

Understanding the Role of Fish Farmer Associations as Intermediaries for the Commercialization of Aquaculture in Uganda

Emily Stutzman¹, Joseph Molnar^{2*}, Gertrude Atukunda³ and John Walakira³

¹Lipscomb University, 1 University Park Dr Nashville, TN 37204, USA

²Auburn University, 203 Comer Hall Auburn, AL 36849, USA

³Aquaculture Research and Development Center-Kajjansi, National Fisheries Resources Research Institute-NARO, Kampala, Uganda

*Corresponding author: Joseph Molnar, Auburn University, 203 Comer Hall Auburn, AL 36849, USA, Tel: +1 334-844-2345; E-mail: molnajj@auburn.edu

Received date: July 13, 2017; Accepted date: August 04, 2017; Published date: August 11, 2017

Copyright: © 2017 Stutzman E, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Aquaculture development commentary supports the formation of fish farmer associations or producer organizations as avenues for cultivating small- and medium-scale commercial farmers. However, little is known about the types of associations that facilitate commercialization. This research presents four qualitative case studies, based on semi-structured interviews, profiling existing associations of commercial fish farmers in Uganda. We conclude that the umbrella organizations under which local fish farmer associations vertically align themselves have important implications for fish farmer production. Aquaculture-specific umbrella organizations contribute to the success of local member association's more than general umbrella organizations do. Successful fish farmer associations accept government assistance only when it directly improves their fish farm operations. Other farmer groups seemed to wait for direct subsidization. Training fish farmers, providing quality information, cost sharing, and advocating for the aquaculture sector, not donor seeking, are the top priorities in productive fish farmer associations.

Keywords Fish farming; Uganda; Cage culture; Tilapia; Co-operatives; Development

List of Abbreviations FAO: Food and Agriculture Organization of the United Nations; IDP(s): Internally displaced person(s); KARDC: Aquaculture Research and Development Centre, Kajjansi; NAADS: National Agricultural Advisory Services; NaFIRRI: The National Fisheries Resources Research Institute; NUSAF: Northern Ugandan Social Action Fund; PO(s): Producer organization(s); USAID: United States Agency for International Development; USAID/LEAD: United States Agency for International Development/Livelihoods and Enterprises in Agriculture Development; UCA: Uganda Cooperative Alliance; WAFICOS: Walimi Fish Farmers Cooperative Society.

The Importance of Fish Farmer Associations to Aquaculture Development

Improving the livelihoods, nutrition, and opportunities of the rural poor is a central goal of development efforts, particularly the aquaculture sector. These efforts target the rural poor farmer, who makes up 70 percent of the African continent's population. Most rural farmers make their livelihoods on small-scale, mixed enterprise farms, producing first for home consumption and second for sale [1]. The prevailing approach to aquaculture development in Sub-Saharan aquaculture between the 1970s through the 1990s targeted the rural poor. The FAO, the Peace Corps, and USAID largely centered their efforts on small-scale, limited input, integrated fish farming for improved household fish consumption and income and 90 percent of African fish farmers fall into this small-scale or artisanal category [1,2] These small-scale, integrated fish farming operations do not realize profits due to the small quantities and low production intensity, that is, the weight of fish produce per unit area. Several factors work against the continued promotion of subsistence-level fish farms, including the

expense of training and extension and the low expectations for economic returns from this diversified farming system and thus the focus has turned to the development of a commercial aquaculture sector [1,2].

Subsistence aquaculture is being re-evaluated and the commercialization of agriculture as a whole is the present focus of the Food and Agriculture Organization of the United Nations (FAO) in Sub-Saharan Africa and the Ugandan government's national policy as well. Several organizations, including the Ugandan government, United States Agency for International Development (USAID), and the FAO, are working to transform selected farmers from small-scale to commercial fish farm operators. The premise is that this category of commercial aquaculture producers is made up of fish farmers who operate mainly for profit and are the driving force behind aquaculture infrastructure development, including the production of quality fish fingerlings or "seed" and formulated feed. Cage culture, where fish are farmed in cages in natural water bodies, is characteristic of this growing commercial aquaculture sector [2]. In fact, comparative analysis of subsistence aquaculture and small- and medium-sized commercial aquaculture operations indicates that commercial aquaculture contributes most to poverty reduction through driving economic growth [3]. The abiding characteristics of these profit-oriented farmers are yet to be noted, as there are currently only 200 such Ugandan fish farmers. A focus on commercial operators coincides coinciding with the Ugandan government's promotion of fish exports [2].

Aquaculture now is seen as a private-sector led enterprise that is technically sound, economically profitable, socially acceptable, and environmentally sustainable with the state playing a role as a facilitator and monitor [1,4]. Commercialization of aquaculture need not exclude small holders; the distinction is more a reflection of motivation, goals, and business and management practices than scale [1,5]. In

comparison to artisanal, integrated fish farmers, the small-to medium-scale commercial farmers typically build more ponds, use more technology, employ labourers, purchase fingerlings, use commercial feeds, and employ nonlocal business strategies [2,4]. Regional producers and consumers benefit from the commercialization of aquaculture [3].

Fish farmer associations are a key factor in establishing a viable commercial aquaculture sector in Sub-Saharan Africa [4]. A farmer association is defined as a conglomeration of individual farmers and/or fish farming groups joined for the purpose of more effective coordination of activities, and for established capacities to address several constraints and limitations faced by members. Some beneficial roles which fish farmer associations can play include influencing policy and regulations, providing technical services, facilitating market access, aiding in aquaculture research programs, providing extension services, developing and encouraging adherence to codes of conduct or better management practices, extending credit to member farmers, and facilitating knowledge-sharing [4,6].

Despite the long lists of roles for fish farmer associations to perform, no framework or set of guidelines exists for how effective associations can be created [5]. In fact, many fish farmer associations are described as ineffective or short-lived, and links between donor funding and association creation are common, as promises of gifts often accompany injunctions to form farmer associations; in these cases, associations commonly disintegrate after incentives disappear [5,7]. There are few surviving instances of thriving fish farmer associations to cite as examples [5].

However, the international development community's desire to develop fish farmer associations remains strong [5]. The current focus on commercialization necessitates that farmers have all available tool for success, as the financial stakes are higher than with previous subsistence efforts. Associations can provide some of the tools, in the form of knowledge, access to quality inputs, and relationships with aquaculture technicians, which individuals need to succeed as commercial fish farmers. Emerging commercial fish farmers, who have the desire to learn new techniques and improve production, are a target group for successful fish farmer association development.

Aquaculture in Uganda

The two primary fish species cultured in Uganda are the North African catfish (*Clarias gariepinus*) and Nile tilapia (*Oreochromis niloticus*) [2]. North African catfish has recently overtaken Nile tilapia as the most popular aquaculture species in Uganda, representing 60 percent of aquaculture production. Due to its fast growth and ability to feed on any organic matter, North African catfish is preferred by small-scale producers and those who produce for home consumption. The FAO is a supplier of good-quality fish seed, which was a previous limitation to North African catfish culture. Nile tilapia, however, is preferred for its taste and easy production of fish seed, though it requires specialized feed, which limits its application to commercial farms [8].

Technical aquaculture experts have long understood that success in aquaculture hinges on human factors and sociologists involved in aquaculture development find that personal commitment to fish farming is an even better predictor of success than technical knowledge [9]. The purpose of this paper is to describe organizational and sociological factors that influence the success of commercial

aquaculture in Uganda by examining four existing fish farmer associations.

Methods

Case studies of four fish farmer organizations in diverse areas of Uganda during January and February 2010. Yin [10] defines a case study as an "...empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" [10]. Multiple case study analysis is a research method which looks carefully at persons and operations at several locations in order to understand a complex situation. Evidence from multiple case studies is likely to be stronger than that of single case studies [10].

The sample included four associations of fish farmers who live in the three major geographic regions of Uganda: Northern, Central, and Western Uganda.

Each case study consists of multiple participants, representing the formal leaders as well as the members of each fish farmer association. The four cases are thematically titled "The Unaccountable Leaders," "The Helping Hands," "The Family Affair," and "The Cooperative Society."

Collaborating Ugandan fishery officers identified the following three fish farmer associations: "The Unaccountable Leaders," "The Helping Hands," and "The Family Affair," as participants in the broader AquaFish CRSP research program and for this case study research. Collaborating fishery officers assert that these associations are representative of the different types of aquaculture associations in Uganda. These associations were chosen based on the fishery officers' previous professional connections the associations had made with the Aquaculture Research and Development Centre, Kajjansi (KARDC), a branch of The National Fisheries Resources Research Institute (NaFIRRI). We focus group research participants from associations where potential participants seek services [11]. All three associations have USAID project relations. We planned to conduct focus group interviews with a sample of members from each aquaculture group. However, in the cases of "The Unaccountable Leaders" and "The Helping Hands," this was not possible, as the fish farmer association leaders were uncooperative in arranging focus group meetings. In these situations data consists of semi-structured interviews with the fish farmer association's leaders only.

We identified "The Cooperative Society," the only PO in our study without USAID project relations or previous contact with the collaborating fishery officers and KARDC. Contact with this organization came through a fish farmer organizer we met at the Walimi Fish Farmers Cooperative Society (WAFICOS) Fish Farmer Symposium and Trade Show. "The Cooperative Society," as a case, provides an element of diversity and basis for comparison to the other three POs which fishery officers affirmed are characteristic of KARDC-served POs. Events, meetings, and conferences are also useful venues for recruiting focus group research participants [11]. The contact is the organizer and chairman of the Uganda Fish Farmers Cooperative Alliance. "The Cooperative Society" is one of the groups organized under the Uganda Fish Farmers Cooperative Alliance umbrella. Qualitative data were collected through the use of semi-structured interviews with individuals and focus group research.

Results

Two associations are beginning to operate cage culture aquaculture systems, one is a fingerling producer, and the members of a fourth practice pond aquaculture. In order to facilitate comparisons and analyses of factors that make fish POs successful at improving their member farmers' fish production, the cases have been ordered from POs with the least fish-productive members to those whose members produce the most fish.

Across cases, several similarities emerge. Each fish farmer association operates in an area of high potential for aquaculture in Uganda [2]. Fish farmer associations are place-based, with members from a defined geographical region.

Each operates in an umbrella group structure. That is, each fish farmer association has other farmer associations "under" it or has an organizational structure "over" it. Also, no full-time fish farmers emerged from the groups examined; all group members and leaders stated that they are involved in other agricultural producer groups, with many individuals involved in three or more agricultural producer groups. For only one fish farmer association, "The Family Affair", is fish farming the primary economic enterprise for executive members, and even this PO is involved in other agricultural activities.

Case study one: "The unaccountable leaders"

In western Uganda, bordering Queen Elizabeth National Park is a group of individuals who operate cages on the deep inland waters known as Uganda's crater lakes. They operate under a regional environmental conservation umbrella group. The environmental conservation umbrella group has 69 members and nine people in leadership positions, including a chairperson, vice chairperson, treasurer, secretary, project coordinator, and committee members. The project coordinator was the only interviewee in this case, as he was uncooperative with providing access to PO members.

History of involvement in fish farming

The environmental conservation organization became involved in fish farming with cages through the project coordinator in 2008. As part of a five-year countrywide aquaculture development project, a subset of this association received some training, and project staff conducted water quality tests for 13 lakes, which demonstrated eight viable for fish farming based on indicators including dissolved oxygen and hydrogen sulphide levels. One lake was selected as an experiment and five cages were placed on the lake.

Of 70 people who came to learn about fish farming (some of whom maintain their own fish ponds), ten were selected to manage the cages on the selected lake. This operation was designated as a model farm. The group maintained tilapia in the cages through two production cycles. But, due to a lack of feeds, the cages are currently empty.

In the view of the project coordinator, the first harvest was a success, though two of the five cages had problems just before harvest, which rendered them unharvestable. One cage's top had not been latched correctly, so the fish escaped. Another's net was torn, possibly by otters. The other three cages were harvested and given to the people participating in the project in order to demonstrate the success of the venture as well as to establish that farmed fish tastes like wild-caught fish, as many people were skeptical of the palatability of farmed fish.

The second harvest was also a success, though only two cages were in use. After harvest, the fish were salted and sun-dried, a low-cost preservation and value-addition method, and sold to traders from the Democratic Republic of the Congo. The project coordinator said, "We only had two cages because we had no feeds and the cages were getting old, and the feeds we were using were expired. Feeds are very expensive." The cages have since been repaired.

Resources necessary for production are currently the problem as members cannot afford the investment. The chairman said, "People are willing to participate, but pooling resources is not affordable for the members, though a few members can." The project coordinator did not address the role of women in the fish farming operation, but the leaders he mentioned were all men.

The honesty of the two leaders of the association was called into question during the discussion of the group's first harvest. It remains unclear why the fish from two of the five cages in the second production cycle disappeared. When asked if theft rather than an animal predator or unlatched lid could have led to the empty cages, the project coordinator said, "They don't steal from the cages because there is 24/7 monitoring." Theoretically, a full-time guard would have seen problems with an unlatched lid and an animal. Additionally, it became clear that the project coordinator never asked the members involved in fish culture to come to participate in interviews. A collaborating researcher conjectured that the project coordinator's actions reflect the members' distrust of him as a leader. Also, as the government research station plans to provide financial assistance to the fish farmers of this organization, the project coordinator sought to prevent his members from meeting the actual source of the funding, perpetuating the illusion that the project coordinator himself is the supply line of assistance. The project coordinator spearheaded the fish farming efforts and is an aspiring politician, though he is currently not holding office.

There is little evidence of meaningful interaction between the fish farming members of this association and its leaders. The general meeting scheduled to take place once a year did not occur last year or this year. Executive meetings attended by those in leadership positions occur as necessary. Technical meetings, which include the people involved in a specific project such as fish farming, took place once a week during production. During these technical meetings topics such as feed issues, the age and size of the fish, and problems that have arisen are discussed. Transparency with this core group of people involved in the fish farming is a challenge, especially as other members see the profits and become jealous. The inequality of benefit distribution is a source of members' jealousy. The project coordinator, who facilitated the donations of feed and equipment as well as invested some of his own money, explains the distribution of benefits. He says, "People who have put in big investments must have the lion's share."

It also seems that the leaders are intentionally unaccountable to the members. When asked if members pay dues, the chairman said, "They are doing voluntary work hoping to get a share of the proceeds. We have people who are ready to pay money to be members but we are not signing them up because we cannot take their money when there are no feeds because they will be asking 'What is happening with our money?' We have a very big number [who are interested] but we cannot accommodate [more members]." Thus, the members take no financial risk to purchase the necessary feeds and reap no reward. The project coordinator has a vested interest in limiting the risk that his members take: To have a failed harvest into which members invested

their own resources would harm the project coordinator's reputation and potentially decrease his political support in future elections.

Case study two: "The helping hands"

The umbrella regional poverty alleviation organization has a fish farmer association of 88 members. The group's formation was stimulated by the PO chairman's enthusiasm for fish farming. Additionally, the chairman expressed that he organized the group to meet members' needs and to access funding for projects. Some members own and maintain fish ponds, and others assist with a group pond. Several other charitable organizations have fishpond projects under the umbrella of the regional poverty alleviation organization. The fish farming members of "The Helping Hands" organization are preparing for a transition of emphasis from individually- and group-managed tilapia and catfish fish ponds to group management of a fish cage culture operation on Lake Victoria. The focus of our study was the structure of effort towards the potential transition to cage culture. Most of the interviewees were leaders of "The Helping Hands."

The fish farmer group typically holds meetings four times a year but gathers more frequently when preparing for a workshop or another unusual event. Currently, the fish farmer subset of "The Helping Hands" is not managing fish production collectively, but the chairman says they are ready to begin as soon as funds are available for that purpose. The chairman says, "As a management structure we have people in place but they are not functional (currently functioning). So the people are ready for when we have the money." Leaders are appointed by the chairman and their responsibilities are based on the individual leaders' expertise. "Whoever has the ability of doing something does it voluntarily for the benefit of the group," states the chairman. This commitment to community service is shared among the group, though to some degree each executive member stands to benefit financially or politically through their involvement in the group's poverty alleviation projects.

Structure and evidence of political connections

Under the umbrella of "The Helping Hands," and hence under its chairman, is a regional fish farmers association that encompasses local associations from four districts in eastern Uganda. The chairman unified them, saying, "These groups weren't capacitated (empowered) because they were singular (working in isolation)." This integration followed a large fish farmer meeting with over 300 attendees organized by the chairman. At the meeting, the Ugandan President's assistant announced that the chairman would be the one to distribute information and assistance to the fish farmers in this region.

Two aspects of this fish farmer meeting reflect the chairman's political pull: the presence of the president of Uganda's assistant and his pronouncement that the chairman of "The Helping Hands" will channel assistance to area fish farmers.

The goal of cage culture on Lake Victoria is to be a demonstration or model farm, which is a political status, and an achievement for which the chairman will potentially be credited and financially rewarded. In addition, the local government provided the group funds to acquire the necessary permits for operating cages on the lake. The minister of fisheries wrote on "The Helping Hands" behalf to the executive director of the National Agricultural Advisory Services (NAADS). Each achievement reflects the chairman's access to influential politicians, the essence of political power.

There are at least two perspectives on the political affiliation of the chairman and his fish farming aspirations. In a short-term view, political connections can lead to resources otherwise very difficult to procure, including permits, funding, and support for aquaculture activities. On the other hand, considering goals of sustainability, politicians' goals are often incongruous with the goals of the development of commercial fish farmers.

Community ponds and cages first, individual ownership resulting

The management approach that "The Helping Hands" organization uses for fish farmer development is rooted in its collective structure. The chairman says, "After all, it is up to everyone to look after the structure. Management is organized by the group and owned by the group." The group manages community fish ponds and hopes to operate cages with the expectation that profits from these operations will be used to purchase additional cages and inputs for individuals to own their own cages. The chairman says, "At the beginning we feel like we should work as a team. As we grow and begin realizing profits we should support individuals in owning cages. They will be then capable of owning and managing their own cages."

Charity-based fish farming

The goal of "The Helping Hands" umbrella group is poverty alleviation and economic development. It appears that the activities and goals of the group are more charity-based than business-oriented. When the chairman was asked why he and his members wanted to be fish farmers, he said, "It is the farming that can help people of different abilities. Fish farming gives a chance to vulnerable groups including women who can't go fishing by boat on the lake but can fish farm. It is an opportunity for the disabled, orphans, and the elderly. Also, fish farming can be done in teamwork. After all, it is up to everyone to look after the structure."

When asked what would evidence the success of his cage culture operations on Lake Victoria, the chairman said, "Being that cage culture is new, we expect that people will realize that it is good. We want to show a demonstration project. In the process of time, people, after learning from us, will apply knowledge on an individual level. They will arrange for their own permits. Success will be proved by individuals owning their own permits and cages." To the chairman, profitability is secondary to the ownership of individual cages. Also, fish farming is discussed as a project, not as a business or an enterprise. This organization does not yet have a definite business plan, though they anticipate creating one.

The chairman's answers suggests that developing commercial fish farming enterprises is not a goal, but that his members are vulnerable people who want to add a fish farming project to their already long list of development projects. This attitude is reflected in the group members' unwillingness to invest their own financial resources. The chairman says, "There have been no good examples of cage culture in lakes. So the members don't want to invest their money."

The piecemeal approach to aiding vulnerable people seems to manifest itself in members of "The Helping Hands" who are involved in multiple operations to varying degrees, gaining some benefit from each. It is an example of development scholar Robert Chambers [12] explanation that, for the poorest of the poor, livelihoods are "local, complex, diverse, dynamic, uncontrollable, or unpredictable." Being a specialized, capital and input intensive, risky, long-term enterprise,

commercial cage culture does not fit productively into this type of livelihood strategy.

Status hierarchy in “The helping hands”

Chambers [12] discussion of “uppers” and “lowers” provides helpful terminology for describing and understanding the relationships of two types of members of “The Helping Hands.” “Uppers are people who in a context are dominant or superior to lowers. A person can be an upper in one context and a lower in another [12]. Conversely, “Lowers are people who in a context are subordinate or inferior. A person can be a lower in one context and an upper in another” [12]. There appears to be a strong dichotomy between “upper” and “lower” members of “The Helping Hands.” Having the opportunity to spend time with members of both types, evidence of the interactions and expectations of the two groups emerge.

There are members involved in “The Helping Hands” who can be termed “uppers;” they have more education (sometimes holding advanced degrees), own their own fish farming operations, or have the resources to become fish farmers (including land, water, ponds, and money). We visited several of their fish farms, including one owned by a physician. These elite members see fish farming as an income-generating enterprise, which they manage while hiring someone to provide the day-to-day management of ponds. They also see themselves as aiding members who are “lowers” in gaining income from fish culture. For these “uppers,” involvement in “The Helping Hands” organization introduced them to fish farming and provides access to training and some inputs for their fish farming enterprises as well service to “lowers” in their community.

Several of these “uppers” see a fish farming operation as part of an income-generating farm to which they will retire. One woman, also a physician, stated, “I will do pond culture when I retire. This will be good because I can employ people at home.” Her statement demonstrates the dual goals of personal income generation and providing economic options for local “lowers.” It also illustrates a conception of fish farming as a sideline activity or a hobby for the wealthy [5].

“Uppers” in “The Helping Hands” are responsible for the management of the fish farms which the “lowers” operate on a day-to-day basis. In this way, “uppers” use their resources to aid “lowers” in the project work and potentially bring the “lowers” out of poverty. The avenues “uppers” use to aid “lowers” is in the procurement of funds for the group’s projects, the translation of technical information from English into Lusoga, the local language, and helping “lowers” procure and repay group-sourced credit. The chairman spoke to these relationships when responding to a question about the literacy levels of the members involved in fish farming, saying, “There are those (“uppers”) who are capable to help others, to explain in the language that they (“lowers”) understand. We are putting the literate at the forefront. A few should manage it (“uppers”). They do this on behalf of others (“lowers”).”

Not surprisingly, we had much more interview time with the “uppers” of the group. When conducting interviews with “lowers,” “uppers” were always present and sometimes even attempted to guide the “lowers” responses to questions. This occurred during interviews with the “lowers” who currently manage three small lakeside ponds and potentially will manage cages on Lake Victoria. These group members live in a markedly poor lakeside community. When I asked why they want to be fish farmers and what they hope to gain from the

fish farming enterprise, I received answers such as “The training interested me,” and “It is a business enterprise which will bring me money.” An “upper,” a physician, who will be assisting in managing the cage culture operation, interrupted the “lowers” and answered the question for them: “You get a cross section of people from the local community involved. They will be able to send their children to school, address the problem of malnutrition, and sell the fish for money. They all show interest and everyone benefits. There are two purposes: to grow food and sell fish for money.” The physician attempted to broaden the “lowers” limited, though pragmatic, views of benefits from fish farming to a view reflecting community-development goals. In the process, she silenced them and reinforced her superior social position.

Patronage and paternalism in “upper”-“lower” relations

Further reinforcing the evidence of “uppers” and “lowers” embedded in this group’s dynamics is the distinct language of patronage, which emerged in this case study alone. The first example is from the conversation between Gertrude Atukunda and the chairman of “The Helping Hands.” After hearing that his project would be partially funded, he said, “I am so grateful that Madame (Gertrude Atukunda) has agreed to fund the project. I am grateful in this regard because we are becoming babies of Madame.” The uses of the supremely polite title “Madame” and the mother/children metaphor reflect a patronage relationship couched in deference, appreciation, and inferiority.

Later, I observed the chairman in the opposite relationship in a similar conversation. The chairman of “The Helping Hands” and the middle-aged female chairman of the Uganda Society of the Disabled were speaking together among a group. The Uganda Society of the Disabled is a group that “The Helping Hands” chairman has aided in establishing pond culture as an income-generating project. The chairman of the Uganda Society of the Disabled said, “I can only thank [the chairman] for his effort. He offered us training and seed stock. I thank him very much. He is a loving father and is caring for us very much.” The man previously expressing becoming a “baby” of his own patron, a government fisheries employee, becomes a “father” of the group of disabled people to whom he provides assistance.

Interestingly, in these patron relationships there is no discussion of or question as to the original source of the funds. To the one at the end of the assistance chain, it does not seem to matter if the money came from U.S. taxpayers, a private endowment, or a government agency. What emerges supreme is the deference to the individual immediately passing on financial assistance, reflecting the relational nature of assistance chains [13].

Besides expressing appreciation, applying maternal and paternal vocabulary to relationships of patronage can be understood as a diplomatic, desirous strategy on the part of “lowers,” who employ this language to access resources available through patron relationships with uppers [12].

Case Study three: “The family affair”

History: In northern Uganda near the town of Gulu, the center of longtime civil strife is a fish farmer organization, which operates a hatchery for catfish and tilapia, produces fingerlings, and maintains a few grow-out ponds. This fish farmer association began in 2004, though the chairman has been farming fish on his land since 1973, beginning with a small pond and adding another large pond (approximately six times larger) in 1984. The chairman is a patriarch

and is known to his family and his fish farmer association as “Mzee,” a Swahili term of respect for an old and wise man.

Group formation

In 2004, Mzee responded to the local fisheries officer’s suggestion to apply to the Northern Ugandan Social Action Fund (NUSAF) to access funds to expand his ponds and build a hatchery. The NUSAF assistance was specifically designated for farmer groups, not individual farmers. The original fish farmer association formed with 17 people, with 11 males and six females, all relatives of Mzee. Since then, the fish farmer association has grown to include more than 30 members, including non-relatives. In 2008, the president of Uganda visited the farm and gave money for the construction and management of grow-out ponds, where fingerlings are raised to a marketable size.

Present situation

Currently, five members own and manage their own ponds in addition to operating “The Family Affair’s” farm. Twelve of the fish farmer association’s members are Mzee’s relatives. The executive members include Mzee, who has been the chairman since the group’s inception in 2004, Mzee’s wife, who is the treasurer, a secretary, and five committee members. The group operates several bank accounts to safeguard and segregate money received from the fish farm’s operation, donors and other enterprises. Other enterprises include operating an orphanage, beekeeping, and cattle production.

A recently-forged partnership between the United States Agency for International Development/Livelihoods and Enterprises in Agriculture Development (USAID/LEAD) and “The Family Affair” PO will focus on hatchery development and improving fingerling production. Additionally, this partnership is designed to develop twenty-two other fish farmer associations in the region. Developing fish farmer associations and providing extension services is a new direction for “The Family Affair” PO and will last from late 2009 to late 2011.

Regional context

“The Family Affair” fish farmer association is located in northern Uganda. This region is home of the ethno-linguistic Nilotic peoples, who also inhabit Southern Sudan, and has ethnic characteristics and a linguistic heritage distinct from the people of the other regions discussed in the three other case studies. Even outsiders can notice distinct physical features and language tones that differentiate the people of northern Uganda from the people of central, eastern, and western Uganda.

Northern Uganda is often equated with a rebel army with horrific tactics, as this region is the location of recent civil strife between the government of Uganda and the Lord’s Resistance Army, a rebel military group. As a result of the conflict, in 2007 Uganda had 1.27 million internally displaced persons (IDPs) of a national population of 33.4 million. For Gulu district in September of 2004, the number of IDPs was 438,785, which was 94 percent of the district’s population. By 2009, peace talks between the LRA and the Ugandan government have prompted many IDPs to return to their homes, though about 700,000 people remain displaced.

It is an understatement to say that the recent history of northern Uganda has resulted in a population with considerable needs. The challenge of developing commercial fish farmer associations is great. The fisheries value chain manager for the USAID/LEAD project sums

it up, saying, “In the north, people have been receiving handouts for 20 years. It is a difficult pattern to break.” However, the linking of prospective producers to their homeland can be a positive characteristic of fish farming over enterprises that are not place-based. The secretary of “The Family Affair” PO and a LEAD employee says about the members of the new fish POs, “They are constructing their own ponds so they feel as if they own them.” Ownership and land improvement may facilitate these new fish farmers’ success. Still, given the recent devastation of this entire region and the obvious physical and emotional needs of its inhabitants, our conversations about business plans, feed conversion ratios, and pond construction seemed surreal and totally irrelevant. The proposition of rebuilding a region that had little in the way of economic and infrastructure resources even before the decades-long reign of civil terror is a formidable one.

Orphan care component

“The Family Affair” PO formed in 2004 when violence in the region was raging and many children were in need. Over half of the population of Uganda is under age 15, and only 2.1 percent of Ugandans are over the age of 65 (CIA World Factbook 2010). The chairman speaks of the challenges of that time, saying, “In that time we felt some difficulties to care for the young ones.” Mzee’s brothers died of HIV/AIDS, leaving him to care for their orphaned children. “Many houses in the community are left with orphans.” Two systems simultaneously demand that the chairman cares for his orphaned nieces and nephews: one is a system of traditional responsibility, where the duty of caring for a deceased brother’s children falls to brother, and one is an incentive system where receiving donor or government funds depends on performing the role of orphan-caretaker. Mzee says, “We chose to work with orphans because these government structures of assistance require that we reach cross-cutting issues. It is the first step to get the money.”

Financial returns from the fish farm’s operations are invested into the orphans who receive training in marketable skills, as well as contribute to the farm’s operations. “We’ve paid (school) fees for the orphan children. Some of them are now doctors and teachers,” says the chairman’s wife. It is unclear whether the fish farm revenues or development assistance received paid the orphans’ tuition. Job skills are another benefit the orphans receive. Mzee says, “One of our targets is to get some machines to employ orphans. We can build a workshop. We give them school fees and during the breaks we keep them busy making bricks and training them in that skill.” Orphans are also employed to dig fishponds, an activity that dovetails with the WFP “food for work” approach. This approach requires that the community do the manual labor by digging the ponds, and the WFP supplies the inputs of seed and feeds.

Meetings and records

“The Family Affair’s” executive committee meets monthly. The chairman says, “In these meetings we plan, distribute roles, plan for training of other farmers, see what work is done, and see difficulties in the communities within the two districts (Amuru and Gulu). During these meetings the executive committee makes decisions allocating their funds, giving money to the most urgent need, whether that is school fees, fish ponds, feeds, or another need.” The entire group of over 30 meets two times per year. Several files are kept by the executive committee and the farm manager, including money received from donors and fish farming operations, fry sales, feeds, and a record of each meeting’s events. The chairman comments on the records kept for

pond management, saying, “For the feeds file, for example, we record amount of feeds bought, their cost, the source, and quantity daily given to the fish.”

Fish farmer association development and partnership with USAID/LEAD

Beginning in late 2009, “The Family Affair” fish farmer association began providing outreach and training to 22 fish producing associations throughout the two districts of Gulu and Amuru. “The Family Affair’s” staff and USAID/LEAD staff, including some individuals employed by both associations, provided the outreach and training. Each PO has approximately 30 members for a total of around 600 farmers. The relationships with these 22 POs were borne out of a partnership with USAID/LEAD project in Uganda because developing commercially-oriented fish farmer POs is a component of the LEAD project’s strategy.

The USAID/LEAD project strategy is to partner with “The Family Affair” PO over two years to strengthen commercially-minded POs thorough training and input supply. “The Family Affair” PO is in the beginning stages of training these 22 POs to be commercial fish farmers. Many of the 22 POs existed in a fragile state before USAID/LEAD and “The Family Affair” PO’s intervention, while others are newly formed. A Fish Value Chain Development Officer with the USAID/LEAD project spoke to the characteristics of the 22 groups: “They have their own leadership and management. They have been working for three years or more. (“The Family Affair”) and the field officers work with groups to strengthen them in areas such a leadership, administration, savings, etc.”

“The Family Affair” PO has begun training the 22 POs and has concrete plans for how the development of these groups will progress. The chairman says, “So far we have conducted one training with them on how to construct ponds.” Two members attended week-long pond construction training at “The Family Affair’s” fish farm. The LEAD project is using a farmer field school approach, which is an interactive, on-farm learning experience designed to educate farmers, enhancing their ability to make informed decisions concerning their own farm’s management [14].

“The Family Affair” PO will conduct a farmer field school on every topic of fish production and sale, including value addition, with two members from each PO attending each training session. In addition to educational services that “The Family Affair” PO has been entrusted to provide the groups, the chairman describes the inputs that “The Family Affair” PO will supply to the other POs in kind, “We will help them with money for feed and fry, for every group. For each group we will want to have 3,000 square meters of ponds.” “The Family Affair” PO employs extension personnel to provide on-farm advising to the 22 POs.

It is clear that “The Family Affair” PO’s activities in developing producer associations and using the farmer field school approach are dictated by the project goals of USAID/LEAD. The Agri-Unit director for the USAID/LEAD project said, “We are trying to look at farmers as our entry point, but not individual farmers. If we worked with individual farmers it would take us 70 years to accomplish our goals. That is why we are looking at farmer groups – we call them producer organizations (POs) – of those who are commercially minded and commercially oriented.” Commenting on the farmer field school approach, he says, “We bring farmers together for the farmers to identify their own problems and identify solutions together and help

link them to other farmers.” The “linking” of farmers through “The Family Affair” PO would not have occurred without direction from USAID, and “The Family Affair” PO offers the important benefit of aquaculture experience. A Family Affair PO member and USAID/LEAD technician says, “We are currently working with groups because it is easier for outreach and accessing government assistance.”

This service that “The Family Affair” PO provides to the regional POs will prospectively perpetuate “The Family Affair” PO’s business model. The secretary said, “We hope to train 600 fish farmers, create demand for our seed, our feeds, and our factory that we hope to build... We need all those we train to become commercial fish farmers so they will come in by themselves and continue to buy feed and fry from us.” When the secretary was asked for his assessment of the POs that “The Family Affair” PO is developing, he said, “We believe they will stand on their own after LEAD. According to our vision, all the groups will still continue getting fingerlings from us.”

Previous attempt at working with fish farmer associations

The secretary of “The Family Affair” PO is also the project manager employed by LEAD, and he provided insight on previous problems encountered with working with fish farmer groups. “(Pond) management is not done well. There is variation in feeding because many people are feeding.” He also speaks of the challenges associated with people transitioning from IDP camps back to their homes, where they attempt to establish farming enterprises, saying, “One of the problems was that some of the groups were formed in the camps where people are together but not necessarily from the same area. So when they leave the camps they are living in distant places. This was a problem in 2007 with the NAADS groups.” NAADS, Uganda’s National Agricultural Advisory Service, provides financial assistance and training to a spectrum of agricultural producer groups. Also, he sees problems with individuals joining groups without a commitment to fish farming: “All of them should have an interest in fish farming, not just the project.”

Goals

When asked about the goals of their producer organization, all executive members interviewed listed construction or infrastructure-based goals that they aim to achieve if donor funding is ascertained. The treasurer, Mzee’s wife, cited their need for a water heater for the hatchery, as the solar heater does not supply heat at night. When asked when he hopes to build more ponds, Mzee replied, “You will tell me when you say if you support me.” Currently, the hatchery built in 2004 is being renovated through assistance from the LEAD project. The chairman stated their three-year goal, which is to build a feed mill, and a five-year goal, which is to build a fish-processing factory for exporting fish to Sudan. They also anticipate building dormitories and a guesthouse for those who come to be trained, as well as a structure to house a formulated feed outlet. They would like to build a workshop where the orphans can learn job skills, as well as construct a swimming pool for recreation. Construction of ponds is currently undertaken in anticipation of future donor funds, both for ponds currently under construction and a reservoir. The chairman says, “For us, we keep on making ponds. We are still looking for phase two of NUSAF.” NUSAF stands for Northern Uganda Social Action Fund, the regional funding agency that first encouraged “The Family Affair” to form a group.

“The Family Affair” PO’s fingerling sales goals are secondary to their infrastructure development goals. This is partially a result of a

decreased fingerling market and partially a result of a distorted incentive system inherent in development assistance; aid programs favor construction projects rather than profitability of enterprises in natural markets.

Fingerling sales

“Between 2004 and 2006 fish farming in northern Uganda had gone down and is now beginning to increase,” says a Family Affair PO member and a LEAD-employed fish-farming technician. In 2009, “The Family Affair” PO produced 40,000 fingerlings, 30,000 of which were purchased by organizations, including the Food and Agriculture Organization of the United Nations (FAO), AT Uganda Ltd, a national NGO, and the African Development Bank. Only one producer organization purchased fingerlings from “The Family Affair” PO in 2009.

Since 2004 “The Family Affair’s” business structure has been built on accessing donor funds. This requires that “The Family Affair” align their producer organization’s goals to the donor’s goals. Even the sales of the fingerlings they produce demonstrate the donor saturation in this region of Uganda: 75 percent of “The Family Affair’s” fingerlings are sold to aid organizations. Natural markets are not at work here, but given the social and recent-historical context of this region, it may be some time before natural markets emerge as driving economic forces.

Case study four: “The cooperative society”

“The Cooperative Society”, located in western Uganda, began in 2004 when several members were invited by the minister of fisheries for training at the Fisheries Training Institute in Entebbe. The commissioner told them to form groups “in order to be heard and known by government and NGOs.” Ten members went for training and upon returning spoke with interested friends and neighbours and began organizing. First, the group registered as an association but changed their registration to a cooperative society at a minister’s recommendation. The group is currently registered at all levels, from the local council one, or village level, up to national level, with the Uganda Cooperative Alliance (UCA). This cooperative society is overseen by the head of the Uganda Fish Farmers Cooperative Union and receives technical assistance from the county fisheries officer, who attends gatherings, answers farmers’ questions, addresses fish farming problems, and makes farm visits. “The Cooperative Society” also receives some assistance from Uganda Cooperative Alliance and the Ugandan government in the form of fingerlings and training.

“The Cooperative Society’s” 90 members include men, women, and youth, with members coming from four sub-counties within the district. Leadership offices are elected positions, and include chairman, vice chairman, treasurer, general secretary, publicist secretary, advisors, and committee members. They currently farm catfish and tilapia.

Differences between the leaders and members

Two focus group interviews, one with the positional leaders and one with a subset of the members, indicate that there are differences between the members and leaders concerning benefits received from their cooperative society activities and involvement in other types of farming groups and cooperative societies. For example, when asked what other agricultural producer groups they were involved in, the leaders listed beekeeping, dairy production, banana wine processing, organic pineapple, coffee production, poultry production, tree planting, and animal husbandry as the principle activities of other

groups of which they are a part. The members listed poultry production, beekeeping, and banana production, which are agricultural activities which require less up-front capital and with less value-addition components than the leaders’ activities.

There are also differences between the leaders and the members of “The Cooperative Society” concerning sources of motivation for joining the group, level of satisfaction with their fish farming enterprises, and extent to which their expectations of the group, the government, and NGOs have been realized. Leaders showed higher levels of satisfaction with their fish farming operations, which is probably related to the fact that leaders had been fish farming longer and had larger fish farming operations than the members, on average. Throughout the discussion leaders’ and members’ often disparate attitudes are noted. Importantly, leaders were significantly older individuals than the members.

Benefits of membership: addressing deficiencies

One of the primary goals of fish farmer associations is to meet member farmers’ technical shortcomings. Therefore, an assessment of farmers’ perceived deficiencies in fish culture practice and how these are addressed by fish farmer organizations is a good measure of the viability of a producer organization, especially as it pertains to long-term farmer involvement and growth. Farmers in “The Cooperative Society” identified deficiencies in several areas crucial to their fish farming operations.

First, farmers acknowledged lack of inputs, specifically feed and fingerlings. “The Cooperative Society”, through connections with the government and Uganda Cooperative Alliance (UCA), are sometimes given fingerlings for distribution to members. However, these have been given in insufficient quantities or are of low quality and promises of fingerlings are often not met. When farmers purchase their own fingerlings, “The Cooperative Society” also plays a beneficial role by decreasing each farmer’s cost through bulk purchase of fingerlings and sharing transportation costs.

Farmers also require fingerlings of high quality, which refers to each fingerling’s size, viability after stocking, and subsequent growth rate. In terms of procuring fingerlings of high quality, the collective knowledge, experience, and social capital of the individuals in the producer organization gives farmers access to better fingerling producers and excludes others who peddle poor quality fingerlings. In the same way, the member-farmers who purchase formulated feeds share transportation costs and collectively negotiate for bulk prices. In the future, “The Cooperative Society” aims to serve as an Ugachick feed vendor for the western regions, which will provide income and further reduce feed costs for members. Member-farmers who are not yet at a scale of operation to purchase formulated feeds receive instruction and assistance in making feeds from locally-available ingredients.

Financial shortcomings were at the forefront of member-farmers’ stated deficiencies. Many farmers have yet to realize profits from their fish farming operations, though all of them have harvested fish for household consumption. All fish farmers expect profits, and most members who have operated for two production cycles reported generating profits. Those who did not generate profits expressed disappointment and are considering abandoning fish farming. In addition to teaching productive pond management, the producer organization aids farmer-members in achieving profits through collectively marketing farmers’ fish, which reduces the time the farmer

must spend searching for buyers, as well as reaching the best possible price. Farmers also receive advice on marketing and pricing their fish.

Farmers with a desire to expand their fish farming operations find access to capital to be a problem, especially in terms of credit and land; lack of capital is often an inhibiting factor in improving their fish farm's productivity. The producer organization, while not currently aiding farmers in accessing credit, hopes to increase resources to the point of providing production-cycle loans to member farmers.

One way that "The Cooperative Society" acts as a financial safety net is through an emergency fund that it maintains for its members. Farmers annually pay into this revolving fund and are able to access small loans to pay unexpected bills unrelated to fish farm operations, such as a death in the family or hospital bills. In this way, "The Cooperative Society" also functions as a burial society, one of many such societies that farmer-members may belong to. Burial societies serve an important function in terms of civil society, risk management, and financial security [15]. Thus the cooperative provides broader social and economic benefits to its members beyond inputs and guidance for fish farming.

Knowledge and skills development

A major theme that the leaders and members identified as a benefit to their involvement was the learning that took place in the course of "The Cooperative Society's" activities. Both members and leaders often mentioned learning broadly about pond management, how to grow fish, and resources for fish farmers, and specifically about fish species identification, appropriate stocking densities, good sources of inputs, making feeds from locally available ingredients, appropriate feeding, and marketing and pricing of their fish.

Along with these skills, fish farmers noted some deficiencies in the learning they had received. Many were frustrated by receiving contradictory information from different training programs they had attended. Several mentioned stocking rates as an example, saying, "At one training we were taught a stocking rate for catfish of six fingerlings per square meter, so we stocked that amount, and at a different training session, we heard only two per square meter. Which is correct?" Many felt that the topics were not completely covered at the trainings and desire regular access to technical support, saying, "We need continuous training." Some farmers were frustrated by their own resource constraints that prevented them from putting into practice what they had learned in training about optimum stocking densities and the use of formulated feeds. Along those lines, many farmers found it difficult to be away from their farms and families for two-week-long training sessions.

In fish farming training, farmers were eager to learn environmental improvement techniques that they integrated into their fish farming operations. They listed water harvesting and decreasing erosion through pond side tree planting as conservation efforts they employ. Leaders in "The Cooperative Society" identified human capital-enhancing skills they developed while occupying elected positions. These included business, leadership, communication, English, marketing, learning from one another in the group, hearing new ideas from outsiders, and growing in personal confidence.

Fish farming enterprise as status symbol, source of pride

Leaders and members of "The Cooperative Society" said an important benefit was the status in the community derived from their

fish farming enterprises and leadership positions they held in "The Cooperative Society." Farmers take great pride in their fish farming enterprises. This pride is reflected in the physical care and management of ponds, evidenced by the well-kept grass, as well as the ways the farmers use their fish. The act of a farmer serving fish he or she had raised at a special event, such as a child returning home from boarding school, or to important people, like visitors, is both a demonstration of achievement and status and a source of farmer pride.

A special meal is usually served to children returning from boarding school and fish farmers who are able to serve fish are offering their children a treat: "Fish is something they never would have eaten at school." Also, fish farmers discussed how their fishponds improved the appearance of their homes. Ponds demonstrate the ability to develop their resources and this physical evidence increases their neighbours' perception of the farmers' success. One fish farmer said, "A neat and well-organized home is a symbol of status."

The ability for fish farming households to feed fish to their families is also a source of pride as they actively provide nutritious, high-value foods for their children. Farmers who were receiving income from their ponds spoke of the increased prestige that their improved incomes brought as well as the ways they invested this income into land and education. One farmer mentioned expanding his land holdings as a result of fish-based income. Several spoke of the pride they felt from sending their children to boarding school with income from their ponds. Finally, farmers were proud to be able to share fish harvests with their disadvantaged neighbours, knowing that they had a nutritious, valuable food to offer. While farmers cited compassion and empathy as reasons for gifts of food to poor neighbours, sharing fish is also an important demonstration of agency and wealth.

Leadership positions in cooperative society as status-conferring

Discussions with the leaders revealed the status conferred on elected cooperative society leaders. Being elected to a position in a society is public recognition of status and affords opportunities to further improve status. Fish farmers holding leadership positions in "The Cooperative Society" talked about the business and communication skills they had gained through their roles. One man who had limited schooling was able to improve his English through interchanges with more educated peers. Also, leaders are often nominated to go to training and bring back the information they received to share with the members. The opportunity of learning information first and presenting it to members at a meeting reinforces the leaders' status.

Several leaders are retired. In Uganda, government employees are required to retire at age 60. After retirement, their community involvement and status usually decreases. Involvement in "The Cooperative Society" is a means of maintaining their community-serving and active lifestyle. One woman, a retired teacher and committee member who proudly pointed out her former students among the members, shared the confidence and influence she maintains post-retirement through her involvement in this organization. She holds a leadership position and therefore a responsibility to be busy and engaged. She says, "I am able to pick up my nice dress, put it on, and I forget my old age."

Advocating for the fish farming sector

Leaders articulated several key areas where networking and advocating for the fish farming sector are important responsibilities of

their producer organization. Consistent with the society's goal of addressing farmer deficiencies, the leaders seek to "Work together to solve the challenges of fish farmers with one voice." In order to unite the fish farmers' voices the leaders have sought out relationships with fish farmers outside their producer organization and thus built social capital. The president boasted, "Now we know all the fish farmers in the entire county."

The leaders interact with individuals and groups who have resources that their member farmers need. These resources include fingerlings and training and are sought through relationships with government officials, foreign donors, and the UCA. With an understanding of the linkages between fish farming and other development arenas, the leaders have aligned their fish farming goals with goals such as poverty alleviation, environmental preservation, and malnutrition, especially as it is experienced by HIV/AIDS victims. Advocating for the fish farming sector includes recruiting new fish farmers, and "... spreading the message that households with land and water can earn good incomes through fish farming." Thus the logic and objectives of the donor shape the direction of the cooperative.

Visions for "The cooperative society's" future

The leaders of this organization actively plan to expand "The Cooperative Society's" presence in the region as a locus of fish farming specialization. They state that the society's success is built on the member-farmers' success, which explains why their first goal is to increase all members' fish production and thus, household income. For some, increases in income from fish farming have already lead to sums sufficient to purchase more land to expand fish farming operations and pay children's school fees. Plans to rent an office space, retail Ugachick formulated feeds, and offer production-cycle loans to members are all part of their vision to increase member-farmers', and therefore "The Cooperative Society's," success.

Leaders also articulated several community-development goals, such as creating opportunities for local youth with little education to earn incomes from pond construction and a fish consumption goal for the community to which they belong. One leader cited the FAO nutritional recommendation that individuals eat fifteen kilograms of fish per year, and her vision is for the fish farmers in "The Cooperative Society" to supply that amount of fish for local consumption.

Conclusions

The thread of misdirected development assistance runs through each of the following categories of discussion. It should go without saying that the primary goal of a fish-productive aquaculture producer organization cannot be orchestrating its activities to qualify for the most donor assistance possible. Nonetheless, there are multiple aspects at play in the relationships between each of the fish farmer associations examined and funding agencies (both governmental and NGO). These relationships are considered in light of the ways the structures they produce aid or inhibit fish farmer associations in strengthening profitable, commercial member-farmers.

Specifically, across cases, the catalyst for group formation influenced each producer organization's goals and priorities, as well as members' expectations. Members' expectations are shaped by the promises of the government official encouraging the individuals to form a fish farmer association. Also, catalysts for group formation and subsequent priorities and goals are directly related to members' fish production. Fish farmer association goals and priorities determine whether or not

the member farmers and leaders view their activities and enterprises as successful. In instances where the goal of engaging in fish culture is to receive money rather than generate income, success is not measured in fish production, but in the amount of money received [16].

Across cases, every producer organization formed based on the advice or encouragement of government officials and group formation was related to receiving funding for the producer organization's activities. Though no case besides "The Family Affair" kept concrete production records for their organization, based on farmers' assessments of production and profitability, some conclusions can be drawn about the connection between donor support and fish production or fish farm profitability.

"The Unaccountable Leaders" worked through an existing community based organization, an association dedicated to environmental conservation, in order to receive government support for their fish farming activities. However, there is no system or mechanism for equitable distribution of benefits among members of this group-managed fish farm, even though much of the funding comes from government agencies or donors. The fish farming project coordinator says, "People who have put in big investments must take the lion's share," implying that the project coordinator himself, who arranged for the funding, was the "lion."

"The Helping Hands" producer organization was made up of a subset of members of a regional organization focused on poverty alleviation. When the chairman was asked why this organization was formed, he replied, "The idea was to serve the needs of the members of the group and to get creditors." This group works with cross-cutting issues, in response to donor goals; in order to receive funding from NAADS, the group must provide HIV/AIDS education to its members. This producer organization has received or sought funds from NAADS, USAID-LEAD, and local government agencies. Because this organization has not begun cage farming no assessments can be made about fish production.

"The Family Affair" was a functioning fish farm for 30 years, from 1973-2004, and operated by an individual and his family, until a district fisheries officer advised the farmer to organize as a group in order to be eligible for regional, government-sourced funding. Still, many members of this producer organization are the chairman's family. Besides accessing funding based on having a group structure, the name of the association includes the word "orphan," which expands the chairman's entitlement to donor funds. The chairman's brothers died of AIDS, leaving him with the responsibility of providing for his nieces and nephews. When asked about the organization's connection to orphans, the chairman said, "We choose to work with orphans because these government structures of assistance require that we reach cross-cutting issues. It is the first step to get the money." This producer organization has received funds from a regional funding agency and USAID.

"The Cooperative Society" began as an association, but the leaders changed their organization's registration after the minister of fisheries advised them to form a cooperative society. This registration change allowed them to receive assistance (or, the promise of assistance, as many promises have not been fulfilled) from the UCA.

Each producer organization operated within a larger umbrella structure, where fish farmer associations are affiliated with a larger organization: "The Unaccountable Leaders" PO is under a regional association dedicated to conserving environmental resources; "The Helping Hands" PO is a sub-set of members of a poverty alleviation

organization who share the goal of cage culture, as well as a regional administration and funding structure of fish farmer groups throughout the region; “The Family Affair”, at the mandate and expense of USAID/LEAD, is overseeing the development of 22 other fish POs; and “The Cooperative Society” is a regional PO under the umbrella of the Uganda Fish Farmers Cooperative Union, and also registered with the Uganda Cooperative Alliance. The impacts of these “groups within groups” structures require further study, though some important elements emerge from our research.

From the four cases examined, the most significant impact of the umbrella structures was that the goals of the “umbrella” organization colour the goals of the groups they “cover.” When this “cover” is tied to financial support, the goals become mandates. Often, the goals of the funding agency do not include developing commercial fish farmers, though this may be a primary goal of the PO. Given their stated roles, further investigation of the implications of “umbrella” organizations is warranted.

Funding agencies’ directions can potentially distract POs from their objective of developing productive fish farmers or promote strategies that are ineffective in practice. Part of the reason for this promotion is that fish farming is touted by government officials as a profitable farming enterprise that anyone can do. The perception is: men and women, widows and orphans, everyone can earn money from fish farming. While most successful fish farmers and technical experts seriously question the validity of that perception, government officials still design and fund projects to organize fish farming projects connected with reaching unrelated goals. Examples of funding agency goals unrelated to productive fish farmer development include reaching cross-cutting issues such as providing HIV/AIDS education and reaching vulnerable populations (i.e. women, orphans, and disabled people). An example demonstrates the ineffective strategies of one of these efforts: a fish farmer group made up of disabled people operating under “The Helping Hands” producer organization cited problems with physical mobility as one of their major constraints to operating a profitable fish pond. Their mobility-related disabilities prevented this group from efficiently managing their ponds. According to their production records, the group of disabled people found fish farming financially unsustainable and plans to abandon production.

However, fish farmers’ ability to improve the lives of the very poor is not only accomplished through training vulnerable people as fish farmers, and may not require funding agency dictates. The PO with the least donor support, “The Cooperative Society”, addressed cross-cutting issues quite differently than “The Helping Hands” or “The Family Affair”, the two most donor-involved POs. “The Cooperative Society” members aided vulnerable people as individual farmers, not as a collectively, by providing poor neighbours with on-farm employment opportunities and sharing nutritious, farm-raised fish.

In the cases examined the umbrella structures which specialize in fish farming yield member fish farmer associations with higher production than umbrella structures which oversee a spectrum of projects. “The Cooperative Society”, under the umbrella of the Uganda Fish Farmers Cooperative Alliance, and “The Family Affair,” are the two highest-producing fish farmer associations examined.

Fish production-based umbrella structures are better able to develop productive fish farmers partially because of the social capital these associations develop: bonding social capital, which unites the members of a producer organization and bridging social capital, which connects people and institutions. A host of relationships set these specialists

associations apart, as they have long-term working connections with technical experts, government research stations, universities, international experts, fingerling producers, feed distributors, and development professionals. Through these relationships, fish production-based umbrella structures are better poised to advocate for the fish farming sector, broaden member farmers’ resources, and develop productive fish farmers.

Additionally, umbrella structures which specialize in fish producer organization development are less likely to seek funding for non-aquaculture related development projects, efforts which distract diversified umbrella associations from focusing on improving fish farmers’ successes.

From the funding agency perspective, the purpose of working with groups instead of individual farmers is to provide assistance to more farmers. The co-director of the USAID/LEAD, said at a conference in northern Uganda, “We are trying to look at farmers as our entry point – but not individual farmers. If we work with individual farmers it would take us 70 years to accomplish our goals (of reaching 650,000 farmers in two years). That is why we are looking at farmer groups ...” However, funding agencies’ reports of number of farmers receiving services are erroneous, as in the case of “The Unaccountable Leaders,” where the list of farmers includes the names of those who are not actively participating in the rearing of fish or receiving the funding agencies’ services. USAID/LEAD knows that donors are looking at the number of Ugandan farmers served as an indicator of success.

Several incentive systems designed to encourage the development of a profitable and commercial fish farming sector in Uganda have been distorted to the point that they inhibit the economic and human-capital growth they were conceived to foster. What were designed to be incentives to productive fish farm development have evolved into ends in themselves. When leaders profit from distorted incentive systems, members’ trust is seriously compromised and member attrition results.

Two leaders of producer associations expressed that they wanted to operate model farms. The leaders of both “The Unaccountable Leaders” and “The Helping Hands” expressed this interest. Also, these two men are most politically ambitious and donor-seeking PO leaders. In Uganda, a model farm is a political distinction. Rather than recognizing farmers who have built up productive and economically successful farm enterprises through the farmer’s own long-term investment and expertise, model farms can be designated before one complete production cycle. In this context, a model farm is one that has been recognized by the president and designated as a demonstration farm for farmer field school education. With model farm distinction comes an inflow of government assistance. This system is well-suited to limited funds and staff members; but, as previously mentioned, ordinary farmers may perceive model farmers as a privileged group they are unable to mirror [17,18]. This understanding limits the application of information received during farmer field schools held on model farms. Both of the producer organization leaders interested in achieving model farm status are envisioning the rewards, in terms of money and influence, which are unrelated to fish farm profitability. Yet the rewards from donor money are often more tangible and immediate than proceeds from fish culture. Model farm distinction is a financial end in itself; it is tangentially related to farm commercialization.

The reality of producer associations maintaining multiple bank accounts for categories of donor assistance offers an insight into a pattern of assistance-seeking. Related to the treadmill of development

assistance, many PO leaders pursue a piecemeal approach to funding sources.

This approach is borne out of the development paradigm of cost sharing, where assistance-receivers invest a percentage of their own financial resources into a project. The purpose of cost sharing is to encourage participant ownership of the project and thus, incentive to manage the project well, as to provide returns on the participant's investment. Since a PO leader realizes that development agencies expect cost sharing, he pursues multiple donors. For example, if one donor will finance 80 percent of a project, and the group members are expected to contribute 20 percent of their own financial resources, the PO leader may not ask his members for the 20 percent but finds another donor, unbeknownst to the first, to finance the 20 percent that is the members' responsibility.

If the leader is also a local politician, or has political aspirations, this piecemeal approach becomes even more important, as the leader will lose popular support if his or her participants invest their own resources into a project that fails. With membership dues or participant investment come expectations of leaders' accountability and financial returns. In the words of the project coordinator of "The Unaccountable Leaders' PO," "We have people who are ready to pay money to be members but we are not signing them up because we can't take their money when there are no feeds because then they will be asking, 'What is happening with our money?'"

To clarify, this is not a greedy or underhanded approach to conducting business but a practical one. This approach was created (and is sustained) by the revolving door of donors and government programs designed to assist the poor farmers of Uganda. More than a half-century's history has proven that in time, another donor will come; therefore investing personal financial resources is unwarranted, if not wasteful. However, the piecemeal approach to funding sources has a detrimental impact on the aquaculture development of Uganda as it perpetuates the idea that fish farming is only profitable if a donor pays for the fingerlings and feed.

Though patterns of distorted incentive systems and piecemeal donor seeking were established by donor behaviour, the effects damage the viability of fish farmer associations and undermine their ability to accomplish the goal of becoming profitable commercial fish farmers. As previously mentioned, with each donor comes that donor's own aims, which may or may not align with the PO's goals. In fact, government or donor goals may serve to hinder member fish farmers from focusing on production, profitability, and long-term organizational viability. Donor and governments' requirements certainly threaten fish producer organization leadership development, as this pattern of goal displacement and distortion obstructs leaders from defining, working towards, and achieving goals and forming an organizational identity.

In the current method of operations, leaders of donor-driven fish producer associations simply follow the dictates of donor organizations, dictates which change with the creation and completion of an endless stream of short-term projects conducted by an alphabet soup of donor organizations. Additionally, fish producer organizations model the donor's short-term project orientation. For fish POs in Uganda to support a market-driven, thriving aquaculture sector sustained over time, leaders must recognize that current government

and donor financial incentives are not serving their interests as commercializing fish farmers, and avoid them while demanding that these structures be reformed to serve the intended purposes of governments, donors, and fish farmers.

Acknowledgement

Research supported by the AquaFish Innovation Lab Collaborative Research Support Program and the Alabama Agricultural Research Station, Auburn University.

References

1. Brummett RE, Lazard J, Moehl J (2008) African aquaculture: Realizing the potential. *Food Policy* 33: 371-385.
2. Mwajna WW (2005) National Aquaculture Sector Overview. Uganda. Rome: FAO Fisheries and Aquaculture Department.
3. Kassam L, Dorward A (2017) A comparative assessment of the poverty impacts of pond and cage aquaculture in Ghana. *Aquaculture* 470: 110-122.
4. FAO (2016) The State of World Fisheries and Aquaculture. Rome Contributing to food security and nutrition for all Rome pp: 200.
5. Moehl J, Brummett R, Boniface MK, Coche A (2006) Guiding principles for promoting aquaculture in Africa: Benchmarks for sustainable development. Accra, Ghana: FAO pp: 28.
6. Mosher AT (1966) Getting Agriculture Moving. Frederick A. Praeger Pub
7. Harrison E (1996) Digging Fish Ponds: Perspectives on Motivation in Luapula Province, Zambia *Hum Organ* 55: 270-278.
8. Chenyambuga SW, Mwandya A, Lamtane HA, Madalla NA (2014) Productivity and marketing of Nile tilapia (*Oreochromis niloticus*) cultured in ponds of small-scale farmers in Mvomero and Mbarali districts, Tanzania. *Livest Res Rural Dev* 26: 3.
9. Molnar JJ, Schwartz NB, Lovshin LL (Mangheni MN (2007) Experiences, Innovations and Issues in Agricultural Extension in Uganda. Lessons and Prospects. Kampala: Fountain Publishers.
10. Integrated aquacultural development: Sociological issues in the cooperative management of community fishponds. *Sociol Rural* 25: 60-80.
11. Yin RK (2013) Case Study Research: Design and Methods. Los Angeles: SAGE Publications, Inc.
12. Hennink MM (2007) International Focus Group Research: A Handbook for the Health and Social Sciences. edition Cambridge University Press.
13. Chambers R (1997) Whose Reality Counts?: Putting the First Last by Robert Chambers (1-Jan-1997) Paperback. ITDG Publishing.
14. Maranz DE (2015) African Friends and Money Matters: Observations from Africa, Second Edition. Second edition. Dallas, Texas: SIL International, Global Publishing.
15. Davis K, Nkonya E, Kato E, Mekonnen DA, Odendo M, et al. (2012) Impact of Farmer Field Schools on Agricultural Productivity and Poverty in East Africa. *World Dev* 40: 402-413.
16. Grivetti LE (1982) The Rationale, Promise, and Realities of Aquaculture: A Cultural-Nutritional Perspective. In: Smith LJ, Peterson S, Mcgoodwin JR, Pollnac RB, editors. Aquaculture Development In Less Developed Countries: Social, Economic, And Political Problems. illustrated edition. Boulder, Colo: Westview Press.
17. Stake RE (2005) Multiple Case Study Analysis. New York: The Guilford Press.
18. Dercon S, Hoddinott J, Krishnan P, Woldehanna T (2008) Collective action and vulnerability: Burial societies in rural Ethiopia.