sundaymutabazi@yahoo.co.uk

J Twebaze

Kabale District Local Government, Kabale, Uganda. E-mail: twebazejeniffer@yahoo.com

SO Nyamwaro

Kenya Agricultural Research Institute (KARI), Muguga North, Kikuyu, Uganda. E-mail: snyamwaro344@gmail.com

R Kamugisha

African Highlands Initiative (AHI) World Agro-forestry Centre (ICRAF), Kabale, Uganda. E-mail: r.kamugisha@cgiar.org

E Nkonya

International Food Policy Research Institute (IFPRI), Washington DC, USA. E-mail: e.nkonya@cgiar.org

\*Corresponding author

### Abstract

*Local institutions are commonly referred to as mediating factors that govern the relationship between a community and the natural resource base upon which it depends. However, conventional agricultural research and extension approaches have had limited impact in positively influencing the role of institutions in natural resource management (NRM). In this paper we discuss the role of Integrated Agricultural Research for Development (IAR4D) in by-law enactment, implementation and compliance in southwestern Uganda, and the potential benefits of the IAR4D approach for the development of local-level institutions. Although the level of awareness of the enacted by-laws was highest in the conventional sites, compliance was highest in the innovation platform (IP) villages. With the multi-stakeholder participation of the IAR4D approach in the IPs, there was a conducive environment in which to formulate and implement new by-laws, such as those relating to the harvesting and marketing of produce. IAR4D was found to have the potential to empower individual farmers through their interactions with each other, as well as to increase inter-institutional interactions for increased information sharing among stakeholders, thus building social capital for collective action.*

**Keywords:** IAR4D; local institutions; by-laws; innovation platforms; natural resource

## 1. Introduction

The contribution of agriculture to economic growth and poverty reduction in sub-Saharan Africa (SSA) cannot be over-emphasised (World Bank, 2007). However, the heavy investments in agriculture over the past 60 years have not shown the expected impact of improving livelihoods in the region (Sanginga *et al.* 2009). Success in African agriculture has been limited in scope to substantially increase the overall agricultural productivity and welfare of farmers across the continent. The underlying factors that may be influencing such poor performance include deficient and haphazard policy implementation at grassroots levels, many policies that do not provide a favourable environment for agricultural development, and weak local institutions at the community level to interpret national policies, develop and implement by-laws from them and enforce them.

Agricultural and related development policies in SSA have either not been implemented at all, or have been implemented partially and/or poorly, and those that have been implemented well have often not delivered sustainable benefits (Kirsten *et al.* 2009; Markelova & Mwangi 2010). Among the reasons given for this are the weak vertical linkages between local institutions and national policies and institutions. Morgan (2010) alludes to the fact that meaningful policy innovation should include strategies that involve ideas developed at the community level. Similarly, a number of studies have shown that communities manage natural resources better and more effectively than central governments (Ostrom 1990; Heltberg 2001). It is in the light of this that the IAR4D approach seeks to bridge this gap through the use of innovation platforms (IPs) at the community level.<sup>1</sup> The use of IPs allows the empowerment of their members to interpret national policies, and to formulate and enforce by-laws from them within their community environments.

Using a case study from southwestern Uganda, this paper presents a case for the IAR4D strategy and the IPs as a new and efficient approach to making agricultural research in SSA work for small-scale farmers and improve their livelihoods. From 2008 to 2011, this approach provided signals indicating that policies can be understood and implemented at the community level to improve not only farmers' livelihoods, but also to put mechanisms in place for the sustainable management of their natural resources through the formulation of and compliance with by-laws.

The overall objective of this paper was to assess the role that the IAR4D approach can play in the development of local institutions by facilitating the enactment of and compliance with NRM by-laws at the community level of the LKPLS in southwestern Uganda. The specific objectives were to:

- i) Review the process of by-law enactment and compliance in the local communities of SW Uganda,
- ii) Establish the role of IAR4D in by-law enactment and compliance, and
- iii) Identify the potential benefits of the IAR4D approach in the development of local-level institutions.

This rest of this paper is organised into five sections: (i) overview of the policy on decentralisation in Uganda, (ii) some theoretical perspectives, (iii) methodology, (iv) discussion of the results and (v) conclusion and policy implications.

---

<sup>1</sup> See Buruchara *et al.* (this issue) for the definition of an IP.

## 2. Overview of the decentralisation policy in Uganda

Uganda has been pursuing a decentralisation programme since the late 1980s with the purpose of empowering citizens to participate in the development process and enhancing inclusiveness. Through decentralisation, the local governments have powers to implement a broad range of decentralised services previously handled by the central government, and to make ordinances and by-laws that are consistent with the constitution and other existing laws, among others.

The legal framework of the act of parliament on decentralisation states that central government makes national policies, while local governments translate the policies into beneficial support to the communities. Local governments, by their nature of being close to the people, shoulder the responsibility for providing basic services to the people, and also have the legislative powers to make by-laws and ordinances which they deem necessary in the area of jurisdiction. However, by-laws are expected to be consistent with the constitution and national statutes and, at the sub-county level, with district ordinances. By-laws enacted at village level are supposed to be consistent with those enacted at the sub-county and district level.

With decentralisation efforts and the mainstreaming of participatory approaches in policy and development in Uganda, considerable attention is given to devolving decision making to lower levels. At the base of the local government structure is local council 1 (LC1) in a village of about 100 households, consisting of a nine-member elected executive committee. Above the village are the parish (LC2), the sub-county (LC3), county (LC4) and district (LC5) councils. The sub-county (LC3) is a critical level in the decentralisation system, as it has political and administrative powers to develop by-laws and implement development plans. The district (LC5), which is the highest level of local government and the most effective level to link with the central government, has political and administrative powers to enact by-laws and ordinances, consolidate development plans and allocate budgets (Sanginga *et al.* 2009). According to Ndegwa and Levy (2004), Uganda ranks second after South Africa on the overall decentralisation score, with experiences that have been documented to have achieved significant decentralisation and empowerment of local communities, backed by both political will and clear legal mandates.

## 3. Some theoretical perspectives

Institutions are defined as formal or informal rules that govern people's behaviour by providing a framework of incentives that shape economic, political, and social organisation (Kirsten *et al.* 2009). They can also be defined as humanly devised restrictions that shape human behaviour (North 1990) and with great potential to influence the impact of other variables in community development. Institutions develop in response to social needs and interactions among many actors or groups of actors in a society (Knight 1992). A distinction can be made between institutions and organisations, although these terms are often used interchangeably in everyday language (Kirsten *et al.* 2009). Institutions are complexes of norms and behaviours that persist over time by serving some collectively valued purposes, whereas organisations are structures of recognised and accepted roles, both formal and informal. As such, examples of organisations include political bodies such as political parties, economic bodies such as firms and cooperatives, social bodies such as churches, and education bodies such as schools (Kirsten *et al.* 2009). Meinzen-Dick and Pradhan (2002) broadly categorise institutions into six major types that are common in developing countries, namely central government, local governments, customary institutions, religious institutions, project institutions and organisational institutions. Among others, the development of these institutions affects the distribution and management of natural resources and the efficiency of economic activities (Nkonya *et al.* 2008). This paper focuses on local government and organisational institutions and the potential role that IAR4D can play in enhancing their beneficial functions in the local community.

Institutions within the context of natural resource management (NRM) are mediating factors that govern relationships between a community and the natural resources upon which it depends (Sanginga *et al.* 2009). The major role of institutions in economic activities is considered as being one of facilitating exchange and NRM (Dorward *et al.* 2009). This social organisation contributes to the social capital that facilitates coordination and cooperation and that enables people to act collectively for mutual benefit (Woolcock & Narayan 2000).

Social capital – social relations that have productive benefits resulting from networks, and social bonding that has norms and reciprocity (Woolcock 1998) – also uses by-laws to establish social norms, regulations, agreed behaviours and sanctions that exist within communities to prevent and manage conflicts in a way that places community interests above those of individuals (Coleman 1988; Bowles & Gintis 2002).

In legal and policy terms, by-laws are a body of local laws and customs of a village, town, city or lower-level local government council, and they provide the local guidelines for implementing sectoral policies and rectifying their inefficiencies (Sanginga *et al.* 2009). It is in this context that by-laws are considered in this paper.

Nkonya *et al.* (2008) use econometric methods to analyse the determinants of enactment, awareness and compliance in community NRM regulations, and find that the presence in the community of programmes and organisations that focus on agriculture and the environment increases the probability to enact and to be aware of NRM regulations. The probability of complying with regulations enacted by village councils is found to be greater than when such regulations are passed by higher legislative bodies, suggesting the important role played by decentralisation in NRM. These authors also find that poverty is associated with lower compliance with NRM regulations, and suggest that measures to reduce poverty can also improve NRM.

Further, Van Rijn *et al.* (2012) investigate the effects of agricultural extension and development on various indicators of social capital in the Lake Kivu IAR4D study area, focusing specifically on the effects of the IAR4D and comparing it to conventional ARD efforts. Using a dataset that consisted of a baseline survey conducted between mid-2008 and mid-2009, and a second survey in mid-2010, the comparison shows that IAR4D influenced the level of social capital in southwestern Uganda by strengthening the networks that link villages to the outside world.

#### 4. Methodology

This study uses qualitative and quantitative methods to analyse the impact of IAR4D on NRM institutions. Baseline and end-line household and village surveys that were conducted at the LKPLS level (Nkonya *et al.*, this issue) were used in this study and the focus was on the enactment of by-laws and social capital in southwestern Uganda. Quantitative analysis was descriptive analysis to compare types of by-laws enacted, and the level of awareness of and compliance with by-laws across the IP and in conventional and clean villages. As part of the IAR4D activity, researchers facilitated the enactment of by-laws. This was done through focus group discussions (FGDs). FGDs were conducted with a group in each of the four IPs composed of about 30 IP members. No FGDs were done in the clean and conventional villages, since the open-ended questions asked in the qualitative approach can identify the impact of IAR4D without using a control group, as is commonly done under quantitative approaches (Yauch & Steudel 2003). Data on existing by-laws and other institutional arrangements within the selected communities, and how they influence the operation of the IPs, were collected and analysed qualitatively. A process to review and formulate new community by-laws was then facilitated. Multiple stakeholders representing different levels of decision making in the formulation of by-laws were brought together in the IP, thus getting buy in

and reducing the time of approval by the requisite offices. The potential benefits of the IAR4D approach were identified after analysing the existing institutional arrangements before the IAR4D. Finally, social networks and the objectives of social interactions were also analysed using the social network approach (Scott 2000).

## 5. Results and Discussion

### 5.1 By-law enactment in southwestern Uganda

According to the baseline and end-line survey results of the IAR4D, a total of 46 by-laws and NRM regulations were enacted in southwestern Uganda between 1980 and 2009. Half of the by-laws were enacted by village councils (Local Council, LC1) and about a third by district councils (see Table 1). This scenario was expected, given that Uganda passed the Local Government Act in 1997 that gives a mandate to local governments to enact by-laws. Following decentralisation, more by-laws (70%) were passed, particularly at the sub-county level (Table 1).

**Table 1: Legislative bodies and year in which by-laws/regulations were enacted in SW Uganda**

Legislature	No of by-laws enacted	% of all by-laws enacted by 2009	Year enacted		
			1980-1997	1997-2007	2008-2009
Village council	23	50	0.3	0.4	0.3
Sub-county	6	13	0.2	0.8	0.0
District	13	28	0.5	0.5	0.0
Central government	4	9	1.0	0.0	0.0

Source: Results of baseline and end-line surveys of the IAR4D in southwestern Uganda

Tree planting or protection was the most common by-law enacted. About 48% of the by-laws enacted were on tree planting or protection, while about a third (29%) were on controlled grazing (

Table 2). While tree planting by-laws were enacted throughout from 1980 to 2009, controlled grazing, water protection and management, and bush burning by-laws were enacted largely in 1997 (after decentralization) to 2007 – before the IAR4D. Soil and water conservation (SWC) and other by-laws were enacted before decentralisation, from the 1980s to 1997.

A comparison of by-laws enacted in each treatment group shows an interesting pattern. IP villages passed more diverse types of by-laws, though almost half of them were on tree planting. Only six by-laws were passed in 2008/2009 – one was passed in a clean village, two in conventional villages and three in IP villages. The limited number of by-laws enacted in this short period cannot be used to measure the impact of IAR4D. However, awareness of and compliance with by-laws – including those enacted before – could help us determine the role of IAR4D in NRM.

**Table 2: Type of by-laws enacted across treatment groups**

	Tree planting, protection	Controlled grazing	Water protection, management	No bush burning	SWC	Other regulation
% of all by-laws	48	29	7	10	5	2
<b>Year enacted (%)</b>						
1980-1997	30	25	0	50	100	100
1997-2007	40	75	100	50	0	0
2008-2009	30	0	0	0	0	0
<b>By-law enactment across treatment groups (% of type of by-law enacted)</b>						
Clean	71	29	0	0	0	0
Conventional	50	38	0	0	13	0
IP	45	26	13	10	3	3

Source: Results of end-line survey

Table 3 shows that the highest awareness (majority or all community members aware) was in the conventional sites, but compliance with by-laws was highest in the IP villages. Contrary to the finding of Nkonya *et al.* (2008), by-laws enacted by parliament had higher compliance than those enacted by village, sub-county or district councils. This could be due to the small number of regulations enacted by parliament, or due to the fact that local councils did not have to enact a law that had already been enacted by central government and therefore simply enforced compliance.

**Table 3: Awareness of and compliance with by-laws across treatment groups**

Treatment group	Awareness of by-laws (%)			
	No one	Few people	Majority	All
Clean	29	57	0	14
Conventional	0	0	14	86
IP	6	16	28	50
All	9	20	22	48
<b>Compliance with by-laws (%)</b>				
Clean	100	0	0	0
Conventional	-	-	-	-
IP	13	13	42	33
<b>Legislative body that enacted by-laws (%)</b>				
-Village council	14	14	43	29
-Sub-county council	0	50	50	0
-District council	44	0	22	33
-National parliament	0	25	25	50
-All legislative bodies	21	13	33	33

## 5.2 IAR4D facilitation of enactment of by-laws in IP villages

IAR4D facilitators worked in the IP villages in Bubare sub-county in the Kabale district and in Chahi sub-county in the Kisoro district to discuss NRM, the existing by-laws and new ones that were required to address constraints. Interaction with the IP members by facilitators of IAR4D in the FGDs towards the end of 2009 revealed that the major challenges concerning community by-



laws were not only their poor implementation and enforcement, but also the lack of a review mechanism for them to maintain relevance and for new ones to be formulated when the need arose. A number of by-laws did in fact exist. Some were documented, while others were not. Where attempts had been made to review and formulate new by-laws, efforts were frustrated by local leaders who either did not regard it as a priority, found the process too lengthy and time consuming, or were faced by other political tensions. In principle, a completed set of by-laws (fully discussed by the community members from village level to sub-county) had to be introduced as a motion to a sub-county council meeting, approved by council and signed by the chairman, after which it can be operationalised in the respective sub-county. However, by-laws would either never reach the sub-county level for approval by the sub-county council and subsequent signature by the sub-county chairman or, if they did, getting them signed proved to be a challenge.

The efforts of the IPs in 2009 gave new momentum to this. IP members – consisting of farmers, policy makers and local leaders – mobilised their respective parishes and villages to find a process of by-law review and formulation and came up with draft by-laws. The drafts from the different parishes were merged to form a sub-county draft, which was taken back for more consultation at the parish level before being presented to the IP at the sub-county level. In the process of consultation, back and forth from sub-county to village and back to sub-county, the issues that were continually being amended included the title of the by-laws, the definitions of the terms therein, the actual content in the different sections of the by-laws, and a review of the penalties and fines.

The by-laws so reviewed and formulated were approved and signed by the respective councils in Bubare and Chahi sub-counties. Table 4 shows selected sections of the by-laws that were formulated, discussed, approved and signed in 2010. In particular, the sections shown are new by-laws that had not existed before. The major differences between what existed before and the new by-laws are the components on demonstration gardens, new farming practices, harvesting and marketing, as well as a revision of the penalties. This is an indication of the impact of having multiple stakeholders in the IP, and each participating with the farmers in the formulation of community regulations.

**Table 4: Newly approved by-laws in the IP villages in Bubare and Chahi sub-counties**

<b>Title: Bubare Sub-county, Kabale district (Natural Resource Management, Agriculture and Marketing) by-laws, 2010</b>	
<b>Harvesting season</b>	
9.	Every farmer during the harvesting season shall:-
a)	Ensure that his or her produce is stored under the recommended storage facilities;
b)	Hold a meeting with fellow farmers to debate on the time, quantity and price at which to sell their produce;
c)	Sell his or her produce collectively with other farmers.
10.	a) Every farmer shall ensure that crops are harvested only when they are mature.
	b) Any farmer who harvests premature crops shall be exempted from participating in the common market.
11.	Selling produce on credit shall be permissible, only when buyers pay cash on delivery depending on the negotiations made and the signed memorandum of understanding.
<b>Title: Chahi Sub-county, Kisoro district (<i>Ifatanya Bubasha</i>) by-laws, 2010</b>	
<b>Demonstration gardens</b>	
9.	There shall be a demonstration garden in every Parish council.
9.1	i) All persons mentioned under Section 5 subsections i and ii, of this by-law, shall participate in the demonstration garden once in a week, preferably on a Wednesday.
	ii) Each village within the Parish council shall with the help of their local leaders, set a day other than Wednesday, when to carry out their ' <i>fanya chini</i> ' activities.
9.2	i) any person who is noted as absent without apology from participating in the demonstration garden, commits an offence and shall on conviction be liable to pay a fine not exceeding three thousand Uganda shillings or be committed to community service for one month.
	ii) (a) No animal shall be allowed into the premises of the demonstration garden.
	(b) Any animal found within the premises of the demonstration garden shall be impounded, without notice, at the owner's cost.
	(c) Any person whose animal grazes or trespasses in the demonstration garden commits an offence and is liable to have them impounded or pay a fine not exceeding twenty thousand Uganda shillings.

### 5.3 Institutional benefits of the IAR4D

The benefits of the IAR4D approach in strengthening local institutions are realisable at three levels: the individual, institutional, and inter-institutional levels. At the individual level, all actors including farmers were empowered through their interactions with each other, thus building social capital. This takes place through information sharing and training received on various issues, such as the process of by-law formulation. The findings of a stakeholder network study in southwestern Uganda revealed that 83% of the stakeholders had interactions on information exchange, and 10% had interactions on commercial business interaction (Table 5).

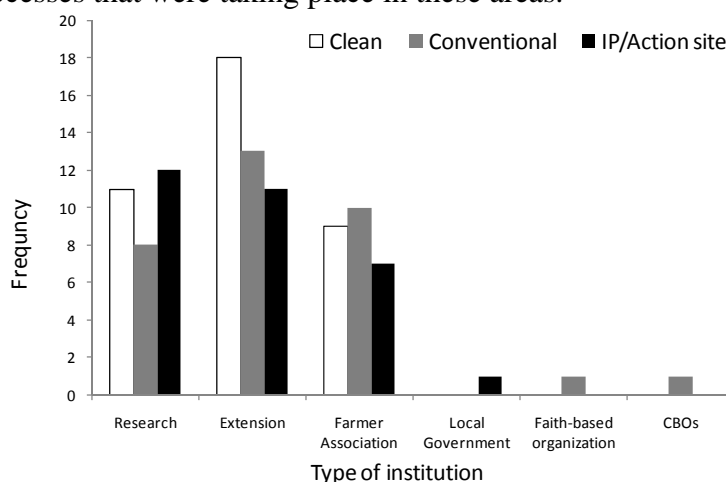
**Table 5: Purpose of interaction with organisations in southwestern Uganda**

Stakeholder type	Purpose of interaction (N=570)				
	Information exchange	Commercial business transaction	Material exchange	Money exchange	Others
LC administration	12	3	1	2	-
Agric. extension	270	15	13	10	1
Faith-based	1	-	-	-	-
Farmer association	77	11	5	6	-
NGOs	57	12	-	-	-
Private sector	1	6	-	-	-
Research	52	13	-	2	-
<b>Percentage (%)</b>	<b>83</b>	<b>10</b>	<b>3</b>	<b>3</b>	<b>1</b>

Social networks have been found to improve welfare (Grootaert *et al.* 2002), especially for poor people with limited endowment in other forms of capital. This is confirmed by Nkonya *et al.* (this

issue), who observed that social network density – the number of social groups of which an individual is a member (Scott 2000:41) in southwestern Uganda – had a significant positive effect<sup>2</sup> on crop incomes. This signifies the potential of social networks to improve welfare. The IP in the IAR4D is envisaged to provide grounds for the creation and sharing of information (Tenywa *et al.* 2011), and hence is valuable in this case because it would serve to fill the information gaps related to policy making, contribute to the better formulation of rules and regulations, and create awareness that hopefully would lead to their improved implementation at the community level.

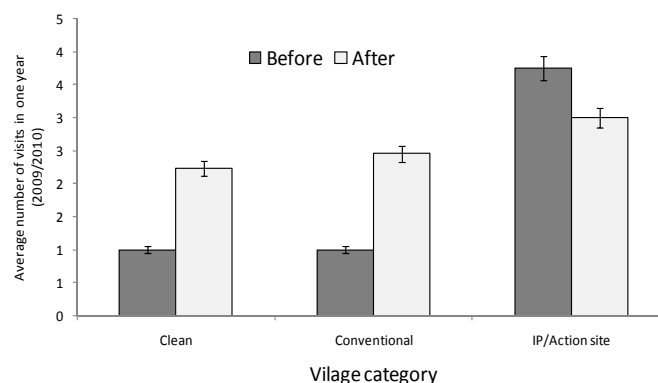
At the institutional level, a wide range of institutions with varying mandates were involved in the formulation and implementation of rules and regulations during the project period (Figure 1). These were mainly research, extension and farmer associations. There was little involvement of local government, faith-based and community-based organisations, which might reflect the fact that the dominant categories (research, extension and farmer associations) were more heavily involved in most IAR4D activities than were the local government and faith-based organisations. In addition, the number of local-government and faith-based organisations was small in a given location. However, the fact that they were involved was good enough to imply that there was inclusiveness during the formulation of rules and regulations. More research institutions were involved in this process in the IP villages than in the clean and conventional villages, and a relatively smaller number of extension and farmer associations in the IP villages than in the clean and conventional villages. Although these institutions did not differ significantly in number among the clean, conventional and IP villages, what is certain is that, in the IP areas where more research institutions were involved, there also was involvement by local government, further ensuring the political acceptance of the processes that were taking place in these areas.



**Figure 1: Involvement of institutions in formulation of rules and regulations in southwestern Uganda during 2008-2009**

At the inter-institutional level, farmers as individuals as well as in associations had greater opportunity to interact with other stakeholders, especially policy makers, in a fully functional IP. The frequency of visits by researchers, staff from NGOs or extension staff between June 2009 and June 2010 increased significantly in the clean and conventional villages, but decreased in the IP villages (Figure 2). This could be attributed to the frequency of activities during the establishment of IP activities, and the collection of household and village-level data that went on during this period.

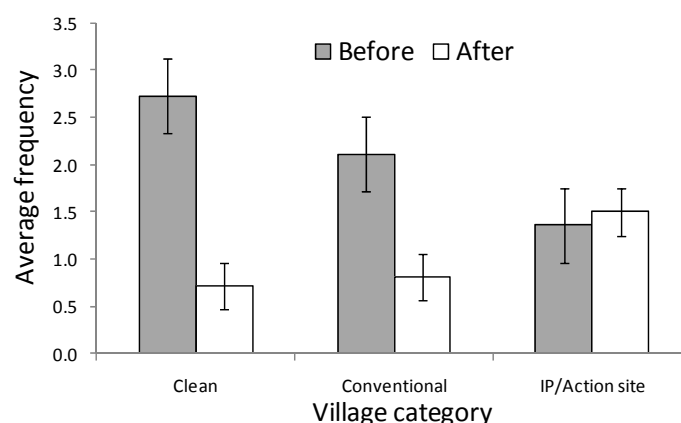
<sup>2</sup> Coefficients of 1.101\*\*\* and 0.772\*\*\* in the robust and reduced models of the ATT regression respectively (Nkonya, 2011).



**Figure 2: Total number of times the village was visited by researchers, staff from NGOs or extension staff in southwestern Uganda between June 2009 and June 2010**

It is also important to note that the activities coincided with campaign time, where government efforts to support farmer organisations saw a large increase in visits. In Chahi, for example, the National Agricultural Advisory Services (NAADS) programme, which had not been present before, was extended to the area during this period. Similarly, new local administrative units (district and sub-counties) were created in several parts of the country, at one of the highest rates in the history of Uganda. However, the reduction in the number of visits in the action sites might be related to the consolidation of visits by the IPs as a focal point for all such activities in the area. This might be advantageous because the efforts of all actors are shared between the various actors present at the innovation platforms. By closely examining the nature of visits reported in the FGDs, the reports by farmers suggest that the majority of the meetings conducted were related to credit facilities provided by government during this period.

In contrast to the number of visits that increased between the two periods, the number of training sessions held decreased for the clean and conventional villages, but did not differ significantly for the IP villages (Figure 3). The issue of IPs pooling together with other stakeholders during the planning and implementation of activities in the villages might still explain the reduction in the number of training sessions in the villages.



**Figure 3: Average frequency of training sessions by an outside organisation or field extension staff in the village**

## 6. Conclusion and Policy Implications

The study reveals that more by-laws were enacted under decentralisation, particularly where the IAR4D approach was used. The process of collapsing different levels of by-law approvals on the

IPs shortened the process of their approval under IAR4D. These include by-laws concerning the establishment of demonstration gardens, the introduction of new farming practices, the relating to the harvesting season and marketing of produce. The level of awareness of the enacted by-laws was highest in the conventional sites, although compliance was highest in the IP villages. The favourable impact of IAR4D in shortening the period of by-law enactment and increasing compliance underscores its advantage over the conventional research approach, which has limited or no impact on the institutional capacity of local communities.

## References

- Bowles S & Gintis H, 2002. Social capital and community governance. *Economic Journal* 112: 412–26.
- Coleman JS, 1988. Social capital in the creation of human capital. *The American Journal of Sociology* 94 (Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure): S95–S120.
- Dorward A, Kirsten J, Omamo S, Poulton C & Vink N, 2009. Institutions and the agricultural development challenge in Africa. In Kirsten JF, Dorward AR, Poulton C & Vink N (eds.), *Institutional economics perspectives on African agricultural development*. Washington DC: IFPRI.
- Grootaert C, Gi-Taik O & Swamy A, 2002. Social capital, household welfare and poverty in Burkina Faso. *Journal of African Economies* 11(1): 4–38.
- Heltberg R, 2001. Determinants of impact of local institutions for common resource management. *Environment and Development Economics* 6: 183–208.
- Kirsten JF, Dorward AR, Omamo SW, Poulton C & Vink N, 2009. *Institutions and the agrarian development challenge in Africa*. Washington DC: IFPRI.
- Knight J, 1992. *Institutions and social conflicts*. Cambridge, Cambridge University Press.
- Markelova H & Mwangi E, 2010. Collective action for small holder market access: Evidence and implications for Africa. *Review of Policy Research* 27(5): 621–40.
- Meinzen-Dick RS & Pradhan R, 2006. Pluralismo legaly derechos dinámicos de propiedad. *Debate Agrario: Análisis y alternativas* 40/41: 1–30.
- Morgan J, 2010. Governance, policy innovation and local economic development in North Carolina. *Policy Studies Journal* 38(4): 679–702.
- Ndegwa SN & Levy B, 2004. The politics of decentralization in Africa: A comparative analysis. In Levy B & Kpundeh S (eds.), *Building state capacity in Africa: New approaches, emerging lessons*. Washington DC: World Bank Institute.
- Nkonya E, Pender J & Kato E, 2008. Who knows, who cares? The determinants of enactment, awareness, and compliance with community NRM regulations in Uganda. *Environment and Development Economics* 13: 79–101.
- North DC, 1990. *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- Ostrom E, 1990. *Governing the commons: The evolution of institutions for collective action. (Political economy of institutions and decisions)*. New York: Cambridge University Press.
- Sanginga P, Abenakyo A, Kamugisha R, Martin A & Muzira R, 2009. Tracking outcomes of social and institutional innovations in natural resource management. In Sanginga P, Waters-Bayer A, Kaaria S, Njuki J & Wettasinha C (eds.), *Innovation Africa: Enriching farmers' livelihoods*. London: Earthscan.
- Scott J, 2000. *Social network analysis. A handbook*. 2nd ed. Thousand Oaks, CA: Sage Publications.
- Tenywa MM, Rao KPC, Tukahirwa JB, Buruchara R, Adekunle AA, Mugabe J, Wanjiku C, Mutabazi S, Fungo B, Kashaija NIM, Pali P, Mapatano S, Ngaboyisonga C, Farrow A, Njuki J & Abenakyo A, 2011. *Agricultural innovation platform as a tool for development oriented research*:

- Lessons and challenges in the formation and operationalization. *Journal of Agriculture and Environmental Studies* 2(1): 117–46.
- Van Rijn F, Nkonya E & Adekunle A, 2012. The impact of agricultural extension services on social capital: An application to the Sub Saharan Africa Challenge Program in Lake Kivu region. FARA Working Paper.
- Woolcock M, 1998. Social capital and economic development: Towards a theoretical synthesis and policy framework. *Theory and Society* 27: 151–208.
- Woolcock M & Narayan D, 2000. Social capital: Implications for development theory, research, and policy. *The World Bank Research Observer* 15: 225–49.
- World Bank, 2007. *World Development Report, 2008: Agriculture for development*. Washington DC: World Bank.
- Yauch C & Steudel HJ, 2003. Complementary use of qualitative and quantitative cultural assessment methods. *Organizational Research Methods* 6(4): 465–81.