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Gendered Indigenous Practices in Food Production Processes: A Myth or Reality in Sustaining Rural Livelihoods?

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ABSTRACT The marginalization of women and indigenous knowledge systems by hegemonic Western power/knowledge and traditional African practices account for challenges faced in rural areas in realizing sustainable livelihoods. This paper will describe and analyze the indigenous practices and gender relations interface in food production processes in Khambashe rural households, South Africa. Data was gathered through a mixed-methods approach and analyzed through content analysis and Social Statistical Package of Social Sciences. The paper illustrates a double edged sword as an outcome. The indigenous knowledge and gender relations interplay can operate to enhance the likelihood of achieving sustainable rural livelihoods and hence food security. On the other hand, the negative outcome is that women's traditional knowledge faces epistemological exclusion. The discriminatory cultural practices and Western hegemonic practices impede the proper utilization of indigenous knowledge. The subjugatory gender relations should be redressed as they deter the full potential of women and the indigenous knowledge they possess to inform sustainable rural development.

INTRODUCTION

There has been increasing interest to gender, indigenous knowledge and development particularly the power relations and gender imbalances in terms of labor or role allocations. The two have the potential of attaining sustainable rural households if properly managed (Pachauri and Rao 2013; Ibnouf 2012). A gendered lense in indigenous knowledge and food security gives a deeper understanding of gender based inequalities and vulnerabilities of certain groups in the process of ascertaining food secure households. Indigenous knowledge and gender encompasses important aspects of sustainable rural livelihoods. However inequalities in terms of workloads, power structures and intra-household dynamics undermine the ability to ensure that households are food secure (Masson et al. 2015). Most rural populations rely on agriculture despite the fact that agricultural production has been on the decline due to climate change and constrains in the economic situations of many rural areas amongst other reasons (Kiptot et al. 2014). About 795 million people do not have adequate access to food and sub-Saharan Africa has the highest prevalence of people who are undernourished (WPF 2015).

Against this background gender and indigenous knowledge can be used as transformative tools to suit the changing economic and biophysical environment for food security. It can be used as an alternative for achieving rural development at the same time improving gender relations in rural settings. In this study, the term "Indigenous Knowledge" (IK) was used synonymously with Indigenous Knowledge Systems (IKS), traditional, cultural and local knowledge. IK in this study referred to knowledge developed by a given community unlike the "Western" or "modern" knowledge system generated through universities, government research centres and private industry. IK refers to the knowledge of indigenous peoples as well as any other defined community. IK is generally localized; having been developed through traditional practices applied to food production processes.

This paper discusses some of the findings on the intersection between gender relations and Indigenous Knowledge and its implication on food security in Khambashe rural households of the Amathole District in the Eastern Cape. Mixed farming is practiced in form of crop and animal husbandry which have high potential because of the fertile soils in some parts of the region. Although they are three land tenure systems i.e. freehold areas, traditional or communal land areas, the commonly used tenure is communal ownership. After land removal programs during the 1970s, the people had limited resi-

dential rights. The area possesses natural resource potential. Some community members of Khambashe were well endowed with cultural practices which could potentially contribute to sustainable rural livelihoods. Such possibility cannot be ignored, as this area is one where poverty is especially concentrated (SALDRU 2015).

Objectives

The main objective of the study was to investigate the available local practices amongst the Xhosa people and the gender role allocation thereof in Khambashe rural households.

More specifically the paper seeks to

i) To find out the existing indigenous practices and gender role allocations of such practices
ii) To propose recommendations towards initiatives that ascertain sustainable rural livelihoods.

The practices discussed in this section include local methods used to predict weather forecasts; indigenous conservation methods used in crop production, mulching using grass and leaves. It also includes the use of organic manure, utilization of locally made pesticides and possession of local knowledge used to identify diseases and cures for both crops and livestock.

METHODOLOGY

Sampling Procedures and Data Analysis Methods

A mixed method approach was utilized to understand the complexity of IK, gender relations and food production processes in the Khambashe rural households, Eastern Cape in South Africa. This research design took into account the domain of the knowledge in crop husbandry utilized in the Khambashe village. Data was collected between January 2014 and May 2014. The study utilized probability and non-probability sampling methods. The specific sampling techniques used were purposive and random sampling. Simple random sampling was the method chosen for determining the first stage of sampling to ensure the generalisability of results. The sample size was calculated using a Raosoft calculator (http:www.raosoft.com/samplesize.html). The estimated population size of the Khambashe area in 2014 was 700 (Statistics South Africa 2014). The sample size was set at 249 calculated using the Raosoft calculator with a standard margin of error of 5 percent response distribution of 50 per cent and the level of confidence of 95 per cent. The sample was therefore a representative of the population of Khambashe.

Respondents were purposefully selected on the basis that they were knowledgeable about traditions, experiences and practices of the Xhosa culture. Fifteen women and ten men were purposefully selected for the in-depth interviews for information rich cases of IK and food production. More women were purposively selected because they are more conversant with the application of folk knowledge in the attainment of food security. The strategy was to select units that were judged to be typical of the population under investigation. In order to trace additional participants, the researchers made use of snowball sampling. The sample frame included representatives of households in Khambashe. Identification of community members was based on discussions with the village heads in Khambashe. In addition, participants were also selected on the following criteria: willingness to participate, informed consent and seniority in household structures.

For qualitative research tools the researchers used content analysis to bring order, structure and meaning to the mass of the data collected. According to De Vos (2005), qualitative data analysis transforms data into research findings. In this study, content analysis allowed the researcher to discuss the common themes from the thick descriptions of the (Indigenous Knowledge Systems) IKS and gender relations dynamics and their impact on food security. SPSS statistical package was employed to supply frequency distribution of data from the questionnaire for the household survey. Data was presented in interview excerpts, pie charts, frequency tables and graphs.

FINDINGS AND DISCUSSION

Indigenous Prediction of Weather Forecast

Prediction of weather forecasts informs agricultural productivity which consequently promotes household food security. Indigenous

methods of weather forecasting assisted people to approximate the imminence of rain (Muyambo 2011).

On the assertion *"indigenous prediction of weather forecast is practiced in Khambashe"*, results in Table 1 indicate that 27 per cent acknowledged the existence of indigenous weather forecasting whilst 73 per cent denied that people in Khambashe still used indigenous methods of weather forecasting. This on its own indicates the decreasing reliance of local practices in predicting local weather and the increasing reliance on scientific weather forecasting. Results also indicate that this practice was more common to women (55.8%) than men (44.2%). This may be attributable to the fact that most women are the managers of biodiversity; they are actively involved in farm maintenance, seed maintenance, sowing, planting and weeding, threshing, food processing and water collection. Therefore they were well versed with indigenous weather forecasting informing the adaptation strategies on food security. Women and men have different roles in food production processes and the differences established in accessing knowledge and resources result in women only having access to the somewhat marginalized indigenous knowledge compared to men who have vast access to scientific knowledge, less labor responsibilities and more decision making power (Brimblecombe et al. 2015). Some respondents mentioned,

"When black birds known as ozanemvula appear, it was a sign to show it would be raining soon. When the cuckoo known as phezu-komkhono and the hoope appeared, summer season was about to come. These indicators would inform our planning of farming activities." (Interviewee No 3, June 2014).

and

"Inkojane (swallows) usually fly by just before it rains. So if you see a swarm or swallows you would know that soon it would rain, these days however we watch the weather forecast although we still have these indigenous indicators" (Interviewee No 1, June 2014).

and

"When the sun is too hot and heating directly on top of your heads you know that there will be no rains, just as you can see the clouds turning greyish it will be an indication that there will be high rainfalls" (Interviewee No 11, August 2014).

An interesting factor noted from the above is gerontology in the utilisation of indigenous knowledge. Some of the elderly people believe in the idea of using indigenous methods (birds, sun, clouds and wind) to predict weather, despite their diminishing use. This is in line with Elia et al.'s (2014) study on the use of IK to predict seasonal weather forecasts in Tanzania. Their results established that farmers turned to indigenous methods of predicting weather due to the fact that the current weather forecasts did not always yield accurate estimates of weather. The farmers used animals, insects and wind direction to predict weather patterns. Chang'a Yanda and Ngan (2010) also found out that farmers used indigenous methods through indicators such as birds, plants and astronomy to predict weather. However, Sledgers (2008) found out that use of IK to predict seasonal patterns was diminishing due to the deliberate dislocation of IK-based forecasts by Western civilization. Elia et al. (2014: 20) mentioned that farmers fail to utilize the indigenous climate forecast although it can be effective for agricultural productivity. Local knowledge has been diminishing due to the use of Western technologies in the area of weather forecasting. Western systems have repressed and neglected

Table 1: Indigenous weather forecasting in Khambashe

Practise	*Practice common to women %*	*Practice common to men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
Indigenous prediction of weather forecast is common in Khambashe	56	44	100	27	73	100

Source: Computer printout of a table derived from the data and findings of the study

the potential of IK as a powerful tool to contribute to rural livelihoods. This study argues that there is a need to consider IK on seasonal climate forecasts and to enhance it as a scientific method for predicting climate variability.

Indigenous Conservation of Soils for Crop Production

Prediction, analysis and conservation of soils inform sustainable agriculture through land conservation, restoration and biological diversity. Sixty seven per cent of the farmers disagreed to the notion of practising indigenous conservation of soils for crop production whilst 33 per cent acknowledged that traditional soil enhancement for crop production is relatively common (see Table 2). This indicates the decreasing reliance of local methods of soil conservation for food production processes. The increasing utilization of modern practices and technologies has seen local practices diminishing. Local methods of soil conservation have remained unexploited due to limited research interventions leading to their diminishing use (Oben et al. 2015).

An interesting point noted from the empirical findings is that indigenous soil conservation was a popular practice for men (53%) than women (47%). This may be due to the fact that elderly men interviewed were endowed with rich local knowledge on soil conservation methods and were more responsible for the decision making process on what is to be planted, when and how compared to women who had less decision powers but more labor burdened.

Litchtfouse (2009: 308) points to the competition between indigenous and modern soil conservation methods. This might be due to the emerging alternatives for development emanating from the failure of the mainstream ideology in the 1970s. The alternative development discourse claimed to redress the lack of understanding of local reliance on indigenous information which was previously misconceptualized as backward and unscientific (Ferguson 1997). Indigenous methods are drawn from the cultural values and norms of particular societies whilst scientific information is more explanatory. However, the power relations between IK and Western science marginalize IK as the *"other"* or "subjugated knowledge" while standardizing western knowledge as valid, scientific and reliable in terms of rules of culture and power (Delpit 1995: 24).

Notwithstanding the efforts made by international and national systems to mainstream folk knowledge into development, there is still the need to reconsider the gendered IK in development which calls for a paradigm shift. There is need to move away from entrenched rules of power and to acknowledge experiences derived from society's norms and ideologies (Odora-Hoppers 2000: 4). Put differently, the IKS and gender dynamics interplay have possible positive outcomes which inform sustainable rural livelihoods. The following are some of the interview excerpts referring to indigenous practices used for soil conservation.

"When planting, small holes are dug and we pour the seed, fertilizer and the manure to enhance soil fertility and ensure high productivity" (Interviewee No 2, June 2014).

and

"Cattle, chicken and goat manure is used as fertilizer in our garden and it usually has good results if accompanied by effective irrigation, that is why you can notice my spinach leaves are big and green. It shows how fertile the soil is. In addition, we can tell the

Table 2: Indigenous conservation of soils

Practise	*Practice common to women %*	*Practice common to Men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
People in Khambashe still practice indigenous conservation of soils for crop production	47	53	100	33	67	100

Source: Computer printout of a table derived from the data and findings of the study.

difference between infertile and fertile soils. If the soils are sandy and light in color then they would be classified as infertile. If they are dark and can absorb moisture you are likely to get more crop yields" (Interviewee No 3, June 2014).

and

"We utilize organic manure (goat, chicken and cow manure), mulching (grass and shrubs), contouring if the slopes are steep and use sand bags if there is so much rain to avoid soil erosion. These methods were passed down from our forefathers and ensure that water infiltrates into the ground for soil moisture. If crops receive enough moisture, we are ensured of higher crop yields" (Interviewee No 12, August 2014).

The findings above illustrate that, although indigenous practices were slowly diminishing in Khambashe, the community members still utilize organic manure, mulching and contouring as methods of conserving soils for crop production. As noted from the findings indigenous methods and practices were mostly used by women and the elderly as they were the custodians of IK and played a central role in promoting food security. In all these processes women play crucial roles to ensure that households are food insecure. Klen et al. (2010: 42) posits that proper land preparation through appropriate soil conservation and enhancement practices ensures high crop productivity (Klen et al. 2010: 42).

Modern agricultural production results in soil erosion, land degradation and reduced crop yields. Contouring, mulching and ridging successfully conserve the soil. The potential of meeting food security is partly constrained by poor production systems, low soil fertility and unreliable rainfalls. Traditionally the Xhosa did not use manure due to its sacred nature in the Xhosa society (Hammond-Tooke 1993). Instead they used other methods for improving soil fertility and increasing crop yields. They fallowed every five years and were involved in shifting cultivation (Peires 1981). However in recent years, indigenous soil conservation methods have diminished due to the use of fertilizers, pesticides and incompatible technologies which perpetuate soil degradation. Olawoye (2000) mentions that these modern technologies and practices result in low crop returns reflected in food shortages and hunger.

Mulching Using Grass Branches and Leaves

Ability to manage food supplies through utilizing local knowledge promotes household food security. Despite the attrition of IK in Khambashe which accounts for relatively food insecure households, some households still utilize indigenous methods and practices to augment food supplies. This applies to households which indicated they were food secure. Ibnouf (2012: 238) mentions that the application of local knowledge guarantees food secure households as traditional knowledge is adaptable and sustainable. Traditionally the mulches which were widely used were leaves, grass and thin layers of straw from plant residues to conserve soils and water in addition to supplying nutrients (Alieri 1983b). Women possess knowledge on conserving soils and maintaining soil fertility through mulching, intercropping and crop rotation. The over reliance on external inputs and technologies not only threatens the sustainable indigenous farming systems but also disturbs the stability of food production processes owing to the marginalization of women's knowledge for sustained food production (Reijntjes et al. 1992). Utilizing women's local knowledge on soil conservation and biological fertility reduces the need for external nitrogen which is not accessible to resource-poor farmers. Hence modern technologies are used to promote the interests of transnational companies which are profit oriented (Upretti and Upretti 2000: 6). Women possess vital knowledge on mulching conserve soils which has important implications on crop production. 63 per cent of the respondents agree that mulching using grass, branches and leaves is common compared to only 37 per cent who disagree with this assertion. Results in Table 3 indicate that mulching is common to women than men (66.3%) (see Table 3).

What this clearly means is that some indigenous practices are still common and are still contributing to the availability of food in Khambashe especially in those households which indicated they were food secure and still utilized IK. Sood et al. (2015) mentions that women are vigilant custodians of local culture and play a vital role as plant selectors, plant domesticators and plant conservators through local management of soils. Agea et al. (2008: 69) also mentioned the use of mulching using spear grass

Table 3: Local mulching

Practise	*Practice common to women %*	*Practice common to Men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
Local mulching contributes to food production processes in Khambashe	66	34	100	63	37	100

Source: Computer printout of a table derived from the data and findings of the study.

and African grass in the sub-country of Masaka district in Uganda to increase crop yields. As mentioned previously, scholars such as Upretti and Upretti (2000), Lwoga et al. (2010), Gorjestani (2000), Chhetri (1994), and Shiva (2005) have fully supported the need for IKS in food production processes. Literature indicates that a large section of rural households rely on IK for better crop yield, pest management and food processing, preservation and storage. Many rural societies depend on the use of IK practices in sustaining subsistence farming and enhancing household food security.

To corroborate the above two community members mentioned the following when asked what indigenous methods were used in crop husbandry in Khambashe;

"Women use shrubs and grass to absorb moisture if the soils are very wet in between maize lines. They also use tree shrubs (amahlahla) to protect or prevent animals to get into their gardens and graze on their vegetables." (Interviewee No 7, August 2014)

and

'We use weeds and grass uprooted using hoes or our hands and it serves as mulch (isigcina-kufuma emhlabeni). This assists in absorbing moisture and protecting plants especially maize and vegetables from being grazed by animals' (Interviewee No 9, August 2014).

The above extracts illustrate some of the Xhosa indigenous practices in agricultural production. They illustrate how some households in Khambashe attach special value to traditional and cultural practices and how these practices contribute effectively to community development and empowerment. Leaves, shrubs and grass are used to absorb moisture *(isigcina-kufuma emhlabeni*) in-between crops to avoid drenching. Mulching using grass and leaves is more common to women than men in Khambashe as indicated by the empirical results of the study. For instance, 66.3 per cent of the respondents mention that mulching was more common to women.

These results make explicit the role that women play in community development as custodians of IK. They engage in more work than men yet their role is not acknowledged in community development. In the same way Hebninck and Lent (2007: 39) mention that traditionally Xhosa women were involved in land preparation which entailed uprooting weeds and grass using hoes *(igaba)*. These were left as mulch to protect crops from being desiccated by birds and other livestock (Hebinck and Lent 2007: 39). Through the application of IK in crop husbandry, women have played a vital role in rural areas as custodians of cultural capital (Orindi and Murray 2005; Ibnouf 2008). The African feminist theory reveals the continued marginalization of women which is rooted in the history of imperialism and colonialism (Orunmila 2015). It seeks for the inclusion of women in rural development and the acknowledgement of the IK they possess. In other words, it advocates for more equitable gender relations (Wane et al. 2002: 14). Decreasing reliance on IK to enhance household food security by households hampers its use. Local knowledge and cultivation techniques which tend to be marginalized have the potential to promote sustainable household food security. Furthermore they have the capacity to increase food production owing to the fact that these techniques are adoptable, sustainable and reduce susceptibility to drought. The central issue that this study affirms is that there is a need for local knowledge to be properly mainstreamed into food production processes and for culturally viable and gender sensitive sustainable interventions to be promoted.

Use of Organic Manure Such as Animal Wastes and Crop Residues

Utilizing organic manure has an enormous impact on household food security in the

Khambashe. There is a great concern for the indiscriminate utilization of pesticides and fertilizers which damage biodiversity. Organic agriculture with its essence on ecologically friendly mechanism with its simplicity and harmony with the environment is gaining interest in recent years (de Moura Zaine and de Jesus Ferreira 2015). This is mainly because the use of organic manure such as animal waste and crop residues has diverse properties in its nutrients to soil in its composition and is readily available in areas of high animal density. Shiva (1996) argues that these inventions established western knowledge supremacy over local practices and knowledge. Moreover both women and nature were exploited due to the introduction of modern inputs. Shiva (1997) argues that modernization subjugated both women and nature and liberated men.

The potential of traditional knowledge in achieving sustainable household food security is tremendous. The results of this study have deepened out an understanding of traditional knowledge and experiences in food production processes which guarantee food security in the Khambashe rural community. While there has been a gradual deterioration of the application of indigenous practices in food security programs, the use of organic manure to increase soil fertility and crop yields has been popular in Khambashe. From the empirical findings 84 per cent of the respondents acknowledge that they used organic manure for maintenance of soil fertility. Only 16 per cent did not confirm the use of organic manure such as animal waste and crop residue. More people in Khambashe used organic manure since animals such as cows, sheep, chickens and goats were available meaning they utilized that manure to maintain soil fertility and conserving the environment.

In line with the findings mentioned above some respondents indicated that,

"Compost can also be used as a form of a fertilizer comprised of dead leaves, grass, tree shrubs. The compost form should be watered and within a few months it can be used to fertilize the garden." (Interviewee No 8, August 2014).

and

"Manure for our gardens is readily available. We use chicken and kraal manure and it is evidenced by the green large leafy vegetables which we harvest. Kraal and chicken manure provide all the nutrients for enhancing soil. These types of manure are relatively cheaper than chemical fertilizers" (Interviewee No 9, August 2014).

Kraal manure and chicken manure were mentioned to be the popular types of organic manure which were used in Khambashe rural households. Corresponding to these empirical results, Esegu et al. (2002) reported the popular use of chicken manure, crop residue and cow dung to increase crop yields in Masaka District, Uganda. In addition, Roland and Canas (1998) mentioned that in Hundrus, Uganda, they used dried coffee pulp as a form of fertilizer. This practice is more common to men (69%) than women. This might be attributable to the Xhosa cultural practices which do not allow women to enter the kraal since it was considered a sacred place. However, Henbick and Lent (2007: 360) point out that traditionally the Xhosa did not use manure for their fields although it was abundantly available in their kraals. Instead, they fallowed their fields every fifth year and used shifting cultivation to maintain soil fertility and increase crop yields (Schapera 1937: 134). This was due to the cultural value they attached to kraals. It was the central place were the ancestors resided and was only restricted to men.

Failure to recognize the potential of gendered IK emanates from patriarchal structures which enforce complex structural barriers discriminating against women's knowledge and

Table 4: Use of organic manure

Practise	*Practice common to women %*	*Practice common to Men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
Organic manure are still used from crop production processes in Khambashe	31	69	100	84	16	100

Source: Computer printout of a table derived from the data and findings of the study.

consequently leading to the diminishing use of indigenous practices in rural households. However, Nnameka (1997) mentions that women should realize and acknowledge their own identities despite the challenges they face. This study therefore suggests community interventions to redress the repressive structures and to acknowledge the central role women play as custodians of IK and in ensuring sustainable food production processes. Shiva (1997), a popular proponent of social ecofeminism, argues that science and technology which are Western lead to the marginalization and dispensability of women. Women's IK on biodiversity is systematically marginalised by formal science and modern technology (Rao 2012: 210). Ecofeminism highlights how historical contexts of oppression, marginalization and domination from colonialism, and globalization further peripheralize women's position in social structures. Without an understanding of the historical factors and contexts which impact on intra-household structures, women's roles will be undermined. Shiva (1988) explains that women are not just victims of the development process but rather they are also agents of change with the knowledge they possess on biodiversity.

Use of Locally Made Pesticides Like Wild Plants and Human and Animal Urine

Use of locally made pesticides enhances crop yields by shielding vegetables and crops from pests like caterpillars, maize stem borers and moths. Indigenous pesticides are recognized because they are more environmental-friendly cheaper hence beneficial to resource poor communities (Mkindi et al. 2014: 3164). The use of locally made concoctions such as pesticides to control pests that attack crops while in the field and while in storage was uncommon in Khambashe due to the fact that most people did not have the know-how on how to use indigenous pesticides like wild plants, human and animal urine.

Very few respondents (29%) affirmed that they used locally made pesticides (wild plants and leaves and human and animal urine) to manage insects and animal pests that attack crops or stored produce. The practice was more common to men (56%) than women (44%) (see Table 5). On this issue, one of the respondents said:

"Some people don't see the reason why they should use manure and local concoctions when there are readily available options like chemical fertilizers and pesticides. Using local concoctions has been deemed as backward and goes against some religious beliefs. Some would prefer using modern pesticides as they are not laborious, you don't need to generate them." (Interviewee No 8, August 2014)

Drawing from the above statistical findings and the interview excerpt, locally made concoctions have been replaced by chemical fertilizers and pesticides. Capitalist market penetration and global development has been a serious barrier for admitting that women's IK is a vital development apparatus which has the potential of realizing the goal of sustainable livelihoods in rural households (Shiva 1997). Western scientific technologies have been used for the gradual replacement of the traditional knowledge and technologies held by women. Modern agricultural practices are usually targeted to men while at the same time women's knowledge is seen as backward and irrelevant. This ethnocentrism classifies knowledge into scientific and unscientific (Luthfa 2006: 3). This study argues that local integrated pest management practices assist resource-poor agricultural systems to be more sustainable and viable as it prevents the degradation of biodiversity and enhances food production processes.

Possession of Local Knowledge on Diseases and Cures for Crops

Despite the fact that cultural practices result in the exclusion, domination and marginalization of women (and their ideas), they possess vital

Table 5: Locally made pesticides

Practise	*Practice common to women %*	*Practice common to Men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
Use of locally made pesticides	55	45	100	29	71	100

Source: Computer printout of a table derived from the data and findings of the study.

knowledge on diseases and cures for crops. They are repositories of local ideas and practices for sustainable crop husbandry processes. However, women's lack of access to assets like land might lead to the ineffective utilization of IKS and hence food insecurity. Empirical findings also show that Khambashe women possess the necessary knowledge for curing crops. Although women possess vast amounts of knowledge on diseases and cures for crops coupled with the high workload for food production processes their status in society is low compared to men (Sood et al. 2015). Furthermore their decision making power is restricted due to gender and cultural norms which make their role on food production more vulnerable. 42 percent confirmed that women possess the necessary knowledge on diseases and cures for local crops and livestock whilst 58 per cent acknowledged the assertion that the practice is common to men. Comparing Table 6 and Table 5 together one can deduce that they are many people who possess local knowledge on pesticides, diseases and cures which are necessary for food production in Khambashe. Only 19 per cent agreed with the assertion that people possess local knowledge on diseases and cures for crops whilst 81 per cent disagreed (See Table 6). A possible explanation to these empirical findings is that local concoctions have been replaced by chemical pesticides and modern practices used to cure plants and livestock and the reason why more men had more knowledge on cures for livestock and crops might be attributable to the fact that they were more responsible for rearing livestock.

Western agricultural technologies represent a Eurocentric bias as they augment the power of technocrats to disenfranchise women's ways of knowing (Howard 1994).

Corroborating the data derived from the survey questionnaires some respondents mentioned that;

'We are able to identify any parasites that attack livestock like ibhula i.e. when livestock lose their skin, tick-borne due to ecto-parasites and inyongo "gall sicknes". Traditional medicine/concoctions "amayeza" like uzifozonke "general concoction used to treat livestock".' (Interviewee No 7, August 2014).

and

'If you mix paprika, water and garlic into a thin paste a concoction is produced to kill insects. To protect plants from insects we were taught to use vumbambuzi, a green leafy plant which can also be used for the protection against evil spirits.'(Interviewee No 10, August 2014).

The above interview excepts indicate that women have a good understanding of animal and crop diseases and indigenous practices which can be used to cure livestock and crops. Some community members held knowledge on diseases which attacked livestock, e.g. tick-borne and gall sickness, and were endowed with local knowledge on how to cure these diseases. The second extract was from a conversation with an elderly man. This indicates how IK is closely associated with gerontology. The findings of the study indicate that although the application of gendered IK is deteriorating, its use is more common in households headed by the elderly. In India some farmers use their indigenous technical knowledge to reduce pests. A mixture of cement and dried powder from prawns is used to control insects like rodents in fields and storehouses. Jiggery and cotton wool were used as bait for rats (Manju 2001). This study recommends development interventions on IK which are inclusive of the previously excluded like women. Furthermore, women possessed local knowledge on local concoctions to cure plants. Sello et al. (2007: 3) argues that women are natural resource managers possessing insightful knowledge on diseases on crops and livestock.

Table 6: Possession of local knowledge on diseases and cures for crops

Practise	*Practice common to women %*	*Practice common to Men %*	*Total %*	*Agree %*	*Disagree %*	*Total %*
Possession of local knowledge on diseases and cures for crop	42	58	100	19	81	100

Source: Computer printout of a table derived from the data and findings of the study.

They play a crucial role through utilizing IK for development purposes. Although the women play a central role in food security programs, their knowledge is replaced in the context of industrialization.

DISCUSSION

Adopting a gendered perspective in the Food security and indigenous knowledge studies acknowledges the gender imbalances and marginalization of knowledge that makes certain groups vulnerable in food production processes (Banford and Fraude 2015). This study examined indigenous women's experiences of social exclusion in food production processes. This paper concurs with the assertion by that there is a tendency to focus more on women's status, roles and responsibility this paper acknowledges that both men and women suffer gender imbalances when it comes to indigenous knowledge and food security but the bone of contention is the imbalances are more detrimental to women. There are factors to consider in the power relations when one gives a gender lense perspective to IKS and food security. These include power relations, gerontology, economic status and access to resources and decision making power which have been discussed in the above empirical findings. The discrimination of women's knowledge affects their activities in pursuit of food secure households. Powell et al. (2015) mention that though women are the managers of biodiversity their knowledge is undervalued. This does not mean however that men's knowledge is not discriminated against but the asymmetry of power between men and women affect gender roles and meanings. Furthermore a gender perspective does not represent all women as a homogenous group because they are differences in terms of needs, status and roles according to the cultural or social contexts (Carr and Thompson 2014).

In some communities it is highly regarded as important for sustainable rural livelihoods as it meets their nutritional and food security needs. Indigenous knowledge is important for ascertaining the households' nourishment. On the other hand women are primary managers of food security. They are deeply connected to nature. They put local crop conservation into practices though they are often overlooked by development researchers, programs and policies (Vernooy 2015). Women and men have different roles in food production processes meaning differences are established in access to knowledge, labor and decision making processes. This study concludes that women's IK is a reality and if acknowledged appropriately it acts as a transformative tool to achieve sustainable rural livelihoods. However women's IK is subject to subjugation and exclusion largely as a result of ideological and structural inequalities in their own societies and within the mainstream society. Most food production processes are done by women compared to men, although they occupy a lower status in society (Sood et al. 2015).

The study highlights the fact that women should be acknowledged as stewards of IK and managers of household food security and harnessing their knowledge would contribute immensely to rural livelihoods and their IK would be a reality towards ascertaining food secure households. The exclusionary processes restrict their capacity due to unequal distribution of labor and resources and their knowledge is discriminated against as "women's knowledge", the "other" or "subjugated knowledge". The study was heavily informed by the perspectives from the women in Khambashe rural area with the aim of determining the central role they play in rural development. Hence the best way to achieve rural development is through acknowledging previously marginalized knowledge and practices since they offer sustainable and adaptable frameworks embedded in inclusive approaches of rural development. Notwithstanding the fact that women are the major agents of food security, utilization of IKS by women in food production processes has deteriorated. This paper illustrates the various roles women in Khambashe play in ensuring food secure households. These include weather forecasting, indigenous soil conservation, mulching, use of organic manure and possession of local knowledge on diseases and cures for crops and livestock. On the other hand the negative outcome is that traditional knowledge faces epistemological exclusion. Certain group's indigenous knowledge in food production processes is marginalized and othered. This is drawn from subjugatory socio-cultural patriarchal values where gender is socially constructed and may be a hindrance in food production processes.

CONCLUSION

The heightened interest to redress food insecurity and marginalization of Indigenous knowledge has led to policy makers, development practitioners to include gendered lenses as part of the improvement processes. Women as managers of ecosystems understand the relationship between land and livestock in a more holistic way. They have special knowledge on nature which has been marginalised under the impact of science. The marginalization of indigenous skills, practices and knowledge in agriculture stems from the unequal power relations within the ideologies of patriarchy, colonization and capitalism. Women all over the world traditionally play a role in biodiversity management, sustainable agriculture and food security. The findings indicated above show that gender and indigenous knowledge issues are a reality and of paramount importance in food production processes. If properly utilized in rural development processes they may ascertain sustainable rural livelihoods. Indigenous Knowledge Systems utilized by women and men in rural areas motivates communities to undertake cultural activities which fulfill both their cultural obligations and assist in ensuring that rural households are food secure. Although there are some local or traditional applications which are still in place, the ecological knowledge for better crop yield, pest management and indigenous practices used in food production processes are slowly diminishing. There is so much to be gained from understanding the IKS and gender dynamics intersection in its promotion of food security.

RECOMMENDATIONS

Acknowledging previously marginalized sections of the community should not be an end in itself. There is a need for inclusive and participatory approaches which are gender and IK sensitive in addressing food security problems. Indigenous practices serve as low cost strategies to manage pests during pre- and post-harvest periods thus reducing losses at the same time as enhancing food accessibility and availability. Use of traditional knowledge allows for autonomous participation of grassroots people in interventions that concerns them. There is a need to understand IK within its political, social and cultural context so that opportunities to develop contextual generalization can be availed.

A key finding from the study is that the epistemological exclusion of indigenous feminist's knowledge held by women has deterred the process of humanist development to realize food secure households and sustainable rural households. If acknowledged it presents the best model for rural communities to develop. This study proposes that the untapped potential of women should be used effectively to make an impact in the development of local communities in South Africa. Interventions which aim to document the IK is at the verge of extinction should be prioritzed and this knowledge should be accorded copyright intellectual property rights for indigenous people. Furthermore women's local knowledge needs to be recognized by Governments and IK frameworks should be gender-sensitive and constitutionally guarantee women equitable rights.

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