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EDITORIAL

Institut Polytechnique de Byumba (IPB) is involved in research and publication among all lecturers. This is the number 1 of the *Rwanda Journal of Social and Applied Sciences* (RJSAS), the IPB's Scientific Journal which will be published each Semester. It will especially focus on research priorities in various economic, cultural and social sectors, considering the strong linkage between Research and Development.

Under the coordination of the Directorate of Quality Assurance and Research and the Office of the VRAC, this Journal is nourished by five articles from different fields, reflecting the nature of courses offered by IPB and specialization of each author. It aims to produce articles in *Agriculture, Social sciences, humanities and education*.

One of the missions of Higher Learning Institutions in Rwanda is research. This journal will serve as window where IPB researchers lecturers will exchange with the scientific world their studies and achievements. It is a pillar in strengthening research. Clearly, the number 1 of RJSAS is composed by the following topics:

Problem of water supply and management in urban areas: Case study of Kigali City by RWANDEKWE Gilbert. In Rwanda, there is a large unmet water demand by households, while the water supply and infrastructure system were highly incapacitated in handling the increasing pressure exerted on them, and problems are multidimensional.

A Syntactic Analysis of Kinyarwanda Ellipsis is the article of DUSABEMUNGU Théoneste, showing that Kinyarwanda gapping, sluicing and pseudogapping occur either in a coordinate or comparative clause. They have a syntactic/linguistic antecedent or they can syntactically be resolved on the basis of the syntactic structure.

La réintégration psychosociale des filles – mères grâce aux groupes de sociothérapie by MUKAYISENGA Gèneuse. *Sociotherapy groups help single mothers to get psychosocial rehabilitation by expression and management of stressful reactions and they constitute an effective means to render the dignity and the taste of living to them.*

Prevalence study on bovine tuberculosis in Rwanda from 2006 to 2010 by Prof. NSHIMIYIMANA Juvéal, NAHAYO Adrien and MUKAMISHA Peace: Considering this period, the study revealed that tuberculosis is more prevalent in

regions with extensive farming system.

Ethical issues and profitability analysis on performance of Private company “Pfundu Tea company” by NIYIBIZI M. François Xavier. Private company especially Pfunda Tea Company’s top management should support a clear code of conduct with a focus on various ethical issues. Indeed, there is more to ethical issues than profitability and organizational performance.

Our target is to encourage all IPB lecturers to conduct researches for the benefits of Rwandan community, and consequently for promoting quality Education, according to our motto “Educatio, Scientia, Ministeria”.

Father Prof. Dr NYOMBAYIRE Faustin

PROBLEM OF WATER SUPPLY AND MANAGEMENT IN URBAN

AREAS: Case study of Kigali City.

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ABSTRACT

Urban water supply planning and management is confronted by many problems that require urgent redress if growing water demands resulting from increasing informal urbanization is to be met. This research endeavored at determining how public water infrastructure can influence urban growth patterns by urban water supply planning and wastewater management. In this regard, this research formulated four objectives in trying to address this: finding out existing situation of water service and infrastructure, determine socio-technical water supply and wastewater management systems, describe available socio-technical regimes for water supply and wastewater management in the study area and articulate environmental problems associated with poor urban environmental infrastructure provisions. Using a case study approach, a largely qualitative research method of data collection has been adopted. The qualitative designs used include: interviews, focus group discussions and key informants. The quantitative design has been engaged to ascertain the magnitude of the problem. Particularly, the institutional records were reviewed to get descriptive statistics, whose interpretation and meanings were assigned by the researcher. As the study found out in Rwanda, planning decisions on urban water supply are still pegged on convectional approaches that are seen as inadequate in addressing the growing demand for water resulting from increasing urbanization. It is not surprising then, that the study found the existence of a large unmet water demand by households, while the water supply and infrastructure system were highly incapacitated in handling the increasing pressure exerted on them. The view of this research is that these problems are multidimensional.

Key words: Water, urban, planning and management

1. INTRODUCTION

Water infrastructure can be conceptualized as a stock of facilities and installations needed to develop and manage water resources, including delivery, treatment, supply and distribution of water to their users as well as for the collection, removal, treatment and disposal of sewage and wastewater.

Water has always played a central role in human societies, but in order to sustain that role, it needs to be harnessed and managed to increase its productive impact and to reduce the risk of destruction, while protecting aquatic ecosystems, which is crucial for the environment and sustainable development. This could be achieved by developing adequate water infrastructure concomitantly with legal and institutional frameworks for water management. Infrastructure is a broad concept, which embraces many services or facilities such as buildings, health facilities, agricultural or engineering systems, transportation systems, and utility services such as water, electricity, sewerage or solid waste disposal system among others. On the other hand, infrastructure often is intended to mitigate the costs of urbanization, so, it is more important in urban than rural places. An improved water system lowers costs of drinking water and a sewer system offsets some sanitation problems. Water and electricity are thus part of a broad concept of infrastructure derived from a set of public works, traditionally supported by the public sector to enhance private sector production and allow for house hold consumption. A well planned system of water and electricity provision is one of the primary prerequisite for development especially when emphasis is put on the conception, planning and implementation of the necessary facilities.

Provision of adequate water facilities in urban areas is an important investment which safeguards health and well-being of the people living in cities, as well as protection of the environment. The city of Kigali is one of the cities which need to improve its water and infrastructure, since the existing ones are not environmentally friendly and do not provide their citizens with adequate services.

Many informal settlements are confronted by lack of adequate public utility like water and sanitation infrastructure (UN-Habitat, 2006a; WHO/UNICEF, 2006). Indeed, in the rapidly urbanizing areas of developing countries, the demand for water has exceeded the local authorities' capacity to supply clean and adequate

water. Kigali informal areas are not an exception and have been grappling with problems of inadequate water infrastructure supplies, wastewater management, and basic sanitation (Scholz, 2008; Sulaiman & Ali, 2006). About 25% of urban residents and 49% of rural residents have no access to clean and safe water within a distance of 400 meters according to estimates contained in Rwanda Economic Development and Poverty Reduction Strategy report (EDPRS, 2010). This situation is aggravated further by continued degeneration and densification of previous planned neighborhoods (Scholz, 2008), thereby constraining the capacity/performance of existing water supply infrastructure. Moreover, the continued use of the outdated master plans adopted from the colonial days has failed to accommodate the intricacy of dynamic urbanization and the resultant problem of infrastructure provision in Rwanda today (EDPRS, 2010).

2. METHODOLOGY

The researcher used a descriptive case study design. A largely qualitative research method of data collection has been adopted. The quantitative design has been engaged to ascertain the magnitude of the problem. Particularly, the institutional records were reviewed to get descriptive statistics, whose interpretation and meanings were assigned by the researcher.

In this study a combination of all these methods was used to complement one another so that a comprehensive search for answers of research questions could be achieved. Four sectors with poor neighborhoods in Kigali city were selected for data collection

3. RESULTS

The research found that portable water in Kigali City was supplied solely by a state owned public utility for production, transmission and distribution of electricity and water “EWSA”. Besides the capital city, the company provided electricity and portable water to all major towns in the country, with over thirteen (13) drinking water treatment plants and customer service offices. “EWSA” is a semi-autonomous public company with a Director General appointed by the cabinet of ministers. However principal decisions like investment, planning and development budgets were taken by sentinel ministries of MINITERE for water supply projects

in its Water and Sanitation Unit and MININFRA in its Special Unit, for Electricity projects.

The authorities were concerned mainly with the physical improvement of water service and infrastructure provision from traditional (engineering) point of view. Increasing demand for water service was being met by construction of either new water supply lines or improving the old system. “EWSA” also implemented a water-rationing programme since the supply way was below the demand. It was said that “EWSA” involved communities in various activities in the water supply planning process. “EWSA” also said that they support the local community initiatives in providing for their own water needs like in borehole construction and offer support for community based projects. According to “EWSA”, the communities were involved in all stages of water planning and management process including project identification, appraisals, stakeholders’ consultations, surveys and data collection, and project design and costing.

Private participation in water supply in Kigali was limited to informal water supply through vendors and people who owned water houses (Kiosks) belonging to “EWSA”, and given a large number of people without access to tap water in their homes seen in this study, no one could underestimate private involvement in portable water provision in the city.

Access to portable water connections in poor neighborhoods

Portable water supply for 50.2% of people who were found to have tap water connection in their homes was inadequate in poor neighborhoods, with only 51.3% getting water to over 80% of their requirements. The remaining 49.7% did not get enough water although they had tap water connection in their homes.

This percentage had no significant difference too, and was slightly above the data obtained from “EWSA” statistics department, which indicated that 47% of their customers did not get water to fulfill their requirements, and this means more people who were connected to “EWSA” infrastructure in poor neighborhoods did not get adequate water supply.

It was observed that, although the majority of the people (73%) who didn’t have access to portable water connection claimed they were not connected because, they

could not afford water utility bills, they in fact paid more for water than those with tap water connection. This was so because the price of water at “EWSA” water houses and from vendors was 0.04 US dollars (20 Rwf) per 20 liters, which was higher than the 0.01US dollars (4.8RwF) for the same volume, it could cost if they had tap water connection in their homes. This implied that poor people spent more of their hard earned income for this basic service than wealthy people.

Challenges for water and sanitation provision

Water and sanitation provision in poor neighborhoods provided a big challenge to city officials and planners in Kigali. The Kigali City Council had never had a city master plan for settlements and environmental infrastructure as a result slums had developed within few kilometers from the inner city over the years.

In regard to municipal water supply infrastructure provision, the challenges that city officials faced were firstly, fast growing populations in the city, while there was not enough investment on sustainable urban water and wastewater management infrastructure to provide adequate and equitable services to all, particularly people living in poor neighborhoods. Kigali had expanded dramatically over the last fifteen years since 1995, both in size and population. In the last decade alone, the population had increased from 140,000 people in 1991 to about 1,200,000 people in 2011 (MINECOFIN, 2012). This was an enormous population increase in a city given that investment in development of urban infrastructure; particularly water supply did not equally increase.

Another challenge found was lack of financial resources to finance urban water infrastructure projects. Decentralization policy had resulted in districts owning water and sanitation infrastructure, although big projects in water supply in urban areas had remained to be under government owned utility company “EWSA”. The problem was that, while the central government did not provide enough financial resources for water and sanitation infrastructure, the districts which owned these infrastructures were still struggling to mobilize enough funds to sustain most of their development projects.

Applying local knowledge in water supply network maintenance

According to “EWSA” (2010), 40% of water produced was unaccounted for. In addition to water squandering and loss through leaks from the old pipe network, water theft through illegal connections significantly contributed to un-accounted for water in Kigali City. In the transect walk survey conducted during this research; the communities were able to point out areas where illegal connection had been carried out and areas where there were pipe leakages. This information was very useful in managing water supply network and especially so if these communities were engaged in addressing these issues. The “EWSA” strategy that was in use was carry out period and impromptu inspections of its water pipeline network and where illegal connection was found the individual or household was fined and water disconnected, whereas this could be an alternative strategy, it could not in itself solve this problem without inclusion of those directly involved (the communities). The “EWSA” commercial officer also said that they rely on the customer and community goodwill to report leaks, but their actual inclusion could be a lot better than relying just on their goodwill. On the other hand, “EWSA” could establish mechanism that enabled communities to report (confidentially) illegal connection or to report location in the network demanding immediate repair. This could be done for example using the mobile technology where communities could report using short messaging services. The current institutional set up in “EWSA” was inadequate in terms of facilitating communities to give feedback, which was very helpful in improving water monitoring and service delivery.

Using communities in rain water harvesting as an alternative water source

As the research found out, there was a big precipitation potential for rainwater harvesting as an alternative water source for households, which could supplement the unmet household demand and “EWSA” shortfall in production. The survey found out that majority of house roofing within the study area was in good condition, with roofing built of galvanized iron sheet in the sampled households. However, current utilization of rainwater in Kigali City was found to be low. The statistics available revealed that a huge annual rainfall of 3,444.8Mm³/ annum but 56% of this water was reportedly going to waste as surface run off.

The households could be engaged in harvesting of rainwater. Awareness creation

would be an important entry point to the promotion of rainwater harvesting. Financial support through loans or payment schemes could also enable communities to construct rainwater-harvesting structures in their houses.

Supporting community owned and managed alternative water sources

Community owned and private water vendors were found to be in operation in Kigali City. A cross-check at “EWSA” showed that none of them was registered despite the role they played in supplementing households’ water demand especially when the piped water was unavailable. Majority of interviewed households reported to buy water from the vendors. However, “EWSA” had the sole monopoly and the only legally recognized provider of water services in Rwanda. This monopolistic ownership of water provision rights locked out any private entities who in most cases offered better expertise and skills in providing such services than government owned institutions. The consumers tended to receive more benefits and better services where there were many entities competing to provide the same service. “EWSA” services were unsatisfactory to many households. Not surprising then, the major reason for this dissatisfaction was attributed to poor management of water services. According to the respondents, they were very optimistic that if other private providers were allowed to operate, the problem of water shortages they faced could have been far much less. The private providers; be it private persons, user associations or community groups could therefore be used to supplement “EWSA” effort in meeting the increased demand. It has been found elsewhere that informal water vendors played a crucial role and most often they have been found to fill the demand gap where government authorities had been unable to.

Cost sharing in meeting operation and maintenance of water supply costs

From the interview carried out with “EWSA” planning director, the annual government budgetary allocation to “EWSA” was by far not enough to meet both capital and recurrent costs. According to him, this jeopardized operation and maintenance capacity of water supply system and affected the upgrading of existing infrastructure. On the other hand, the survey found out a high willingness for improved water services. This willingness could be tapped to generate more revenue for “EWSA”. However, “EWSA” had very weak established mechanism and customer database to aid in collecting water payment revenue. Community

participation in the management of water supply schemes could help in the cost recovery and was essential for the sustainability of water supply schemes. Greater schemes involvement of water users and efficient payment for water services rendered also helped water supply schemes to remain viable. “EWSA” should apply the cost recovery principle in meeting its operation and maintenance costs by establishing proper mechanism to collect water bills from the communities and water consumers.

Decentralizing water management decision to community level

Water provision in Rwanda was found to be highly centralized. This resulted in highly centralized decision-making leading to insufficient knowledge of local problems. Many households when asked if “EWSA” officials came to inquire about their water-related problems said they rarely saw them, while others said they had never seen them in their neighborhoods. Consequently, the respondents reported very poor technical assistance at local level. In order to place the ownership and management of water supply in the hands of the community, one of the suggestions raised by the communities during the data collection was to decentralize water management decisions at community level. They suggested that “EWSA” should allow and support communities to set up water management schemes at cell level. These schemes should initiate, plan, and manage water provision at sector level or neighborhood level. They also said that “EWSA” never consulted them when implementing water supply projects. “EWSA” should offer facilitative services towards programmes undertaken by the committees. Delegating water management and supply at community level could facilitate unity and cohesion of the community and create self-awareness in wise use of the resource subsequently; this empowers communities to tackle other problems facing them. Community involvement in water supply projects was paramount and often leads to sustainability of such projects. Their involvement could occur right from project inception phase, planning, and implementation to post construction management through their own water committees. This also could have an added advantage in that their sense of ownership and responsibility could be increased.

Inclusion of women in water provision planning and management

During the household survey, more women than men were found to be most active in fetching water for their households, from the review of “EWSA” management

strategies and existing legislations they gave little regards to the role of women in water provision and management in Rwanda. These legislations needed to be engendered in order for women to have a voice in water management decisions by involving women's representatives from their committees on cell's and sector's levels.

Prioritization of community needs

Participatory planning improves implementation capacities because the communities are able to prioritize their needs in order of importance and those most urgent receive strong support during implementation. Majority of households in the area prioritized water supply to be the most needed public utility. Local community knowledge could therefore play a greater role in prioritizing issues "EWSA" proposed for implementation. The communities were able to give real-time information on issues that statistics and records at "EWSA" could not as those records were not up to date. This was because they interacted daily with their environment and know better prevailing problems more than "EWSA" officials who were reported to come occasionally in their neighborhoods to monitor and gather various issues of concern.

Engaging the community in improving water quality and protecting catchment areas

Most shallow wells were found at a risk of bacteriological contamination from solid waste and open dumping sites. The policy guideline for the protection of the water catchment areas was stipulated in the water regulation act and states "no human settlement should be allowed within at least 500 meters upstream of a water source." Despite this, the catchment area was unprotected from human settlement and was at risk of pollution from solid waste and sewerage. Delineation and gazettement of catchment areas needed to be established and communities should be involved in protecting and conserving these areas. It was found out that water resource management is not a one-sector affair. It is therefore imperative for "EWSA" to collaborate with other sectors like survey and urban planning in order to prepare physical development plans that could aid in the management of these catchments areas. Since local communities knew better their environment, they were well placed to implement the protection and conservation measures as could be stipulated by "EWSA".

In Kigali city, the sole responsibility for drinking water provision rested with one agency (“EWSA”). Cross-sectoral linkages with other relevant department and institutions were found to be minimal and weak. Often, lack of coordinated actions led to uncoordinated water resource management and could result in conflicting goals, duplication of roles and unsustainable systems. Inputs of different stakeholders in developing and maintaining water supply schemes needed to be integrated. Local community could apply their knowledge and experience to implement water catchment conservation and protection measures far more effectively than “EWSA” could. Community participation was essential throughout the water planning cycle from initiation, planning, construction, operation, maintenance, and monitoring purposes.

4. CONCLUSION

This research endeavored at determining how public water infrastructure can influence urban growth patterns by urban water supply planning and wastewater management. As the study found out in Rwanda, planning decisions on urban water supply are still pegged on conventional approaches that are seen as inadequate in addressing the growing demand for water resulting from increasing urbanization. It is not surprising then, that the study found the existence of a large unmet water demand by households, while the water supply and infrastructure system were highly incapacitated in handling the increasing pressure exerted on them. With the rampant levels of urban development in the country, it is imperative to the public, researchers, policy makers and donors to understand the role of public infrastructure and individual sectors in influencing patterns of urban growth at the different levels of development. This information will therefore be applicable and important to all the above mentioned parties as a source of reference when drawing water sector development policies and literature to the community and other scholars.

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A SYNTACTIC ANALYSIS OF KINYARWANDA ELLIPSIS

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ABSTRACT

Ellipsis has recently received much attention in syntax. However, not much has been done in Kinyarwanda. ‘A Syntactic Analysis of Kinyarwanda Ellipsis’ presents a thorough analysis and description of three types of ellipsis in Kinyarwanda that are Gapping, Sluicing and Pseudogapping. This research aimed at investigating materials that can be deleted and under what conditions and describing their properties. Data was collected following the introspection method and analyzed by resorting to the minimalist approach. The research entailed the case study, introspective method and grounded theory. The research showed that Kinyarwanda gapping, sluicing and pseudogapping occur either in a coordinate or comparative clause, they have a syntactic/linguistic antecedent and they can syntactically be resolved on the basis of the syntactic structure. The focused material moves out to Spec FocP triggered by focus-feature before it is omitted. As for Gapping remnants, it was observed that they must contrast appropriately with their correlates and that Gapping targets matrix clause. Sluicing is derived, where the focalised *wh*- first moves to Spec of FocP to check the strong [+focus] in the head Foc, and, then moves to Spec of CP to check the strong [+wh] in the head C. Pseudogapping becomes more acceptable once there is sufficient contrast present in the structure. Topicalisation is employed to establish the relevant contrast in Pseudogapping structures.

Key words: syntactic analysis, ellipsis, gapping, sluicing, pseudogapping

1. INTRODUCTION

Since decades, ellipsis has attracted the interest of many linguists. Gengel (2007, 17) noted that, “*The topic of ellipsis represents one of the great puzzles in the theory of grammar, since the generalization of phonologically material or deletion of existing material proves to be an intricate process*”. However, Kinyarwanda ellipsis has not received much attention. Little is known on Kinyarwanda ellipsis properties and even whether they exist. This study attempted to orient research in this area. It

aimed at investigating what can be omitted under what conditions in Kinyarwanda gapping, sluicing and pseudogapping. The following paragraphs introduce ellipsis in generative syntax.

In the literature based on the framework of generative grammar, ellipsis has received different explanations as to where the ellipsis process as such takes place. The analyses put forward roughly fall into two categories. The first category of theories support that ellipsis involves a base-generated empty element, the content of which is then filled in at the LF level, with material recovered from the antecedent. Among the main proponents of this LF-copy theory are, for instance, Williams (1977), Golberg (2005), and Lobeck (1995). In their respective approaches, no syntactic structure needs to be assumed within the ellipsis site. The second category supports that the ellipsis site contains a syntactic structure. Analyses of this group are based on the assumption that the derivation of material that becomes subsequently elided proceeds, in essence, like a regular derivation in non-elliptical structures.

In generative syntax, the role of information structure in ellipsis has also received much attention. The relationship between ellipsis and focus, though, has been a long-standing reality in the theory, with researchers concerned with focus extending their theories to ellipsis (e.g. Jayaseelan (2001), among many others). The relationship between information-structure and ellipsis is found in Winkler (2005) who proposes that the derivation of a sentence proceeds in two cycles, one of which is concerned with the 'normal' course of the derivation, and the second interacting with the first to establish the appropriate information-structural configuration. In this research, information-structural dimension in ellipsis with a feature, a Focus feature, which then interacts with a second feature; the E-feature has been referred to. The next section reviews types of ellipsis under-study, i.e. Gapping, sluicing and pseudogapping.

2. GAPPING

Gengel (2007) treated Gapping as (Tense Phrase) TP deletion and therefore the Gapping derivation can be included in the group of ellipsis structure that involves deletion of the TP layer. Discussing gapping phenomenon Johnson (2000) pointed out that the coordination in Gapping sentences seems to be a lower level than the sentential level. He suggested that the coordinated structures have to be quite

small in the Gapping. He also assumed that overt main verb raising in English, coupled with the hypothesis that the main verbs move to the head of TP, with the auxiliary moving up to the Agr position. To obtain the correct surface of the two subjects, Johnson (2000:96) proposes that the subject of the first conjunct is moved to the higher position, while the subject of the non-initial conjunct remains in its underlying position. Talking about gapping, Johnson (2004) argued also that it is a result of movement. According to Johnson (2004), Gapping is not a result of deletion as assumed Ross (1970) but rather it is a result of the movement of the verb from the conjuncts of the coordinate structure. In other words, the verb moves out of its canonical position from each conjunct in Across-The Board fashion (ATB).

The analysis of Gapping in Kinyarwanda will follow Gengel's (2007) proposition as it copes with the minimalist approach. The gapping derivation that Gengel (2007) proposed builds on the assumption that gapping involves a contrastive topic-contrastive focus structure and assumed that a split-CP structure is necessary for the derivation of Gapping. He suggested that in gapping that subject bears a contrastive topic feature, which triggers movement up to the Topic position in the C-domain.

3. SLUICING

Ross (1969), who was the first to examine sluicing, assumed that sluicing involves regular *wh*-fronting followed by deletion of the sister constituent of the *wh*-phrase. This analysis has been expanded in greater detail in Merchant 2001. In addition Sluicing occurs in both direct and indirect interrogative clauses. The ellipsis is introduced by a *wh*-expression, whereby in most cases, everything except the *wh*-expression is elided from the clause. In these constructions, an interrogative phrase appears stranded where one might have expected to find a complete constituent question.

Lasnik (1999) takes ellipsis as PF-deletion. With respect to sluicing, he focuses on why I(nfl) is not pronounced in C position although it is Inflectional Projection (IP) that is deleted. To explain non-pronunciation of INFL in sluicing, Lasnik states that I does not raise to C at all in sluicing. As to why I does not raise to C in sluicing, he suggests that it's I but not C that bears strong features that need to move to C to be checked. Then, he continues, there are two ways for the derivation to converge with respect to the strong features of I: either the strong features of I raise to C, or they

do not move but are included in an elision site, i.e. IP, in consequence of which PF does not see any strong features. In other words, sluicing saves a PF-crash. However, PF-deletion is supposed to occur at Phonological Phrase (PF) not in Narrow Syntax (NS), as the very name implies. A structure can at most be marked for PF-deletion in Narrow Syntax, as Merchant's (2008) [+E]-feature does. The section below gives some of main properties of the Minimalist Program (MP) that will be resorted to while studying Kinyarwanda gapping, sluicing and pseudogapping constructions. In generative grammar, it is a standard assumption that 'a language consists of two components: a lexicon and a computational system. The lexicon specifies the items that enter into the computational system, with their idiosyncratic properties. The computational system uses these elements to generate derivations and structural descriptions. The derivation of a particular linguistic expression, then, involves a choice of items from the lexicon and a computation that constructs the pair of interface representations' (Chomsky 1993: 168-9).

One key aspect of MP is movement. It states that movement is a free operation (Lasnik & Saito 1992): Move a phrase/head when it is required, i.e. to check uninterpretable features of an element higher in the tree structure. Gapping, sluicing, and pseudogapping constructs move to check their uninterpretable features as well as to check some feature/property of the head whose Specifier they move to. Feature-checking in MP assumes that lexical items enter a derivation fully-inflected. Uninterpretable features are required to motivate movement since they are illegible at either or both PF and Logical Form (LF) and make a derivation crash which carries them unless checked. Thus, a phrase/head moves to check either its own uninterpretable features or those of the position they move to. If uninterpretable features are strong, movement is overt, and if they are weak, movement is covert. In this dissertation, it was suggested that remnants in gapping, sluicing and pseudogapping move to their first conjunct to check their features, following Chomsky (1995). In gapping, the first remnant moves to Spec, ContrastiveTopicP to check its [-contrastive topic], and the second remnant moves to Spec, ContrastiveFocusP to check its [-contrastive focus] features.

Another property of MP is that there are two relations: Specifier- Head and Head-Complement relations. Head-Complement relation is the most basic relation in that it specifies categorial/semantic-selection relations (Lasnik & Uriagereka (2005)).

Spec-Head relation is required for feature-checking.

4. PSEUDOGAPPING

Pseudogapping is an ellipsis mechanism that elides most but not all of a non-fine verb phrase; at least one part of the verb phrase remains. Pseudogapping occurs in comparative and contrastive contexts, so it appears often after subordinators and coordinators.

Gengel (2007) studies Pseudogapping by resorting to movement and deletion approach. The focused remnant has to move out of the Verbal Phrase (VP), in order to make the deletion of the vP go through because the remnant belongs to the domain of the E-feature, which is placed on the Focus head of a Focus phrase above vP . Gengel (2007) further argues that an alternative account to this could consist of placing the E-feature on the v head, thereby triggering the deletion of the complement of vP , i.e. the VP.

Lee (2007) proposes an alternative approach to pseudogapping Chomsky's (2000) minimalist framework to account for pseudogapping constructions properly. He basically assumes that the object in English elliptical constructions undergoes overt movement to Spec FocP to satisfy focus-feature of Foc. The object moves to Spec FocP triggered by focus-feature.

The analysis of Kinyarwanda pseudogapping was based on the minimalist an approach that is related to focus and involving the focus movement of the remnant to Spec FocP followed by vP deletion. The constituent containing an elided VP must include a (contrastive) focused item that can cause the constituent to contrast with another.

The discussion of Kinyarwanda gapping, sluicing and pseudogapping will also entail the use of PF-deletion. PF-deletion theories for elliptical structures basically argue that a syntactic structure is fully derived as its non-elliptical version is, and the identical part undergoes phonological elision in the second clause/conjunct. The basic idea of the PF-deletion account is that the computational system of human language hands on the fully derived sentence to the interfaces, PF and LF. At LF, the incoming sentence is interpreted; at PF, ellipsis is achieved by deletion of redundant material. PF-deletion accounts are based on the assumption that elided material has

abstract features of phonetic and phonological representation, but that grammar contains a means of blocking its pronunciation.

5. MATERIALS AND METHODS

The present research entailed the special case study, introspective method and grounded theory to study gapping, pseudogapping and sluicing and test propositions using the minimalist approach. Generative linguists have relied on “introspection” for data collection which is a process whereby the linguist uses his or her intuitions to invent examples and make grammaticality judgments. The introspective method was used because some examples were not likely to be produced in natural language nor to be found in corpora. In fact, whatever one finds in a corpus ‘will be skewed’; that is, restricted to what is in the corpus and not representative of the entire potential of a given language. A corpus contains a record of structures that speakers or writers actually use; it does not contain all the structures that they might potentially use (Chomsky, 1962a: 1590; cited in Leech 1991:8).

6. FINDINGS AND DISCUSSION

GAPPING

In Kinyarwanda, Gapping targets CP as elision site with movement of the surviving elements to the left periphery of the matrix clause. The higher phrase moves to the (contrastive) TopicP, and the lower one to the FocP. Thus, they form a ‘contrastive topic’ set.

(1) A-ba-na bamwe ba-Ø- oror-a i-n-koko naho abandi [~~ba-Ø-oror-a~~]
Children some SM2-TAM- breed- ASP hens and others SM2-
breed-

i-n-kwavu.

ASP rabbits.

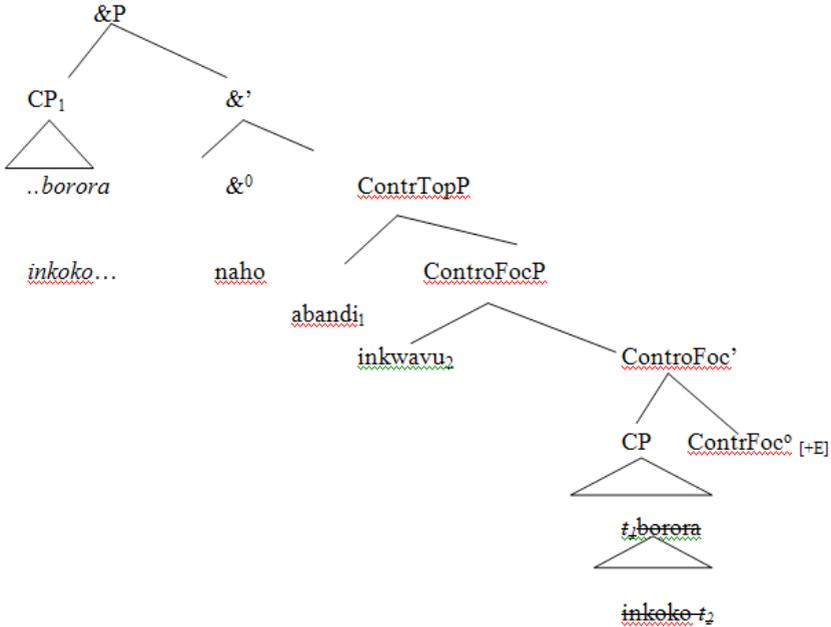
‘Children breed hens others breed rabbits.’

In the example above new/contrastive constituent (inkwavu) moves to the left periphery, the verb that is given (borora) stays inside CP and gets elided.

Gapping remnants must contrast appropriately with their correlates: arguments must be different (inkwavu vs inkoko). Gapping targets matrix clause where the

remnant directly follows the initial conjunct. The remnant (*inkwavu* in the above example) moved to the left periphery of the second conjunct, followed by the elision of redundant (*borora*) element in the second conjunct.

The non-initial conjunct of the above example can be illustrated as follows:



Gapping in Kinyarwanda presents the following properties: a finite verb (phrase) is elided as in (1) and Gapping can be viewed as a recursive process as in (2).

A finite verb is generally deleted in Kinyarwanda gapping structures:

- (2) Uyu muni n-ra-gi-a ku i-Ø-soko; ejo [n=zaa-gi-a]

This day SMIstSG-TAM-go-ASP to market; tomorrow SMIstSG-TAM-go-ASP
ku i-Ø-shuri.
to school.
 ‘Today I am going to the market; tomorrow I am going to school.’

In the above example, the tensed verb in the second clause ‘*nzajya*’ is omitted. The

limit the number of possible remnants. In this example, the last conjunct contains four remnants whereas the two previous ones contain three. In other cases, we can have only one remnant. (See example (5))

Gapping occurs in Kinyarwanda with the coordinators *na* ‘and’, *cyangwa* ‘or’, and *keretse* ‘but’:

(5) N-ra-fat-a i-ki-ayi cyangwa [~~n-ra-fat-a~~] i-Ø-kawa.
SM1st SG-TAM-take-ASP tea or SM1st SG-TAM-take-ASP coffee.

‘I will have tea or I ~~will have~~ coffee.’

(6) Ikinyarwanda ki-ra-komer-a kurusha icyongereza [~~gukomera~~].
Kinyarwanda SM7-TAM-be difficult-ASP more than English to—be difficult.

‘Kinyarwanda is more difficult than English is ~~difficult~~.’

In gapped constructions, elided material appears in Kinyarwanda ellipsis in non-initial conjuncts, with a remnant to its left as overt syntactic antecedent:

(7) Abagabo ~~ba-Ø-nyo-a~~ inzoga, abana [~~ba-Ø-nyo-a~~] amata.
Men SM2-TAM- drink-ASP beer, children SM2-TAM- drink-ASP milk.

‘Men **drink** beer, children ~~drink~~ milk.’

In this example, ‘*abana*’ (children) is both the remnant and syntactic antecedent of the elided verb ‘*banywa*’ (drink).

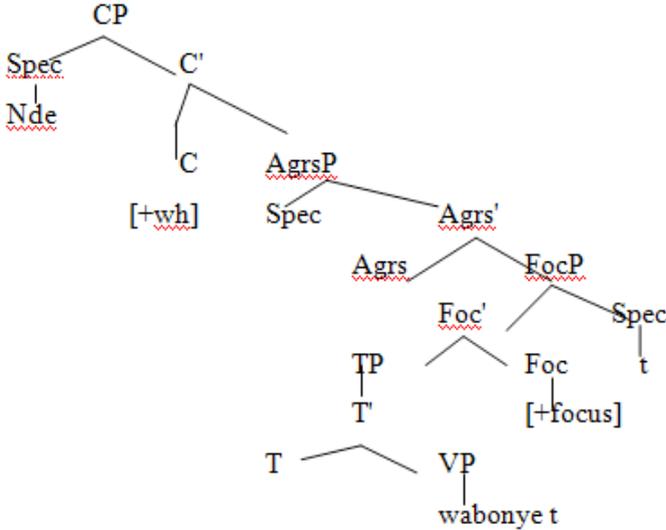
In this section, it was noticed that Gapping in Kinyarwanda occurs in comparatives and coordinators. Gapping remnants must contrast appropriately with their correlates: arguments must be different. It was argued that Gapping targets matrix clause where the remnant directly follows the initial conjunct. The remnant moves to the left periphery of the second conjunct, followed by the elision of redundant element in the second conjunct.

SLUICING

Kinyarwanda Sluicing constructions occur in both direct and indirect interrogative clauses. In these constructions, an interrogative phrase appears stranded where one might have expected to find a complete constituent question. In the following parts, the evidence for the existence of syntactic structure as the elided part and also for movement of sluiced *wh*-phrases will be given.

(8) N-â-bon-ye u-mu-ntu. Ni nde [~~u-â-bon-ye~~?]
SM1st-TAM-see-ASP person. Is who SM2nd-TAM-see-ASP?
 'I saw somebody. Who did you see?'

The above example is derived as follows:



This example illustrates that there is Foc(us) P above TP and that Sluicing is TP deletion, with the remnant having moved to Spec of FocP in order to check the strong $[+focus]$ in the head Foc. The WH-feature in C is strong. Hence, the sluiced remnant-WH overtly moves up to spec of CP. In the first stage, the focused –WH *nde* moves to Spec of FocP to check the strong $[+focus]$ in the head Foc. In the second stage, *nde* moves to Spec of CP to check the strong $[+wh]$ in the head C.

Kinyarwanda Sluicing is then an overt movement driven by the strong feature and the strong WH-feature, followed by TP ellipsis. The sluiced site is licensed by both $(+focus)$ and $(+wh)$ features, which agree with their Specs. Kinyarwanda Sluicing is focus movement plus WH-movement followed by TP ellipsis and that the licensing feature on sluiced TP is both $[+wh]$ and $[+focus]$. The interrogative-WH *nde* in (8) is necessary focused; it represents accented new information.

Sluicing occurs in direct question across speakers. It is also frequent in indirect questions.

(9) Papa nti-a-Ø-kund-a i-bi-shyimbo, ariko nti-a-Ø-zi i-n-hamvu

Father NEG-SM1-TAM-like-ASP beans, but NEG-SM1-TAM-know-ASP

[a-Ø-ta-kund-a i-bi-shyimbo].

reason SM1-TAM-NEG-like-ASP beans.

‘My father doesn’t like beans, but he doesn’t know why ~~he doesn’t like beans.~~’

(10) Ali a-a-hamagar-ye ariko si-n-Ø-zi ngo ni ryari/gute/kubera iki/hehe

Ali SM1-TAM-call-ASP but NEG SM1st know when/how/why/where

[a-a-hamagar-ye].

SM1-TAM-call-ASP.

‘Ali called but I do not know when/how/why/from where ~~he called.~~’

The examples in (9) and (10) clearly show that the Kinyarwanda wh-forms function embedded interrogative clause and typically appears with a corresponding element in the immediate linguistic context.

PSEUDOGAPPING

Pseudogapping is an ellipsis mechanism that elides most but not all of a non-finite verb phrase; at least one part of the verb phrase remains. Pseudogapping occurs in comparative and contrastive contexts, and therefore it appears often after subordinators and coordinators. In the example below pseudogapped remnant moves out of the ellipsis site via syntactic focus movement. Given the standard minimalist assumption that all movements are driven by feature checking, focus movement will also have to be driven by a feature [+focus] and that the focused constituent undergoes syntactic focus movement to Spec FocP triggered by focus-feature.

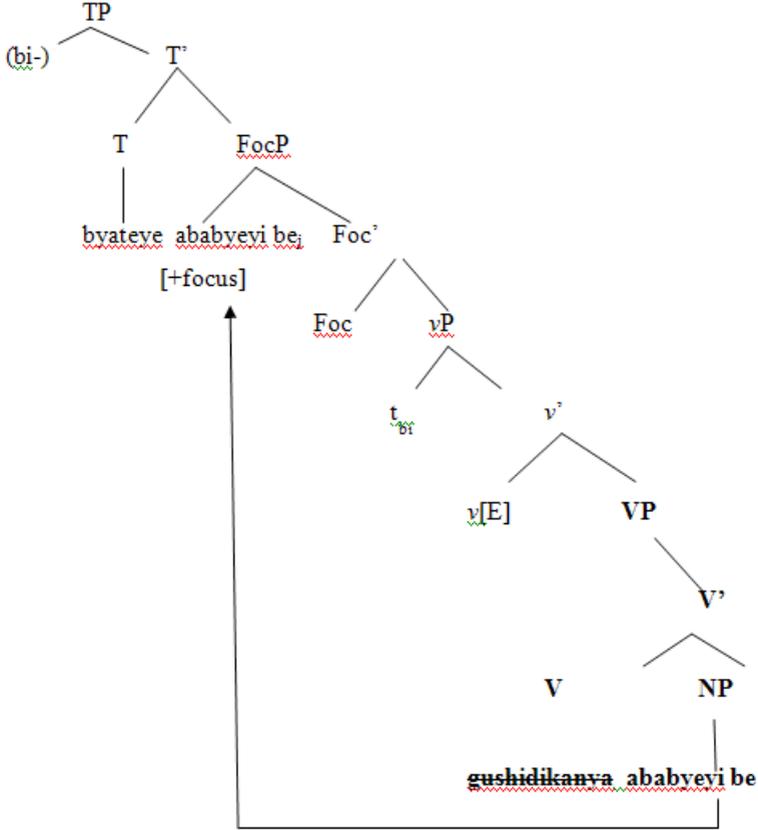
(11) Bi-â-n-ter-ye gushidikanya kurusha uko bi-â-bi-ter-ye a-ba-byeyi be
SM7-TAM-OM-make-ASP doubt more than SM7-TAM-OM-
make-ASP

[gushidikanya].

parents his doubt.

‘It made me doubt more that it did you ~~doubt~~’.

The figure below shows an interaction between the E-feature and syntactic focus movement. ‘*Ababyayi be*’, the remnant, is marked as being focused, i.e. F-marked which bears the subscript F .



In the case of Pseudogapping, the topicalisation (focus movement) is necessary as the object in question does not carry enough contrast with respect to the antecedent. Topicalisation is thus employed to establish the relevant contrast in Pseudogapping.

Pseudogapping in Kinyarwanda occurs most frequently comparatives as in (12) below:

- (12) A-ba-na benshi ba-Ø-kund-a u-mu-kati cyanekurusha uko[ba-Ø-kund-a]

Children many SM2-TAM-like-ASP bread much more than the way SM2-

i-bi-rayi.

TAM-like-ASP potatoes.

‘Many children like bread much more than they do like potatoes.’

As it can be seen in example (12) Pseudogapping characteristically has a non finite auxiliary ‘*kurusha*’ in front of the ellipsis site, and some contrastive material ‘*ibirayi*’ in this example directly follows the ellipsis site.

In Kinyarwanda pseudogapping forms, we find apparent verbal deletion under identity, with a non-tensed auxiliary ‘*kurusha*’ as a left remnant. They appear in comparatives (12), we notice the polarity contrast between clauses (13), and clauses that have coreferential subjects (14).

Causative Pseudogapping constructions as in (43) below are allowed in Kinyarwanda as causative verbs such as *gutuma* (make) can be omitted in the second conjunct and the sentence remains still meaningful.

(13) Bi-Ø-tum-a n-Ø-babar-a cyane kurusha uko

[bi-Ø-tum-a]

SM7-TAM-make-ASP SM1stSG-TAM-suffer-much more than SM7-u-Ø-babar-a.

TAM- make-ASP SM2ndSG-TAM-suffer-ASP.

‘It makes me feel worse than it does make you feel bad.’

In Kinyarwanda causative pseudogapping, the remnant must not be exclusively animate or human. The illustrative example is given above (13).

With perception verbs such as *kumva* (feel), *guhumura* (smell), *kuryoha* (taste), etc. Pseudogapping is also possible and acceptable in Kinyarwanda as in (14) below.

(14) N-ra-umv-a n-Ø-ishim-ye kurusha uko [~~u-Ø-umv-a~~] u-Ø-babar-ye.

SM1stSG-TAM-listen-ASP 1stSG-Ø- feel happy-ASP more than SM2ndSG-TAM-listen-ASP SM2nd-TAM-suffer-ASP

‘I feel happier than you do feel unhappy’.

This section showed that Comparative Pseudogapping constructions are the most frequent in Kinyarwanda because in other instances gapping and sluicing are used instead.

During our discussion, we also found that Pseudogapping becomes more acceptable

once there is sufficient contrast present in the structure. Topicalisation (or focus movement) is employed to establish the relevant contrast in Pseudogapping structures.

7. CONCLUSION

As a general assumption, the IP/TP/FinP part of a clause is deleted. Gapping requires more than one remnant. The remnants are in a contrastive relation with their antecedents in the antecedent clause. Gapping consists in elision of CP preceded by movement of the remnants to the left periphery of a (matrix) clause. In sluicing, the remnant is a (set of) wh-phrase(s). Its correlate is generally an indefinite in the antecedent clause. As to gapping, this study gives a 'movement + deletion' analysis, in which remnants in the second conjunct raise to the left periphery of the second conjunct and the rest of the second conjunct is elided. This research showed that Pseudogapping becomes more acceptable once there is sufficient contrast present in the structure. Topicalisation (or focus movement) is employed to establish the relevant contrast in Pseudogapping. Comparative Pseudogapping are the most frequent in Kinyarwanda because in other instances gapping and sluicing are used instead.

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LA REINTÉGRATION PSYCHOSOCIALE DES FILLES – MÈRES GRÂCE AUX GROUPES DE SOCIOTHÉRAPIE.

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RÉSUMÉ

Nous avons voulu faire une étude sur l'apport des groupes de sociothérapie dans la réintégration psychosociale des filles mères dans le but de montrer leur efficacité dans le dépassement des difficultés dont ces filles-mères étaient victimes. Les résultats d'enquête effectuée sur 39 filles-mères regroupées dans les groupes de sociothérapie au moyen d'un questionnaire et des interviews avec 5 facilitateurs ont révélé que l'expression et la gestion des réactions douloureuses grâce aux groupes de sociothérapie confèrent aux filles mères la réintégration psychosociale. Aussi les enquêtées ont affirmé à 100% que les groupes de sociothérapie constituent un moyen efficace de leur rendre la dignité et le goût de vivre. Pour cela, nous recommandons que ces groupes soient répandus sur le territoire national et que les filles mères soient motivées d'y adhérer.

Mots clés de notre étude sont : Filles mères, Groupes de sociothérapie, Réintégration psychosociale

ABSTRACT

The research conducted on the contribution of sociotherapy groups in the psychosocial reintegration of single mothers aimed at determining their effectiveness in overcoming the difficulties those single mothers were facing. The results of investigation carried out on 39 single mothers, beneficiaries of sociotherapy groups, through a questionnaire and interviews with 5 facilitators revealed that sociotherapy groups helped single mothers to get psychosocial rehabilitation by expression and management of stressful reactions. Again the respondents confirmed at 100% that the sociotherapy groups constitute an effective means to render the dignity and the taste of living to them. For that, we recommend that these groups should be widespread on the entire Rwandan territory and that the single mothers should be interested to adhere to them.

Key words: Single mother, Sociotherapy groups' Psychosocial reintegration

1. INTRODUCTION

Dans la société rwandaise, porter une grossesse illégitime est un phénomène non apprécié. Les filles enceintes connaissent l'incompréhension de la part de leurs familles, des connaissances et des voisins. Cette situation se remarque par le mépris, le rejet, la discrimination, la surexploitation, etc. Ces réactions conduisent la fille - mère à adopter les comportements d'angoisse, de suicide, de désespoir, de rejet, de culpabilité, d'infantilisme et d'avortement ; ce qui indique que les filles-mères vivent dans des conditions déplorables. Elles ont donc besoin d'un cadre de gestion de leurs malaises dont les groupes de sociothérapie occupent une place de choix.

En fait, la sociothérapie est une thérapie sociale utilisée comme moyen de développement social, au niveau du groupe tandis que le groupe de sociothérapie est un groupe social où les personnes à difficultés psychosociales s'intègrent en vue de retrouver leur équilibre. Ces groupes visent à utiliser de façon réfléchie, des relations humaines d'un individu afin de réduire ses troubles affectifs.

Etant donné que la majorité des filles - mères sont à l'âge d'adolescence, elles ont besoin des groupes de discussion. Cela a été mis en relief par PARE, S. en ces termes: *«Les groupes des adolescents ont également besoin de discuter et de résoudre leurs difficultés de relation avec l'autorité, la question de l'orientation de leur vie affective et celle de la préparation de leur avenir»*. (PARE, S., 1971:215)

La fille-mère, qui est victime de cette situation désastreuse, va trouver, au sein du groupe de sociothérapie, de meilleures approches de communication avec ses semblables. Ainsi, c'est le moment opportun pour elle de se débarrasser de sa souffrance caractérisée par la confusion, la méfiance, l'isolement, le dégoût de la vie, la frustration, etc.

Ayant adhéré librement au groupe de sociothérapie, la fille – mère découvre petit à petit que ce groupe l'aide à redéfinir sa personne et à regagner la bonne image d'elle-même. Elle devient capable d'entreprendre des activités susceptibles d'améliorer ses conditions de vie. Dans les termes semblables LIMBOS, E. écrit que: *«Dans ce milieu tout à fait gratifiant, elle crée des activités, exprime des idées, confronte ses valeurs à celles des autres, se montre tel qu'elle est et connaît une ambiance chaleureuse et permissive. Elle s'engage donc pour se libérer des contraintes tracassières pour donner sa pleine mesure, bref pour s'épanouir au maximum»*. (LIMBOS, E., 1981:27)

La situation problématique des filles – mères diffère d'un individu à l'autre. Aussi, leur réintégration psychosociale demanderait-elle des interventions adaptées à chaque cas pris individuellement. Il est question de savoir si les groupes de sociothérapie répondent en même temps aux besoins de chaque membre et s'ils sont vraiment efficaces pour une réintégration adéquate.

Cela étant, la présente étude voulait atteindre ces objectifs opérationnels :

- Déterminer les émotions et les réactions angoissantes, persécutrices et honteuses des filles mères et leur capacité de les gérer ;
- Identifier le rôle des groupes de sociothérapie face à la situation problématique des filles mères.

2. MÉTHODOLOGIE ADOPTÉE

Pour saisir notre explication, nous avons adopté l'analyse qualitative et quantitative appliquées aux résultats fournis par notre échantillon de 44 personnes. En effet, par le choix raisonné, la population –mère a fait partie de notre échantillon. Il était composé de toutes les filles-mères encadrées au niveau du diocèse EAR / Byumba du 10/ 10/ 2006 au 22/ 05/ 2008 qui étaient au nombre de 39 et 5 facilitateurs des groupes de sociothérapie qui les encadraient. Ces derniers sont retenus parce qu'ils étaient susceptibles de fournir des informations utiles à notre étude.

À travers un questionnaire et des interviews, nous avons collecté des données. Etant préparé en avance, un questionnaire nous a permis de récolter les informations auprès de toutes les 39 filles –mères encadrées dans les groupes de sociothérapie dans le diocèse EAR/ Byumba dans la période ci-haut mentionnée. Le questionnaire a été administré lors des rencontres avec les enquêtées. L'absence de quelques unes nous a obligée de les rejoindre à domicile où à part le questionnaire, nous nous sommes entretenue avec elles sur leur vécu quotidien tout en observant leurs comportements et leurs réactions. Pour compléter les données fournies par les filles-mères, des interviews directes ont été organisées avec les facilitateurs des groupes de sociothérapie s'occupant des filles-mères au sein du diocèse EAR/Byumba. Les interviews nous ont permis de savoir directement ce que les facilitateurs pensaient, ressentaient, désiraient, savaient et faisaient pour les filles mères dont ils étaient à charge.

Pour mener à bien l'explication de notre recherche les méthodes systémiques, historico-comparative et descriptives ont été mises en œuvre. Ainsi, nous avons analysé le comportement de la fille - mère à l'égard de sa famille, de son entourage et de ses collègues lors des rencontres. Aussi, l'interdépendance et la complémentarité de divers éléments qui interviennent dans la réintégration psychosociale des filles - mères ont-elles été appréciées. Il s'agit des potentialités personnelles, celles du milieu, les mécanismes d'émancipation féminine, la défense des droits humains, et les avantages des groupes de sociothérapie.

De plus, le passé des filles – mères a-t-il été visité tout en le confrontant à leur état du moment de notre étude.

3. RÉSULTATS

Les données récoltées auprès des filles-mères et leurs facilitateurs nous ont permis de saisir l'apport des groupes de sociothérapie dans la réintégration psychosociale des filles-mères.

En effet, nous nous étions rendu compte que les groupes de sociothérapie cherchent à éviter la vulnérabilité d'un bon nombre des personnes dont les filles-mères. Ils veulent que les filles-mères apprennent à vivre positivement par l'expérience du groupe de sociothérapie.

Ainsi, tout en insérant les résultats de nos observations dans le contexte de notre étude, nous nous sommes servi de trois thèmes qui renfermaient nos hypothèses, à savoir: occasion d'exprimer des émotions ; gestion des réactions persécutrices, angoissantes et honteuses et développement des capacités de prendre sa vie en mains.

a) Occasion d'exprimer les émotions

Au cours de nombreux travaux d'étude sur les groupes de sociothérapie, une importance considérable a été réservée à l'occasion d'expression des émotions.

Tableau 1. Les réactions des enquêtées avant de s'intégrer dans les groupes de sociothérapie

Réactions	a) Oui		b) Non	
	Fréquences	%	Fréquences	%
Les idées suicidaires	19	49%	20	51%
La honte	34	87%	5	13%
Le dégoût à la vie	30	77%	9	23%
L'isolement	34	87%	5	13%
Le désespoir	35	90%	4	10%

Source : Notre enquête, Août 2008

D'après les résultats présentés dans le tableau ci-dessus, les réactions négatives qui menaçaient les filles mères avant de s'intégrer dans les groupes de sociothérapie, dès leurs grossesses, étaient successivement le désespoir (90%), l'isolement et la honte (87%), le dégoût à la vie (77%) et les idées suicidaires (49%). Ces réactions se justifient par le fait que les grossesses hors mariage ne sont pas bien appréciées dans le milieu d'enquête.

Tableau 2 : L'expression des réactions persécutrices, angoissantes et honteuses

Ce tableau montre la façon dont les réactions douloureuses des filles-mères enquêtées étaient exprimées.

Alternative de réponses	a) Oui		b) Non		Total	
	Fréquences	%	Fréquences	%	Fréquences	%
L'expression verbale des émotions douloureuses	36	92	3	8	39	100
L'expression des sentiments à travers les activités du groupe	38	97	1	3	39	100

Source: Notre enquête, Août 2008

Il ressort de ce tableau que les filles- mères enquêtées ont pu exprimer leurs sentiments. Parmi 39 enquêtées, 36 soit 92% des enquêtées l'ont fait verbalement tandis que 97% des enquêtées se sont exprimées à travers les activités du groupe. Le climat de confiance qui règne dans les groupes de sociothérapie invite chacune à partager ses expériences. Celles qui ne sont pas en mesure de s'exprimer verbalement, le font à travers certaines activités du groupe comme les sketches, les chants, l'entraide, ou encore les activités manuelles.

b) La gestion des réactions persécutrices, angoissantes et honteuses

L'expression et le partage des réactions persécutrices, angoissantes et honteuses au sein des groupes de sociothérapie, ont conduit les filles-mères à la gestion adéquate de ces réactions. Le tableau suivant le démontre.

Tableau 3 : La gestion des réactions persécutrices, angoissantes et honteuses

Alternative des réponses	a) Oui		Non		Total	
	Fréquences	%	Fréquences	%	Fréquences	%
Le soutien et l'entraide mutuelle protègent contre l'isolement et le désespoir	39	100	0	0	39	100
La capacité de lutter contre la discrimination et la stigmatisation	38	97	1	3	39	100
La prise de connaissance des droits humains donne l'épanouissement social	37	95	2	5	39	100

Source: Notre enquête, Août 2008

A partir de ce tableau, on voit que toutes les filles-mères enquêtées ont lutté contre l'isolement et le désespoir à 100% grâce aux groupes de sociothérapie. Le nombre de celles qui gèrent la discrimination et la stigmatisation est 38 soit 97% des enquêtées tandis que 37 soit 95% des enquêtées se réjouissent d'avoir connu leurs droits. L'examen minutieux de ce tableau fait voir que presque toutes les filles-mères enquêtées sont devenues capables de gérer les réactions stressantes qu'elles ressentaient en elles-mêmes et celles manifestées par l'entourage à leur égard. Cela constitue un indicateur pertinent de leur réintégration psychosociale.

En fait, notre étude, nous a fait remarquer que le groupe de sociothérapie aide l'individu à vivre positivement les réactions menaçantes, ce qui abonde dans le sens de PARE, S. (1971 : 234): *« l'expérience du groupe diminue la dépendance et confère à certains types de personnalités plus de sécurité que l'entrevue de personne à personne parce que les membres du groupe se rendent compte par exemple, que d'autres font face à des difficultés semblables aux leurs »*. Pour ce faire, chaque membre du groupe racontait ses expériences et le reste du groupe se situait et éprouvait leur niveau de souffrances ce qui permettait à chaque membre du groupe de gérer sa situation problématique.

c) Le développement des capacités de prendre en main la vie

Les filles-mères sous étude étaient victimes de nombreuses réactions stressantes qui les menacent de telle sorte qu'elles ne pouvaient pas aller de l'avant si rien ne changeait. Au cours des sessions dans les groupes de sociothérapie, chaque membre devait à la fois veiller à sa propre évolution et à celle des autres membres. C'est ainsi que les échanges constructeurs et guérisseurs occupaient une place de choix.

Tableau 4. Les moyens de développer des capacités de prendre en main la vie

Alternative des réponses	a) Oui		b) Non		Total	
	Fréquences	%	Fréquences	%	Fréquences	%
Développement des capacités d'écoute d'autrui	38	97	1	3	39	100
Développement les capacités d'émission de conseils et de prise des décisions quant aux difficultés	37	95	2	5	39	100
Assistance matérielle de la part du groupe de sociothérapie	12	31	27	69	39	100
Soutien familial dans la résolution de divers problèmes	30	77	9	23	39	100
Retour à l'école secondaire et technique	12	31	27	69	39	100
Découverte du marketing propre et de la spontanéité à travers l'action	27	69	12	31	39	100

Source: Notre enquête, Août 2008

Par des résultats fournis par des répondants elles-mêmes, comme le montre le Tableau 4, nous avons appris que les filles mères enquêtées ont développé les capacités d'écoute d'autrui à 97%, les capacités d'émission de conseil et de prise de décisions importantes à 95%. Aussi, bien que les persécutions aient continué au sein des familles à cause de la présence de cet enfant indésirable, 77% des enquêtées ont répondu que leurs familles les aidaient à répondre aux divers problèmes. Nombreuses disaient que cette chance d'être soutenues par la famille était due au changement de leurs comportements dès leur intégration dans les groupes de sociothérapie.

4. DISCUSSION DES RESULTATS

Le constat est que les groupes de sociothérapie ont aidé les filles-mères à libérer leurs émotions douloureuses. A ce propos, SAVIN B. (2000) cité par MANIRAFASHA A. (OP. cit.) déclare que les groupes de ce genre constituent un traitement visant à

l'expression des émotions et les besoins profonds de l'individu dans ici et maintenant. Il ajoute que les groupes de sociothérapie encouragent la mise en scène du ressenti pour mieux faire surgir des blocages.

Un groupe de sociothérapie est un espace d'expression et un dispositif de guérison. Cet espace d'expression se transforme dans un espace de partage d'expériences surtout de la souffrance subie, une sécurité et même une confiance dans la permanence des liens du groupe. C'est ce que HARRIS, J. A. (1984:178), déclare en ces termes : *«le groupe est lieu où les membres se tiennent mutuellement et la peur de se révéler est réduite»*.

Les résultats de l'enquête que nous avons effectuée ont permis d'expérimenter toutes ces réalités. En effet, ils montrent les sentiments douloureux auxquels faisaient face les filles –mères et comment ces sentiments étaient exprimés par la communication verbale ou par des activités physiques.

Nous avons découvert que des enquêtées ne pouvaient pas planifier pour l'avenir car elles étaient désespérées. En effet, l'équilibre psychologique acquis grâce aux échanges ci-hauts cités, a conduit les filles –mères à prendre les décisions adéquates quant à leur avenir. A cela s'attache la conviction que les filles–mères devaient devenir capables de mener leur vie, de résoudre leur problèmes, de se développer dans une direction individuelle et sociale aussi constructive grâce à leur potentiel et à leur capacités d'auto- actualisation, pourvu qu'elles se sentent fondamentalement acceptées et comprises. Avant qu'elles s'intègrent dans les groupes de sociothérapie, elles ne s'ouvraient à personne et n'écoutaient personne.

La sociothérapie a eu notamment pour effet l'ouverture des filles –mères au nouveau mode de vie qui tend à différer profondément de celui de la grande majorité des filles –mères qui n'ont pas adhéré aux groupes de sociothérapie. Nous avons remarqué donc chez elles des changements positifs qui les incitaient à penser aux activités économiques réalisées en commun ou individuellement.

5. CONCLUSION

L'intérêt général de notre recherche était d'évaluer l'apport des groupes de sociothérapie dans la réintégration psychosociale des filles – mères. Il importe de rappeler qu'elle avait deux objectifs spécifiques à savoir: déterminer les émotions et

les réactions angoissantes, persécutrices et génératrices de honte pour filles – mères et leur capacités de les gérer ainsi qu'identifier le rôle des groupes de sociothérapie face à la situation problématique des filles – mères.

En effet, nos objectifs ont été atteints. Les enquêtées ont affirmé que les groupes de sociothérapie constituent un cadre d'expression et de gestion des réactions douloureuses, permettant le développement des potentialités susceptibles d'améliorer les conditions de vie. Ici les filles – mères sont devenues aptes à prendre des décisions importantes quant à leur avenir grâce à l'équilibre psychosocial qu'elles ont acquis en général, il y a une prise de conscience, une grande ouverture d'esprit, une volonté à l'action et à la recherche de l'autonomie.

Néanmoins, bien que les groupes de sociothérapie soient bénéfiques dans le processus de réintégration psychosociale des filles – mères, il se laisse voir que celles-ci ont besoin d'être soutenues matériellement en vue d'améliorer leurs conditions socio-économiques. Pour ce faire, toute personne physique ou morale, soucieuse du bien-être intégral des personnes vulnérables en général et des filles-mères en particulier, est appelée à donner sa contribution.

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PREVALENCE STUDY ON BOVINE TUBERCULOSIS IN RWANDA FROM 2006 TO 2010

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ABSTRACT

Bovine tuberculosis in developing countries like Rwanda is still neglected despite its socioeconomic impacts. It remains a significant disease of cattle and an important zoonosis. The diagnosis of this disease is mainly done at the slaughterhouses through post-mortem examination and on live animals through tuberculin test campaigns. These campaigns are scarce limited and do not cover the whole country. This study was conducted at the main slaughterhouse of the country, in Kigali City. As far as different records and archives from the slaughterhouse, the Ministry of Agriculture and Animal Resources and the Rwanda Animal Resources Development Authority (RARDA) are concerned, these documents were the main sources of data. The findings of this study showed that bovine tuberculosis is more prevalent in regions with extensive farming system. During five years (from 2006 to 2010), the average of the prevalence was 11.8% in the Eastern Province where extensive farming system is massively practiced, it was 3.2% in Northern Province, 2.8% in Southern Province, 2.9% in Western Province and 1.4% in the Capital Kigali City.

Key words: Cattle, Bovine tuberculosis, Prevalence, Zoonosis, Rwanda.

1. INTRODUCTION

Bovine tuberculosis caused by *Mycobacterium bovis* is one of the most zoonotic infectious diseases prevalent in animals. The disease is a major infectious and chronic one among cattle, other domestic animals and some wildlife species. The transmission to humans constitutes a public health problem (Thoen *et al.*, 2006).

Bovine tuberculosis is an important threat on socio-economic and hygienic plan (Cousins, 2001).

In developed countries, a post-mortem inspection of meat, routine screening of cattle per individual test and the elimination of infected animals, control of animal movements, pasteurization of milk, were very satisfactory in terms of reducing the incidence of tuberculosis in cattle and humans (Cosivi, 1998). However, in spite of this, tuberculosis still now regarded as a major opportunistic infection in HIV-infected people in the third world countries (Daborn *et al.*, 1997).

Bovine tuberculosis can cause serious economic losses as well as body weight loss due to its morbidity, reduction of milk production, lowering of reproduction rate, high costing treatment and more often carcasses condemnation. It is posing also potential health risks to consumers by consumption of raw milk and non inspected meat in rural regions. This disease is widespread and most often occur in the developing countries, linked with its insidious nature and slow onset and its chronic development. The bovine tuberculosis remains thus a neglected disease by control programs (Bennet, 2009).

If the prevalence of tuberculin reaction is estimated at 5% of the cattle population worldwide, it means that more than 50 million cattle are infected (WHO, 2008). The main risk of cattle disease spread is the movements of infected domestic animals by local or trans-boundary trade or gift without quarantine application. The calves' contamination by suckling their infected mothers can also occur. In Rwanda specifically, on one hand the Eastern Province totalizes more than half of national bovine herd reared in not only on extensive system but also by the population with sylvo- pastoral behaviour. On the other hand, the "One cow per one poor family program" is implemented in the whole country with success since around ten years. In other successes, the above mentioned fact highlighted the increasing of close contacts between human and cattle in this country.

Due to the unavailability and high cost of molecular and laboratory tools such as *In vitro* cellular culture of *Mycobacterium bovis* and PCR test, the diagnosis of tuberculosis in living animals is limited to the field tuberculin test (Bennet, 2009). However, this test is not sufficient, reason why, the retrospective and complete diagnosis of tuberculosis done at post mortem inspection of meat is essential.

Regarding the threat posed by bovine tuberculosis to both animal and public health and its economic impact, the aim of this study was to evaluate the bovine tuberculosis prevalence in the country from 2006 to 2010 throughout the cattles slaughtered at Nyabugogo slaughterhouse.

2. METHODOLOGY

This study took place at Nyabugogo slaughterhouse, because of a large number of animals slaughtered there from almost all provinces of the country. The slaughterhouse is located in Kigali City. It is modern and meets the required standards for meat export and fulfills the hygienic and sanitary conditions.

The sample of study is composed of cattle slaughtered ($n = 169\ 448$ animals) in a five years period ranging from 2006 to 2010. Animals coming to the slaughterhouse are mostly aged female animals, young males and those having parturition problems. The data from our study were analyzed using the Statistical Package for Social Sciences (SPSS).

3. RESULTS

This study emphasized data registered from the year 2006 to 2010 basing on districts and provinces of origin, and the number of animals slaughtered in that period and the bovine tuberculosis cases registered at the slaughterhouse in the same period.

A total number of 169 448 animals were slaughtered during the five years concerned by the study. Those animals are from different districts of the country (table 1). 70.3% comes from three districts of the Eastern Province (Nyagatare with 36.5%, Gatsibo with 19.3% and Kayonza with 14.5%). Rulindo District in the Northern Province gives 10.1%, the remaining slaughtered animals (19.6%) come from over other districts of different provinces.

Table1. Animals slaughtered from 206 to 2010 at the SABAN Nyabugogo Slaughterhouse

Province	District	2006	2007	2008	2009	2010	Total
Eastern Province	Nyagatare	15 327	13 360	14 072	11 325	7 724	61 808
	Gatsibo	8 336	8 109	7 118	5 109	4 031	32 703
	Kayanza	6 919	6 732	5 322	3 120	2 520	24 613
	Kirehe	1 671	1 671	1 249	573	519	5 683
	Rwamagana	529	349	238	154	61	1 331
	Ngoma	248	312	408	408	179	1 555
	Bugesera	1 791	1 765	1 265	231	35	5 087
	Sub total	34 821	32 298	29 672	20 920	15 069	132 780
Northern Province	Gicumbi	1 152	1 302	2 174	2 004	2 207	8 839
	Rulindo	1 430	1 537	3 119	5 119	5 933	17 138
	Gakenke	68	73	733	679	865	2 418
	Burera	44	28	71	132	270	545
	Sub total	2 694	2 940	6 097	7 934	9 275	28 940
Southern Province	Kamonyi	136	256	507	1 173	2 239	4 311
	Muhanga	69	101	48	148	375	741
	Ruhango	39	127	491	794	914	2 365
	Nyanza			8			8
	Sub total	244	484	1 054	2 115	3 528	7 425
Western Province	Ngororero	66	131	761	868	921	2 747
	Rubavu	298	138	411	61	44	952
	Nyabihu		207	107	97	67	478
	Rutsiro	23					23
	Sub total	387	476	1 279	1 026	1 032	4 200
Kigali City	Nyarugenge	20	16	10	12	12	70
	Kicukiro	3	5	2	2	1	13
	Gasabo	7	7	6			20
	Sub total	30	28	18	14	13	103
G. total		38 176	36 226	35 120	31 009	28 917	169 448

Source: Slaughterhouse's records

The prevalence and the evolution of bovine tuberculosis in the different districts are shown in the table 2. It is remarkable that high prevalence are registered mainly in the Eastern Province - especially in three districts (Nyagatare, Kayonza and Gatsibo) with 25.53%, 22.4% and 16.9% respectively.

In the Northern Province, the cattle from Gicumbi and Gakenke Districts show the highest infection with the prevalence rate of 11.45% and 5.88% respectively. In the Southern Province, Ruhango District comes at the first place with the rate of 10.25% followed by Kamonyi District with the rate of 5.14%. In Western Province, Ngororero District is the most infected by bovine tuberculosis with the prevalence rate of 6.06%, and Rubavu District comes secondly with the rate of 3.02%. The animals from Kigali City seem to be tuberculosis infection free.

In 2007, according to the results from the Slaughterhouse's records, Nyagatare District remains more infected than others in the Eastern Province with a rate of 18.86% followed by Gatsibo District with a rate of 17.41%. In the Northern Province, Burera, Gicumbi and Rulindo Districts are infected with the rates of 7.14%, 1.68% and 1.23% respectively. In the Southern Province, Ruhango District comes at the first place with the rate of 7.08% followed by Muhanga District with the rate of 3.96% and Kamonyi District with 2.73%. In the Western Province, Ngororero District is the most infected by bovine tuberculosis with the prevalence rate of 6.1%, followed by Nyabihu District with 3.38% and lastly Rubavu District with the rate of 2.89%. One case of bovine tuberculosis over 16 cattle slaughtered (that is the prevalence rate of 6.25%) occurred in Nyarugenge District of Kigali City.

In 2008, in the Eastern Province Gatsibo District is the highest infected district with the rate of 13.93% followed by Nyagatare District with the rate of 11.59%. In the Northern Province, Gakenke, Gicumbi and Rulindo Districts are infected with the rates of 1.09%, 0.78% and 0.6% respectively. In the Southern Province, Ruhango District comes at the first place with the rate of 2.44% followed by Kamonyi District with 2.16%. In the Western province, Nyabihu District is the most infected by bovine tuberculosis with the prevalence rate of 1.86%, followed by Ngororero and Rubavu District with the rate of 1.7%. No bovine tuberculosis case appeared in the slaughtered animals coming from Kigali City farms.

In 2009, in the Eastern Province Gatsibo District remains the highest infected district

with the rate of 9.25%, followed by Nyagatare District with the rate of 7.25%. In the Northern Province, Gakenke District is the first with a rate of 1.76%, the second is Gicumbi District with the rate of 1.39%, then Rulindo District with the rate of 1.34% and lastly Burera District which is bovine tuberculosis infection free. In the Southern Province, Ruhango District comes at the first place with the rate of 2.14%, followed by Kamonyi District with the rate of 0.93%. In the Western Province, Ngororero District is the first infected by bovine tuberculosis with the prevalence rate of 2.41%, followed by Nyabihu District with the rate of 2.06% and Rubavu District is bovine tuberculosis infection free. Likewise no case of bovine tuberculosis from Kigali City farms.

In 2010, in the Eastern Province Nyagatare District is the highest infected district with 6.2% followed by Gatsibo District with the rate of 5.16%, Kayonza District follows with the rate of 4.92%. No case of bovine tuberculosis registered in Rwamagana District but that may be linked with the small number of cattle slaughtered from this district (61 animals). In the Northern Province, Gakenke, Gicumbi, and Rulindo Districts are infected with the rates of 2.42%, 0.81% and 0.62% respectively. In the Southern Province, Muhanga District comes at the first place with the rate of 2.13%, followed by Kamonyi District with 2% and Ruhango District lastly with 1.42%. In the Western Province, Ngororero District stays the most infected district by the bovine tuberculosis with the prevalence rate of 2.58%. No bovine tuberculosis case appeared in the slaughtered cattle coming from Kigali City farms.

According to the results from Table 2 and figure 1, the overall prevalence of bovine tuberculosis reduced year after year from 20.1% to 5.5% from 2006 to 2010 respectively in Eastern province, while in Northern Province the prevalence passed from 0.72% in 2008, to 6.81% in 2010. The reduction from 4.8% to 1.87 % was observed in Southern Province from 2006 to 2010 respectively while in Western Province it passed from 3.35% to 3.19%.

Table 2: Bovine tuberculosis prevalence (%) from 2006 to 2010 by districts and provinces

Province	District	2006	2007	2008	2009	2010
Eastern Province	Nyagatare	25.53	18.86	11.59	7.25	6.2
	Gatsibo	22.04	17.41	13.93	9.25	5.16
	Kayonza	16.9	13.65	9.47	3.81	4.92
	Kirehe	2.9	8.79	4.8	3.66	2.3
	Rwamagana	0	3.15	3.78	1.94	0
	Ngoma	2.82	2.24	1.71	1.71	1.67
	Bugesera	0.61	0.67	1.26	0.86	2.85
	Sub total	20.06	15.57	10.85	6.91	5.48
Northern Province	Gicumbi	11.45	1.68	0.78	1.39	0.81
	Rulindo	0.9	1.23	0.6	1.34	0.62
	Gakenke	5.88	0	1.09	1.76	2.42
	Burera	0	7.14	0	0	0
	Sub total	5.53	1.46	0.72	1.37	6.81
Southern Province	Kamonyi	5.14	2.73	2.16	0.93	2
	Muhanga	0	3.96	0	0	2.13
	Ruhango	10.25	7.08	2.44	2.14	1.42
	Nyanza			0		
	Sub total	4.5	4.13	2.18	1.32	1.87
Western Province	Ngororero	6.06	6.1	1.7	2.41	3.58
	Rubavu	3.02	2.89	1.7	0	0
	Nyabihu		3.38	1.86	2.06	0
	Rutsiro	0				
	Sub total	3.35	3.96	1.72	2.24	3.19
Kigali City	Nyarugenge	0	6.25	0	0	
	Kicukiro	0	0	0	0	0
	Gasabo	14.28	0	0		
	Sub total	3.33	3.53	0	0	0
Average		18.75	14.11	8.68	5.02	3.46

Source: Source: Slaughterhouse's records

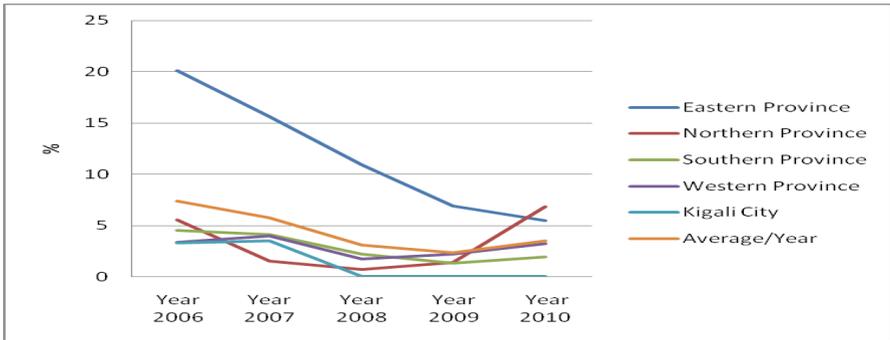


Figure 1: Progression of the prevalence of the bovine tuberculosis by Province in 5 years period

Collected data were analyzed by SPSS, to check whether the findings are statistically different. The comparisons of prevalence variation during the five years and from different provinces are done. According to the table 3 below, while the prevalence seems to decrease from 2006 to 2010 in most provinces the finding p-value was high than alpha ($0.472 > 0.05$). Thus we failed to reject the null hypothesis (H_0) and didn't provide the statistical proof of this decrease at the significance level of 95%.

Table 3: Statistical analysis of bovine tuberculosis prevalence rate between years from 2006 to 2010

			Sum of Squares	df	Mean Square	F	Sig.
Prevalence * year	Between Groups	(Combined)	86.274	4	21.569	0.920	0.472
	Within Groups		469.064	20	23.453		
		Total	555.338	24			

According to the table 4 below, as the comparison between provinces is concerned, the p-value was less than alpha ($0.0001 < 0.05$) so we rejected the null hypothesis (H_0) which stipulated that there was no difference between bovine tuberculosis prevalence rates between provinces and we concluded that statistically there was evidence that the bovine tuberculosis prevalence rates between provinces had significant difference at the significance level of 95%.

Table 4: Statistical analysis of bovine tuberculosis prevalence rate between five provinces of Rwanda

			Sum of Squares	Df	Mean Square	F	Sig.
Prevalence province	Between Groups	(Combined)	351.498	4	87.875	8.622	0.000
	Within Groups		203.840	20	10.192		
	Total		555.338	24			

According to the table 5 below, only the Eastern Province had a statistically significant bovine tuberculosis prevalence rate compared to other provinces. The bovine tuberculosis prevalence rates of other provinces were no statistically different at the significance level of 95%.

Table 5: Comparison of bovine tuberculosis prevalence rate of one province to others

(I) Province	(J) Province	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Eastern Province	North	8.6200*	2.01911	0.000	4.4082	12.8318
	South	9.0000*	2.01911	0.000	4.7882	13.2118
	West	8.9000*	2.01911	0.000	4.6882	13.1118
	MKV	10.4400*	2.01911	0.000	6.2282	14.6518
Northern Province	East	-8.6200*	2.01911	0.000	-12.8318	-4.4082
	South	.3800	2.01911	0.853	-3.8318	4.5918
	West	.2800	2.01911	0.891	-3.9318	4.4918
	MKV	1.8200	2.01911	0.378	-2.3918	6.0318
Southern Province	East	-9.0000*	2.01911	0.000	-13.2118	-4.7882
	North	-.3800	2.01911	0.853	-4.5918	3.8318
	West	-.1000	2.01911	0.961	-4.3118	4.1118
	MKV	1.4400	2.01911	0.484	-2.7718	5.6518
Western Province	East	-8.9000*	2.01911	0.000	-13.1118	-4.6882
	North	-.2800	2.01911	0.891	-4.4918	3.9318
	South	.1000	2.01911	0.961	-4.1118	4.3118
	MKV	1.5400	2.01911	0.455	-2.6718	5.7518
Kigali City	East	-10.4400*	2.01911	0.000	-14.6518	-6.2282
	North	-1.8200	2.01911	0.378	-6.0318	2.3918
	South	-1.4400	2.01911	0.484	-5.6518	2.7718
	West	-1.5400	2.01911	0.455	-5.7518	2.6718

4. DISCUSSION

According to these results of our study, the bovine tuberculosis occurred in Rwanda with the highest prevalence rate in Eastern Province mainly in Nyagatare, Gatsibo and Kayonza Districts. Across the whole country, the observed average prevalence rate was 11.8%. In 2006, Nyagatare District had the highest bovine tuberculosis prevalence than others with a rate of 25.53% followed by Gatsibo and Kayonza Districts with rates of 22.04% and 16.9% respectively. Bovine tuberculosis control strategies should consider the areas of livestock production and types of grazing systems as an important risk. The reasons for this highest tuberculosis' infection in the Eastern Province are linked with the fact that the breeding system is mostly extensive and semi extensive and the water problem which is the major cause of uncontrolled movements of animals. They use valley dams to get fresh water where several hundreds of animals meet. Those three districts with a high prevalence rate of bovine tuberculosis are on the border with Uganda and Tanzania and the National Akagera Park and this would be a factor of spreading the disease from uncontrolled and imported cattle but also from wild reservoirs.

Furthermore, the farming systems in Eastern Province are still largely extensive, where animals make always the long trip for getting water at the valley dams and they can contaminate each other. Another reason could rest with the fact that those animals are in contact with wild animals able to infect them. In the Northern Province, Gicumbi District showed the highest infection with the rate of 11.45%. This highest bovine tuberculosis prevalence could be explained by the fact that the animals coming from Uganda pass through the district and some of these animals are not tested before entering the country. Likewise, a considerable number of cattles is also imported from Uganda and Democratic Republic of Congo (DRC) passing through the Northern and Western bordering Districts to the Gishwati dairy basin. The high bovine tuberculosis prevalence in internal Districts such as Ruhango and Ngororero in the Southern and Western Province respectively can result to internal translocation of animals through different programs such as one cow per one poor family, heifer, send a cow, FARG, etc. If the animals from Kigali City seem bovine tuberculosis infection free, it is because of; on one hand Kigali farmers practice zero grazing system with dairy cattle and are relatively well sensitized on hygienic and animal health issues, while on the other hand from these farms only a small number

of animals come at the slaughterhouse. Kigali City can be considered as free zone from bovine tuberculosis because its prevalence rate of the last three years is null.

It was noted that the overall prevalence of bovine tuberculosis year after year from 2006 to 2010 was decreased. One of the eventual reasons of this decrease of prevalence may be the policy of zero grazing system by reducing movements and contact of animals from different farms and then stopping the spread of the diseases. Another reason behind this low rate of bovine tuberculosis prevalence rate in 2010 is that for some provinces a number of animals slaughtered at the slaughterhouse are relatively small.

As reported in Zambia, in similar study, researchers showed that the observed association between area and other variables like communal grazing, transhumance and contact with wildlife may suggest the existence of an ecological linkage in bovine tuberculosis transmission. Likewise, the area could be a proxy variable for other risk factors such as communal grazing and contact with wildlife (Cook *et al.*, 1996). Other reports attributed the high prevalence of bovine tuberculosis in cattle in the Kafue basin to the contact that exists between cattle and wild animals, particularly the lechwe antelopes (Cook *et al.*, 1996; Cosivi *et al.*, 1998). Some reports described the Kafue lechwe antelope as a reservoir of untreatable bovine tuberculosis (Pandey, 1998) and wildlife reservoirs of *M. bovis* were reported to be major sources of infection for grazing cattle in some countries (Corner, 2006), such as the badger (*Meles meles*) in regions of the United Kingdom and possums (*Trichosurus vulpecula*) in New Zealand (Corner, 2006).

The Eastern Province is also subjected to movements of animals from neighboring countries such as Uganda and Tanzania where bovine tuberculosis is present (Kwazala *et al.*; 2006, Daborn *et al.*, 1997), *M. bovis* which causes tuberculosis (bovine tuberculosis) in cattle is wide spread. It has the broadest host range of all bacteria within the *M. tuberculosis* complex group and frequently infects other mammalian hosts including humans and a range of wildlife species. The impact of *M. bovis* infection in cattle seems to vary among geographical areas (Kthryn, 2008).

M. bovis infection was reported to cause high morbidity and mortality in South African wildlife (Keet *et al.*, 1996) but infections were reported in Tanzanian wildlife with no obvious signs of clinical disease; *M. bovis* was isolated from greater than 10

per cent of carcasses of apparently healthy wildebeest with no gross lesions on post-mortem examination (Cleaveland *et al.*, 2005).

The Southern Province comes with a lowest average bovine tuberculosis prevalence rate of 2.8% and the annual variation is from 4.5% to 1.87% from 2006 to 2010 respectively. Like in Kigali City, the farming system in this province is largely zero grazing and it is not infiltrated by foreign animals. Compared to the results from National Laboratory for the tuberculin test and the data from the slaughterhouse, it can be concluded that the bovine tuberculosis prevalence rate from tuberculin test is under the slaughterhouse rate, 3% and 8% prevalence rate in 2008, and 1.9% and 5.1% in 2009 respectively.

The explanation of this difference can be that the tuberculin test covers all categories of animals in place and in specific areas to see how the bovine tuberculosis situation is in cattle. This can be done once a year but animals coming at the slaughterhouse are reformed animals, aged animals, animals in bad health conditions and those having diseases problems.

5. CONCLUSION AND RECOMMENDATIONS

Bovine tuberculosis is prevalent in cattle and constitutes a big economic and public health issue. The bovine tuberculosis is not a new disease in Rwanda and continues to cause considerable losses over time without neglecting its social impact as being a major zoonosis. This research targeted the cattles slaughtered. According to the results found, the Eastern Province is the first infected where three districts Nyagatare; Gatsibo and Kayonza are at the top of infection. Its prevalence rate has changed from 20.06% in 2006 to 5.48% in 2010. We also noted that it is the first supplying a big number of animals to the slaughterhouse. In the country bovine tuberculosis prevalence is decreasing year after year from 2006 to 2010 (18.75% to 3.46%) because of the Government policy privileging the zero grazing system.

Convinced that the bovine tuberculosis is still persisting in our country and that the disease known as contagious and a major zoonosis, and given its socio-economic impact, it is recommended to adopt a periodically screening test of all animals across the country by the tuberculin test, to remove all positive bovine tuberculosis animals, to reinforce meat inspection and to use those information for taking and implementing different policies, and to control all animal movements coming from outside or inside of the country.

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ETHICAL ISSUES AND PROFITABILITY ANALYSIS ON PERFORMANCE OF PRIVATE COMPANY “PFUNDA TEA COMPANY”

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ABSTRACT

Ethical Issues and Profitability Analysis on Organizational Performance of a Private Company” is a result of a research carried out in Pfunda Tea Company. The objective was to assess the role of ethics, analyze profitability, and determine their effect on organizational performance. In a bid to achieve this objective descriptive research design was used, respondents were given opportunity to respond and describe issues they were familiar with. The population was three hundred forty-seven (347). The sample included two hundred sixty eight (268) respondents. The results of the study showed a positive linkage between ethical issues, profitability analysis and organizational performance. The results revealed also that, ethical issues when practiced result in profitability ventures organizations thus is a good performance and this was an opinion shared by an overwhelming majority analysis (91%) of respondents. The findings suggested that private company especially Pfunda Tea Company’s top management should support a clear code of conduct with a focus on various ethical issues. Employees’ management and others interested in the activity of the company should be trained on ethical implications of all business decisions made. There is more to ethical issues than profitability and organizational performance.

Key words: Ethical issues; Profitability analysis, Performance; Private company

1. INTRODUCTION

Many companies especially those engaged in international trade adopt codes of ethics in their operations. Managements see such self regulation as a way of avoiding fraud and litigation. A survey of 124 companies in 22 countries found that 78 percent of boards of Directors had established ethics standards, had a fourfold increase over a ten years period. The study also found that codes of ethics help to promote tolerance of diverse practices abroad. In addition research has shown that over time companies with code of ethics tend to do much better in the stock market than those that have

not adopted such code (Needle & Powers, 2004).

There are a number of mal practices that can be seen in many organizations (Robbins & DeCenzo, 1998). They further observe that, these are even regarded as normal practices.

While ethics are used as a basis for decision making, the relevance of ethics to the business situation in Africa and Rwanda in particular was not seen as paramount, and this in some way challenged, the credibility, confidentiality, reliability, the integrity and competitiveness of most companies all over the world.

James et al. (2002) contend that, Corporations should use their power and money to voluntarily influence for broad social purposes by giving aid to society's needy persons and groups rather than just aiming at profits alone for business.

According to Ferrell et al. (2005), some special aspects must be considered when applying ethics to business. First, to survive businesses must earn a profit. If profits are realized through misconduct, however, the life of the organization may be shortened.

Second businesses must balance their desires for profits against the needs and desires of the society. Users of accounting information must rely on the information supplied by accountant. They must have confidence in the reliability and integrity of the information they received in order to continue their business and economic decision making. The reliability and the integrity of financial statements are dependent on the competence, professional judgment and ethical behavior of the accountants and auditors involved in their preparation (Ferrel et al 2005)

Since independence in 1962, the government of Rwanda owns and operates majority of enterprises in Rwanda (Cherif 2003). Recognizing the constraints in terms of personnel policies, financial discipline, financial management of many of these activities, the government of Rwanda in 1996 adopted a policy framework that provide emphasis on privatization of selected government owned enterprises as a means of promoting economic growth and development. Some government owed corporation faced challenges in delivering quality products and services, while still remaining ethical.

Ethical practices under profitability analysis include various aspect under which

includes credibility, objectivity, confidentiality and integrity. Although ethical practices and profitability analysis have existed for long which are meant to guide private sector, in Rwanda this sector has had challenges to financial performance, different stakeholders ask themselves about the profitability and the future of private companies (IMA, 2005)

It is because of these challenges that the researcher assessed the role of ethics, analyze profitability; and determine their effect on performance of Pfunda Tea Company as private organization.

2. MATERIALS AND METHODS

In this study descriptive research design was used. The researcher used this type of design to describe quantitatively the extent to which ethical issues and profitability analysis affect organizational performance. The design was based on the result from questionnaire and interviews with tea plantation chiefs.

Descriptive research design was also used to describe quantitatively the degree to which ethical issues, profitability analysis and financial performance are related.

The study was carried out from Pfunda Tea Company. The study population comprised of the Pfunda Tea Company's Staff members (top management, heads of departments and accountants) who have direct involvement in the preparation of financial statement as well as tea plantation chiefs and some clients this made a total of three hundred forty seven (347) people where the sample was retrieved.

In this study both Stratified random sampling and judgmental sampling were used. Because of heterogeneous nature of the population to be sampled, the researcher used stratified sampling; the population was divided into strata of Managers, Employees, Tea plantation chiefs and Clients. Judgmental sampling has been used to select the clients and tea planters, plantation chiefs; the researcher selected a sample based on his knowledge of the group to be sampled. The researcher was not able to find all desired clients, because a great number of them are not residents since Pfunda Tea Company sells tea to both domestic and international clients. Recognizing this constraint researcher interviewed only resident clients.

As said earlier the study population was three hundred forty seven (347). The sample size included two hundred sixty eight (268) respondents comprised of 32 managers,

Seventy employees (70), Forty (40) clients, two (2) accountants, and one hundred twenty four (124) tea plantation chiefs.

During the period of data collection, researcher provided the respondents with necessary information, the confidentiality of data was assured. The researcher used questionnaire, interview and documentary analysis. In the process of collecting primary and secondary data, the selection of those tools were guided by the nature of data that were required, as well as by the objective of study. The primary data included data that were collected during the field visit at Pfunda Tea Company while the secondary data contained information retrieved from financial statements available.

The researcher demonstrated analytical discussion of research findings based on evidence compiled with logical and analytical arguments. The researcher argument supported literature review. In this study both quantitative and qualitative techniques were used.

The data collected were analyzed and presented using formatted table, charts and in the text forms as a mode of data presentation. The researcher used excels to analyze some data. Using financial ratios, the researcher showed financial position of Pfunda Tea Company during the period of four years of activity.

In order to produce findings that are in agreement with theoretical values, the researcher assessed the validity of research instrument and both questionnaire and interview were pre-tested from the respondents. Since the contents validity index of both instruments were greater than 0.7, both instruments were valid and ready for data collection. The researcher prepared different questionnaires appropriate to this study. The researcher used both personal administrations with on-the-spot-collection where the researcher delivered the questionnaire personally and waited for the respondents to complete it and went back with the questionnaire; personal administration with collection after time interval was employed to give the respondents enough time to answer the questionnaire and consult other sources (Ledger, balance sheets and other documents)

3. RESULTS AND DISCUSSION

The results of study showed that the number of women employed by Pfunda Tea Company is lower (25 %) than men (75%). While the effort of Rwandan government in fighting against gender imbalance among its population, the number of women in Pfunda Tea Company is low especially in technical tasks (Maintenance). During interview with some employees it has been confirmed that the woman is neglected in such service (maintenance) because they are weak and undertrained in heavy engineering, this has been rejected by an other category of workers namely Tea plantation chiefs who said that the statement is not true because, there are a big number of women trained by Kigali Institute of Science and Technology (KIST) who can perform well once hired. This segregation might not be well justified ethically because a woman can do the same as man does for the performance of a given company.

A great number of respondents have been surveyed to know the relevance of age group towards organizational performance and the following data have been found: The findings portray that 39% of respondents are in the interval of 36 – 40 years. This age interval includes active workers with experience and who can actively render quality services to the organization. It has also noted that 24% of respondents are ranged in interval of 31-35years which means that this people are still young and are able to reach Tea plantation instantly in case of need. Some respondents stressed that while at Pfunda Tea Company there are some services which require people who are still young, for ethical matters there are services which require workers who are mature. These people are ranged in interval of 41-50 years and at Pfunda Tea Company they constitute 18%.

The research was interested in knowing the ethical effect that education level plays in organizational performance and he came up with the following results: It has been revealed that 62% of respondents were secondary level and that 31% were university level. This explains that these people are skilled and are likely to understand the relevance of ethics in business activities. Respondents with primary level constitute 7%, this percentage is not low when considering ethical issues. They must be empowered in different ways in order to achieve organizational performance because a great number of them act directly with temporally employees who work in tea plantations where lots of abuse are emerging. During interview, Tea plantation

chiefs argued that some children left school to join Tea plantations where they harvest and pick tea this is unethical, harmful and contrary to the labor laws in Rwanda.

Data about managers' position have been collected; the findings revealed that 63% of respondents were tea plantation chiefs. Ethically this presents positive impact to both tea planters and tea harvesters. First, tea planters need not only to be assured that all quantity of tea harvested from their tea plantations reaches the company but also to know whether the quantity of fertilizers received by them is really the quality and the quantity they were expecting to get. During interview with tea plantation chiefs it has been revealed that some of tea harvester registered the green tea to the people who are not supposed to be the owners, this behavior can be reduced even eliminated as the number of tea plantation chiefs is significant. Secondary the great number of tea plantation chiefs will help tea harvesters to pick tea of quality and record them to the responsible person (tea planters) because some of tea harvesters are confused during the tea registration as resource said. Once Tea plantation managers successful achieve their duties this assist the company to achieve its performance as tea constitutes the first in put source of uncounted gains.

Considering managers' position in organization, the results showed that 13% of employees were in top level, 58% middle level, 23% to lower level and 6% to the lowest level. This implies that Pfunda Tea Company has a great number of employees in the middle level where operational ethical decisions are carried out. This can help the organization to achieve its performance since those people are the one to implement decisions in order to promote positive image of the company.

The duration of Tea plantation chiefs attracted also the attention of the researcher as consequences the results showed that a great number of Tea plantation chiefs is ranged between 5-8 years, i.e 60% of total respondents this represents positive effect because tea plantation chiefs are assumed to have enough experience in order to handle any problem that can arise from tea harvester and tea planters and assist in enhancing credibility, competence, objectivity, integrity and trust among all those valuable groups intervening and acting for the performance of Pfunda Tea Company. The investigators surveyed on availability of credibility, objectivity, confidentiality and integrity in financial reporting and the following information was drawn up and summarized as follows:

The results showed that 91% of the respondents agree that there is high credibility, objectivity, confidentiality and integrity in financial reporting. This explains that the information provided to the public is credible; stakeholders can base their decisions on them. The availability of credibility, objectivity, confidentiality and integrity in financial reporting will help Pfunda Tea Company not only to earn enough income but also to attract and hold investment capital.

Regarding the effect of ethical issue organizational performance the results showed that 95% of respondents agree that ethical issues play significant effect on organizational performance. This implies that Pfunda Tea Company staff members and employees understand the importance of ethical practices on organizational performance. This means that managers will refrain from any activity that can lead them to illegal profit by not cheating, misrepresenting and covering up mistakes.

The results show that 99% of the respondents agree that they do not support any activity that would discredit their profession. During the interview with Tea plantation chiefs, it has been revealed that previously some of tea plantation chief received gifts from tea planters and this challenged integrity and reliability of services offered to the stakeholders. The same respondents (Tea plantation chiefs) argued that these unethical behaviors were totally eliminated by dismissing the agitator. Refusal to adhere to such activities will improve trust and objectivity as the professionals put the interest of Pfunda Tea Company to the forefront.

The researcher believes that business ethics actually add value for customers and result in increased profitability and performance and was hereby interested to survey the relevance of ethical profitability analysis towards organizational performance.

All stakeholders must be provided with relevant information that can assist them to take decisions about the company. On this topic the following data were collected by a researcher.

The result showed that 68% agreed to the statement of full disclosure of information while 32% disagreed to the statement. Full disclosure of information can increase trust among stakeholders who can decide to increase or not their share capital considering whether business is promising or not. During the interview some interviewees confirmed that there are some information that can not be revealed to the stakeholders for the integrity and the future of the company. The researcher

believes that full disclosure of information plays the role of increasing market share, building good image and reputational values towards organizational performance. The company maintains confidentiality in relation to business transactions except when otherwise authorized by the parties involved, or if required by law. In particular, the company might not disclose details of confidential organizational matters to third parties.

The result showed that 100% of the respondent agreed on the assertion that Pfunda Tea Company has proficiency to undertake financial and ethics audits. Accordingly, people need to have a clearer understanding of what is the right thing to do. In sum, they need a template, or a roadmap, that provides a clear image of what the company should (and should not) do.

Majority of respondents agree that the manager prepare accurate and clear financial report, 82% agree on this statement. This means that any stakeholder who can wish to carry on a business or invest money could depend on information provided in financial report. The managers understand well that if they lie, effective communication and economic activity would be impossible and information would have no credibility. The same percentage showed that managers are willing to avoid ethical lapses namely covering up information about safety of their product, price fixing and polluting environment.

The process of developing and performing an ethics audit provides an excellent means for the private company to identify how to “do the right thing” in the future. Practitioners of profitability analysis are advised to perform professional duties in accordance with relevant laws, regulations, and technical standards. Under this concern the researcher wanted to know whether there is a relationship between ethical issues, profitability analysis and organizational performance.

Practitioners of profitability analysis must prepare clear financial report and provide decision support information and recommendations that are accurate, concise, and timely.

To assess the relationship between ethical issues, profitability analysis and organizational performance, the correlation coefficient was calculated using excels and the result showed that there is perfect positive correlation (1). This means that

the two variables namely ethical issues and profitability analysis are related one to another, the increase of one variable implies the increase of another variable. This statement means that as ethical behaviors (credibility, objectivity, confidentiality, competence and integrity) increased in Pfunda Tea Company, this leads to good and ethical profitability analysis. In nutshell this means that when ethical issues increase, profitability analysis increases too and become more and more reliable.

The findings to the study highlighted also that profitability analysis and organizational performance are related. This is justified by perfect positive correlation which is equal to one (1) which means that the two variables are correlated one to another the increase of one variable leads to the increase of another variable. To survive and grow over period of time a company should earn profits, the word profit should not look upon as term of abuse since some firms always want to maximize profit at the cost of employees, customers and society. The profit needs to be analyzed because once it is well analyzed this can leads to organizational performance through financial information generated by this analysis.

Therefore, there is weak positive relationship (0.93) between ethical issues and organizational performance which means that the increase of ethical behaviors leads to the increase of organizational performance because when stakeholders are assured on credibility, objectivity, integrity and reliability of financial statement initiate many other activities that lead to growth and organizational performance.

To survive a company must earn enough profit to sustain the operations of the business' to be able to obtain funds from investors for the expansion and growth and to contribute towards the social overheads for the welfare of the society.

Based on data retrieved especially from income statement (profit and loss account) of Pfunda Tea Company the researcher wanted to know how profitability analysis contributes to organizational performance and the results showed that the gross profit in 2005 was 21% while the same gross profit margin increased to 34% in 2008. This means that the firm is able to produce relatively at lower cost. The results also showed that the gross profit margin shrunk in 2007 where the gross profit margin represented 18%. This low gross profit margin reflects higher distribution cost of goods sold that in 2006 and in 2007. This fluctuation of gross profit margin can also be resulted from the firm's inability to purchase raw material at favorable terms

because in 2006 the cost associated to raw material increased.

The higher net profit margin of 33% experienced by Pfunda Tea Company in 2008 would be in an advantageous position to survive in the face of falling selling prices, rising costs of woods used in production or declining demand for tea. Similarly, the augmentation of net profit margin will permit Pfunda Tea Company to make better use of rising selling price, falling costs of production or increasing demand for tea. Such firm will be able to accelerate its profit as faster rate than a firm with a low net profit margin. The adequacy of net profit margin will assist Pfunda Tea Company to achieve good returns on shareholders' funds.

4. DISCUSSION

Ethics could be seen as a constraint on profitability. This view indicates that ethics and profit are inversely related (Bowie 1998). There are probably times when doing the right thing reduces profits. A more positive view, however, is that there is a positive correlation between an organization's ethical behaviors and activities and the organization's bottom line results. In fact, a reputation for ethical business activities can be a major source of competitive advantage. High standards of organizational ethics can contribute to profitability by reducing the cost of business transactions, building a foundation of trust with stakeholders, contributing to an internal environment of successful teamwork, and maintaining social capital that is part of an organization's market-place image.

The major findings of the study were interpreted and presented in relation to the objectives of the study. During the analysis of data, the researcher found that socially, Pfunda Tea Company has enhanced its brand image and reputation and that Consumers are often drawn to brands and companies with good reputations in ethical behaviors related issues. A company regarded as socially responsible can also benefit from its reputation within the business community by having increased ability to attract investors capital and trading partners through ethical financial analysis. Reputation might be hard to quantify and measure; it is even harder to measure how much it increases a company's value. But since companies have developed methods to measure the benefits of their advertisement campaigns, similar methods can and should be able to be applied in the case of corporate reputation towards organizational performance.

The findings to the study especially these related to bio-data show that workers of Pfunda Tea Company are well educated and well trained. The findings showed also that a big number of workers are at operational level where they perform different tasks that require their commitment to ethical behaviors and reinforce the strategic focus on ethical issues towards organizational performance. Similarly, the findings show that a large number of PTC's workers were offering their services for more than 5 years which meaning that they possess necessary experience and skills to carry out different ethical enhancement activities that can be assigned to them.

Moreover it has been revealed that ethical issues such as credibility, objectivity, confidentiality and integrity play significant role on organizational performance. This has been agreed by 91% of the respondents questioned and interviewed. This can mean that stakeholders can rely on financial information provided to them because the honesty is assured in Pfunda Tea Company.

The analysis and interpretation of findings pointed out that there is full disclose of information to the stakeholders, this has been agreed by 68 % of respondents. This percentage means that all parties interested in firm's ability to realize returns and firm liquidity position are provided with sufficient information. The result showed that 100% agreed on the statement that PTC has technical proficiency to undertake financial and ethics audit. This represent positive effect to PTC because management, creditors, investors and others who are interested by PTC's financial reporting and its daily activities will be able to identify ethical laps and implement corrective measures.

The findings emerged positive relationship between ethical issues, profitability analysis on organizational performance. Generally both high gross profit margin ratio and net profit margin ratio will permit PTC to make better use of rising selling price and maximize wealth.

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