

Barriers to collective action and implications for promoting innovation among poultry farmer groups in sub counties of Wakiso district in Uganda

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ABSTRACT

The study investigated barriers to collective action in unsuccessful Poultry Farmer Groups (PFGs) in six sub counties of Wakiso district in central Uganda. Innovation promoters believe that if farmers collectively adopt innovative technologies they can increase production and achieve high returns. Despite promotion of this belief, farmer groups (FGs) continue to fail. Although studies have been done, little is known about the mechanisms of barriers to collective action in FGs, under different conditions. Six cases of unsuccessful PFGs from 143 National Agricultural Advisory Services (NAADS) registered groups were studied using focus group discussions and key informant interviews. Apart from inadequate resources and non-adherence to regulations, results showed that PFG formation was unsystematic, nepotistic and hastily done. Farmers lacked commitment and intention to invest own resources. Government should use established FGs or if they use new ones members selection should be based on interest to participate in proposed activities.

Key words: Barriers, farmer groups, innovation, poultry enterprise, Uganda, Wakiso district

RÉSUMÉ

La présente étude s'est penchée sur les obstacles à l'action participative au sein des groupes d'aviculteurs (GAs) n'ayant pas réussi dans six sous-comtés du district de Wakiso, au centre de l'Ouganda. Les promoteurs d'innovation estiment que si les aviculteurs adoptent de façon collective les technologies innovantes, ils peuvent accroître leur production et obtenir de bons rendements. Malgré la promotion de cette idée, les groupes d'agriculteurs (GAs) rencontrent beaucoup de difficultés. Bien que des études aient été conduites, peu de connaissances existent sur les mécanismes d'obstacles à l'action collective avec les GAs, et dans différentes conditions. Six cas d'échec des GAs parmi les 143 groupes enregistrés par les services nationaux consultatifs en agriculture ont été étudiés à travers des discussions de groupes et des entretiens avec des personnes ressources clés. Mis à part les ressources inadéquates et le non-respect des réglementations, les résultats ont montré que la formation des GAs était non systématique, népotique et entreprise à la hâte. Les aviculteurs ont manqué d'engagement et d'intention d'investir leurs propres ressources. Le gouvernement devrait travailler avec des GAs établis ou, s'ils en choisissent de nouveaux, leur sélection devrait être fondée sur leur intérêt à participer aux activités proposées.

Mots-clés: Obstacles, groupes d'agriculteurs, innovation, entreprise avicole, Ouganda, district de Wakiso

INTRODUCTION

Most developing countries have their economies and resource base driven mostly by subsistence agricultural production (FAO, 2009; Masinde, 2014). To improve production in rural areas, accessing agricultural advisory services (AAS) using groups have been increasingly viewed as a significant driver that will promote innovations

in agriculture (Prager and Creaney, 2017). In Uganda, government introduced use of farmer groups (FGs) as an extension approach through which AAS will be accessed to address rural agricultural problems and poverty. To access AAS FGs had to register first with the National Agricultural Advisory Services (NAADS) programme and then identify priority enterprises

that will improve their livelihoods. Poultry, one of the most popular enterprises in urban and peri-urban areas of Uganda, was one of the enterprises farmers selected. Poultry has high demand and easy access to the market, and requires little production space (Benin *et al.*, 2007; Byarugaba, 2007). Using private service providers (PSPs), NAADS was to ensure farmers received and adopted innovative ideas and technologies. These resources would help them improve poultry management, one major limiting factor in Uganda to groups and individuals who attempted to rear chicken especially hybrid exotic birds at a commercial level (Ekou, 2013).

Successful learners and adopters were to increase production to address food security and quality of poultry products to become commercial (NAADS Act 2001; NAADS, 2011). However, similar to findings by Celliers *et al.* (2013), Shumusky *et al.* (2014) and Mmari (2015), most PFGs never succeeded. Reports (MAAIF, 2009; UDN, 2010) indicate that most groups failed to collectively access adequate AAS. The continued use of rudimentary technologies and inadequate inputs were cited to be a common problem (Byarugaba, 2007; FAO, 2009; UDN, 2010). Most farmers abandoned groups and opted to work individually which threatened food security and with very little surplus for the markets. This raises concern over the suitability of the FG extension approach in promoting collective action and innovation adoption in poultry production. To develop effective PFGs, it is important to understand why farmers fail to collectively access resources and address poultry management problems. Understanding mechanisms influencing PFGs adoption and use of innovative technologies will help inform policies promote coping strategies for managing poultry. The main objective of this study therefore, was to identify barriers to collective action and innovative technology adoption and implications to PFGs in sub-counties of Wakiso district in central Uganda.

METHODOLOGY

The context: Wakiso district and the Poultry

Farmer Groups. The study was carried out in six sub-counties (i.e., Nsangi, Wakiso Town council, Katabi, Nansana, Nangabo, Mende) of Wakiso district in central Uganda. The district was purposively selected since it is traditionally one of the poultry rearing districts served by the NAADS programme to ensure food security and market-oriented farming. Besides being peri-urban, the district had most of the conditions the programme needed for successful innovativeness using PFGs as institutions for collective action. These included: good communication, established local government structures, various private organizations, elite population and close proximity to the largest market (Kampala metropolitan) for poultry products.

Data collection. A case study design based on qualitative evidence was appropriate to help explain the causal links in real-life interventions that are too complex for the survey or experimental strategies (Stake, 2010; Kilelu, 2013). To increase on study validity, six Focus Group Discussions (FGDs) and eight Key Informant Interviews (KIIs) were used to gain a comprehensive account from multiple perspectives on constraints to collective action and innovation adoption in six unsuccessful PFGs. The PFGs were purposively selected (out of 143 registered groups) with help from district and sub-county NAADS coordinators and local government officials and poultry farmers. Many PFGs according to KIIs with the officials failed (over 50%). Three FGDs comprised of women and three for men were held to allow for free flow of information without due influence from either gender. The KIIs involved NAADS, local government and ministry of agriculture officials to complement information given by farmers.

Data collection occurred between March 2014 and July 2015. This involved discussions and interviews on knowledge issues, *inter alia*: how groups were formed; what were groups doing before NAADS; why deal in poultry; knowledge influence on skills and behavior; did farmers follow recommendations? If so why the

PFG failure? Data about resources inquired of farmers whether e.g. the hired private service providers (PSPs) allowed them participate in needs assessment and procurements; How efficient were PSPs?; were services and inputs accessible?; were resources in right amounts, quality and received on time? What happened if they failed to receive inputs etc? Data on the regulatory dimension involved questions like whether PFGs had rules, constitutions governing behavior; did members comply with the regulations? Did group leadership and programme officials follow the NAADS Act 2001 during programme implementation? Were farmers involved in monitoring, etc. Regarding farmer innovativeness this focused on level of adoption of innovative technologies (see Table 3). Socio-demographic data captured group origin, gender, experience, and members' attitude towards working together etc.

Data analysis. Data recordings, KII transcripts, field notes and other relevant documents were systematically analyzed to identify first-order concepts. In the second stage of analysis, there was axial coding to build up more abstract and robust descriptions of constraints to collective action in unsuccessful poultry farmer groups. Once these categories were developed, they

were fleshed out with examples of quotes taken from the primary data and tabular presentation. The analytical focus was on the processes by which collective action and innovative needs and demands were articulated, and how these were matched to supply of innovation support services.

RESULTS

Socio-demographic and economic attributes of poultry farmer groups. Table 1 shows cases of old and new PFGs sampled from six sub-counties of Wakiso district. On average a group was supposed to have between 20 to 25 members. Others indulged in secondary activities to supplement income from poultry rearing. Most PFG cases were dominated by female poultry farmers (63.04%), and hence with fewer males (36.96%). Many farmers (58.69%) engaged in poultry (Table 2).

Focus Group Discussions (FGDs) and discourses regarding poultry farmer responses. Results from farmer discussions on group formation, knowledge, regulations and resources (i.e. cognitive, regulatory, allocative) dimensions respectively, and inter and intra-group dynamics, i.e., leadership, elite capture, nepotism, political interference, etc are presented in Table 3.

Table 1. Distribution of unsuccessful poultry Farmer Groups per sub-county, poultry type and sample size

Farmer Group (Cases)	Sub-county	Type reared	Number of respondents
Kabumbi Farmers Forum	Nansana	Layers and locals	6
Nangabo kwekemba group	Nangabo	Improved locals	7
Alinnyikira development group	Nsangi	Broilers	6
Kwegatta ge mannyi farmer's group	Wakiso Town Council	Layers	7
Kongojje Tweekembe mixed group	Mende	Improved locals	10
Gakuwebwa Munno Nkumba	Katabi	Improved locals	10

Source: Field data from Wakiso district

Table 2. Main source of livelihoods for respondents

Main occupation of most farmers in FG	Freq.	Percent	Cum.
Poultry only	27	58.69	58.69
Business person	08	18.37	77.06
Employee in private enterprise	04	08.69	85.75
Public service employee	03	07.14	92.89
Others	04	09.18	100
Total	46	100	

Source: Field data from Wakiso district; FG = Farmer Group

Table 3. Focus Group Discussions (FGDs) and discourses regarding Poultry Farmer Groups (PFGs) and innovation adoption

Farmer Group and Location	Formation and the Cognitive dimension	Structure, Leadership and Regulatory dimension	Allocative dimension and FG Roles	Innovation	Marketing
'Kabumbi Farmers Forum', Nansana sub- county	Old; most members new; FG diversified; mixed; had our birds before NAADS. Organized and trained us. Uncertain goals and often difficult to agree on goals. Kept layers and locals.	Structure existed with committees; good leadership and trusted; hardworking; tried to mobilize resources but little realized. Depended on NAADS; FG had laws.	-Involved in needs assessment; -chose our enterprise; FG lacked enough resources and farmer interests to meet, yet we had youth, widows and men; tried on record keeping individually and as group; Poor local government support	No money for proper housing/ brooder; birds given were few and not timely. Many missed; vaccination for those who got; tried making/ mixing feeds and used local feeds to supplement expensive feeds. Used to sell poultry manure; drugs expensive and sometimes fake; poor returns affected group; poor incentives failed group; no incentive for book keeping.	Sold individually due to personal problems; distances between farmers a challenge; production time differed due to allocations; market near and quality different; poor prices; no collection or bulking centers
'Alinnyikira Development Group', Nsangi sub-county	New FG; poultry activities mainly; .selected members well; we were organized and trained; group goals were not reflective of the farmers individual goals; unrealistic goals focused on broilers	Poor structure; and leader high handed and undemocratic; group registered; had group laws; leadership tried to mobilize resources but little realised; incentives poor; constitution not followed; members were also selfish	Chose our enterprise but farmer interests not met due to little resources; had youth, widows and men but many were dependent on NAADS program; group record keeping was fair; poor local government support	Members pooled some resources and met frequently; vaccinated poultry and on time; FG had brooders and chicken houses but the little inputs made us not go very far; tried to make/mixed our feeds; we vaccinated and used to meet with other farmer groups;	Tried to sell as a group to one market but proceeds were little; sharing was a problem; sold individually later; personal problems not met by group profits; selfishness; allocation and production time differed and broilers have selling seasons; poor prices and sometimes much poultry on the market; cheated by middlemen and buyers.

‘Kwegatta ge mannyi farmer’s group’, Wakiso Town Council	New FG; we were organized; trained; we kept layers	Structure and committees in place; good and trusted leadership; .hardworking but poor at mobilizing resources; FG has its rules; poor record keeping and weak group memory	Chose our enterprise; inputs not enough; poor quality; farmer interests not met adequately; had youth, widows and men; kept records for group; poor local government support	Good housing, brooder, birds; timely vaccination; mix our feeds; use local feeds to supplement expensive feeds; used to sell manure and other products.	Sell individually due to personal problems and distances between farmers; production time differed due to allocations; market near and quality different.
‘Kongojje Tweekembe mixed group’, Mende sub-county	New group; .mixed; selected with help of NAADS; monopoly by members who are friends/family; organized; trained; members attended to benefit; improved locals.	Structure not active; leadership lacked transparency; no trust; no common goals/ objectives; weak mobilizers; political influence/ colors; leaders lacked confidentiality; mismanagement of resources; weak communication system; unfair allocation of benefits; had no group laws; selfish members.	Chose our enterprise; inputs little; unfairness in choosing beneficiaries; .didn’t monitor; .no funds to monitor; poor feedback from officials; share the little we have; money problem; tried on record keeping; poor local government support	Knowledge sharing/skills; social capital/sharing; training in feeding, housing and disease control; record keeping; money scarcity and insufficient inputs affected performance and this affected incentives to promote ideas; poultry structures put up but fair quality due to money problem; thieves are a problem also.	Poor market information, prices and reliability; those who benefited first sold individually; birds never laid well; market available but realize little gains.
‘Gakuwebwa Munno Nkumba bukolwa’ Katabi sub-county.	New FG; biased selection of members/ nepotism; some came to access resources; selection partly done by NAADS; however, FG trained; dealing in improved local chicken.	Program good but political ‘colour’ affected FG leadership; some group members felt isolated and had less participation; no meetings; leadership poor, opportunistic; selective allocation of resources; communication selective; group rules flouted by leaders and officials.	Participated in choosing enterprise; little involvement in committee work as a team; no funds to monitor; poor local government support; collusion and poor feedback from officials; initially had records and we participated.	No proper housing/brooder; birds free rangers; vaccination done once; no incentive; no well kept records due to poor incentives and politics	Poor; sold according to availability of birds, eggs and market; sold individually; tried other activities to earn a living.
Nangabo kwekemba group, Nangabo sub county	New; composed of only men; trained; not diversified; aim to access resources especially poultry to develop.	FG has its rules though not fully followed by leadership; leadership poor; lacked resources; poor resource mobilization; not trusted; sharing of inputs with group members skewed; corrupt; leadership influenced by politics/indecisive; jealousy; back biting.	Carried out needs assessment and enterprise selection; decision-making and implementation poor; .resource supply poor; no shared control; inputs poor/scarce; failed to monitor; kept records at the beginning; poor local government support	Had poultry brooders/houses in place; most FG members lacked inputs; contracted Private sector Service Providers failed to work with us and to procure what we wanted; some members colluded with service providers; FG never fared well.	Marketing was a problem; few managed to sell individually; searched for information ourselves; prices poor; no coordination.

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Table 4 below further presents the responses, summarized in a matrix form to follow the pattern of these aspects on collective action and innovation adoption.

Table 4. Factors as per the poultry farmer responses which affected success of Poultry Farmer Groups (PFGs)

Poultry Farmer Group	Success factor ^p						
	Cognitive	Regulatory	Allocative	Intra-PFG	Innovation	Collective	Individual market
Kabumbi farmers forum	Y	Y	---	Y	Y	---	Y
Alinyikira development group	Y	Y	---	Y	Y	---	Y
Kwegatta gemanyi farmers grp	Y	Y	---	Y	Y	---	Y
Kongojje Tweekembe mixed grp	Y	---	---	---	---	---	Y
Gakuwebwa Munno group	Y	---	---	---	---	---	---
Nangabo kwekemba group	Y	---	---	---	---	---	---

p 'Y'=factors developed from farmer responses which influenced PFG collective action and innovation adoption. '---'=factor existed but performed relatively badly in that PFG. Cognitive= knowledge acquisition; Regulatory= farmer adherence to regulations governing groups; Allocative= farmer access to resources; Intra-PFG= group dynamics; Collective marketing=joint farmer effort to take their produce to markets as a group; Ind. Marketing= each farmer marketed alone (Adopted from Baynes *et al.*, 2016)

Institutional factors influencing collective action and innovation adoption in PFGs. The pattern in Table 4 reveals that farmers accessed and appreciated the knowledge NAADS imparted to their groups. The FGDs (Table 3) show acknowledgement by farmers that knowledge built their capacity. It empowered them to participate in *inter alia*: collective group management needs assessment, enterprise selection and technology adoption. Farmers also acknowledged the usefulness of being organized, and the trainings in poultry rearing skills which was the original mandate of the NAADS policy programme in extension service delivery. However, Tables 3 and 4 show that there was non-adherence to regulations by the PFG leadership, farmers and NAADS officials. Similarly, secondary data showed such behavior resulted from *inter alia* loopholes in the institutional laws e.g. the NAADS Policy and Act, 2001. Actors exploited these loopholes which affected group trust. The NAADS Act 2001 operationalized the NAADS policy and in section 15, sub-sections 1, 2, and 3 pages 10 of the Act, Part IV states that:

(1) *Individual farmers in a village or parish with a common identifiable farming interest may*

fill Form 1, in the second schedule, for purposes of registration as a group so as to benefit from NAADS services.

(2) *A farmers group, association or co-operative which is a legal entity already in existence, may for purposes of benefiting from NAADS services, register with NAADS in the sub-county by filling Form 1, in the second schedule.*

(3) *Upon receipt of the forms referred to in subsection (1) and (2), a certificate of registration shall be issued to the group by the sub-county chief and shall be conclusive evidence of registration for purposes of accessing NAADS services.*

A farmer group according to the NAADS Act (2001) meant: 'A group of individual farmers, an association, cooperative or any legal entity with a common farming interest.' Such provisions and criteria, allowed formation of new groups that recruited close family members or friends. The FG registration with NAADS was more on accessing resources and according to one district official:

'Once government notified communities of its decision to only work with groups rather than individuals, many groups mushroomed to access resources. This was not good because such groups

did not have any specific cause to bind them other than the need for free resources.' (District official, 2015).

Regulatory weaknesses were acknowledged by farmers who noted that this later made PFG members disregard rules that governed resource distribution and collective work ethics. Discussions (Table 3) reveal that programme implementers failed to monitor and control most activities. Groups mushroomed that lacked capacity to meet co-funding requirements since they anticipated free inputs. Groups that followed regulatory requirements rarely participated in group activities and accessing resources. Accordingly most farmers were left out due to e.g. unfair selection process of beneficiaries, politics, age, or relationship to officials especially leadership at local/village level. One PFG noted thus;

"One to benefit had to be known...to receive chicken or get information that there will be distribution created problems. There was political interference coupled with secrecy and falsehoods." (Nangabo farmers' group).

Tables 3 and 4 showed that Intra-PFG governance on average influenced negatively collective action. Since PFG governance was comprised of standard procedures, rules and regulations, disregarding these attributes by leadership became counterproductive. It affected resource flow, monitoring and accountability within groups. Farmers reported that they participated in recruitment of Private Service Providers (PSPs) and their relationship with PSPs was initially not bad except at the procurement of inputs.

'Every village had a procurement committee which was farmer led which helped us own the decisions reached. The problem arose when village procurement committee was told to buy inputs from the village ... it was impossible to find good quality inputs often. The committees were not facilitated so they lacked motivation and their role weakened with time.' (Ssekaayi Joseph, former NAADS coordinator, 2015)

Key Informant Interviews (KIIs) with one district

officials indicated that the above to be true and added that service providers interacted with farmers using group structures from the village upwards.

'Training was based on the farmers' needs provided in the terms of reference every year. Where farmers were dissatisfied with the work, they reported to the sub-county which contacted the service provider to improve on the way trainings were done.' (District official, 2015).

However, despite such responses from officials, farmers insisted that they never participated fully in resource procurement and distribution. They noted that selfish group leaders and some members and service providers usually connived to deny others access to information regarding inputs. The KIIs and FGDs indicated that Poultry FG ineffectiveness was further caused by slow and poor feedback from actors at higher levels/tiers of governance who failed to work on their reports.

'How can you order for layers chicken and they end up supplying you with local types that have no feathers on their neck...even supplied feeds are of poor quality. However, much as you report, there is no feedback yet even the money they dispense is little. Even putting your own money in such venture is risky'(Mrs Kigoye Evelyn, Masooli, Kitetika, 2015)

Such acts brewed acrimony and mistrust between farmers and concerned officials which then led to communication breakdown. Participation in monitoring, evaluation and accountability proved a problem for the groups and committees as these were not facilitated. This weakened PFGs though a former NAADS coordinator said procurement problems partly arose when poultry farmers also colluded with service providers to reap maximum benefits. In addition, interviews revealed that most beneficiaries happened to be tenants, and whenever they shifted it created manpower shortages in FGs as this reduced their effectiveness and sustainability. Even PFG leadership was poor and was reported to have had too many responsibilities. *'It was to the farmers' advantage that they chose their own group leaders but there were cases where leaders became a problem. They failed to*

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perform but continuously used the advantage of numbers to be re-voted into power; brought non group members to vote them. Generally speaking all farmer institutions are weak because of leadership issues leading to misuse of resources, lack of transparency and lack of vision.' (District official, 2015).

Lack of trust from group leaders led to conflicts of interest. Table 3 shows that some leaders used their political party affiliation to stay in leadership positions. According to program officials the group leadership worked against group interests which affected collective action:

'There was a problem in distribution of inputs for cases where a family had many of its members in the group structures. Often this meant that inputs were given to members in the same family which annoyed the non family group members. Misuse of funds by group leaders, lack of trust and political differences among members greatly affected group performance and sustainability. Groups and committees could not go far, they had to collapse.' (NAADS coordinator).

In other instances, e.g. in Nansana sub-county, members said leaders and some members never had permanent places of abode,

'Our leader was weak and the majority of the members of the group were tenants so they kept on moving from one place to another and when they shift we tend to lose contacts with other members thus making group efforts to be grounded' (Remarkated a male participant in Nansana Sub-county on 20 august 2015).

Government support and political influence.

Responses from Table 3 showed that the government failed to respond effectively to control NAADS officials who were failing in their duties, and/or cause dismissal of corrupt group leaders. Farmer responses reveal that their reports and demands rarely met positive feedback and government paid only lip-service.

'District and sub-county leaders failed to help farmers. Some group members left when they failed to work well with program coordinators

and access resources. Corrupt members connived with officials and leaders to hide information from others e.g. some got inputs which they misused creating conflicts between group leaders and members.' ('Kabumbi farmers' forum group members, Nansana Sub-county, 2015).

Key Informants Interviews (KII) with NAADS officials revealed that the poultry farmers were partly to blame since they hated feedback that condemned their actions. They only wanted feedback that addressed their problems and complaints and where officials wanted farmers to comply with the programme guidelines many refused to comply.

A district official noted that:

'Many farmers formed incoherent groups with little interest in teamwork or group demands. We ended up with individuals who provided poor leadership and yearning for free inputs, yet funding was insufficient which led to individualistic and opportunistic behavior. Lack of trust and poor decision-making failed the groups. This impacted negatively on the way groups executed activities especially the poultry enterprise. By the way it is the farmers who even gave away the hatchery machine we gave them'.

Regarding the hatchery in Kakiri sub-county farmers insisted it was the NAADS and district officials who colluded with their leaders and sold it to a person who was not a member of the group and money that accrued was unaccounted for.

'We reported this to those responsible and we couldn't be assisted... it affected us. Leaders dodged us and no longer scheduled frequent meetings...even when meetings were set, some members would not attend as they became discouraged. Since many of the members are not of permanent settlement in this area, the numbers kept reducing as they moved on making the group weak.' (Members, Kakira sub-county, 2015).

As noted below, such acts made many farmers to abandon their groups which weakened them.

Some groups split due to challenges of income sharing which led to constant wrangles and due

to poor resources mobilization to enable all to receive assistance (Alinyikira development group, Nsangi sub-county).

From interviews and FGDs, it appeared that poor power relations created a gap that was also exploited by other actors like service providers to do things their way to the detriment of poultry farmers. Farmers who benefited agreed that political intervention was necessary since they took resources as rewards for their active support for these politicians.

'We voted them into positions of power and why not hunt for us. We need help like school fees.... what is wrong if they fund us and provide employment. What mattered was someone being 'politically rewarded.'(Poultry farmer, Nangabo Sub-county, 2015).

Key informants Interview (KII) with one former NAADS coordinator confirmed this;

'There is also no trust within the groups, for example, there was a case where a group chose a chairperson but since another political person was interested in bringing in a leader, the group cancelled the election of the first chairman and they brought in a new person who they thought would bring money and goodies into the group.' (NAADS official, 2015).

However, the same officials indicated that failure of poultry groups could partly be explained from the mixed expectations groups had and political interference, which bred poor leadership that further compromised collective action, participation, resource allocation and innovation. *'Sometimes we could not act that fast for fear of political retribution and some of these farmers were highly connected politically...The leaders had their way most times colluding with local councils at village level who also had their political inclinations. For us we did our bit as technical officers but group leaders could have done better.'*

Furthermore interviews with district officials showed that government interference and intermittent alteration of programme objectives

during implementation disrupted smooth FG operations. One policy change that affected their plans officials noted was the government insistence of offering free or subsidized inputs to poultry farmers. It affected program budget and made FGs to be total dependant on supplies from the programme yet resources were limited.

Poultry farmer innovation and marketing.

Table 3 shows that farmers tried to make use of the little resources to build poultry housing, brooders, and look for quality feeds and drugs. However, FGDs revealed many improvised services using things like mixing tobacco with Vaseline to treat chicken lice and sores; pepper and other herbs to treat coccidiosis and cow dung and herbs as food supplements. According to Wakiso district officials,

'Some PFGs brought forth new innovations, which were dangerous to the future and entire market for poultry products especially the quality of eggs and meat. Use of urine, human medicine (septrin) to treat poultry infections like coughing or potassium permanganate for coccidiosis treatment was dangerous. Some locally mixed feeds were contaminated with fungal agents that had aflatoxins that cause cancer. The overall effect would be on the quality of products which could find a problem in the value chain for internal, regional and far off markets.'

Tables 3 and 4 show that farmers failed to bulk or market products together. The high transaction costs due to poor and uneven distribution of inputs and selfishness were among the reasons given. Additionally, presence of many markets for poultry products forced many to sell individually. One official remarked;

'Those who tried to sell in groups failed despite markets availability in Wakiso District which is surrounded by many markets. Poor incentives weakened farmer efforts to work collectively yet individually they could not participate effectively in monitoring and evaluation of private service providers.'As such poultry farmer ended up getting low prices for their products, and not breaking even.'(Wakiso District official, 2015).

Competition among farmers and entry of middle

men undermined group effort. Farmers revealed a case in Katabi sub-county where one of their groups was contracted to supply a leading supermarket with poultry products. Middlemen colluded with one group member to sabotage the market by supplying poor quality products resulting in the cancellation of the lucrative contract. Such acts worked against group success, affecting their sustainability.

DISCUSSION

Barriers due to group formation and regulatory dimension. Findings showed that the FG extension approach faced several challenges which affected collective access and adoption of innovative technologies (innovativeness). The explanation for this is based on the flawed process that was used to select farmers who formed and registered poultry groups. The process was not systematic, as groups with divergent backgrounds were hastily established and comprised of closely related individuals. Others had individuals who never had the same commitment and were not prepared to invest either financially or give labour resources in the enterprises which set the group for failure from the start. These acts were done by mostly new groups due to regulatory loopholes in the NAADS Act, 2001. Section 15, sub-section 1, 2, and 3 part iv of the Act lacked provisions for establishment of watertight criteria to screen member recruitment, group formation and registration. Consequently rent seekers and free riders formed groups to access poultry resources. Policy as Baynes *et al.* (2016) argued, should consider a broad range of all factors likely to affect group action and success.

The failure of the NAADS Act, 2001 and most group constitutions to provide deterrents and strong punitive sanctions against opportunism contributed to erosion of group trust. Barriers from lack of trust according to Tuna (2014), increases transaction costs due to a need for extra resources to monitor and control untrustworthy behavior. According to Geel (2004), Szogs *et al.* (2011), Harsmar (2013), Liverpool-Tasie (2014) and Kilelu (2017) strong regulatory institutions are essential components of a successful

Innovation Systems (IS) thinking. Full utilization of these components facilitates collective actor entrepreneurial initiatives that drive innovation.

The implication calls for a review to strengthen and enforce the existing laws especially the amendment of for example section 15 (sub-sections 1, 2 and 3) of the NAADS Act, 2001. The aim is to create strong criteria for farmer selection, group creation, and registration. Amendments should also make consideration for experienced individuals and groups. Additionally, as Celliers *et al.* (2013) noted, one key success factor for an effective regulatory environment is the existence and nature of monitoring, enforcement and reporting mechanisms. The extent to which these involve local communities as opposed to excluding them matters. Failure by PFGS to be involved in monitoring could not enable the FG extension approach to successfully ensure food security or promote commercial farming.

Institutional resource (Allocative) dimension and Intra-and Inter-Poultry FG factors. Besides the need for a strong regulatory environment, the results highlighted the adverse effects from lack of transparency in resources management by various programme actors. Insufficient monitoring by government as the principle, to its agencies especially NAADS and local government officials to oversee proper implementation of the programme contributed to PFG failure. A key barrier during implementation comprised of the failure to follow transparently established procedures in the procurement and distribution of resources. According to Baynes *et al.* (2015), governance is about structure (leadership position and voting rights) of the organization, management style (autocratic or democratic) and the sharing of responsibilities and benefits. At both levels governance is about the power to make, implement and enforce decisions. Failure to make constructive decisions based on regulations governing resources as noted by Tuna (2014) negatively influences implementation of activities that promote strategic renewals and creativity. Only the presence of effective governance and social

equity conditions promotes collective community enterprises (Larson and Dahl, 2012; Liverpool-Tarsie, 2014; Akamani *et al.*, 2015; Steffens *et al.*, 2016). Thus unfair resources management and poor leadership as noted in many studies (Poulton *et al.*, 2010; Bijman *et al.*, 2011), resulted from the failure by programme officials to monitor and offer remedies to problems affecting groups.

Institutional knowledge (Cognitive) dimension.

While PFGs appreciated the usefulness of the knowledge received from NAADS, this alone, could not lead to group success. The manner in which PFGs were formed, and delivery of resources done by NAADS PSPs compromised the impact knowledge would have had on farmers. Knowledge acquisition was to enable farmers successfully adopt improved technologies and develop their entrepreneurial potential for poultry rearing. This had placed knowledge at the forefront of planning considerations. The NAADS programme had emphasized this in its initial stages of implementation as one of its primary and major objective. As part of capacity building to strengthen learning and collaboration, this was key to fostering innovation that enables a sector respond continuously to competitive challenges. Our observations agree with findings of Bosma and Levie (2010), Gomez-Haro (2011) and Augusto *et al.* (2014), however, Prager and Creaney (2017) argued that such a prescriptive programme will struggle to simultaneously encourage farmer-led processes.

Collective marketing problem. The study findings showed that availability of markets never promoted collective bulking or marketing of poultry products. Lack of trust among group members, poor and inadequate resources and their uneven distribution also undermined collective marketing. Views presented by farmers during discussions revealed that most group members were scattered. This enabled free-riders to take advantage of markets available to sell individually. In such a context, group extension programmes may need to concentrate more on providing advisory services than emphasizing collective

marketing. However, to have successful collective marketing as has been achieved by the Rakai and Masaka associations and Kapchorwa commercial FG this is possible if markets are far-off; or where roads are poor and they have one trader buying their produce. Then the cost of joint marketing may be covered by the increased prices for joint marketing. These results are consistent with the findings by Robbins *et al.* (2004) and Mmari (2015) who emphasized the need for a shift towards a more integrated coordination model for high value commodities for domestic and export markets. Thus to avoid future failures regulations and group actor coordination should be strengthened to promote collective action that would reduce costs of accessing inputs and output markets (Shiferaw *et al.*, 2011). The little experience and low level of development that most PFGs had is an area for policy intervention.

CONCLUSION AND RECOMMENDATIONS

Although FG extension is good for rural farmers to access innovative AAS, in this study group formation was not systematic. Groups were hastily established yet they were from diverse background and familiarly-related people who did not all have the same commitment; and who were not prepared to invest either financially or provide labour resources for the enterprises. This set the barriers for group to fail from the start. As a key intervention the study recommends that if government wants to work with groups, it should use existing farmer groups. But if they are to establish new ones, they should invest time in ensuring that the group members are selected for their interest in participating in the proposed activities of that group. Additionally, political goals and economic growth do not really mix. If the groups were formed in order to deliver political support, then they have been successful for that purpose. But they are not likely to succeed to improve agricultural production or livelihoods. They will only bring individual benefits and are unlikely to be sustainable. In conclusion therefore, whereas knowledge dissemination and training if successfully done could build poultry farmer capacity, this alone cannot benefit farmers

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in absence of strong institutional regulatory and resources support. Indeed weak intra-group governance, poor government support and corrupt PSPs, and partisan politics, constrained the programme and farmer groups' objectives.

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STATEMENT OF NO CONFLICT OF INTEREST

We the authors of this paper hereby declare that there are no competing interests in this publication.

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