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Strengthening Community-based Veterinary Extension Systems in Smallholder Farming Areas of Zimbabwe

Abstract

Zimbabwe used to have a very strong agricultural extension system. The economic and political challenges that the country faced since 2009 led to many agricultural extension officers leaving the country for greener pastures. In order to fill the gap, most non-governmental organisations started working with and training community members in basic extension. The trained cadres were then asked to cascade the training to their peers. The trained farmers were referred to as lead farmers and concentrated mainly on crop production. With livestock gaining more prominence, the same model was used to train farmers on livestock production and management. The trained farmers were known as paravets. GOAL Zimbabwe, an Irish NGO used the model in its livestock interventions in Buhera District in the south-east of Zimbabwe. Over 500 paravets were trained and more than 60% were women. As a result of the model, mortality rates were reduced drastically. The Ministry of Agriculture, Mechanisation and Irrigation Development is now working on modalities to scale up the paravet model to the rest of Zimbabwe.
Introduction

Between 2002 and 2009, Zimbabwe experienced a massive exodus of agricultural professionals who sought better opportunities in other countries. An economic meltdown precipitated this flight of human capital.

The exodus severely weakened a previously strong, advanced and highly regarded agricultural extension system. To offset this challenge, GOAL Zimbabwe adopted the “lead farmer” concept that had previously been used to promote farmer-to-farmer learning in cropping systems for livestock promotion. GOAL Zimbabwe trained local farmers as paraprofessional veterinarians (paravets) to serve as frontline agents for livestock management. By December 2016, there were 583 paravets in Buhera District, 60% of whom are women. ‘Paravets’ work closely with government-appointed extension workers as they diagnose and treat diseases and provide producers with relevant information. Government veterinarians report that between 2013 and 2015, the introduction of paravets resulted in a 25% decrease in mortalities among all livestock types.

Paravets in Buhera also led the implementation of a goat and cattle-based genetic improvement programme that GOAL Zimbabwe is running jointly with two private companies: Makera Cattle Company and Cooper Zimbabwe. Through this partnership, 39 pedigree bulls were introduced into the community in 2014. Paravets manage the health and use of these 39 pedigree bulls, and no bull fatalities have been recorded to date. This is a significant milestone. In fact, Makera implemented similar projects in other parts of the country where paravets were not involved and achieved worse results. Paravets have also substantially reduced work pressure on government veterinary workers.

Currently, the Ministry of Agriculture supports the planned certification and registration of paravets. This enables the paravets to charge fees for this low-input and easy to replicate service model. As paravets have improved livestock husbandry practices, smallholder farmers enhance their livelihoods and generate additional income in line with Sustainable Development Goal (SDG) 1 (End poverty in all its forms everywhere). To provide a sound justification to expand this strategy, GOAL Zimbabwe commissioned a comprehensive study to validate the model and develop a framework for the national roll-out.

This paper has been written with the following CDS principles of good practice in mind:

- Appreciative Inquiry Promote active and representative participation toward enabling all community members to meaningfully influence the decisions that affect their lives: In the case of Buhera, livestock is the only viable commercial enterprise that smallholder farmers can engage in. Therefore, it is important to engage as many farmers as possible in such projects. More critically, the selection of beneficiaries must be as open and transparent as possible. All decisions relating to such interventions should be community-based and community led.
- Appreciative Inquiry Engage community members in learning about and understanding community issues, and the economic, social, environmental, political, psychological, and other impacts associated with alternative courses of action. The advantage of working with farmers using the group approach is that it promotes social cohesion and provides a platform to exchange ideas on the projects they will be implementing. There are also opportunities for farmer-to-farmer discussions about common issues. These opportunities bring people together to focus on important and appropriate issues, especially in a country like Zimbabwe where there has been political polarisation since 2000.
- Appreciative Inquiry Incorporate the diverse interests and cultures of the community in the community development process; and disengage from support of any effort that is likely to adversely affect the disadvantaged members of a community. And work actively to enhance the leadership capacity of community members, leaders, and groups within the community: The experience from interventions of this nature is that community and social leaders emerge to take up responsibilities for the benefit of others. This leadership can be useful in other areas of human development.
- Appreciative Inquiry Be open to using the full range of action strategies to work toward the long-term sustainability and wellbeing of the community.

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2 This is not an acronym but the name of an Irish international humanitarian and development non-governmental organisation: https://www.goalglobal.org/

Community Development

Defining Participatory Extension

Writing in the Agricultural Research and Extension Network (AgREN), Murwira, et al (1999) defines participatory extension approaches (PEA) as an extension approach and concept that involves a transformation in the way extension agents interact with farmers. Participatory Extension Approaches evolved from the experiences of the late 1980s and early 1990s with the introduction of methods such as Rapid Rural Appraisal, Participatory Action Research and particularly, Participatory Rural Appraisal. All these approaches hinge on the need and desire for participation by different groups in (development) processes. According to Oakley (1989) in Eklund (1999), participation can be defined as, “...people's involvement in decision-making processes, in implementing programmes...their sharing of benefits of development programmes and their involvement in efforts to evaluate such programmes.” According to Murwira, there are six benefits of participatory extension approaches:

i. They integrate community mobilization for planning and action with rural development, agricultural extension and research.

ii. They are based on an equal partnership between farmers, researchers and extension agents who can all learn from each other and contribute their knowledge and skills.

iii. They aim to strengthen rural people’s problem-solving, planning and management abilities.

iv. They promote farmers’ capacity to adapt and develop new and appropriate technologies/innovations.

v. They encourage smallholder farmers to learn through experimentation, building on their own knowledge and practices and blending them with new ideas. This takes place in a cycle of action and reflection which is called “action learning”.

vi. They recognise that communities are not homogenous but consist of various social groups with conflicts and differences in interests, power and capabilities.

These benefits relate very well to the idea of community participation. Arnstein (1969) and Pretty (1994) identify eight and seven levels of participation respectively. These levels are presented in the following table:

According to a White Paper by the UK National Association of Local Councils (2008), community empowerment is said to have been achieved when “...people and government work together to make life better. It involves more people being able to influence decisions about their communities and more people taking responsibility for tackling local problems, rather than expecting others to” (p.1). According to the White Paper, community empowerment results in:

i. Providing a process owned by the community, through which each and every citizen can participate in improving the quality of life within their locality.

ii. Instigating genuine engagement between communities and their local government structures.

iii. Delivering effective support structures for community action.

In the agricultural context, the role of extension agents is to facilitate this process. Farmers and extension agents work together to find solutions to common problems.

<table>
<thead>
<tr>
<th>Arnstein</th>
<th>Pretty</th>
<th>Pretty</th>
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<tbody>
<tr>
<td><strong>Manipulation:</strong> rubber stamping</td>
<td><strong>Passive participation:</strong> people participate by being told what is going to happen or has already happened</td>
<td><strong>Functional participation:</strong> people participate by forming groups or institutions to meet pre-determined objectives related to projects commonly instigated by external agents. These groups tend to depend on external assistance, although some may become self-reliant</td>
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<td><strong>Therapy:</strong> power holders educate citizens</td>
<td><strong>Participation in information giving:</strong> people participate by answering questions posed by extractive researchers through questionnaire surveys and similar methods</td>
<td><strong>Interactive participation:</strong> people participate in joint analysis, leading to action plans and the creation of new local institutions or the strengthening of existing ones. People develop a sense of ownership of the created institutions or initiated activities</td>
</tr>
<tr>
<td><strong>Informing:</strong> citizen rights and options indicated</td>
<td><strong>Participation by consultation:</strong> people participate by consulted on problems and solutions defined by external agents. The consultations may use information received but are under no obligation to do so</td>
<td><strong>Self-mobilisation:</strong> citizens given management power for selected or all parts of the programme</td>
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<tr>
<td><strong>Consultation:</strong> citizens heard but not necessarily heeded</td>
<td><strong>Participation for material incentives:</strong> people participate by providing resources (such as labour) in return for food, money or other material benefits. Participation stops when incentives end</td>
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<td><strong>Placation:</strong> advice is received but not used</td>
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<td><strong>Partnership:</strong> trade-offs are negotiated</td>
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<td><strong>Delegated power:</strong> citizens given management power for selected or all parts of the programme</td>
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<td><strong>Citizen control:</strong> communities are at the forefront of identifying and implementing development projects</td>
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Agricultural extension in Zimbabwe dates to the 1900s when Emery Alvord, a European missionary, began to recruit, train and appoint demonstrators (extension staff) who provided extension service in rural areas. The staff demonstrated good farming principles practically on the ground for farmers to see, learn and adopt on their own fields.

Since then several methods ensure that smallholder farmers have access to appropriate and relevant agricultural information for both crops and livestock. The most common methodologies used are:

**Farmer Field Schools**

The Farmer Field School (FFS) approach involves farmer groups being taken through thorough training along the whole value chain of a particular commodity such as cotton, maize or tomatoes. This training emphasizes the use of hands-on training and demonstrations. It is an effective approach that imparts skills to farmers. It assumes that the extension agent has thorough knowledge of the commodity concerned. The approach has its origin in earlier programmes for plant pest management on crops such as cotton and horticulture.

**Group Development Areas (GDA)**

These were piloted in the 60's and 70's with a lot of success. They basically formed interest groups in a given area. Activities of GDAs would address managing specific crops, horticulture (group gardens) livestock and even saving clubs. There was a very strong bond between the extension agent and the farmer groups concerned. Many aspects of this approach are still being used by extension agents.

**Radio Listening Groups**

Technical messages are sent out from the national studios at specific times that are well-known to farmers. Farmers gather to listen and take notes. It is less commonly used now than in the past. It is, however, effective in creating awareness. Modern versions of these messages use podcasts, where recorded audio messages and telecasts are played to farmers on specific topics of interest.

**Study Circles**

This involves study materials that are developed for farmers to read and study on their own in groups with the help of local extension workers. The approach has had a lot of success. It was a donor-driven approach initially, but has since been integrated into conventional extension systems.

**Commodity Group Approach**

This is the more general approach where farmers receive training about any commodity of their choice from their local extension agent. Commodities can be in the form of crops, including horticulture and even livestock. This can also be offered by the private sector, especially under contract growing arrangements where issues of quality are paramount.

**Master Farmer Training Approach**

The Master Farmer Training Approach has been used by extension agents for the past 50 years. The idea is to produce a certain strata of competent farmers who consistently adopt improved methods of farming, leading to certification and provision of badges. This has produced a prestige effect amongst farmers in rural areas. The programme has an elaborate constitution that guides how it should be run, including a curriculum covering all critical aspects a farmer should know.

**The Lead Farmer Approach**

The Lead Farmer approach is a slight dilution of the Master Farmer Approach that was implemented before Independence in Zimbabwe in 1980. The idea is to identify a few “clever” farmers in a group who are given specific training on basic crop-based agriculture. Through a Training of Trainers approach (TOT), the training is cascaded to other group members. The approach has a multiplier effect since a lot of farmers are reached over a relatively short period of time. Lead farmers are chosen by their fellow members based on a loosely defined criteria including interest, proven agricultural acumen, good social relations, and in very few cases, educational qualifications.
So How Did We Get to Paravets?

An important point to make about all the approaches and methodologies described above is that they were driven by the Government, with the farmer being a recipient of service. This worked before the economic downturn, but when Zimbabwe’s economy started to deteriorate in the late ‘90s, so did the extension system. Most extension workers left to seek better opportunities in other countries in the region and abroad. In many cases, those who left were the most experienced and had both experience and technical know-how. The problem of professional brain-drain became so huge that, according to a research conducted in 2005, an estimated 500,000+ professionals across all productive sectors in the country migrated to other countries where their skills were highly sought. While the country was losing key personnel, the economic challenges prevented the Government from providing the remaining extension officers with funding for transport, or even for stationery to enable them to carry out their duties.

At this same time, the Government struggled to provide dipping chemicals to farmers. In Zimbabwe, cattle need to dip once a week in summer and twice a week in the rest of the year in order to avoid tick-borne diseases. But in addition to the threat to herds, this cut in funding had a negative impact on civic life among farmers because there were fewer opportunities for the community to meet on dipping days to discuss livestock issues. Moreover, in response to the brain drain, the Government designed a “fast track” extension programme that reduced training from 3 or 4 years to 18 months. This unintentionally magnified the brain drain because, besides providing technical support and backstopping to the communal farmers, this training program was intended to help farmers who resettled under the land reform programme which started in 2000. There was therefore a bias in the allocation of extension officers towards “new farmers”. The two major challenges of reduced technical experience and resources did not improve.

There was an obvious gap in agricultural extension but also a new entrant, non-governmental organisations (NGO). Whilst the NGOs provided extension staff (ironically most of them recruited from the Government), they quickly realised that it would not be possible for them to cover all the farmers adequately. This led to the birth of the Lead Farmer approach.
GOAL Zimbabwe Food Security and Livelihoods Programme

GOAL is an international humanitarian agency dedicated to alleviating the suffering of the poorest of the poor in the developing world. Since its inception in 1977, the agency has responded to virtually every major natural and manmade disaster in the developing world, worked in over 50 countries and spent more than $1 billion on emergency relief and development programmes. GOAL started operating in Zimbabwe in 2002 at the behest of the United Nations World Food Programme (WFP) at the height of one of the worst food crises the country has seen, with over 6 million requiring food assistance of a population of 12 million. While the organisation’s programmatic profile has grown to include Health and Nutrition and Water, Sanitation and Hygiene, its food security and livelihoods programme has continued to be the main area of focus. From 2005, the organisation worked with agencies such as the Food and Agriculture Organisation (FAO), the European Union (EU) and the United States Office for Foreign Disaster Assistance (OFDA) to promote sustainable agricultural production through technologies and techniques such as conservation agriculture. The period that GOAL started sustainable agriculture programmes coincided with the period of economic and political meltdown in Zimbabwe. As a result, the organisation adopted the lead farmer model as its main extension approach.

GOAL had carried out food assistance and food aid programmes in Buhera District of Manicaland Province ever since it established operations in Zimbabwe in 2002. From 2010, the organisation started to engage the communities on sustainable interventions. The communities in Buhera pointed out that because their area did not receive enough rainfall to sustain crop production, it was better to focus on livestock. GOAL worked with the communities and Government extension workers to develop proposals on livestock which were then funded by USAID/OFDA and the European Union. Borrowing from the experiences of organisations such as Practical Action, which had done a lot of livestock work in East Africa, GOAL adopted the lead farmer approach by working with and training community members in basic livestock husbandry and management. They coined the term “paravet” to distinguish them from lead farmers involved with crop-based agriculture.

The Paravet Model

The paravet model operates along similar lines to the lead farmer approach. The model also uses the cascading approach to reach as many farmers as possible across all livestock value chains. Paravets work closely with relevant Government departments and have become the first line of livestock disease detection while they are a primary source of knowledge about livestock health care. As of December 2015, GOAL Zimbabwe and the government departments have trained over 600 paravets in Makoni, Nyanga and Buhera districts of Manicaland Province. Sixty percent of them are women. This is quite an impressive statistic considering that livestock especially cattle is generally regarded as a male domain. Paravets must demonstrate that they adhere to the practices they are training others to do. For example, a paravet should have proper animal housing -- three-cross sectional kraal for cattle and a raised pen for small stock (goats and poultry), evidence of supplementary feed (both the quality and quantity of grazing are very poor in the three districts) and basic drugs for (vaccination and dosing) the most common livestock diseases in the area.
The Model in Practice

During the implementation of the livestock interventions, communities in Buhera pointed out the challenge of poor livestock genetics in the district. The poor genetics were mainly caused by excessive in-breeding that severely reduced the size and quality of cattle. This led to suppressed levels of income from the sale of the animals. In response, GOAL Zimbabwe entered into an agreement with Makera Cattle Company (and its partner Coopers) in 2014. Makera is a private sector company involved in the breeding, selling and buying of pedigree cattle. The agreement allowed the Buhera District to introduce pedigree bulls. Before the bulls were introduced into the communities, there were meetings at district and ward levels. One of the issues discussed was the need to have local people look after the bulls daily. Because the bulls still belonged to Makera, the company decided to engage one community member to be their agent assisting other farmers to look after the bulls.

Criteria for selection of paravets included the following:

1. Whoever was selected had to have gone through all the modules of paravet training.

2. They had to have constructed proper housing for their cattle; in this case, a three-dimensional kraal.

3. They had to demonstrate that they had adequate reserves of supplementary feed. This was particularly important because the bulls were delivered in the dry season where grazing was at a premium.

4. They had to have some reserve drugs to be able to respond to any diseases and internal and external parasites that could affect the bulls.

Since October 2014, GOAL and Makera have introduced 39 pedigree bulls into 12 wards in Buhera. Before the introduction of the bulls, a baseline study was conducted. One of the indicators focused on birthweight. At the time of the baseline, the average birthweight was 25kg. This has improved to 35-40kg. The first calf of the project dropped in May 2015 and since then an additional 330 calves have been born with an average of eight calves per bull. Goats produce at a much faster rate than cattle and by May 2016, there were more than 800 kids from the improved goat breeds. Sale of the improved cattle has not yet started, but the model encourages farmers to sell off their traditional bulls and heifers. One group sold more than 50 cattle to Surrey Abattoir in December 2015 and bought 11 cattle for pen fattening. The same group has now started a poultry project and a nutrition garden using proceeds from the sale of the cattle. Coopers and Makera have employed one of the paravets to assist farmers to look after the bulls. As a result of this initiative and also the training that the farmers have received, none of the bulls have died so far.

The project is now working on improved nutrition for livestock and is collaborating with the International Livestock Research Institute (ILRI) to promote growing legumes such as lablab, Lucerne and velvet bean as supplementary feed. This will reduce the number of days required for pen fattening and increase the amount of money that the farmers can get from the sale of the cattle. The project is also working with Surrey Meats to establish an irrigated pasture scheme to augment the natural grazing.

During an end of project evaluation for the OFDA Food Security and Livelihoods Centred Community Based Disaster Risk Reduction, there was a lot of praise and appreciation for the paravet model from both farmers and government extension staff:

- “Before the paravet training there was high mortality of 3-4 of cows per year and now it is zero” Male livestock farmer, Buhera District.

- “A cow can now calve once in a year whereas before, it could take even 2 years”. Livestock extension worker, Buhera District.

- “… farmers...have more interest. They value their animals more because they have been made aware, and they are jacked up. Even at dipping and supplementary feeding, people are aware now. More cattle are coming for dipping and they pay [£2] because they see the importance”. District Veterinary Officer, Buhera District.

- “... before the coming in of paravets, we used to approach the local vet officer who would promise to follow up and would never follow-up due to some challenges we all knew such as transport. But when the paravets now communicates with the vet officer, the responsiveness is 100%". Livestock farmer in Buhera District.

A paravet using a weighing belt to take measurements on a bull in Buhera District (Photo by Tinashe Tsepete, June 2016)
There is a lot of interest generated by the paravet model with the Ministry of Agriculture, Mechanisation and Irrigation Development already investigating ways to adapt the model and scale it up for the rest of the country. In line with this intended direction, GOAL Zimbabwe instituted a validation study to create a better understanding of the model and areas that need improvement for greater impact.

The validation study that examined taking the model forward drew three conclusions.

1. **The paravet model complements the existing Government extension system**

   Local, regional and international assessments found that alternative community based extension systems such as the lead farmer and paravet systems are a strong complement to Government extension systems. These alternative systems offer a flexible and adaptable extension system that actively promotes community based extension systems across the country and are strongly supported by trained professionals from Government. To make these systems sustainable, long-term public funds can support the program’s basic needs while donors, NGOs and the private sector explore more innovative technologies to make the system more robust and effective.

2. **Selection, training and mentorship is key**

   There is already a strong framework for the selection of paravets, requiring the ability to read and write, trustworthiness, communication skills, ability to work with all community members, as well as the proven capacity to lead other farmers in agricultural innovations and demonstrations. Training and mentorship to the paravets has been provided through farmer to farmer training. In situations where the technical expertise of Department of Livestock Production and Development (DLPD) and Department of Veterinary Services (DVS) is required, district and local level personnel of Government have provided much needed support. This system of selection, training and mentorship needs to be maintained, but Government must officially acknowledge the role of paravets in the extension system.

   The paravets selection system is much more refined in areas that are endowed with livestock as the main source of livelihood. As the lead farmer model, paravets are driven to serve because they own livestock and want to help other community members. After paravets are trained, they sometimes lack access to essential equipment and drugs so that they can immediately practice their knowledge and skills. A more systematic selection, training and mentorship approach would be needed for the paravets to be recognized and trusted by communities, Government, private sector and other stakeholders. There is also need for a system of certification and recognition as has happened in other regional countries such as Kenya where certificates are provided.

3. **There is a potential for paravets to be agents for agriculture input suppliers**

   Already some lead farmers have created centres where agricultural input suppliers provide seed that is needed by the farmers. Money is collected for payment to the input supplier. This has worked very well for the farmers, and the lead farmer gets a commission from the input supplier. This model can easily be replicated in all areas where paravets are well organized, and the organizational framework is respected by public and private sector companies.
Lessons Learned and How They Contribute to Understanding Community Development

In addition to findings of the validation study and the reflections of the authors, additional lessons were learned from implementing farmer led extension interventions that can be linked to the generally accepted principles of community development. Some key issues to be considered are that:

- Community development initiatives are more successful if they are demanded by the community, are community driven and community led. In the case of the Buhera livestock project, the community members asked for livestock interventions, designed the project and then implemented it. Less successful projects are those that are external to the context of the people that are mired in poverty.

- As long as rural communities see value, they will pursue development initiatives vigorously and with unwavering commitment. In most cases, paravets are not given incentives to carry out their work. The thrill of getting knowledge and putting it into practice for themselves and their colleagues is motivation enough.

- Sometimes, rural communities only need more knowledge and exposure to new ideas and innovations to improve their condition. The Buhera project has grown to the extent that farmers have now established communal and household feedlots. They are engaging directly with the private sector because of the training that they have gone through.

Conclusions

The paravet model has raised the livestock profile in areas where it has been used and has also improved relations between mainstream Government extension workers and communities. The model has generated a lot of interest, and the Ministry of Agriculture, Mechanisation and Irrigation Development is keen to adopt and adapt it to the national extension system. There is also a lot of enthusiasm from the private sector, which sees this as a viable model for working with farmers and for widening their business base. Granted, a lot of work still needs to be done to refine the model and increase its overall contribution to the agricultural sector. The next few years will provide the opportunity for this to happen.

An important point is that projects of this nature allow participating communities to move progressively into different levels of participation, as discussed by both Pretty and Arnstein. Besides being the first line of defence in livestock disease control, some paravets have diversified into other income generating activities. This allows them to be better able to look after their families and improve their general well-being.

The paravet model has allowed the extension system to adapt to prevailing circumstances, but it has also proven to be a reliable and relatively inexpensive way of ensuring that smallholder farmers have access to information and other support as they work themselves out of poverty.
References


