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Mushroom Growing and Wealth Creation in Mbarara Municipality, A Case of Selected Mushroom Farmers

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Abstract

The study was set out to explore whether mushroom growing create wealth among participating households in Mbarara Municipality. This study was guided by the following objectives: to explore whether the participating households generate income from the mushroom enterprise; to examine various investments created out of the income from the mushroom enterprise for diversified earning; and to investigate the saving capacity of the participating households for future investment and enterprise sustainability. A retrospective-prospective study design was used to investigate the aspects within the period that took place in the past so as to understand the present situation and use it to predict the future. The study population included group leaders and members. From this population the researcher sampled 50 respondents using purposive and simple random sampling techniques. The study used both questionnaire and interviews to gather field data; qualitative data was arranged according to themes and quantitative data was analyzed using Statistical package for social scientists (SPSS). From the study, it was found out that farmers generate income from mushroom growing; In addition, respondents mentioned that mushroom presents growers with high nutritional value as well as income. The study also revealed the distribution of income as positively skewed, implying that farmers ought to obtain skills and improve on the technology they use to produce more and earn much. The study concluded that mushroom growing can contribute to wealth creation in an urban setting context due to its low set-up cost, high price margin and quick returns. The study recommends that Higher Institutions of learning like Bishop Stuart University should develop outreach programmes to equip such enterprises with basic skills to enhance their efficiency and high returns leading to wealth creation and sustainable transformation.

Keywords: Mushroom Growing, Wealth Creation, Mbarara.

INTRODUCTION

Background to the study

There are hundreds of identified species of fungi which, since time immemorial, have made a significant global contribution to human food and medicine. Some estimate that the total number of useful fungi – defined as having edible and medicinal value are over 2 300 species. Although this contribution has historically been made through the collection of wild edible fungi, there is a growing interest in cultivation to supplement, or replace, wild harvest. This is a result of the increased recognition of the nutritional value of many species, coupled with the realization of the income generating potential of fungi through trade. In addition, where knowledge about wild fungi is not passed on within families or throughout

communities, people have become more reluctant to wild harvest and prefer to cultivate mushrooms instead (Chang, & Quimio, 1982).

Unlike wild harvested fungi, grown mushrooms are not subject to any ecological uncertainties

Like habitat health, unpredictable production as a result of late or reduced rains.

Access to sufficient, suitable and locally-sourced substrate and spores are key determinants as to whether mushroom cultivation is likely to be successful and sustainable or not. Both rural farmers and peri-urban cultivators should be able to obtain agricultural by-products easily and cheaply to use as substrate; or, for certain mushroom species, logs or sawdust to inoculate with spores. Mushroom spores can be collected from mature fruiting bodies, but are commonly purchased from local production facilities or laboratories. Mushroom cultivation is compatible with other farming and horticultural activities. It can be regarded as a very efficient system in recycling with no waste from production to consumption. (Chandra, 1989)

Historical Background

Historically, France was the leader in the formal cultivation of mushrooms. Some accounts say that Louis XIV was the first mushroom grower. Around this time mushrooms were grown in special caves near Paris set aside for this unique form of agriculture. From France, the gardeners of England found mushrooms a very easy crop to grow which required little labor, investment and space. Mushroom cultivation began gaining popularity in England with more experimentation with spawn and publicity in journals and magazines (Lakhani, 2010).

In the late 19th century, mushroom production made its way across the Atlantic to the United States where curious home gardeners in the East tried their luck at growing this new and unknown crop. However growers had to depend on spawn imported from England which, by the time it reached the U.S. was of poor quality.

Theoretical Background

The study bases on Alison's theory that was put across in November 16, 1946 – April 3, 2000) He was an American philosopher whose theory states that people should grow mushrooms to add on their existing incomes so as to create wealth. The theory also states that Mushrooms are a valuable source of food and their cultivation can be a viable small-scale business, but investing in a mushroom growing scheme can be risky so a feasibility study looking at potential markets and supply chains should be done before starting. A general understanding of mushroom growing should be obtaining through training or literature to ensure the best chance of success. Some expert assistance will help at this stage. As well as individual small-scale production, set up options include cooperatives and community groups that can collaborate in set-up costs, production costs, harvesting and marketing. It helps not to work in isolation but in joint ventures with regional agro -industries and universities as they can assist with training and extension workshops.

Conceptual background

During the last forty years, most governments in Uganda and community enterprises have either been unwilling or unable to perform their traditional duties-providing public goods and maintaining a framework of security. In fact, in several regions of the continent, governments have become irrelevant to the lives of the people, hence the proliferation of non-governmental organizations (NGOs), many of which have replaced the government in the provision of services such as health care, education, and water. The "good" or appropriate government enhances the wealth of the nation; upholds the constitution and maintains law and order; protects and enforces property rights, including the protection of the individual from domestic and foreign aggression; promotes both entrepreneurial activities and the creation of wealth;

enforces freely negotiated contracts but does not engage in activities that impede trade or free exchange; effectively and fully enforces rules against theft, fraud, and other activities that involve the illegal redistribution of wealth and income; minimizes opportunistic behaviors such as bureaucratic corruption and rent seeking; and provides public goods and services efficiently and equitably (Daniels,2005).

Mushrooms, the plant of immortality. That's what ancient Egyptians believed according to the hieroglyphics of 4600 years ago. The delicious flavor of mushrooms intrigued the pharaohs of Egypt so much that they decreed mushrooms were food for royalty and that no commoner could ever touch them. This assured themselves the entire supply of mushrooms. In various other civilizations throughout the world, including Russia, China, Greece, Mexico and Latin America, mushroom rituals were practiced. Many believed that mushrooms had properties that could produce super-human strength, help in finding lost objects and lead the soul to the realm of the gods (Del Sordo, 2005).

Although each society should be allowed to determine its own government through proper constitution making, the "good" government has certain universal attributes. First, the state must be limited constitutionally in order to make certain that civil servants or the state's other agents do not engage in political opportunism. Proper constitutional constraints will make certain that lawmakers, for example, do not enact fiscally discriminatory legislation and that the state's structures cannot be used by interest groups to plunder the economy for their own benefit. Such limitations should minimize rent seeking and other forms of opportunism, while at the same time advancing entrepreneurship and healthy macroeconomic performance. Second, the political system must not be allowed to degenerate into unlimited majoritarian rule, which could result in the erosion of individual liberty. The latter, which is the cornerstone of any effective democratic system, must not be allowed to become a casualty of majoritarianism. During constitutional deliberations, limitations should be inserted into the constitutional compact to make certain that the majority does not oppress and marginalize the minority. Third, the effective governance system is one that is consensual, secured primarily by voluntary agreement between the relevant stakeholders, and designed to enhance their well-being. Members of society must see the "good" government as a social arrangement put together by them to protect their "person" and their "property" as defined and elaborated in the constitution. In most African countries today, most governments pursue and advance primarily the interests and objectives of a few individuals and groups--mostly those of the ruling elites and their supporters.

In recent years, public choice scholars have embarked upon a research agenda whose primary objective is to provide the framework for developing the appropriate model of government for each society noted that community enterprises supports wealth creation. Such a framework can be used to develop governance structures for each African country. Since the end of the Cold War and the collapse of the apartheid regime in South Africa, Africans, energized by these monumental global events, have been engaged in efforts to transform their critical domains and prepare for more effective governance, and economic development in the new century and beyond. Unfortunately, there has not been much success, as the majority of the polities in the continent are still characterized by antiquated, anachronistic, and non-viable governance structures, many of which were inherited from the colonialists. These structures were not designed to enhance the ability of Africans to govern themselves and generate the wealth to meet their needs, nor were they expected to advance peaceful coexistence of groups. In fact, during colonialism, peaceful coexistence was not achieved through cooperative agreements but by force, deceit, co-optation of traditional rulers, bribery, and other forms of coercion. Instead, the colonial institutional arrangements were specifically developed to help the Europeans exploit the Africans and their resources for the benefit of the metropolitan

economies (Tayebwa, 2005).

Contextual Background

Mushrooms, the plant of immortality. That's what ancient Egyptians believed according to the hieroglyphics of 4600 years ago. The delicious flavor of mushrooms intrigued the pharaohs of Egypt so much that they decreed mushrooms were food for royalty and that no commoner could ever touch them. This assured themselves the entire supply of mushrooms. In various other civilizations throughout the world, including Russia, China, Greece, Mexico and Latin America, mushroom rituals were practiced. Many believed that mushrooms had properties that could produce super-human strength, help in finding lost objects and lead the soul to the realm of the gods.

Problem statement

Today, we live in a world where most people are poor and some are very rich, and the category in which you find yourself is largely determined not by your job, your age or your gender but by your location. Most people in the world today are very poor. Nearly 3 billion people live on less than $2 a day; almost 1 billion are illiterate. These numbers reflect the continuing wealth gaps between the West and the Rest of the world (Charles, 2005). The Mushroom Council plays a very important role in the national promotion of fresh mushrooms through consumer public relations, foodservice communications and retail communications. However, Statistics show that mushrooms are grown at a slow rate which has affected people's household incomes thus limiting wealth creation process. Many different venues are used in promoting fresh mushrooms to consumers such as working with professional chefs in developing and promoting new recipes, working with produce department managers to maintain the highest quality mushroom product for customers and sending out thousands of brochures each year to consumers hungry for new mushroom ideas Jeppesen and Lakhani, 2010). Thanks to the Mushroom Council, mushrooms have their own month to be honored and eaten. September is National Mushroom Month but mushroom growing has got limited support from the government which affects people's wealth.

Regarding poverty, the most recent assessment is that the world as a whole will meet the target but certain regions, and many countries, will not. Large reductions in poverty have occurred and are likely to continue in East Asia. This region and South Asia are likely to meet the target, although some countries within these regions may not (Peterson, 1988).

It is through work and better jobs provided by organizations, community enterprises, government individual efforts and other sources, including the income derived from work that people can escape from poverty and better their livelihoods. These following three themes highlight the perspective of poverty: that the poor do not cause poverty; poverty is expensive because it hinders growth and fuels instability; and the poor are often the ultimate entrepreneurs because they need to innovate to survive (Dietz et al. 2003).

Mushroom growing bring up entrepreneurs who make investments and employ workers who contribute to the success of the business. Thriving enterprises also contribute to job creation, providing employment, skills and valuable experience for a large number of young people entering the labor market for the first time. Through appropriate wage and tax policies, they can also contribute to a more equitable distribution of wealth among the working population and the community in general (Ostrom et al. 1999).

With this crop that calls for appropriate startup capital, one wonders why the government, development agencies and individuals have not embraced mushroom industry and create wealth for communities. The study therefore set out to explore whether the so called an easy, cost effective and profitable venture lead to wealth creation.

Hypothesis: Mushroom growing contributes to wealth creation among the participating households in Mbarara Municipality.

Purpose of the study

The purpose of the study was to investigate whether mushroom growing create wealth among participating households in Mbarara Municipality.

General objective

To explore how mushroom growing has impacted on the socio-economic wellbeing of the participating households.

Specific objectives of the study

1. To explore whether the participating households are generating income from the mushroom enterprise.
2. To examine various investments created out of the income from the mushroom enterprise for diversified earning
3. To investigate the saving capacity of the participating households for future investment and enterprise sustainability.

Research questions

1. Do participating households generate income from mush room enterprise?
2. What are the various investments created out of the income from mushroom enterprise?
3. What is the saving capacity of the participating households for future investment and enterprise sustainability?

Scope of the study

Geographical scope.

The study was carried out in Mbarara municipality, Mbarara district. It covered three divisions of Kakoba, Kamukuzi and Nyamitanga. Mbarara municipality is a town in south western Uganda, located about 266km from Kampala. It is the main municipality of Mbarara district. The municipality is an important transport and business hub, lying west of Masaka on the road to Kabale near Lake Mburo National Park.

Content scope.

The study was about mushroom growing and wealth creation. It presented a critical analysis of the effects of mushroom growing among participating members of Mbarara municipality. The study aimed at providing a better understanding of the relationship between mushroom enterprises and its effect on household wealth creation in the municipality. The study covered Mbarara municipality in western Uganda so that it could provide relevant examples referred to in the study and follow their performance in the communities where they operate.

Time scope

The study covered between the years 1980-2013. This period was chosen to enable the study capture information concerning the trends in which the municipality went through to reach the current level of development.

Definitions of operational terms

Wealth is a Tangible or intangible thing that makes a person, family, or group better off.

Wealth creation is the act of making a country, group, or person richer and more successful.

Wealth is created by a business organization that provides a unique value to its environment by adding more value to its outputs than the cost of all resources used to produce those outputs.

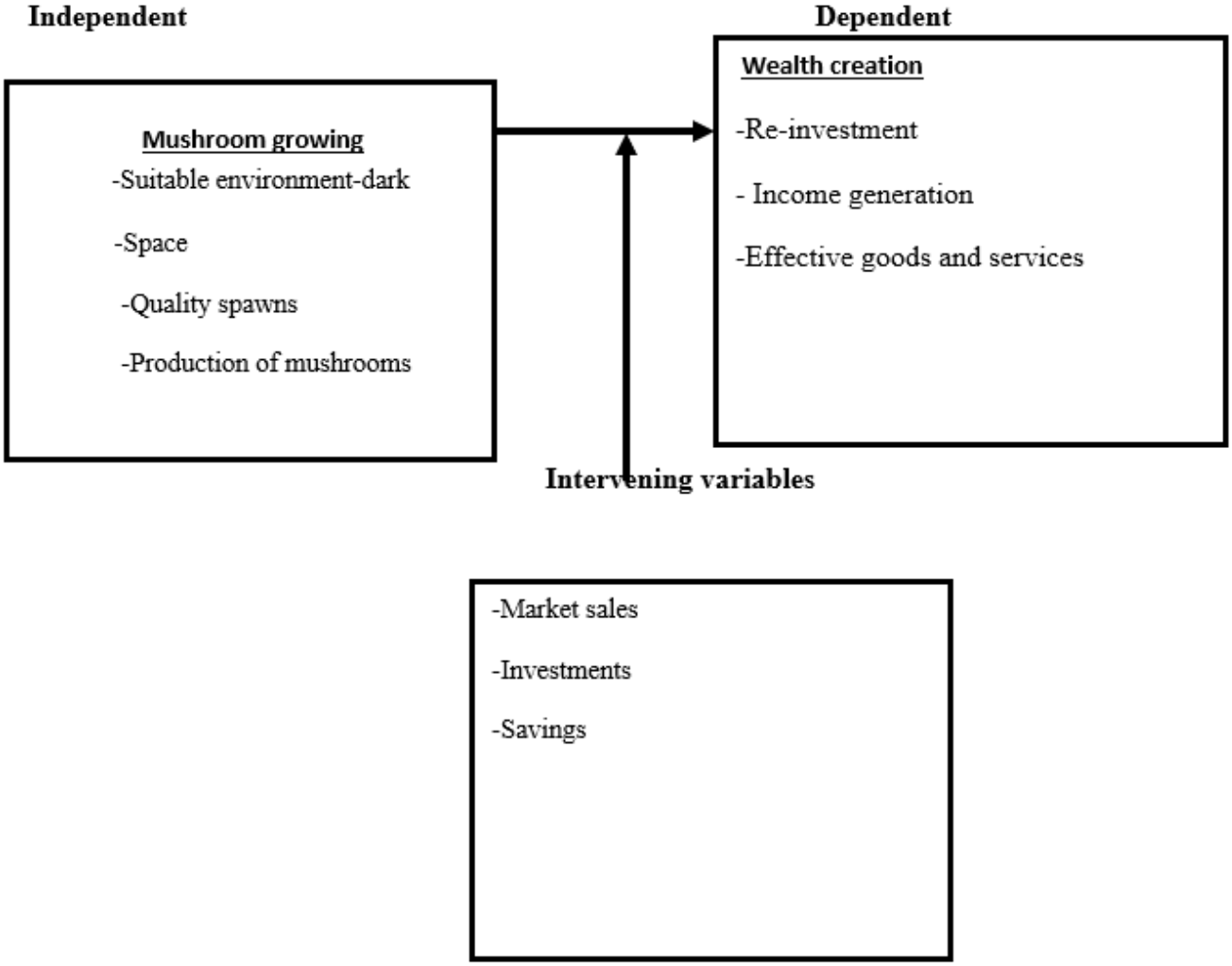
Mushroom is a soft delicate white fruit body of fleshy fungi. The term 'mushroom' is a macro-fungus with a distinctive fruiting body, which can be hypogenous, large enough to be seen with the naked eye and to be picked by hand (Chang and Miles, 1992).

Justification/significance of the study

The study was vital in showing whether mushroom enterprises can be the solution to escalating poverty levels and poor livelihoods among households in the area. It sets out to help socio- entrepreneurs, institutions, individuals and development practitioners raise awareness and call for such initiatives in order to realize positive change.

Conceptual framework

Figure 1: Conceptual frame work, illustrating hypothetical relationship between independent variables and dependent variables.



LITERATURE REVIEW

Introduction

This chapter is on the available literature which informs the study. The purpose of literature review was to contextualize and collate available information and research about mushroom growing and wealth creation. It is divided into three sub themes and sub headings under each theme. The first sub-theme reviews literature on income generation from the mushroom enterprise, the second sub-theme examines various investments created out of the income from the mushroom enterprise, while the third sub-theme

investigates the saving capacity of the participating households.

Conceptual Framework about Mushroom

Mushroom is a soft delicate white fruit body of fleshy fungi. Its body looks umbrella-shaped and it grows on the substratum or under the surface of soil. The term 'mushroom' is a macro-fungus with a distinctive fruiting body, which can be hypogenous, large enough to be seen with the naked eye and to be picked by hand (Chang and Miles, 1992).

Mushroom is a highly nutritious, delicious and a good food for children and adults as well. It is also a vegetable with medicinal qualities which is appropriate for mankind (Begum, 2008). It has high protein and economic value. The amount of protein in mushroom is double than that of other vegetables. One hundred grams of dried mushroom contain 26.9 per cent protein while the same quantity of potato contains 7.6 percent protein (Asia Pulse News, 2008). Mushroom is used as delicious item of our food menu containing both nutritive and medicinal values (Agrahar- Murugkar *et al.*, 2005; Cheung and Cheung, 2005).

Mushroom does not need any sunlight to survive or grow. Mushroom cultivation does not require soil, electricity any insecticide or chemical fertilizer.

Mushroom seed can be sowed using industrial waste like wooden dust and husk of wheat and rice.

Given a suitable environment and proper nursing, its cultivation is possible throughout the year. The main raw material for growing is a composite mixture of rice straw and rice husk saw dust and cotton waste, and some other agro-residues. Although mushroom is a popular and nutritious food in many countries of the world, the production and consumption of mushroom is limited in east Africa (Begum, 2008). In many countries researchers now use mushroom to combat cancer, hypertension, blood pressure, diabetes, heart disease, rheumatic pain, and throat inflammation and to control blood cholesterol. Particularly Mushroom is effective in preventing diseases like cancer, kidney problems, hepatitis, AIDS, asthma, diabetes, insomnia and tumor (Begum, 2008)

DETERMINANTS FOR BETTER MUSHROOM YIELDS

Availability of spawn culture

The availability of good quality spawn is the limiting factor for mushroom cultivation in many developing countries. Customs' bureaucracy, high shipping costs and the difficulty to keep the spawn cooled during transport, often hinders imports. It might therefore be necessary for the mushroom grower to produce his own spawn.

If good quality spawn of the desired mushroom species can be obtained at a reasonable price, it would be wiser to concentrate on the mushroom growing process. If not, spawn will have to be produced or multiplied by the mushroom grower.

The complete procedure of spawn production involves preparation of the medium, filling the test tubes or Petri dishes and sterilizing them, and the process of inoculating larger containers with this culture. Spawn production requires a clean laboratory and specialized knowledge.

Basically, spawn production is nothing more than putting mycelium of the desired mushroom in suitable sterilized substrates under aseptic conditions.

In practice, however, producing spawn is not that simple. Suitable strains from the required mushroom species have to be maintained under strict conditions to avoid degeneration. If this is not possible tissue culture from a fresh and healthy mushroom should be used for spawn production. In addition, the spawn production room has to be kept meticulously clean to avoid any contamination.

Substrate

The material on which the mycelium of the mushrooms grows is called substrate. Agricultural wastes like wood chips/sawdust, sugar cane bagasse, and different types of straw can be used as the main ingredients in the substrate for oyster mushrooms.

The properties of a substrate determine which mushrooms and microbes can grow in it. The more selective it is, the better the substrate meets the demands of a specific mushroom and the less suitable it is for others. After mixing and adding certain supplements, the substrate undergoes a heat treatment to give the desired mushroom mycelium an environment with few competitors.

Mixing the substrate

The aim of mixing is to distribute the different ingredients, including water, as evenly as possible. If adding a small quantity of one component like chalk, then it is better to mix it first with some of the substrate and only then add it to the large heap. Otherwise its distribution will probably remain non-uniform. Moreover, lumps might occur and the very high concentration of nutrients at these spots will result in contamination (Suzuki, & Ohshima, 1974)

Mixing is also very important for the moisture distribution. The correct amount of water should be available everywhere in the substrate. After mixing, the moisture content should be 60 – 65%.

Harvesting

The mushrooms are ready for harvesting in five days (if the temperature is between 15 and 20 °C) or two to three days (at higher temperatures). It will take another five to nine days for the second flush. There is so much variability among strains and substrates used that it is difficult to give periods for fruiting. Typically, it will take about one week before new primordia are formed, but much depends on the local climate conditions and the climate control in the growing rooms.

Harvesting is performed by gently pulling or twisting the mushrooms from the substrate. Only very little substrate should be pulled out. Harvesting can continue as long as the mycelium remains white and firm. In total, three or four flushes can be harvested. When the substrate becomes soft and colorless, it is time to remove it from the house (Ryvarden, Pierce and Masuka 1994). Mushroom yields vary according to biological factors, environmental conditions, as well as pests and diseases present during cultivation. The yield from commercial production is about 20% of the weight of the wet substrate of fresh oyster mushrooms.

Pests and diseases

Green moulds

Green moulds are the most common contaminants at the moment of spawning. They will also grow if there are any cracks in the bags. The substrate should be kept dry in between the flushes. Moist conditions promote contamination, and contamination attracts flies, which spread contamination even further (Stamets, 2000)

Mushroom flies

Mushroom flies are attracted by the odour of the mycelium. They may occur in batches of old bags. The flies as such do not harm the mushrooms but they lay eggs between the lamellae and on the mycelium. Larvae will hatch from the eggs and will spoil the crop. The only solution to tackle this problem is to consistently remove the old bags as well as the contaminated bags, and to clean the rooms.

Mites

Mites may crawl into the incubation bags (if bags with plugs are used) and contaminate the substrate. However, the plastic bags will generally form a good barrier against insects, which makes this method of

substrate packaging most suitable for countries with a high infection pressure (**Cultivation, 2005**)

The desire for sustainable projects for non-government organizations and the need of reliable sources of income for small scale farmers is ever increasing globally and particularly in the 'developing world'. Within international development 'sustainability' is a buzz-word often bandied round, with many communities and organizations slowly helping to transform traditional top-down development models to investing in more grass-roots, long-term, locally applicable solutions. Small scale income-generating businesses such as mushroom production may be one of many viable options for many rural Ugandan communities gaining greater sustainability. (Tiffin, 1998)

Through the provision of income and improved nutrition, successful cultivation and trade in mushrooms can strengthen livelihood assets, which can not only reduce vulnerability to shocks, but enhance an individual's and a community's capacity to act upon other economic opportunities. The estimated number of known useful mushrooms, defined as edible and medicinal species, is thought to be around 2,300 globally. The mushroom has strong associations with particular cultures, for example in traditional Chinese medicine and has long been revered by humans for their nutritional and medicinal values. Traditionally mushrooms were wild-harvested and in the past century their commercial production has gained popularity for both their medicinal and nutritional value. The increased interest in the commercial growing of mushrooms highlights the recognition of their nutritional value as well as their potential for generating income through trade. The growth of mushrooms across the tropical and temperate zones is dominated by 12 species commonly grown for medicinal purposes and/or food. (Hall *etal*, 1998).

The commercial markets are dominated by three species: *Agaricus bisporus* (common button), *Pleurotus spp.* (oyster) and *Letinula edodes* (shiitake), which represent three quarters of mushrooms cultivated globally. The small-scale production of mushrooms has been proposed by the FAO as a viable option for increasing incomes and enhancing livelihoods. The low input requirements of mushroom production give a solid case for not only helping to improve food security by increasing diversity, but may help reduce vulnerability to poverty by strengthening livelihoods as a quick fast yielding source of food and reliable source of income. Despite its theoretical simplicity, mushroom growing for FWS has provided an opportunity to learn and has brought challenges to help us develop our practices, and seek on-going training. As an expansion to FWS' permaculture projects, in 2011 a pilot project was initiated by a permaculture volunteer. In two small, disused, adjoining concrete toilet cubicles measuring 1m2, two shelves were erected to house the mushrooms. Spore was acquired through JKUAT and the process of sterilizing the substrate was begun, with fingers crossed. The first attempt was initiated during one of the coldest months of the year; July, when the coldest average temperature may reach 15°C (59°F) and despite having only 9 small bags filled with locally-sourced substrate impregnated with spores, the results were inspiring. Sold locally through our established vegetable markets in the first two months we generated 82,000tsh ($51 USD).

Mushroom cultivation activities can play an important role in supporting the local economy by contributing to subsistence food security, nutrition, and medicine; generating additional employment and income through local, regional and national trade; and offering opportunities for processing enterprises. (Wesonga, and Losenge 2002)

Medicinal value

There has been a spectacular growth in, and commercial activity associated with, dietary supplements, functional foods and other products that are 'more than just food'. Medicinal fungi have routinely been used in traditional Chinese medicine. Today, an estimated six percent of edible mushrooms are known to

have medicinal properties and can be found in health tonics, tinctures, teas, soups and herbal formulas *Lentinula edodes* (shiitake) and *Volvariella volvacea* (Chinese or straw mushroom) are edible fungi with medicinal properties widely diffused and cultivated. The medicinal properties of mushrooms depend on several bioactive compounds and their bioactivity depends on how mushrooms are prepared and eaten. Shiitake are said to have antitumour and antiviral properties and remove serum cholesterol from the blood stream. Other species, such as *Pleurotus* (oyster), *Auricularia* (mu-er), *Flammulina* (enokitake), *Termella* (yin-er) and *Grifola* (maitake), all have varying degrees of immune system boosting, lipidlowering, anti-tumour, microbial and viral properties, blood pressure regulating, and other therapeutic effects. Mushrooms represent a vast source of yet undiscovered potent pharmaceutical products and their biochemistry would merit further investigation (Susuki, & Ohshima, 1974)

During the past 50 years, several major advancements in medicine came from lower organisms such as molds, yeast, and mushrooms (fungi). The first antibiotics were extracted from fungi. Penicillin, tetracyclene and aureomycin, derived from molds, were hailed as a wonder drug for infections and communicable diseases. We have also seen a rapid pace of advancement in organ transplant due to Cyclosporin, a drug derived from a fungus that uses insects as its host. Cylcosporin suppresses the immune system of transplant patients hence lowering tissue rejection rates. These lower organisms are used to commercially produce bread, beer, wine, cheese, organic acids, and vitamins - including Vitamin C. The Vitamin C tablet you take may be a byproduct of fungal growth.

Mushrooms are valuable health food - low in calories, high in vegetable proteins, chitin, iron, zinc, fiber, essential amino acids, vitamins & minerals. Mushrooms also have a long history of use in Traditional Chinese Medicine. Their legendary effects on promoting good health and vitality and increasing your body's adaptive abilities have been supported by recent studies. These studies suggest that Mushrooms are probiotic - they help our body strengthen itself and fight off illness by maintaining physiological homeostasis - restoring our bodies balance and natural resistance to disease. The compounds they contain have been classified as Host Defense Potentiates (HDP) which can have immune system enhancement properties. That is one of the reasons they are currently used as adjuncts to cancer treatments in Japan, and China. "In Japan, Russia, China, and the U.S.A. several different polysaccharide anti-tumor agents have been developed from the fruiting body, mycelia, and culture medium of various medicinal mushrooms (Lentinus edodes, Ganoderma lucidum, Schizophyllum commune, Trametes versicolor, Inonotus obliquus, and Flammulina velutipes). Both cellular components and secondary metabolites of a large number of mushrooms have been shown to affect the immune system of the host and therefore could be used to treat a variety of disease states."

In the Dominican Republic, a nationwide survey conducted in 1992 revealed that 330,000 micro and small enterprises created employment for 26 percent of the economically active population. Furthermore, a significant portion of this is represented by women (38 percent).

It is argued that the households of women have benefited more by micro enterprises because women tend to devote this income, proportionately, more to their households than do men. Therefore, it is recommended that micro enterprise training programs are less gender-neutral and should be diversified to address the central challenges of women's businesses

Contribution of mushrooms on wealth creation and investment

These social enterprises are developed by local individuals or groups to respond to local issues and opportunities. Through the provision of goods or services, they directly benefit the community in which the enterprise is situated. The enterprises are often collectively-owned businesses that meet local needs by

serving communities of place, typically where private sector or government services have been withdrawn or where there is a conspicuous gap that needs to be filled. They take a range of governance forms and, in many ways, cross over most of the other social enterprise types (Osterloh and Rota, 2007).

These enterprises provide grassroots responses to local issues. Their diverse and fluid form reflects the fact that community needs differ dramatically from one locality to the next. They are driven by a belief that innovative solutions to community problems should be driven, led, and owned by local community members. A range of outcomes may be achieved through community enterprises, given they are diverse and incorporate characteristics of many other social enterprise types. Some outcomes include training and employment of community members, reinvestment in the community, and serving as an accessible, local source for goods and services required by the local community (Frost et al., 2010).

Mushroom growing can help reduce vulnerability to poverty and strengthens livelihoods through the generation of a fast yielding and nutritious source of food and a reliable source of income. Since it does not require access to land, mushroom cultivation is a viable and attractive activity for both rural farmers and peri-urban dwellers. Small-scale growing does not include any significant capital investment: mushroom substrate can be prepared from any clean agricultural waste material, and mushrooms can be produced in temporary clean shelters.

They can be cultivated on a part-time basis, and require little maintenance. Indirectly, mushroom cultivation also provides opportunities for improving the sustainability of small farming systems through the recycling of organic matter, which can be used as a growing substrate, and then returned to the land as fertilizer.

The benefits of growing and selling mushrooms enable farmers to buy livestock (chickens and goats), pay school fees and household goods, and a number of farmers invest in expanding their mushroom production. The benefits to the household have also included improved nutrition. (Consumption of animal protein is low in most households, even those with livestock.) Oyster mushrooms are rich in protein and provide an affordable alternative. A number of households have now adopted a recommended preparation of mushroom stew, which is eaten with rice or a stiff porridge. (Cheung, 2005)

Many scientific studies performed in universities and medical facilities have produced volumes of studies on the medicinal effects of mushrooms on many different ailments affecting humans. It is important to maintain both your good health and your body's balance. Each time we get sick, a potential vulnerable spot may open in our body's defenses. Over time cell mediated immunity may become inadequate or malfunction. This could allow multiple genetic mutations in the same location (malignant transformations) to reach cell proportions resulting in abnormal or malignant growth. The process is generally quite slow and takes many years and may take many bouts of illness to manifest itself. The objective should to maintain a well-regulated body. If we can keep our immune system functioning efficiently, minimize the frequency and severity of all illnesses, and recover quickly, we are more likely to enjoy a healthy quality of life.

Most studies on the health benefits of mushrooms for humans have focused on immune enhancement properties. Complex sugars and their derivatives are able to stimulate a higher level of cytokine production in humans. Cytokines are proteins produced by the immune system to facilitate communication between cells. Complex cellular processes such as proliferation and differentiation are regulated in part by extra cellular signaling molecules: for example, polypeptide growth factors, cytokines, and peptide hormones. Many exert their mitogenic effects by binding to specific cell surface receptor protein tyrosine kinases. This interaction triggers numerous biochemical responses, including changes in phospholipid metabolism,

the activation of a protein phosphorylation cascade, and the enhanced expression of specific immediate-early, delayed-early, or late response genes. Some common cytokines include interleukins, interferon, natural killer cells (NK cells) activating factors and tumor necrosis factors.

Vitamin and mineral supplements should be taken on a regular basis to be most effective. A balanced diet, sufficient rest, a positive outlook, and regular consumption of nutrient supplements including Nutraceutical mushroom products can increase the odds of obtaining and maintaining good health. Many times we get sick because of deficiencies or imbalances in our systems that allow pathogens to attack our bodies. Today, we live in artificial environments where air is filtered and food is processed. We frequently administer antibiotics and a variety of interventions to cure our ailments or mask their symptoms. Our immune systems are no longer being challenged as often as they would be in a more natural environment. A major function of our immune system works like a computer data file. Pathogens invading our systems are being monitored constantly. Information on new pathogens and other molecules is stored in our immune data base. When hostile pathogens attack our bodies, our immune systems are more capable of mounting fast immune responses if we have a substantive data base of foreign substances. However, with a meager data base in an under developed immune system, we are incapable of dealing with many pathogens. A slow immune response will not be able to cope with an onslaught of pathogens. Mushroom Nutraceuticals can provide a regular benign challenge to the immune system by presenting many different molecules to the data base in a non-hostile manner. It has been remarked that with mushrooms supplements we have a "24 hour Nautilus for our immune system"

Mushroom Enterprises and their Environment

Mushrooms, particularly cultivated ‘large mushrooms’ react with extreme sensitivity to changes in their environmental conditions. This can be easily observed in the morphological diversity of the fruiting bodies of a given phylum, if they grow under different environmental conditions. Consequently, certain environmental and ecological influences, characteristic of the given breed, allow the development of extensive morphological varieties. The disadvantage in the course of mushroom production and selective breeding is: if the given breed is grown on differently composed substrates, in premises with different climates, with different production technologies, it may yield multifarious morphological markers. Because of the changes in environmental factors and the characteristics of a given breed, the morphological spectrum may range from deformed fruiting bodies to fine fruiting bodies that carry the characteristics of the breed.

Mushrooms are not labor intensive and can be undertaken as an additional livelihood activity which fits around other household or productive tasks. People with physical disabilities are fully capable of accomplishing all necessary tasks in mushroom cultivation, even if some modifications in construction, equipment and tasks are required.

People with mental disabilities can also grow mushrooms because several of the key tasks are repetitive and can be easily learned. Mushroom cultivation can also be a feasible livelihood activity for chronically ill or weak people, who may benefit from working in a cooler, shaded environment with minimal physical exertion, in contrast to the more arduous work input often associated with other horticultural products. Many societies have considerable traditional knowledge and skills relating to farming activities and the management of natural resources, but the cultivation of mushrooms are a relatively new activity throughout much of the rural developing world. Qualities identified as being useful for mushroom cultivators include the ability to carry out operations on time, be attentive to detail, be vigilant about pest invasions, and for marketing, excellent skills in public relations.

Mushrooms are best cultivated indoors in a dark, cool and sterilized and enclosed building. This enables the growing conditions to be maintained most suitable for mushrooms, in terms of temperature, humidity, uniform ventilation and substrate moisture levels. Unwanted contaminants, moulds and sunlight can also be kept away from the crop. Any small room with ventilation and a cement floor can be used, and it should be possible to close off the room to the outside by shutting ventilation and doors. The interior should be arranged so that it is easy to clean at the end of each cropping cycle. The mushroom house should be well insulated (by using, for example, fibre glass wool or expanded polystyrene) to maintain a steady temperature, and concrete or clay tiles are preferable over corrugated metal for roofing.
Small rooms can be made from wooden poles with stretched sacking covering the frame, and covering the sacking with a wet cement and sand mixture to produce a hard protective skin.

METHODOLOGY

Introduction

The rationale for this chapter is to make readers and other researchers understand how the findings were reached at and help in data analysis. The chapter explains the research design that was followed in undertaking the study, study population, sample selection procedure, data sources, data collection methods and instruments, data processing and analysis, research procedure, ethical considerations, limitations and delimitations.

Research design

Pauline (2007) defines research design as a plan of what data to gather, from whom, how and when to collect data, and how to analyze the data obtained. In order to achieve the objectives of the study, a retrospective-prospective and analytical study design was adopted. According to Kumar (2005), retrospective-prospective studies investigate and focus on past trends in a phenomenon and study it into the future. A retrospective-prospective study design was selected since it enables the researcher to investigate the aspects within the period that took place in the past so as to understand the present situation and use it to predict the future implications of community based enterprises and wealth creation in Mbarara Municipality. The study also used historical profile to analyze the situation before and after engaging in community enterprises activities.

Study population

The study population was including the following respondents, group leaders, and group members. These respondents were selected because they were knowledgeable about the information that the study required and had hands on experience.

Sample size determination and sample selection strategies.

Sample size determination has to do with a number of factors including the purpose of the study, population size, the risk of selecting a bad sample, the level of precision-the sampling error, the confidence level and the degree of variability in the attributes being measured, (Glenn Israel 1992: Sauder et al 2004). The study involved groups involved in mushroom enterprises from three divisions of Mbarara Municipality. That is Kakoba division, Nyamitanga division and Kamukuzi division. Two groups from each division were studied with each estimated to averagely comprise of ten group members. Samples of about 50 respondents were selected depending on the time and resources that were available for this study. The sample size was got by following Morgan where by when the total population is 60 the sample size must be 50 (Morgan, 2005).

Simple random sampling was used because it is none biased, for each element in the population has an equal and independent chance of selection in the sample, (Kumar 2005).

Purposive sampling was also used to select group leaders (5), group members (45), Purposive sampling enables the researcher to get knowledgeable respondents with accurate and authentic information hence improving the validity and reliability of the study findings.

Sources of data

Data was got from primary and secondary sources. Primary data was obtained from the researcher's interaction with the respondents using interviews, and questionnaire methods. Secondary data was attained from relevant social science websites, text books, journals, newspapers, magazines and reviewing records mainly reports. This helped the researcher to generate data and derive meaning full interpretation of the findings.

Data collection methods.

The researcher used questionnaires, interviews, and historical profile methods.

Questionnaire

This is a written list of questions, the answers to which are recorded by respondents (Kumar 2005, Oso and Onen 2008, Mushemeza 2009). Both structured and unstructured questionnaires will be constructed by the researcher and administered to respondents. This is because respondents will be quite a number thus a questionnaire since it works well with many respondents which help the researcher to gather information from a wider population in a short period of time. And gives respondents liberty to fill the questionnaire at their own pace, convenience and mood.

Interview method

This is a person- to – person interaction between a researcher and a respondent for purposes of obtaining data. (Mushemeza 2009: Oso and Onen 2008; Kumar 2005; Cauvery et al 2003). The interview method was considered because of its flexibility and obtaining information which cannot be directly observed. This method helped in attaining people's perceptions, feelings, attitudes, opinions, experiences, values and beliefs about community based enterprises and wealth creation in Mbarara municipality. The researcher engaged key respondents like group leaders to obtain data from them using this interview method.

Historical profile

The study also used historical profile to analyze the situation before and after engaging in mushroom enterprise activities to get meaningful findings.

Data analysis

Data was analyzed according to research methods used. Qualitative data was analyzed thematically by deriving themes from objectives to be described in details. This analysis utilized data collected from questionnaires and interview guide. With quantitative data, SPSS computer software was used to run frequencies and creating tables and graphs.

Quality control

Validity of instrument

As described by Amin (2005), validity is the degree to which a test measures what it is supposed to measure. To ensure validity of research instruments; pilot testing of copies of questionnaire will be carried out in two community based enterprises. This helped to assess the language clarity, ability to tap information from respondents, acceptability in terms of length and ethical consideration for clients.

Qualitative validity of instruments was ensured by processing data into manageable proportions through

editing, coding, and tabulation methods. Data collected was checked while still in the field to ensure that all questions are answered. Contradictory information was removed if found useless. By coding, an answer to each item on the questionnaire was classified into meaning full categories.

Reliability of instruments

An instrument is reliable if it measures consistently what it is supposed to measure. According to Kumar (2005), if a research tool is consistent and stable, predictable and accurate, it is said to be reliable.

Limitations of the methodology

Limitations are the boundaries that restrict the research scope and may cause difficulty in completing the research (Cooper & Schindler, 2002). Many limitations may exist in this research. This study was limited to exploring the relationship between community based enterprises and wealth creation. A focused sample of these enterprises was selected based on their willingness to share relevant information. The results of this study were limited to some respondents who provided the wrong information.

Ethical considerations

The issue of ethics is important in research. Despite the high value of knowledge gained through research, knowledge cannot be pursued at the expense of human dignity. (Oso and Onen 2008). On this issue, Bulmer (2001) cautions us;

'… a matter of principled sensitivity to the rights of others. Being ethical limits the choices we can make in the pursuit of truth. Ethics say that while truth is good, respect for human dignity is better, even if in the extreme case, the respect of human dignity leaves one ignorant of human nature.'

In order to respect informed consent as an ethical principle, all interviewees that participated in semi structured interviews were informed about the procedure of the study in which they were requested to participate and the researcher's intention to use interview data was purely for academic purposes.

Approach to respondents was polite and no single respondent was forced to answer any question. The researcher was tactful in all possible ways to make respondents feel comfortable as well as assuring them that the data was to be treated with confidentiality and strictly for academic purposes.

DATA PRESENTATION, ANALYSIS & INTERPRETION

Introduction

This chapter presents analyses and interpretation of the data collected.

Table showing Sex of respondents

Sex of respondents	Frequency	Percentage
Male	12	24
Female	38	76
Total	**50**	**100**

Source Field data 2014

From the study findings 12(24%) of the respondents were males while 38(76%) were females. The females were many compared to males in that mushroom growing is commonly practiced by females since it is a domestic economic activity and can be practiced around the homesteads along some other crops.

Table 2 showing Name of the groups visited

Name of group	Number of respondents
Mbarara Agriculture Resource Centre (MARC)	12
Munyambe Nyimukye group Lugazi	12
Katete mushroom growers limited	10
unity for strength Nyamitanga	8
Kyapotani farmers group	8
Total	**50**

Source field data 2014

Table 1, indicates that majority of the respondents were from Mbarara Agriculture resource Centre (MRAC) located in Muti cell Mbarara municipality, Munyambe Nyimukye group found in Lugazi,a suburb of Mbarara Municipality, Katete mushroom growers limited and unity for strength in Nyamitanga plus Kyapotani farmers group were all visited and here presented to represent the study in Mbarara Municipality. All groups were given equal chances of participation.

Table 1 showing Members Level of Education

Level attended	Number of members
Primary education	30
Secondary education	12
Tertiary education	0
None	8
Total	**50**

The table presents that in terms of level of education, majority 30 mushroom cultivators are primary drop outs and only 12 members have secondary level of education, followed by 8 members having no education at all. Thus, the findings of the study indicate that mushroom cultivation is still limited to the people having poor academic background.

The start of community based enterprises

Table 4 showing the start of community based enterprises

Starting year	Response
1998-2000	15
2001-2003	20
2003-2007	15
Total	**50**

Source: Field Data, 2014

Table 2, indicates majority 20 of the respondents starting between 2001-2003 years. This was attributed to success stories from the groups that had started earlier and the encouragement following the NAADS

approach to support groups.
The table also indicates that 15 of the respondents started in 1998-2000, and this was attributed to the power of group work which helped them to start enterprises through group contributions.
The table further indicates that 15 respondents revealed to have started between 2003-2007 years. This was after the government introduced prosperity for all that encompasses the SACCOs approach as well as NAADS.

From the above analysis, it can be concluded that the anticipation of the groups are in line with the government poverty alleviation program approaches. It is therefore worthy to establish the contributions of community based enterprises and wealth creation.

Number of members in community based enterprises

Table 5 showing Number of members

Groups	**Number of members**
2-5 members	17
6-10 members	23
11-16 members	10
Total	**50**

Source: Field Data, 2014

From the table, majority 23 respondents revealed they were between 6-10 members, this number was based on trust and the neighborhood and the power to pool resources.
In addition 17 respondents put that they were between 2-5 members. This was as a result to the belief and a feeling that many people in a group will delay decision making.
Finally 10 respondents revealed that they were between 11-16 members. This was as a result of massive sensitization and group mobilization.

Reasons for starting community based enterprises

Respondents were asked why they decided to start the above different enterprises and the responses are presented in table 4

Table 2 Showing Reasons for starting up community based enterprises

Reason	**Number**	**Percent**
Generate income	15	30.0
Create employment	17	34.0
Social aspect	10	20.0
Financial accessibility	8	16.0
Total	**50**	**100**

Source: Field Data 2014

From table 6, the highest number 17 (34%) of the respondents revealed that they engaged in community enterprise to create themselves employment. This came about because they are semi-educated and therefore could not find formal jobs to sustain their families.

The other 15(30%) of the respondents accounted their reason as to generate house hold income. this they say they have other income sources but not enough and therefore decided to diversify to mushroom for increasing family income.

The next group 10(20%) started the enterprise for social aspect. They attribute the start to the desire to collectively come together and know one another in the course of their designated work schedules, create friendship while serving their communities and earning as well.

Lastly 8(16%) of respondents started the enterprise for financial accessibility. They believe that they can easily access loans when they are together and organized to facilitate their enterprises. One can therefore conclude that community based enterprises are vital and part of the solution for majority of community needs and problems basing on one's perspective.

Group activities

Table 3 showing Group activities

Activities	**Frequency**	**Percent**
Internal rules	12	10.8
Roles and responsibility	10	9
Identifying other IGAs	34	31
Regular meetings	15	14
Marketing	23	21
lobbying	17	15.3
Total	**111**	**100**

Source: Field Data 2014 (Multiple responses)

It is indicated in table 7, that majority 34 (31%) of the respondents revealed of Identifying other IGAs as the major activity, respondents established that group members identify other income generating activities to support households.

In addition 23 (21%) of the respondents revealed marketing of their produces as the second group activity, members are mandated to look for market for their produces to gain high prices from their products. While 17 (15.3%) of the respondents revealed lobbying as another group activity, this is aimed at creating opportunities for the group to realize development.

15 (14%) of the respondents reported regular meetings as another group activity, respondents argued that group members attend meetings to plan, discuss way forward for the group and bring on board new ideas and innovations as well as evaluating the group activities.

12 (10.8%) of the respondents revealed internal rules as another group activity, respondents agreed that all members participate in formulating internal rules to govern members and finally 10 (9%) of the respondents revealed establishing Roles and responsibility as another activity of group members. From the above analysis, it can be concluded that members involve different activities to promote the group to achieve its goals and objectives. Therefore the activities are conducted in a group to promote equal

participation of the members at different level; this is done to create sense of ownership and belonging in an interview with the group leaders ***"We engage in activities as members equally to ensure effective participation".*** This is so because the group was formed to improve the wellbeing of all the members.

Kg of Mushroom produced weekly.

Respondents were asked the number of Kilograms harvested per month and respondents gave different responses as summarized in the table

Table 4 showing Kilograms harvested

Kgs per months	No of respondents
50-100	8
150-200	12
250-300	13
350-400	7
450-500	4
550-1000	6
Total	50

Source: Field Data 2014

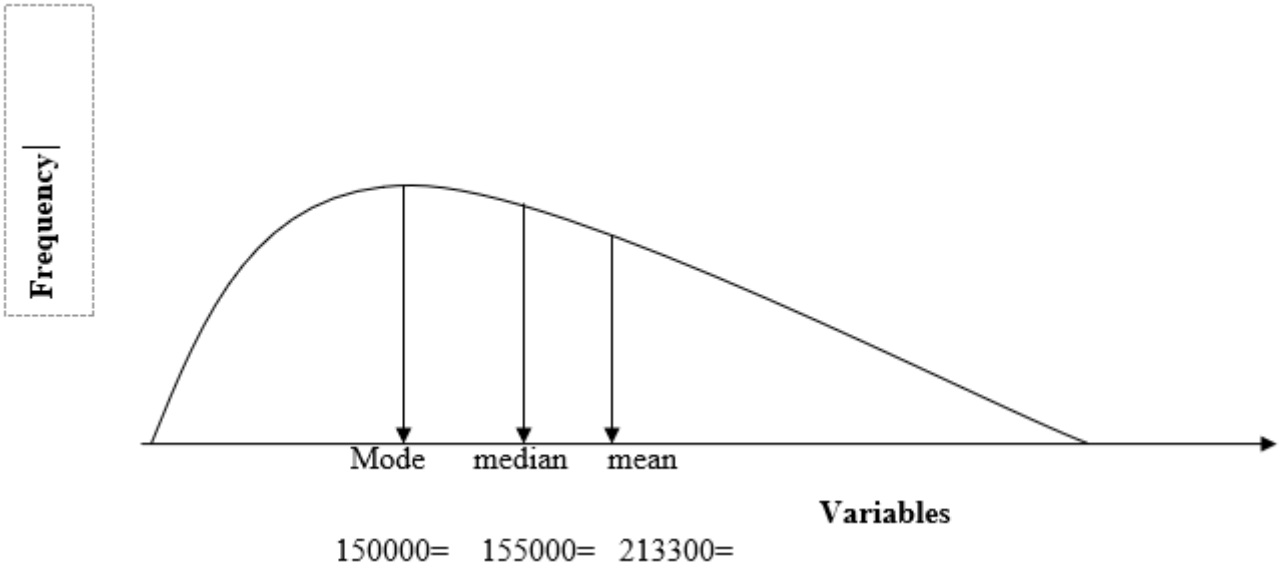
It is indicated in the table that majority 13 (26%) of the respondents produce between 250-300 kg of Mushroom per week, 12 (24%) of the respondents produce 150-200 kg of Mushroom, 8 (16%) of the respondents revealed producing 50-100 kg, 7 (14%) of the respondents produce 350-400kg while 6 (12%) of the respondents produce 550-1000 and finally 4 (8%) of the respondents revealed 450-500 kgs. From the above analysis, mushroom production is high. It is therefore important to assess its contributions towards wealth creation.

Incomes generated from Mushroom enterprise per month

From the study, group members were asked the amount of money raised from their enterprises and the analysis is presented in the table below.

Table 5 showing descriptive statistics for Income generated from mushroom enterprises per month

Mean	213300
Standard Error	24116.89644
Median	155000
Mode	150000
Skewness	0.923557624
Range	690000
Minimum	10000
Maximum	700000
Sum	10665000
N	50



From the table and the distribution curve above, the mean income generated from the enterprises per month is 213300 (Two hundred Thirteen thousand three hundred Shillings). The maximum income generated from the enterprise is 700,000 (seven hundred thousand Shillings) and the minimum was 10,000 (ten thousand shillings). This gives a range of 690,000 (six hundred and ninety thousand shillings. The modal income generated from the enterprises was 150,000 meaning that most of the respondents generated one hundred and fifty thousand shilling a month from the enterprises. The value of skewness is 0.92 which is greater than zero. This implies positively skewed distribution with the mean heavily skewed to the right as described by the tail of the distribution. The mean therefore is always in this case most affected by extreme values, whether higher (skewed to the right) or lower (skewed to the left).

Since the distribution is positively skewed, this means that the mean monthly income generated per month from mushroom enterprise is more likely to proliferate and generate the expected wealth for the community if the farmers improve on the technology, gain skills and knowledge about mushroom management and expand their business to produce more and earn much.

Table 6 showing Enterprises invested

Responses	**Frequency**	**Percent**
Grocery	10	20
Poultry	15	30
Retail shops	17	34
land	8	16
Total	**50**	**100**

Of the 50 respondents that participated in the study, it was established that majority 17 (34%) of the respondents revealed retail shop as the major enterprise developed as a result of the income generated from mushroom enterprises, this is aimed at supporting the household income necessary for responding to daily needs. While 15 (30%) of the respondents revealed poultry keeping as the second income generating enterprise set up by group members, it was found out that members keep between 70-200 chicken, 10

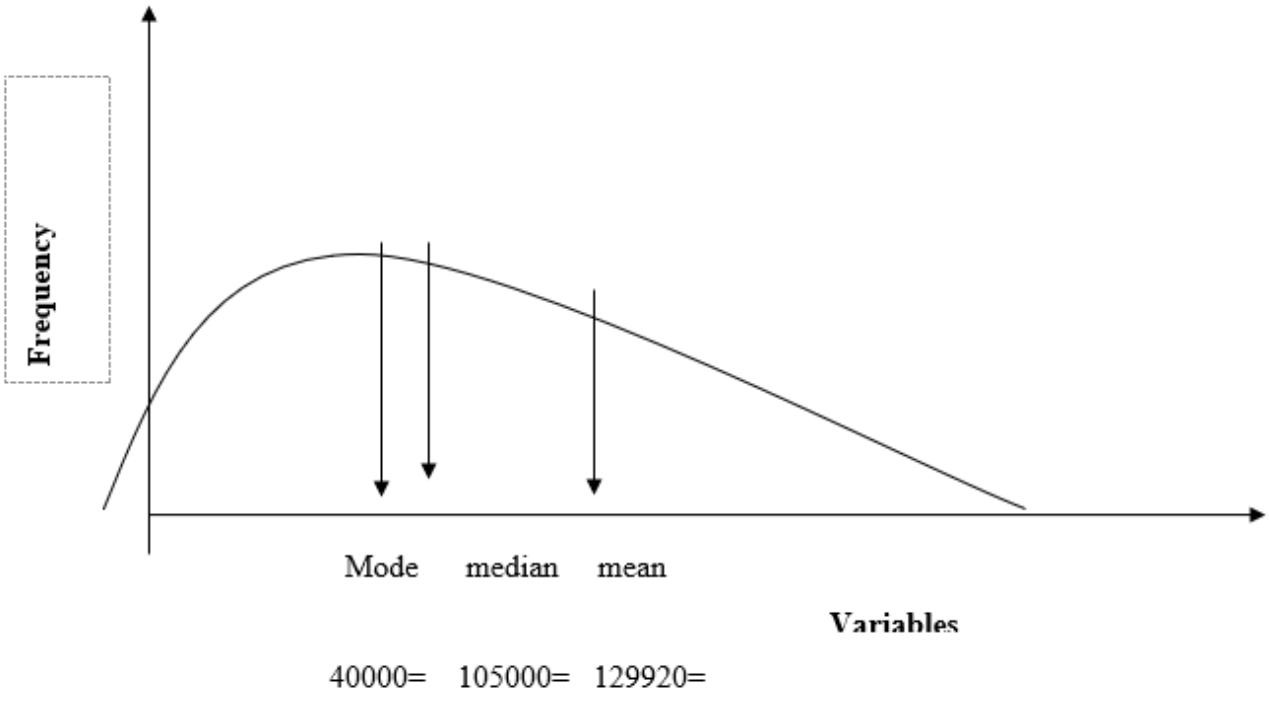
(20%) of the respondents revealed groceries as another enterprise to generate more income and finally 8 (16%) of the respondents revealed land as the last investment.

Income generated from other household based enterprises per month

Respondents were asked the income generated from other enterprises invested in at household level and the analyses are presented below

Table 7 showing Descriptive statistics for Income generated from other enterprises per month

Mean	126920
Standard Error	12042.80935
Median	105000
Mode	40000
Skewness	0.609808964
Range	280000
Minimum	20000
Maximum	300000
Sum	6346000
N	50



From the table and distribution curve above, the mean income generated per month is 126920 (One hundred twenty six thousand nine hundred and twenty shillings). The maximum income generated from the enterprise is 300,000 (Three hundred thousand shillings) and the minimum was 20,000 (twenty thousand shillings). This gives a range of 280,000 (Two hundred and eighty thousand shillings. The modal income generated per month was 40,000 meaning that most of the respondents generated forty thousand

shilling a month. The value of skewness is 0.609 which is greater than zero. This is a positively skewed distribution meaning that most incomes are skewed to the right with the extreme values.
Given that the distribution is positively skewed with the mean which is higher compared to mode and median, this means that income generated from other enterprises is too low compared to incomes generated from mushroom growing.

How the income from household based enterprises is used

Table 8 showing Use of the incomes generated from other enterprises

Use of generated income	Number of participants	**Percent**
Reinvesting	38	55.8
Schools fees payments	12	17.6
Responding to family needs	18	26.5
Total	**68**	**100.0**

Source: Field Data 2014

From the table, majority 38 (55.8%) of the respondents revealed reinvesting as the major use of the income generated from other enterprises created, this is aimed at sustaining household wealth creation.
While 18 (26.5%) of the respondents revealed responding to family felt needs as the second use of the income generated and finally 12 (17.6%) of the respondents revealed that they invest the income in school fees at various education levels.

Percentage of income saved

Table 9 showing percentage of the income saved

Percentage saved	**Number of participants**
1-5	12
6-10	10
11-16	14
17-24	11
25-30	3
Total	**50**

Source: Field Data 2014

From the table, it is indicated that majority 14 (28%) of the respondents revealed that they save 11-16 percent of the income for the future, 12 (24%) of the respondents save 1-5 percent of their income while 11 (22%) of the respondents save between 17-24 percent of their income, 10 (20%) of the respondents save between 6-10 percent of their income and finally 3 (6%) of the respondents revealed saving between 25-30 percent of their income.
From the above analysis members are saving for future however the percentage is still small.

Do you think this percentage will increase in the future

Table 10 showing Percentage will increase in the future

Responses	Number of participants
Yes	35
No	15
Total	**50**

Source: Field Data 2014

From the table, majority 35 (70%) of the respondents agreed that they think the income will increase in future while 15 (30%) disagreed that the income will not increase in the future this was attributed to increasing cost of living in Mbarara. Despite the disagreement by some members, majority have hopes of increasing the future savings.

The results from this chapter confirmed the hypothesis that mushroom growing as a community based enterprise creates wealth among participating households in Mbarara municipality. However, it is at a slow rate due to inadequate skills and failure to treat the enterprise as a commercial one for increased income.

DISCUSSION AND CONCLUSION

Introduction

This chapter presents the discussion of the findings, conclusion and recommendations for the study according to objectives

Mushroom enterprise and income generation

The first objective of the study sought to find out whether participating households generate income from the mushroom enterprise. The study has shown that there was a positive significance financially due to mushroom growing as told by one respondent from Kyapotani farmers group who praises the crop. She was quoted *saying*

I am an old woman who had no job to meet my daily needs but ever since I joined my fellow women and they taught me how to care for mushrooms, I can buy whatever I want without begging my husband who will still not give me whatever I will have asked him. I buy my own dresses; I bought my two goats out of this enterprise and sometimes contribute to the school fees.

This is in line with Cheung, L.M.2005. Who advocates for the less capital crop that gives yields and cash in the shortest time of three weeks that the benefits of growing and selling mushrooms enable farmers to buy livestock (chickens and goats), pay school fees and household.

It is further supplemented by Kilkenny e t. al. 1999 statement that the more community-oriented a society is, the more its members will be entitled to certain societal benefits, including the satisfaction of needs connected with survival, such as basic income, health care, and safety. With that entitlement comes the understanding that the claim to these benefits overrides, to an increasing extent, the right of members' unfettered use of private property.

Basing on the study findings, it is evident that mushroom enterprise generates income from the view of a respondent who says:

Income from mushrooms supplemented my cash flow, providing me with a safety net during critical times, preventing my family from falling into greater poverty. I can confidently tell you that this business acted

as a stepping stone to permanently lift me and my family out of extreme poverty.

With support from UWESO, mushroom growers from Mbarara Agricultural Resource Center (MARC), a group in Kamukuzi have gradually been transformed into a business unit through the formation and registration of mushroom savings and credit association, which is responsible for the effective marketing of mushroom products for the benefit of members.

Basing on the study findings, it was further found out that mushroom enterprises have helped in generation of income among participating members. Study findings indicate that members share the profits monthly and annually as prescribed by the regulations of the group. The income however depends on the type of enterprises as table 6 indicates. In a discussion with Katete Mushroom growers it was shared that

"Members share profits every month and every member is mandated to save proportion of the income".

This is done to enable members to accumulate capital for household and individual investment.

From the study results, members earn a profit. And basically profitability shows the ability of a business firm to earn profit over a period of time because a business firm always earns profits to survive and grow over a long period of time. The overall measure of success of a business firm is the profitability which results from the effective use of its resources.

Basing on the study findings, it was found out that mushroom growing generate income for members, this was attributed to the fact that it enable members to start income generating activities (IGA), aimed at enabling individuals to get daily income and respond to family needs like food, school fees and medical bills. It was also revealed that community based enterprises like Mushrooms enable members to reinvest their income; this is because daily income enables individuals to clear all bills and plan another investment.

From the study results presented herein, one can submit that Mushroom growing represents a very suitable and empowering income generating option for women in particular, because it can be combined with traditional domestic duties and can be undertaken at home. Several programs related to rural mushroom production have given women the opportunity to gain financial independence, farming skills and higher self-esteem.

Investments created for diversified earnings.

From the study, it was found out that mushroom growing has contributed towards the investment. Farmers invest into income generating activities to supplement the household income and create wealth. It was found out that members have invested in different enterprises. In reference to table 9, majority (34%) of the respondents have invested the income in retail shop as the major enterprises developed as a result of the income generated from mushroom enterprises, this is aimed at supporting the household members in responding to daily needs, (30%) of the respondents revealed poultry keeping as the second income generating enterprise set up by individuals.

It was further found out that members keep between 70-200 layers and broilers as diversified investment. (20%) of the respondents revealed glossaries as another enterprise invested in, members invest in glossaries to generate more income and finally (16%) of the respondents invest in land.

In an interview with the Kyapotani group members they admitted that

"Indeed, we encourage every member to invest for income sustainability. We have all invested in income generating activities and we are proud of our group leaders".

This means that mushroom enterprises empower community members economically by supporting individuals with the skills and knowledge to set up income generating activities.

It was further found out that income generated from income generating activities set up is used in diversification to further create more businesses. This is done to stimulate the income levels of individuals

daily and enable household members to save and accumulate wealth.

It was found out that members have invested in different enterprises as presented in table 13 that, majority (26%) of the respondents revealed that the income generated from the reinvestment is put in education for the children and upgrading for sustainability. (24%) of the respondents revealed land as the second asset of investment while (18%) of the respondents revealed rentals as their investment and the other (18%) of the respondents mentioned business like shops, among others as their areas of investment and finally (14%) of the respondents revealed farming as the last investment made. In an interview with the community members 52 year old Kamunyu reported that

"Mushroom enterprises have contributed towards our household income; we reinvest the income to ensure that we continue to generate more money".

Savings for future investment and sustainability

Finally it was established that mushroom enterprises has enhanced individual savings. Members save proportional of the income for future investments. It was revealed that mushroom enterprises enable members to generate income to save for future developments.

It was established that majority (28%) of the respondents save 11-16 percent of the income for future use, (24%) of the respondents save 1-5 percent of their income while 11 (22%) of the respondents save between 17-24 percent of their income, (20%) of the respondents revealed saving between 6-10 percent of their income and (6%) of the respondents revealed saving between 25-30 percent of their total income. Basing on the study results, it was found out that mushroom growers were making some profits from such an economic venture through sales

For example one respondent noted that, he started with an initial capital of 500,000 and in 2 months he made a profit of 300.000=

Although mushroom enterprises contribute towards wealth creation, it was found out that community involvement is low. This was attributed to lack of trust, commitment and participation among community members. Respondents argued that people feel discouraged from the previous experience of the cooperatives where people made losses. In an interview with the community members, a 46 year old respondent revealed that

"*When we started this project, most women refused to join us on grounds that they lost a lot of money in unions like the cooperatives, savings and credit associations that were started to improve incomes of the people and disappear without any contributions".*

Challenges faced by mushroom growing farmers in Mbarara municipality

Establishing larger scale mushroom cultivation systems require more labor and management intensive. All production systems, to some extent, are vulnerable to sporadic yields, invasions of 'weed' fungi, insect pests, and unreliable market prices for traded goods. Moving from cultivating mushrooms for subsistence use to commercial production and marketing can be quite challenging to local growers. One of the most important aspects of growing mushrooms for commercial purposes is the ability to maintain a continuous supply for chosen market outlets, and if the mushroom enterprise is one of many livelihood activities, producers need to become multi-skilled to manage several enterprises successfully. The initial challenges which mushroom growers have faced include determining the most suitable mushroom to grow and identifying a spawn supplier, organizing available resources to develop a growing system, and assessing requirements for supplying different marketing outlets. In spite of these, starting with home production is an advisable approach.

Mushrooms have not often been actively promoted in the past by agricultural ministry of Uganda. Various

reasons have been cited for this neglect, including: a lack of technical capacity in production techniques with poorly equipped government supported advisory services resulting in interested farmers having to seek technology on their own; comparatively few studies on tropical mushrooms; and a lack of technical skills to produce spawn with suitable strains often hard to find. The market also presents an additional constraint as the prices of mushrooms are out of the range of most local consumers and unable to compete with other protein sources like beef, beans or eggs for a place in the average family diet.

Conclusions

Mushroom enterprise and income generation

The study concluded that mushroom enterprise generate income among participating households. When the skills and knowledge about mushroom management are imparted to farmers, the crop is profitable.

Investments created for diversified earnings.

It was summed up that farmers do invest in other projects for diversified earnings. With income from mushroom, members take to other different investments while still owning up to their original mushroom enterprise.

Savings for future investment and sustainability.

The study concluded that all participating members save for future developments and enterprise sustainability. However, the rate at which they save is still low but they submit that saving rate will increase in the near future.

Mushroom is the right crop which contribute to poverty alleviation due to its low set-up cost, high price margin and quick returns. In addition, mushroom presents growers with high nutritional value as well as income.

Mushroom cultivation can make a valuable contribution to sustainable livelihoods for both rural and urban poor, because they are highly compatible with other livelihood activities, requiring minimal physical and financial inputs and resources, to be undertaken successfully. The study results revealed that mushroom growers were making profits from such economic venture.

In a nut shell, Mushroom is an important crop in the lives of the participating members in Mbarara municipality. Comparing with other agro-economic crops, mushroom cultivation has been found more profitable for its low production cost, and high market price. However, this study found that having farmers with poor academic background and insufficient knowledge from short and shallow training delivered by fellow members, investors make a good profit with their low investment. From their success rate, it can be stipulated that if the educated people get involved in mushroom cultivation, they can earn substantial income from this sector. The profit they get with low capital ventured in their enterprises indicates that Mushroom cultivation can be the main source of income if it can be nurtured professionally.

Recommendation

Government

- There is need for an alternative approach to training which includes a study of market opportunities followed by community skills assessment and the provision of training on site, bringing trainers to the community rather than individuals seeking their own training from different people. This will allow other members of the family and community to benefit, learn the relevant skills, and become involved in mushroom growing process.

- Intervention and outsourcing the international market for these mush rooms to encourage more participants in this enterprise.
- The ministry of agriculture should make this crop popular and fund experts to train and equip farmers with the skills to benefit from the enterprise.
- Government ought to initiate training centers fully equipped with mushroom trainers and experts to help growers acquire skills in mushroom management.
- The study recommends that Higher Institutions of learning like Bishop Stuart University should develop outreach programmes to equip such enterprises with basic skills to enhance their efficiency and high returns leading to wealth creation and sustainable transformation.
- Through mushroom cultivation, it is possible to generate considerable employment opportunity, alleviate poverty, and reduce malnutrition to meet the required protein of Ugandans. Even it is possible to earn a huge amount of foreign currency by exporting Mushroom after meeting the domestic demand. So, government and private initiative is required to encourage people in Mushroom farming and along with the motivation, training to the poor and unemployed people, sufficient supply of Mushroom spawns, providing flexible loan facilities, ensuring suitable price and creating better opportunity for mushroom marketing will undoubtedly bring this sector to a boom and will eventually contribute significantly to the economy of this country.

Farmers

- Growers need to be familiar with fungi life cycles, and the importance of hygiene and sterilization in developing a successful mushroom growing system.
- There is need for community based enterprises to register and acquire an operating license for the people to build trust, join and crack down on those who embezzle and mis- use the funds
- There is need for technology on how to manage the mushroom once it is harvested so that farmers add value and sell at a higher price.
- Participation at national and international trade fairs can provide an opportunity to exchange information about overcoming challenges and improving cultivation and processing techniques.
- New farmers should invest in Oyster mushrooms because they are a good choice for inexperienced cultivators since they are easier to grow. In addition, they can become an integral part of a sustainable agriculture system utilizing organic waste, can be grown on a small-scale with a moderate initial investment, and convert high amounts of substrate to fruiting bodies thereby increasing potential profitability.
- The study recommends that farmers ought to increase on their saving capacity for future investments.
- Basing on the study results, the study recommends farmers to expand on the scope of their mushroom enterprises so as to create wealth.

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