

Information Needs of Women Subsistence Farmers in a Village in KwaZulu-Natal Province, South Africa

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Abstract

This article reports on findings of a study that was conducted to establish the information needs of women subsistence or smallholder farmers and the various information sources they consulted to resolve their information needs. The study was qualitative, and a grounded theory design was used. Focus group interviews and observation were used to collect data from 14 women crop farmers and three women livestock keepers. The farmer-to-farmer extension (FFE) model was adopted to understand the information-seeking behaviours of women farmers and how they can be improved, if need be. The findings revealed that while the women crop farmers needed help with seeds, soil treatment and the protection of crops from pests and stray animals, they needed more information on drought preparedness and management, and, on how to transform from subsistence to commercial farming. Women livestock keepers needed information on livestock feeds, the treatment of various ailments, and disaster preparedness and management. In addition, they needed the reintegration of the extension officer. It also transpired that local libraries were not responding to the information needs of farmers. The main source of information was oral communication. The use of radio, television, cell phones and extension officers was limited. This study echoes other studies which propose it is important that libraries, non-government organisations (NGOs) and extension officers respond to the information needs of smallholder farmers, especially women.

Keywords: agricultural subsistence farming; information needs; women; rural education; libraries; South Africa

Introduction and Background

Information is an important resource that every individual, whether literate or not, needs. While information providers make every effort to supply information on a regular basis to the literate, non-literates are literally neglected by most information providers. Appropriate provision of information to this group can largely increase their productivity, so the provision of information to farmers is crucial. In order to provide information to farmers, it is important to understand their information needs and information-seeking behaviour patterns (Dulle and Aina 1999, 173). Akanbi and Fourie (2018) explain information needs as an incomplete state of knowledge or an anomalous state of knowledge. Wilson (2000, 49) explains information-seeking behaviour as “the purposive seeking for information because of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems (such as a library or another human being) or with a computer-based system (such as the World Wide Web).”

Therefore, the aim of this study was to investigate the information needs of women subsistence farmers and the various information sources they consulted to resolve their information needs in one of the villages in South Africa. Similar studies have been conducted in South Africa. For example, a study that was conducted in the Nkonkobe rural villages of the Eastern Cape in South Africa concluded that there is scant information pertaining to the agricultural information needs of women farmers that could be used to design appropriate extension interventions (Yusuf, Masika, and Ighodaro 2013, 108). Furthermore, these scholars recommended more studies to ascertain the information needs of farmers, particularly small-scale women farmers of the rural villages of South Africa. This is critical if the mandate to empower women, which forms part of the 2030 agenda for the National Development Plan (National Planning Commission 2012) and the United Nations Sustainable Development Goals (UNSDGs), SDG 1 and SDG 5, related to poverty reduction and gender equity, are to be realised (Natrass and Seekings 2001; UN Women 2015).

Hart and Vorster (2006) conducted their study in some rural villages in the Eastern Cape and KwaZulu-Natal provinces. Their findings reveal that women need information about the management of changing environmental conditions including drought, and the scarcity of water. Information about the revitalisation of their indigenous knowledge on how to dry indigenous and exotic seeds and vegetables was considered important. The disintegration of agricultural knowledge has resulted in an overdependence on secondary produced food supplies such as canned foods, food shortages particularly in winter, and a loss of knowledge about indigenous agricultural farming technologies. Furthermore, Hart and Vorster (2006) argue that cultural changes in the local situations have also informed the disintegration of social systems in many rural areas. According

to Hart and Vorster (2006), communities need to be educated and awareness stimulated about the cultivation of some drought-tolerant plants such as amaranth and pumpkin, which are naturally high in vitamin A. This is imperative in South Africa, as there is a high rate of vitamin A deficiency. Communities need to be encouraged to plant crops which are rich in protein, vitamin C, K and B6, iron, calcium, magnesium, omega 3 and 6 and fatty acids, such as soya beans. Soya beans hold properties that are good at fighting diseases like breast and prostate cancer, osteoporosis, heart disease, diabetes, kidney problems, gallstones and high blood pressure. In the East Asian countries, such diseases are not common because of a high rate of consumption of soya beans (Dakora cited in Normann, Snyman, and Cohen 1996, 116).

Given the challenges facing farmers in South Africa, particularly women farmers, this study was deemed important to find out about the information needs of women farmers in a village in KwaZulu-Natal province in South Africa.

Contextual Background

This study was conducted in one of the villages based in KwaZulu-Natal province, in South Africa. This is a small rural village that comprises eight sub-regions. It is administered by a tribal authority, which comprises the chief and his headmen. The village is still underdeveloped, and infrastructural development is taking place slowly. There is still scarcity of electricity and water, as these services have not reached some of the sub-regions. Some members of the community survive by using water from rain, rivers, lakes, and tanks. The use of wood collected from the natural vegetation for cooking is still a common practice. Many community members practise small-scale resource-poor agricultural farming for subsistence living.

Problem Statement

The Food and Agriculture Organisation (SOFA Team and Doss 2011) asserts that in many developing countries the agricultural sector is underperforming, in part because, compared to men, women, who represent a crucial resource in agriculture and the rural economy through their roles as farmers, labourers and entrepreneurs, face severe constraints in gaining access to productive resources, including access to agricultural information. In recent decades, the value of information has increased considerably as the agricultural systems in developing countries have become more knowledge intensive. Access to and use of both indigenous and current information is viewed as critical, not only for the financial success of farmers, but to support sustainable agricultural developments as the SDGs recommend. Despite this, farmers, particularly women subsistence farmers, are rarely consulted about their information needs and preferences before the design of extension services (Babu et al. 2012, 34). Furthermore, Babu et al. (2012) opine that by understanding how farmers access and use agricultural information, their agricultural information needs and the factors that influence

information-seeking behaviours, programmes that are aimed at disseminating agricultural information to farmers could be improved (Babu et al. 2012, 34).

Therefore, the purpose of this study was to establish the information needs of women subsistence farmers in one of the villages in South Africa. To be able to do this, the study was guided by the following research questions:

- 1) What are the information needs of the women subsistence farmers?
- 2) What sources of information do they use to meet their information needs?
- 3) What role does local libraries play in meeting their information needs?
- 4) What recommendation can be made in order to meet their information needs?

Literature Review

The discussion of the literature review will focus on the information needs of women farmers, sources of information, the role of libraries in meeting their information needs and recommendations.

Information Needs

Many studies agree that understanding the agricultural information needs of farmers, particularly women farmers, is a cornerstone to poverty reduction and sustainable development (Babu et al. 2012). The objectives of the transformation agenda can hardly be realised if farmers have no access to information (Salau, Saingbe, and Garba 2013). Men and women have different types of agricultural knowledge, which reflect their roles and responsibilities in the household (Lwoga 2009). Gender and gender dynamics, inherent in agricultural production, need to be considered if women farmers are to be empowered (Hart and Aliber 2012). Most rural women from disadvantaged areas are using their backyards to grow crops and farm livestock in order to feed their families and the community. As small as the size of land of the backyard may be, farmers still require agricultural information that will enhance efficient and effective utilisation of the land, management of soil and water, pest and disease control and help solve other problems emanating from the farm (Yusuf, Masika, and Ighodaro 2013).

Roja (2018, 91) conducted a study on women farmers in the Garani village of Tumkur District in Karnataka, India. The findings indicate that women crop farmers required information on the availability of seeds, pesticides, fertilisers, irrigation schemes and crop insurance, while women livestock farmers needed information about milk products, market-oriented agricultural production, and government schemes. A study by Kaddu and Haumba (2016, 245–46) indicated that small-scale farmers in the district of Butaleja in Uganda needed information on the availability of seeds, such as rice seeds (where to find cheap seeds, what crops to grow in a particular season, where to find insecticide), crop production, and animal fertilisers. They also needed information on

water management, the weather and climate, and agricultural equipment, both traditional and modern. These authors agree that common information needs for small-scale farmers include agricultural production technology information in terms of cultivating, fertilising, weeding, harvesting and pest control (Kaddu and Haumba 2016; Roja 2018). In addition, Kaddu and Haumba (2016, 245–46) assert that farmers need market-related information such as what crop to grow during which season and marketability benefits of seasonal crops, forecasts on market trends, sales timing and current prices. This type of information assists farmers to plan their market products and not to cause market glut or surplus and farm at a loss (Kaddu and Haumba 2016, 245–46).

In a study conducted in Wareng Sub-County in Kenya, Rop (2018, 6) revealed that smallholder farmers need information on how to access agricultural inputs such as quality seeds, fertilisers or pesticides; they also need information on markets and prices for their produce, soil and weather conditions, and relevant innovations and technologies, including irrigation practices and better farming methods. Moreover, they require access to credit facilities and loans from small and medium enterprises (SMEs), local banks and cooperative societies, post-harvest storage for vegetables, as well as transportation facilities, including cold storage to facilitate freshness of products for export.

Salau, Saingbe and Garba (2013) indicate in their study on the information needs of smallholder farmers in the Central Agricultural Zone of Nasarawa State, Nigeria, that the majority of the respondents needed information on methods of pest and disease control, the availability of seeds, techniques of crop and animal husbandry, appropriate sources of farm credit, and marketing information. Apparently, farmers' information needs were diverse and extension services had to address them in a holistic manner.

Hart and Vorster (2006) reveal that in some rural villages in the Eastern Cape and KwaZulu-Natal provinces in South Africa women needed information about the management of changing environmental conditions, including drought and the scarcity of water. Information about the revitalisation of their indigenous knowledge on how to dry indigenous and exotic seeds and vegetables was considered important. Hart and Vorster (2006, 25) noted that the drying of traditional vegetables was found to be very common in almost all the areas studied in the Eastern Cape and KwaZulu-Natal. But, in some areas of the Eastern Cape, the knowledge of how to dry the vegetables seemed to have been lost. They opine that the disintegration of agricultural knowledge has resulted in an overdependence on secondary produced food supplies such as canned foods and food shortages, particularly in winter. For them, the loss of knowledge about indigenous agricultural farming technologies has also informed the loss of strong social structures in rural villages (Hart and Vorster 2006).

Reddy et al. (2015), Hart and Aliber (2010), and Hart and Vorster (2006) agree that in South Africa, most rural smallholder women farmers have low levels of literacy skills, and hence limited or no access to needed information and agricultural innovations.

Sources of Information

Yusuf, Masika and Ighodaro (2013, 108) argue that access to reliable and adequate agricultural information sources by women farmers could address many of their needs and aspirations and enhance production efficiency and market accessibility. Breaking the poverty cycle requires identifying factors militating against achieving food security and improved livelihoods among women smallholder farmers, who constitute large percentages of rural dwellers. Furthermore, these authors indicate that the information-seeking patterns of the women farmers of the Nkonkobe district in the Eastern Cape in South Africa were chiefly influenced by technical knowledge of the source and practical farm demonstrations. Most respondents believed that access to agricultural information through extension officers supported with farm demonstrations could facilitate their learning and thus improve agricultural productivity. The yearning for extension workers by the women farmers indicated the need for the government to employ more extension workers, while the services of the NGOs and private organisations that provide extension services were essential, more especially at the village level (Yusuf, Masika, and Ighodaro 2013, 111).

A study by Roja (2018) in the village of Garani in Tumkur District in Karnataka, India, indicated that the majority of the women farmers relied on information sources such as newspapers, magazines, television, radio, and agriculture exhibitions. In a study conducted in Butaleja, Uganda (Kaddu and Haumba 2016), the findings reveal that radio was the most commonly used source of information, followed by cell phones and the non-governmental organisation (NGO) known as the Communication and Information Technology for Agriculture and Rural Development (CITARD). It transpired that CITARD and radios shared information with farmers, especially women and youth, on how to manage a nursery bed, rice, a vegetable farm, water flow in the gardens, weeding, and harvesting. In addition, they were trained how to use information and communication technologies (ICTs) and cell phones to market their products. With all this knowledge farmers have managed to improve their agricultural farming activities a lot (Kaddu and Haumba 2016).

In Wareng Sub-County, Kenya, smallholder farmers were found to rely on oral communication from neighbours, friends, relatives and fellow farmers, and radio broadcasts using local languages; extension officers were also found to play a big role in the dissemination of agricultural information to farmers (Rop 2018). This was achieved through field days, barazas (community meetings organised by area administrators such as chiefs), agricultural seminars and workshops, and training conducted by extension officers during farm visits. The agricultural officers also helped in repackaging and simplifying information from research organisations, technical

handbooks supplied by the government, agricultural journals, the internet and online agricultural databases, newsletters and regular reports from networks such as the Kenya Agricultural Information Network (KAINet). Some farmers also utilised ICTs such as mobile phones to search for, access, or share relevant information (Rop 2018, 7).

A study that was conducted in the Central Agricultural Zone of Nasarawa State, Nigeria, by Salau, Saingbe and Garba (2013) revealed that as sources of information, smallholder farmers used produce buyers, inputs dealers, extension agents, and radios. This implies that the respondents were relying mostly on traditional sources of information rather than modern sources such as television, newspapers, mobile phones, and the internet, which were rarely used. This might be due to the low educational level of the farmers (Salau, Saingbe, and Garba 2013).

Theoretical Framework

The farmer-to-farmer extension (FFE) model was adopted for this study. The farmer-to-farmer extension approach is based on two social theories, namely the social interaction theory and the social learning theory. The first theory points to “value consensus,” which is the agreement among the community members about their goals and their commitment in terms of how to achieve them. The social learning theory emphasises the need for the community members to learn from each other, both educated and uneducated community members (Ssemakula and Mutimba 2011).

The FFE model comprises four key areas:

- a) the initial socio-economic status of the farmers;
- b) the intervention of the farmer-to-farmer extension approach;
- c) the institutional support by NGOs;
- d) the farmers’ institutional networks.

Furthermore, the FFE model indicates that independent variables may include various extension services or intervention programmes, such as the new extension approaches, the institutional frameworks which support these interventions, the farmers’ social networks that support communication and the subsequent outcomes in terms of increased farmer involvement and increased uptake of recommended technologies. The FFE model focuses on indicators, such as the farmers’ adoption of innovations, improved production, ability to engage in e-farming and e-marketing, adoption of recommended farming practices, non-traditional technologies adopted, productivity, levels of income, and levels of food sufficiency. These indicators are also called dependent variables (Ssemakula and Mutimba 2011).

In Uganda, the FFE model was used following the perceived ineffectiveness of the public extension models. The findings of Ssemakula and Mutimba’s study (2011) reveal

that farmers with a similar socio-economic background tended to cooperate. As the extension facilitators were comprehensively trained, they also developed their model farms sufficiently to be able to cater for the needs of the more progressive farmers in the communities (Ssemakula and Mutimba 2011, 44). Furthermore, their study recommended the following: a) when selecting farmer extension facilitators, social closeness as a criterion for identifying the correct individuals needs to be taken into consideration; b) individuals with more community social roles should be considered for selection as farmer extension facilitators since they have more chances of interacting with the farmers; c) communities should be involved in the selection of farmer extension facilitators to ensure accountability of the farmer extension facilitators; and d) to avoid social exclusion, farmer extension facilitators should be appropriately trained to handle farmers with different social statuses (Ssemakula and Mutimba 2011, 44).

Research Methodology

The qualitative approach and grounded theory (GT) method were used in this study. Qualitative research was used to find cases that were relevant to the problem being studied and this is known as purposive sampling (Leedy and Ormrod 2001, 219). In GT, the logic of theoretical sampling for purposive sampling is founded on selecting cases based on their relevance to the problem being studied (Silverman 2010, 141–44, 270). The focus group of women crop farmers comprised 14 women from sub-region A. The other focus group of women livestock keepers comprised three women from sub-region B, see Table 1. The focus group from sub-region A was selected because they managed to maintain strong social cohesion when other groups had dissolved due to challenges such as weak social cohesion, a lack of commitment and other challenges such as drought. Similarly, women livestock farmers from sub-region B were selected because they managed to remain strong and sustain the function that was predominantly male dominated, despite many challenges, including drought-related ones. Transect walks were also taken to observe vegetable crops and domesticated animals such as cattle and goats in the fields, including carcasses.

Table 1: Biographical information of participants

Type of farming	Sub-region	Female	Age range	Education level
Vegetable crop farmers	Sub-region A	14	20–80	No formal education; primary; secondary; Grade 12
Livestock keepers	Sub-region B	03	60–80	No formal education; primary
TOTAL		17		

In this study, data analysis was guided by the basic principles of grounded theory (GT). The basic principles are based on constant data comparison until data saturation is reached. When there is no new information that emerges from the data, a theory can be developed from the repeatedly analysed data (Charmaz 2002, 675–76). Data was analysed manually and electronically using the software program NVivo10 (CESAR 2015). For this study, data collection was done using the language of the participants, which was isiZulu. Therefore, it is anticipated that some of the statements may have been misinterpreted during data analysis. Given that, this study cannot claim to be completely unbiased.

Findings and Discussions

The findings are discussed in line with the objectives of this study. The discussion commences with the biographical information of the participants.

Biographical Information

As indicated in Table 1, the age range of the women crop farmers from sub-region A was from 20 to 80, while in sub-region B the participants' age range was from 60 to 80.

Information Needs of the Women Farmers

Some questions that were asked to understand the participants' information needs include the following: "What are the types of crops that you normally plant in your communal gardens?"; "Where do you get seeds from?"; "Why are these types important to you?"; "What is your crop yield or harvest used for and how is the surplus managed?"; "What are the challenges experienced regarding crop farming?" The farmers' information needs were rated according to the frequency with which the same or similar themes were repeated. The findings indicated that the vegetable crops that were commonly planted included leafy vegetables, such as cabbage and spinach, green pepper, followed by chillies, tomatoes and pumpkin, then root plants such as beetroot, carrots and onions, plant tubers such as potatoes, sweet potatoes and amadumbe, and lastly plant legumes or grain plants such as soya beans and maize. Regarding the importance of these crops, the responses indicated that the vegetable crops were important for food security. They helped in feeding their families. Surplus was distributed to the local clinic and schools to help reduce hunger and poverty in the village. The local clinic further distributed fresh vegetables to the poor families and elders who are sick and bedridden. In addition, the local clinic professionals have reiterated that fresh vegetables from the garden are important because they are more nutritious and good for our health.

When asked about the recycling of seed practices, it emerged that the practice of drying seeds was gradually disintegrating. It was no longer a common practice. Participants indicated that they sometimes put money together to buy seeds, as supply from the extension officers was inconsistent. The findings indicate that educators from local

schools, one from a local primary school and the other from a local high school, helped in knowledge sharing. The latter had a qualification in agriculture and was also a small-scale commercial farmer. She shared knowledge on the drying of seeds with some women crop farmers. In addition, the educators sometimes donated seeds during various planting seasons. The revitalisation of knowledge about the practice of drying seeds and vegetables was viewed as critical, as the women crop farmers indicated that sometimes their surplus crop became stale as there were no local markets where they could sell their goods. Regarding soil fertilisers, participants reported that an educator from a local primary school shared knowledge on how to prepare permaculture manure. He sometimes provided them with seeds to help them sustain their crop farming activities.

Environmental Factors

Transect walks were taken to observe the crop yields. It was observed that some drought-resistant plants were thriving, such as pumpkins and cabbages, but others were drying out, such as mealies and tomatoes. In addition, there was scarcity of water and the artificial dams were drying out. The women farmers raised their concern about rodents that were eating their vegetable crops, particularly tomatoes, beetroot, carrots, and potatoes. They lamented that stray animals and pests have destroyed their crops, as their crop fields were not fenced. Sometimes dry shrubs were used for fencing. In addition, the soil was too dry and the extension officer, who came to test its suitability for crop farming purposes, did not report back on the results.

Socio-Economic and Psychological Factors

The focus group that managed to maintain strong social cohesion was keen to progress from subsistence farming to commercial farming. However, they needed to be educated on how to access government information to learn more about improving current agricultural farming practices. It was indicated that other cooperative groups had dissolved due to lack of social cohesion, commitment, resources, and other challenges such as drought. One participant commented that some community members preferred buying vegetables elsewhere despite being told that informal trading of the vegetable crops was taking place in the area. Some participants suggested that there is a need for an external facilitator who can help to strengthen the social structures in the village.

Information Needs of Livestock Keepers and Intervening Variables

When asked about the types of livestock that were kept, the participants reported that cattle, goats, and chickens were the most common types of livestock. The information needs of the livestock keepers included the following: drought preparedness and management strategies, support for livestock feeds, and diseases management. In addition, the livestock keepers indicated that they needed the reintegration of the extension officer who used to help in the treatment of animal diseases. The participants stated that he played a critical role in providing medication and inoculations that saved the lives of their cattle. The traditional knowledge about medicinal plants was gradually

being replaced by modern, primary healthcare services. When transect walks were taken to the fields, it was observed that grazing fields, artificial dams, and dipping tanks had dried out. In addition, and due to drought, there were dead cows' carcasses.

Sources of Information

When the participants were asked the following questions, they responded as follows:

Interviewer: Where do you get seeds from?

Participant: We meet three times per week and put money together to buy seeds. Sometimes seeds are donated to us by educators.

Interviewer: Do you get training or help from the Department of Agriculture, the local library or anywhere else?

Participant: Most of the time, we just use our traditional knowledge inherited from parents and grandparents. We also share knowledge amongst ourselves. In addition, we used to have an advisor, who came once per week. It is more than months now, since he came to take a soil sample for testing but did not come back with the results.

Interviewer: How have you managed to maintain social cohesion in your group, because most cooperative groups in the village have dissolved?

Participant: We have an understanding for each other and if there is a problem we sit together under this tree and resolve our problems with the help of our leader.

It can be concluded that word of mouth and meetings were predominantly used to share knowledge by the strong focus group. Some respondents indicated that even the knowledge they have about farming was communicated to them by their parents and grandparents using word of mouth and observation (apprenticeship). It transpired that there was limited use of radios, television and cell phones. For example, when they want to update each other about the date for the next meeting, cell phones were used. As the transcript suggests, extension officers were also used at a minimal rate as they were not consistent in their knowledge-sharing activities. This supports Hart and Aliber's (2010) view that in South Africa, researchers and extensionists who are the backbone of agricultural development lack enough communication, gender awareness and people-oriented skills and need to be educated in these skills.

Although the Department of Cooperative Governance and Traditional Affairs (CoGTA) was active in the village during the time the study was conducted, the focus group was independent of CoGTA. The other non-governmental organisations that emerged as sources of information included Izulu Orphan Projects (IOP), and Sathi Gqi Community Development. The IOP shared various kinds of information on organic farming,

nutritious foods, healthy-eating habits, sewing, adult education and caring for orphans. The Sathi Gqi Community Development NPO worked in partnership with the local clinic to provide home-based healthcare services, especially for the elderly, the bedridden and indigent community members.

The Role of Libraries in Responding to the Information Needs of Women Farmers

When the participants were asked whether they were aware of the computer centre and using any local library to source agriculture-related information, it emerged that younger participants, especially those below the age of 40, knew about the computer centre. They sometimes used it to look for jobs and type and print their curriculum vitae. However, the older participants above the age of 60 did not know about the computer centre and were not using local school libraries to source agriculture-related information. The findings reveal that some participants in the CoGTA crop farming project shared knowledge with educators from the local schools, where school libraries were available, but the women farmers did not use those libraries to source agricultural farming information.

Many information science scholars are advocating for culturally responsive libraries, as the Western library model has dominated the space for too long (Becvar and Srinivasan 2009; Nyana 2009). Hoq (2015) advocates for a rural library, an information centre located in a village or suburban area, to cater for the information needs of the rural people by providing services such as a knowledge-sharing room, a reading room and circulation of books, a reference section, photocopying and newspaper clipping. Furthermore, Hoq (2015) asserts that these information centres must also offer resources of various agencies related to agricultural information, public health, adult education, and others. Most importantly, rural libraries need to act like a one-stop centre for fulfilling various information and communication requirements of local people (Hoq 2015). Stilwell (2016) reiterates that public libraries need to make themselves more visible and engage in library-led projects that can help women transform their knowledge into economic resources. Furthermore, they need to monitor and evaluate the impact of these projects (Stilwell 2011). Sipilä (2015) asserts that libraries have an impact on society by fostering equal opportunities for lifelong learning and education, research and innovation, culture and recreation for all. Strong libraries are those that have adequate capacity to meet the information needs of their user communities.

How Does the Adopted FFE Model Inform This Study?

It has already been highlighted in this study that in Uganda the FFE model was used following the perceived ineffectiveness of the public extension models. The findings of Ssemakula and Mutimba's (2011) study reveal that farmers with a similar socio-economic background tended to cooperate. As the extension facilitators were comprehensively trained, they also developed their model farms sufficiently to be able to cater for the needs of the more progressive farmers in the communities (Ssemakula

and Mutimba 2011, 44). The findings of our study reveal that many social groups or cooperatives had dissolved because of various factors such as a lack of commitment and resources, and environmental challenges, such as drought, that demotivated many members. In addition, the services of the extension officers were inconsistent; hence the livestock keepers expressed the need for the reintegration of the extension officer. The FFE model is based on two social theories, social interaction theory and the social learning theory. It is based on the principle of encouraging community members or local farmers to learn from each other and from their social networks, such as extension officers. In that way, community members take ownership of their projects to ensure that they succeed.

Conclusions and Recommendations

This study was motivated by four objectives, namely, to ascertain the information needs of the women subsistence farmers, their sources of information, the role of local libraries in sharing knowledge and to provide recommendations. It can be concluded that the information needs related to sustaining traditional vegetable crops, such as leafy vegetables, root crops, plant tubers, and plant legumes were dominant in the area of study. For example, in South Africa, there is a high rate of Vitamin A deficiency and therefore communities can be encouraged to cultivate nutritious crops such as amaranth and soya beans (Dakora cited in Normann, Snyman, and Cohen 1996, 116; Hart and Vorster 2006). Mchombu (2007) avers that the focus of smallholder farmers in Africa is mainly on low-value crops rather than high-value crops that can be marketed globally. Women subsistence farmers can be educated to upgrade to high-value crops such as mushrooms, maize, bamboo, herbs, and others depending on the demand.

In addition, there is a need for the revitalisation of certain important aspects of traditional knowledge, such as knowledge about the drying of food and traditional plants used to treat various ailments, particularly in domestic animals. Smallholder farmers need knowledge on the drying of seeds to be revitalised as seeds have become expensive. In addition, their crops were affected by drought; hence knowledge about disaster management and preparedness was also crucial. Last but not least, they needed help to strengthen social cohesion, as many cooperatives had dissolved in the village. Women livestock keepers appeared to be solely relying on medication that was supplied by the extension officer. They lamented that their cattle were dying in numbers as dams and traditional plants had dried out because of drought.

It is apparent that oral communication is predominantly used to share knowledge. It was common for the strong social group to hold their meetings under a tree, next to their communal gardens. The other big challenge for the strong group was a low level of literacy skills and education. Libraries can come in to help provide adult education, meeting places and additional needed services, such as information about disaster preparedness and management. Extension officers and NGOs were also not visible enough. They can collaborate with libraries in intensifying ICT-related programmes to

help local farmers improve their agricultural productivity and transform from subsistence to commercial farming.

Given that participants recommended communal knowledge sharing groups where they can sit and learn from each other with the help of a facilitator to ensure sustainability, the FFE model is viewed as the best fit for the area of study. In addition, the findings of a study that was conducted in an informal setting in South Africa by Mosia and Ngulube (2005) revealed that the use of communities of practice (CoP) and information and communication technologies can play a critical role in strengthening knowledge-sharing activities. Lessons can be learnt from the successful projects in other villages in Africa such as CITARD used in Uganda.

References

- Akanbi, O. M., and I. Fourie. 2018. "Information Needs of Pregnant Women—Once-Off Needs for Information Monitoring Revealed by the Mckenzie Two-Dimensional Model." *Innovation* 56: 163–90. Accessed June 3, 2020. <https://repository.up.ac.za/handle/2263/67071>.
- Babu, S. C., C. J. Glendenning, K. Asenso-Okyere, and S. K. Govindarajan. 2012. "Farmers' Information Needs and Search Behaviours: Case Study in Tamil Nadu, India." International Food Policy Research Institute (IFPRI) Discussion Paper 01165. Accessed October 12, 2019. <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/126836/filename/127047.pdf>.
- Becvar, K., and R. Srinivasan. 2009. "Indigenous Knowledge and Culturally Responsive Methods in Information Research." *The Library Quarterly: Information, Community, Policy* 79 (4): 421–41. <https://doi.org/10.1086/605382>.
- CESAR (Centre for Statistical Analysis and Research). 2015. Workshop attended at the Human Sciences Research Council facilitated by Professor S. Madiba, December 8–10, 2015.
- Charmaz, K. 2002. "Qualitative Interviewing and Grounded Theory Analysis." In *Handbook of Interview Research: Context and Method*, edited by J. F. Gubrium and J. A. Holstein, 675–94. Thousand Oaks, CA: Sage Publications.
- Dakora, F. D. 1996. "Using Indigenous Knowledge to Increase Agricultural Productivity in Africa." In *Indigenous Knowledge and Its Uses in Southern Africa*, edited by H. Normann, I. Snyman and M. Cohen, 109–35. Pretoria: HSRC Press.
- Dulle, F. W., and L. O. Aina. 1999. "The Information Needs of Small-Scale Dairy Farmers in Tanzania." *IAALD Quarterly Bulletin* 44 (3–4): 173–76. Accessed June 5, 2020. <http://www.suaire.suanet.ac.tz:8080/xmlui/handle/123456789/1414>.

- Hart, T., and M. Aliber. 2010. "The Need for an Engendered Approach to Agricultural Technology." In "Gender and Rurality," edited by R. Moletsane and S. Ntombela, special issue, *Agenda: Empowering Women for Gender Equity* 24 (84): 75–90.
- Hart, T., and I. Vorster. 2006. *Indigenous Knowledge on the South African Landscape: Potentials for Agricultural Development*. Cape Town: HSRC Press.
- Hoq, K. M. G. 2015. "Rural Library and Information Services, Their Success, Failure and Sustainability: A Literature Review." *Information Development* 31 (3): 294–310. <https://doi.org/10.1177/0266666913515693>.
- Kaddu, S., and E. N. Haumba. 2016. "Promoting ICT Based Agricultural Knowledge Management for Increased Production by Smallholder Rural Farmers in Uganda: A Case of Communication and Information Technology for Agriculture and Rural Development (CITARD), Butaleja." In *The Standing Conference of Eastern, Central and Southern Africa Library and Information Associations SCECSAL XXII Proceedings: Digital Transformation and the Changing Role of Libraries and Information Centres in the Sustainable Development of Africa*, 243–52. Mbabane: Swaziland Library and Information Association.
- Leedy, P. D., and J. E. Ormrod. 2001. *Practical Research: Planning and Design*. 7th ed. Upper Saddle River, NJ: Merrill Prentice Hall.
- Lwoga, E. T. 2009. "Application of Knowledge Management Approaches and Information and Communication Technologies to Manage Indigenous Knowledge in the Agricultural Sector in Selected Districts in Tanzania." D. Phil diss., University of KwaZulu-Natal. <http://hdl.handle.net/10413/502>.
- Mchombu, K. J. 2007. "Harnessing Knowledge Management for Africa's Transition to the 21st Century." *Information Development* 23 (1): 25–42. <https://doi.org/10.1177/0266666907075628>.
- Mosia L. N., and P. Ngulube. 2005. "Managing the Collective Intelligence of Local Communities for the Sustainable Utilization of Estuaries in the Eastern Cape, South Africa." *South African Journal of Libraries and Information Science* 71 (2): 175–86. <https://doi.org/10.7553/71-2-624>.
- National Planning Commission. 2012. *National Development Plan 2030: Our Future—Make It Work*. Accessed June 2, 2020. <https://www.poa.gov.za/news/Documents/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf>.
- Nattrass, N., and J. Seekings. 2001. "Democracy and Distribution in Highly Unequal Economies: The Case of South Africa." *The Journal of Modern African Studies* 39 (3): 471–98. <https://doi.org/10.1017/S0022278X01003688>.

- Normann, H., I. Snyman, and M. Cohen. 1996. *Indigenous Knowledge and Its Uses in Southern Africa*. Pretoria: HSRC Press.
- Nyana, S. A. 2009. "Creating a Library System That Serves the Needs of Rural Communities in Africa, South of the Sahara." *The Journal of Pan African Studies* 3 (1): 9–22.
- Reddy, V., S. Goga, F. Timol, S. Molefi, A. Mather, T. Chetty, and D. Wallace. 2015. "Gender, Small-Scale Livestock Farming and Food Security: Policy Implications in the South African Context." The HSRC Policy Brief, March. Accessed July 1, 2015. <http://hdl.handle.net/20.500.11910/1974>.
- Roja, M. 2018. "Information Needs of the Rural Women Farmers: A Study." *Research Review International Journal of Multidisciplinary* 3 (8): 89–92.
- Rop, Z. 2018. "Information Needs of and Services to Small-Scale Vegetable Farmers in Wareng, Uasin Gish County, Kenya." *Regional Journal of Information and Knowledge Management* 3 (1): 1–14.
- Salau, E. S., N. D. Saingbe, and M. N. Garba. 2013. "Agricultural Information Needs of Small Holder Farmers in Central Agricultural Zone of Nasarawa State." *Journal of Agricultural Extension* 17 (2): 113–21. <https://doi.org/10.4314/jae.v17i2.15>.
- Silverman, D. 2010. *Doing Qualitative Research: A Practical Handbook*. 3rd ed. Los Angeles, CA: Sage.
- Sipilä, S. 2015. "Strong Libraries, Strong Societies." *El Profesional de la Informacion* 24 (2): 95–101. <https://doi.org/10.3145/epi.2015.mar.02>.
- SOFA Team, and C. Doss. 2011. "The Role of Women in Agriculture." ESA Working Paper No. 11-02. Food and Agriculture Organization of the United Nations (FAO). Accessed June 4, 2020. <http://www.fao.org/3/am307e/am307e00.pdf>.
- Ssemakula, E., and J. K. Mutimba. 2011. "Effectiveness of the Farmer-to-Farmer Extension Model in Increasing Technology Uptake in Masaka and Tororo Districts of Uganda." *South African Journal of Agricultural Extension* 39 (2): 30–46.
- Stilwell, C. 2011. "Poverty, Social Exclusion, and the Potential of South African Public Libraries and Community Centres." *Libri* 61 (1): 50–66. <https://doi.org/10.1515/libr.2011.005>.
- Stilwell, C. 2016. "Public Libraries and Social Inclusion: An Update from South Africa." In *Advances in Librarianship, Volume 41: Perspectives on Libraries as Institutions of Human Rights and Social Justice*, edited by U. Gorham, N. Greene Taylor and P. T. Jaeger, 119–46. Bingley: Emerald Publishing. <https://doi.org/10.1108/S0065-283020160000041006>.

- UN Women (United Nations Entity for Gender Equality and the Empowerment of Women). 2015. *Women and Sustainable Development Goals*. Nairobi: UN Women. Accessed June 12, 2019. <https://sustainabledevelopment.un.org/content/documents/2322UN%20Women%20Analysis%20on%20Women%20and%20SDGs.pdf>.
- Wilson, T. D. 2000. "Human Information Behaviour." *Informing Science: The International Journal of an Emerging Transdiscipline* 3 (2): 49–56. <https://doi.org/10.28945/576>.
- Yusuf, S. F. G., P. Masika, and D. I. Ighodaro. 2013. "Agricultural Information Needs of Rural Women Farmers in Nkonkobe Municipality: The Extension Challenge." *Journal of Agricultural Science* 5 (5): 107–14. <https://doi.org/10.5539/jas.v5n5p107>.