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INNOVATIONS DISSEMINATION APPROACHES AMONG GOVERNMENT CO-OPERATIVE SUPPORTING ORGANISATIONS IN TANZANIA

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ABSTRACT

Efficient governments do encourage, support and promote innovations. Such realisation has necessitated some governments to establish strategic organisations to facilitate some of its innovation mandates. Some innovations have been developed by government co-operative supporting organisations (GCSOs) in Tanzania but only a few have been disseminated to end users. This has prompted questioning of the appropriateness of the innovations dissemination approaches used by such GCSOs. Research Method: The case study research design was used whereby five cases were picked. Primary data were collected using key informants' (KIs) interviews, focus groups discussion (FGDs) and documentary review. A qualitative research approach was adopted. Data were analysed using content analysis. The Atlas.ti computer software facilitated analysis of the data. The results show that albeit the existence of several innovations dissemination approaches, there were no mechanisms to institutionalise the effective ones. Concurrently, the approaches applied largely left out the primary co-operative societies (PCSos) treating them as submissive receivers of innovations. Moreover, numerous setbacks including perceived unwillingness by GCSOs executives to prioritise and allocate available resources for innovations, inadequate incentives and resources deficit were constraining inclusive innovations dissemination efforts. The study covered GCSOs only as they have been receiving direct government resources to support among other things innovation activities unlike other member-based and private organisations operating in Tanzania.

Contribution/Originality: This study documents on the importance of inclusive innovations dissemination approaches among GCSOs and the need for its successful intervention and implementation to enable more innovations dissemination to end users (PCSos).

1. INTRODUCTION

Over the years, co-operative organisations have been playing important role in global economic and social development. They have played prominent role in development programmes and in raising the standard of living of people in both rural and urban areas (UN, 2011; Vicari and DeMuro, 2012; ICA, 2017; Bolton, 2019). Several studies demonstrate that democratically organised co-operatives can address peoples' needs and provide opportunities for social and economic empowerment (Majee and Hoyt, 2011; Msonganzila, 2013; Bolton, 2019).

Over 1 billion people are directly benefiting from co-operatives as members or clients worldwide (UNDESA, 2014). On the employment aspect, the co-operative sector is one of the major job providers employing at least 100 million people worldwide (ILO, 2012; UNDESA, 2014). The employment in or within the scope of co-operatives concerns at least 279.4 million people across the globe which is equivalent to 9.5 percent of the world's employed population (CICOPA, 2017). The number of co-operatives throughout the world stands at 2.94 million whereby membership in all types of co-operatives is 1.2 billion (UNDESA, 2014). The African continent is home to 54.1 million co-operative members employing 20.4 million people as staff, worker-members and producer members (CICOPA, 2017). Consequently, Tanzania contributes about 1.4 million people as co-operative members to such figure (CICOPA, 2017; Tanzania Co-operative Development Commission (TCDC), 2019). Sumelius (2013) indicated that about 8 million people in Tanzania benefit directly from co-operatives in terms of a range of services i.e. credit, crops/products value addition, marketing and marketing information, transportation, storage, agro-inputs, training, employment, etc. Because of such contribution co-operative organisations have continued to gain attention by several stakeholders including the government, donor agencies, researchers, policy makers, the private sector, etc.

Despite the evidence of such success and wide stakeholders' attention, sadly, the performance of co-operatives in Africa and mainly in Sub Saharan African (SSA) countries, Tanzania inclusive, has not been impressive (URT, 2006; Mrema, 2017; Chambo, 2018; Njau *et al*., 2019). To some countries such as Tanzania, Zambia, Ghana and others co-operatives operated under strict government control and directives denying their socio-economic empowerment (Francesconi, 2009; Chambo, 2018). In addition to the strict conditions in which such co-operatives operated, the advent of the market liberalisation has added burden to already weak and less empowered co-operatives.

Most co-operatives therefore stringently faced numerous challenges such as unchecked market competition, weak supporting organisations, mismanagement, inadequate education and training, embezzlement and others (Chambo, 2009; Msonganzila, 2013; ICA, 2017). The co-operatives also suffered from inadequate resources in terms of funds, skilled staff, technological and physical resources. As a result, most co-operatives failed to provide smallholder households with functional and economic access to markets (Shiferaw *et al*., 2011) and other innovative products and services (World Bank, 2012; ICA, 2013). The challenges in turn have resulted into many co-operatives particularly the primary co-operatives which are the focus of this study failing to develop and apply their own innovations. As a result, most innovations are expected to be originating from other supporting organisations especially the government organisations (Tefera, 2008; Franks, 2011; DFID, 2014; Moussa *et al*., 2018). It is worth noting that the presence of government support organisations alone is not sufficient to enable successful innovation activities since its implementation largely depends on the organisations' ability and willingness to embrace innovation as a survival and growth strategy.

This is because the survival and growth of enterprises in dynamic business environments particularly in developing countries depends largely on their ability to promote innovations within their organisations (OECD, 2012; Standing *et al*., 2016). Notwithstanding this necessity, there is lack of common understanding of what innovation is all about. The term innovation is widely, but variously used. Often seen as a panacea for resolving many individual and organisational problems, it remains unclear what precisely is meant by it in different contexts (Smith *et al*., 2008; Taylor, 2017). Numerous definitions of innovation thus do exist (Cirera and Maloney, 2017; Taylor, 2017; Fernandes *et al*., 2018). Rogers (2003) defined an innovation as an idea, practice or object that is perceived as new by an individual or other unit of adoption. World Bank (2006) defined innovation as the process by which individuals or organisations master and implement the design and production of goods and services that are new to them, irrespective of whether they are new to their competitors, their country or the world.

Borrowing from this definition, this paper regards innovation as the process by which the co-operative supporting organisations create and offer numerous outputs mainly goods and services that are new to them, including changes in an old or existing way of doing things, irrespective of whether they are new to other

organisations or individuals elsewhere that are intentionally directed at improving co-operatives performance. Innovation outputs are meaningful only if they are disseminated for the purpose of being put into application for functional changes or results. Nevertheless, effective innovations dissemination requires a broad range of approaches.

Choosing appropriate approaches for enhancing innovations dissemination activities remains to be a key challenge in most organisations as it requires a broad range of successful means and interventions (Owens *et al*., 2006; Ayana *et al*., 2018). Empirical literature has indicated that there is no single comprehensive approach that is likely to be effective in enabling innovations dissemination in all situations (WHO, 2018). Depending on the prevailing contexts, various organisations have been using various approaches in dissemination of innovations. The common ones include bottom up, top-down and interactive approaches among others. Bottom up approaches have been used in situation where the innovation demand side e.g. an individual, group, organisation, community members, etc come together to initiate their own solutions to their common problem (Andison, 1990; Atkinson *et al*., 2018). The approach has the strength of harnessing local knowledge which in turn may enhance innovation among stakeholders (Graversgaard *et al*., 2017).

On the contrary, top down approaches are initiated from outside the intended beneficiaries e.g. the government, donors, support organisations, etc. Moreover, interactive approaches have been used in situation where both intended beneficiaries i.e. demand side and facilitators' i.e. the technical side work together to identify and initiate solutions to certain common problems (Ulate *et al*., 2018). Under certain circumstances some of such approaches have been applied without prior and sufficient assessment of the end users innovations demand (WHO, 2018). Bwisa and Gacuhi (1999) indicated that in the absence of demand pressure from users of innovations, the innovative activities are often random since the demand is often replaced by the perception of individual developers or researchers. This means that the organisations innovation actors, co-operative organisations inclusive, are obliged to work to enable successful innovations dissemination approaches to the targeted users.

In this paper innovation dissemination refers to intentional and active spreading of innovations from the source to targeted audience using planned strategies (Brownson *et al*., 2013) i.e. from government co-operative supporting organisations (GCSOs) to primary co-operative societies (PCSos). To ensure innovations sustainability PCSos are responsible to design and implement their own innovations. Nevertheless, currently most PCSos in Tanzania lack the necessary resources such as skilled personnel, technologies, facilities, funds and others to implement innovation activities. They have also been subjected to strict government interventions and control denying their empowerment (Francesconi, 2009). As a result, most PCSos are largely relying on GCSOs as their innovation providers. In realisation of such necessity the government of Tanzania has established several GCSOs and continuously supporting them with some resources to enable among other activities innovations design and dissemination to PCSos. The GCSOs include the Moshi Co-operative University (MoCU), Tanzania Co-operative Development Commission (TCDC), Co-operative Audit and Supervision Corporation (COASCO), Vocational Education and Training Authority (VETA), Small Industries Development Organisation (SIDO), Tanzania research institutions e.g. Tanzania Coffee Research Institute (TaCRI) among others. The support extended by the government to such organisations include skilled personnel, facilitating R & D, paying staff salaries, provision of physical facilities, technologies and staff training among others.

Regardless of such government efforts, research has indicated that some innovations such as improved practices, new/improved crop varieties, co-operative models, new and or improved technologies and others have been developed among GCSOs but only a few are disseminated to targeted users (URT, 2006; World Bank, 2012; ICA, 2013; Njau *et al*., 2019). This has prompted into an empirical question; as to why this situation prevails despite deliberate and continued government support to GCSOs? This paper accentuates that failure by GCSOs to institutionalise (i.e. formally organise, allocate and implement) appropriate innovation dissemination approaches is presumably the reason as to why few innovations have been disseminated to PCSos. Studies have shown that

innovations dissemination failure by some organisations is attributed to their failure to institutionalise appropriate demand-driven dissemination approaches (Bwisa and Gacuhi, 1999; Ayana *et al*., 2018). Consequently, the ultimate users are frequently not considered in innovation efforts (Elton, 2003; WHO, 2018) and processes. Too often, to most of such organisations innovation dissemination has been a one-way passive transmission that relies on the assumption that evidence of effect is sufficient to propel innovations across and among organisations (Wearing, 2008; Ayana *et al*., 2018). This assumption is probably one of the numerous mistakes committed in ensuring successful innovations dissemination. This paper thus posits that innovation dissemination success is a function of successfully institutionalised and interactive innovation dissemination approaches among the key actors in the innovation process. Specifically, the study i) established the approaches applied by GCSOs in dissemination of innovations to end users i.e. primary co-operative societies, ii) determine the nature/level of innovation users participation in the dissemination process and iii) analyse the constraints to inclusive innovations dissemination among studied organisations.

1.1. Theoretical Grounds: Innovation Framework Models

Various innovation framework models on approaches for sharing innovation outputs do exist. They include technology push and technology pull models encompassing simple linear sequential process and the coupling model recognising interactions between different elements and feedback loops between them. Others are interactive/multidimensional models which emphasise on the combination of push and pull models i.e. integration within organisation and external linkages; the network model emphasising on knowledge accumulation, external linkages, systems integration as well as extensive networking and the open model that encompass internal and external ideas as well as internal and external paths to market that can be combined to advance the development of new technologies (Eleveens, 2010; O'Raghallaigh *et al*., 2011; Kotesmir and Meissner, 2013). In line with such point of view, this paper borrows insights from Multi-dimensional Innovation (MI) Model (Myers and Marquis, 1969). The model posits that the process of successful innovation dissemination is sequential meaning it follows a logical order starting with need recognition by both sides i.e. demand side and technical side. The demand side for this paper is the primary co-operative societies and the technical side is the government co-operative supporting organisations.

The MI model was used to assess the various innovations dissemination approaches in the studied GCSOs and how such approaches are inclusive of the needs from demand and technical sides of such innovations. It is worth noting the fact that there are other innovation dissemination approaches that are more advanced and possibly inclusive than MI model (Eleveens, 2010; O'Raghallaigh *et al*., 2011). However, its choice was considered relevant given the basic and underdeveloped nature of innovation activities in most GCSOs in Tanzania. The model takes into account both the demand and technical side of the innovation actors without necessarily considering advanced relationships e.g. complex and extensive networking. Such relationships are currently thought to be missing in the studied organisations.

2. ESTIMATIONS AND METHODS

2.1. Research Areas

This study was conducted in Kilimanjaro, Dar es Salaam and Dodoma Regions where the key GCSOs are headquartered. MoCU and TaCRI are located in Kilimanjaro region, TCDC in Dodoma region whereby VETA and SIDO are in Dar es Salaam region. Thus, five GCSOs were involved in this study. The GCSOs were the main focus of the study because, unlike other private and member based organisations, they have been receiving resources from the government aiming at among other activities, strengthening co-operatives. The same GCSOs are required and mandated by the law to enable formation, development and growth of co-operatives in the country (URT, 2013) among other roles.

2.2. Research Design

This study adopted case study research design whereby multiple case studies (MCS) approach was used. Theoretical replication was assumed meaning that cases were selected on the assumption that they will produce differing results (Yin, 2014; Ridder, 2017). This was based on the fact that studied GCSOs have varied key roles thus assumed to produce differing findings. MCS follow the replication and not the sampling logic approach. This implies that more than two cases i.e. five cases were included in this study to enable comparisons and drawing patterns across the cases and obtaining more reliability in the overall results (Yin, 2004). Multiple cases increase the methodological rigor by strengthening the reliability, validity and precision of results (Ridder, 2017). It also makes findings more compelling and ensures findings generalisation i.e. analytic generalisation. Analytic generalisation is not generalisation to some defined population that has been sampled but to a theory of the phenomenon being studied (Yin, 2014).

2.3. Data Collection Procedures and Sources of Data

The study triangulated the sources of data whereby several sources were used. They include FGDs participants involving GCSOs heads of departments/units and staff, GCSOs documents e.g. strategic plans and innovation policy documents, PCSos visitors' books and key informants constituting the GCSOs executives, former GCSOs executives, and former heads of departments or units who were in charge of innovation activities and PCSos board leaders. A total of 14 FGDs, three per each GCSO were conducted except for TaCRI where two FGDs were conducted mainly due to data saturation realisation. Several FGDs were conducted in the same GCSO focusing at soliciting facts and verifying some data. The number of focus groups usually depends on the amount of facts needed (Hennink *et al.*, 2019).

Most studies use at least two groups and few use more than four groups (Stewart *et al.*, 2007). There are no definitive numbers of focus group participants. Stewart *et al.* (2007) show that FGD should comprise of 6-12 participants since fewer than six tends to reveal less information and can be dull. Similarly, too many participants may be difficult to manage. In this study each focus group comprised of 6-8 participants. The tools for data collection included: FGDs guide, key informants (KIs) interview guide and an audio recorder where participants' consent was sought before recording them. Data collection was done from September 2017 to February 2018.

2.3.1. Information Rating and Harmonisation of the Participants' Responses

Study participants ranked some aspects on GCSOs constraints to inclusive innovation dissemination. The responses were first collected from specific FGD participants. Then to harmonise differing opinions from different FGD groups of the same GCSO, validation meetings comprising participants from all groups were done. Since the study established numerous constraints within the same GCSO, the major constraints were identified and presented in order of preference. Preference/problem ranking technique using pair wise ranking matrix was used.

2.4. Study Participants and Data Analysis

The study made use of the GCSOs as the unit of analysis. Five GCSOs, two purely co-operative supporting organisations i.e. MoCU and TCDC and three quasi co-operatives based i.e. VETA, TaCRI and SIDO were picked for the study. Purely co-operative based GCSOs are those whose primary mandate is to serve co-operatives and the vice-versa is true for the quasi co-operative based GCSOs. In carrying out their activities quasi co-operative based organisations deal with co-operatives as one among their key actors. The basis for such number and categorisation is that the study aimed at capturing data from all forms of GCSOs based on their major functions. This intends to establish patterns of similarities and differences across cases and try to come to terms with their diversity (Neuman, 2011; Ridder, 2017).

Similarly, since the study involved MCS strategy, five cases identified by research scope were sufficient to provide the necessary facts (Yin, 2004). The heads of technical and academic departments/units and at least two staff from each department/unit that were conversant with innovation activities constituted the study participants. Qualitative data analysis approach was used. Content analysis was used in analysing data that was in form of documents while the Atlas.ti computer software was used in analysis of data from KIs and FGDs. Audio-recorded field notes were transcribed prior to analysis. Transcription was followed by data analysis which took part in three major steps. First, the responses and opinions of the interviewees were coded.

Second, data were categorised where a data base for categorising, sorting and retrieving data was prepared. The categorisation was done according to the topics in the interview guide and the research objectives. In the third step, the categorised data were analysed in three stages involving computer generated data reduction i.e. selecting, simplifying and transferring raw data to an analysable format, displaying the data and drawing research conclusion (Taylor *et al*., 2011).

3. RESULTS AND DISCUSSION

3.1. Innovations Dissemination Approaches among Studied Organisations

The study revealed that the studied GCSOs have been using various approaches in enabling innovations dissemination to PCSos. The approaches vary from one GCSO to another based on several reasons such as who initiates such innovations, existing support, influence, etc Table 1.

The study revealed lack of institutionalised approaches regarding innovations dissemination in most of the studied organisations. This is because they had no formally organised, resources backed and implemented innovation systems. The review of the strategic plan documents of the GCSOs revealed that none except TaCRI had clearly stipulated and implemented innovation dissemination blueprint. This implies that there were no deliberate efforts for ensuring proper organisation, resources commitment and implementation of the innovation activities in most of the studied organisations.

In VETA despite being the only organisation with documented innovation policy, the same was not explicitly implemented. This was because there were no resources that were specifically allocated and prioritised for innovation activities since the same were more of individual staff efforts than being institutionalised. As a result, most of the innovations developed at VETA were only for showcasing and training than for dissemination to end users.

Nevertheless, TaCRI being a purely research institute dealing with coffee research was found to have institutionalised plans translated into dynamic research conduct and innovations sharing and dissemination. In the period between 2007 and 2017 twenty three improved coffee varieties and other innovations such as tissue culture technologies, vegetative multiplication of hybrid coffee varieties, etc were disseminated to farmers and PCSos. Less innovations dissemination was recorded in other GCSOs in the same period. This shows that organisations with institutionalised innovation plans are likely to be more vibrant in innovations dissemination than those lacking such plans. On the innovation dissemination approaches commonly in use it was found that several approaches that included top down, bottom up and to some extent interactive approaches were used by studied organisations in different contexts. Thus, multiple innovations dissemination approaches were applied. The choice of the approach used was mainly dictated by GCSOs perception on the innovations to be disseminated and innovation influence or support provided. Little emphasis was given on actual users needs. This was because user-oriented approaches were not common in the studied organisations. Consequently, most disseminated innovations were done using top down approach. One of the KI from MoCU said that:

> "*Top down approach is mainly used since innovation activities are not institutionalised and hence there is no resources allocation for it. Most innovation activities are resulting from personal staff efforts thus it is costly to conduct genuine and rigorous end-users needs assessment and or involving them throughout the whole process*" (KI1 MoCU, Feb. 2018).

Table-1. Commonly used innovations dissemination approaches (IDA) among GCSOs.

GCSO	Institutionalised IDA	Ever transfer innovation	IDA applied (i=top down ii=bottom up iii=interactive)	Common IDA	Reasons for the GCSO use of the common IDA and some innovations disseminated using such approach in the period between 2007-2017
MoCU	No	Yes	i, ii & iii	i, ii & iii	Top down-meeting personal/organisational interests e.g. donor, promotion, income, etc. Interactive-capturing users need versus technical side. Bottom up- quest by some users to seek innovations from MoCU on their own initiatives e.g. seeking skills on co-operative management and entrepreneurship.
TCDC	No	Yes	i, ii & iii	i & ii	Top down-meeting organisation and staff interests. The innovations include forming co-operative audit fund and enforced implementation of warehouse receipt system (WRS). Bottom up- users seeking and demand innovations on their own initiatives. It includes members' initiative to form electricity supply co-operative in Ifakara district, Morogoro region.
VETA	Yes	Yes	i, ii & iii	i & ii	Bottom up- applied to meet orders or requirements from users before designing innovations. Also the innovations are mainly for training and showcasing than for dissemination. They include designing of milling machines, eggs hatching incubators, cooking oil processors, spare parts and others. Top down- technicalities in some innovations necessitate its development before considering end users needs e.g. milling machines, motors and spare parts designs.
SIDO	No	Yes	i & ii & iii	i & ii	Top down- disseminated some programmes and practices that the organisation considers fit for the users. Example value addition training, etc. Bottom up- applied in occasions whereby based on clients own needs visit or call the organisation to acquire certain innovation. It includes designing of ginger processing plant at Mwamba Myamba co-operative in Same district and milk preserving machine to ensure maximum temperature for Nronga dairy PCSos in Kilimanjaro region.
TaCRI	No	Yes	i, ii & iii	i,& ii	Top down - used for practices considered useful but technical to users. The innovations disseminated using this approach include 23 improved coffee varieties, tissue culture technologies, vegetative multiplication of hybrid coffee varieties, soil testing technologies, etc. Bottom up used for users seeking innovations from TaCRI. They include seeking improved coffee seedlings and coffee borer traps.

The innovations disseminated using this approach in MoCU include donor supported innovations e.g. established integrated co-operative model (ICM) combining credit and agricultural marketing co-operatives for service complementarities. The other one is enabled "questioning member co-operatives" that later led to the

formation of G32 co-operatives i.e. empowered co-operatives that withdrew their membership from co-operative union in Kilimanjaro Region among other innovations. This shows that the approach that consider users as active participants in the innovation process were rarely used. As a result, they were largely left out in the process, a tendency likely to result into lack of innovation outputs user ownership and sustainability.

It was also revealed that some innovations were developed based on personal interest such as income generation, meeting staff promotion criteria and or meeting donor, government or political demands. As a result little consideration was given on user innovations dissemination demand. This means that some innovation dissemination activities were done with some implementers dictating and wanting to see their predetermined agenda getting through without seeking user opinions and requirements. Similar scenario was reported in TCDC and SIDO. One of the KI from SIDO indicated that:

> *"It has been a practice to most of our innovators to design and disseminate innovations mainly based on own perceptions or market demand without necessarily involving approaches that consider end users at key stages or processes"* (KI SIDO, Dec. 2017).

It was found that most innovations from SIDO were mainly disseminated on demand basis once developed or when an order is placed. This implies that there were no inclusive organisation's efforts for designing and or disseminating innovations to PCSos. It was found that most regional offices lacked skilled technicians despite being manned with qualified managers and thus most innovation activities were carried out by private technocrats who had hired the premises. The top down and bottom up approaches were revealed to be commonly practiced by such occupants.

Similar situation on the approaches used was revealed in VETA where most innovations dissemination was demand based and or experts oriented. This was because most of its innovations were aimed for training and showcasing than dissemination. As a result innovations up scaling were not done. At TaCRI, it was found that the common approaches used in innovations dissemination included top down and bottom up approaches. One of the KI from TaCRI said:

> *"Given the technicalities involved in some coffee research and related innovations there are occasions where we disseminate certain innovations to users without necessarily involving them at some key stages of the dissemination approaches"* (KI 1, TaCRI, Jan. 2018).

It was revealed that sometimes farmers and PCSos were not fully involved in the dissemination approaches since top down approaches were applied because of the experts' perceptions and decisions on the technicalities involved in such innovations. Under such circumstances all key decisions are dictated by those with power or influence, in this study the GCSOs, whereby local PCSos are downgraded to the position of innovation receivers and implementers (Wang and Xue, 2017; Si *et al.*, 2018). The innovations that were reported to be disseminated using this approach in TaCRI included coffee tissue culture technologies, vegetative multiplication of improved coffee seedlings, improved or hybrid seedlings production and initial testing among others. This study revealed that all of the studied GCSOs mainly applied top down approach in innovations dissemination.

Bottom up approach has also been used while interactive approach has been occasionally used. This implies that inclusive approaches that treat PCSos as active participants in the innovation chains and or processes are not often times used. It was revealed that such approach was considered to be costly in terms of innovation needs assessment and other resources required to actively engage the technical i.e. GCSOs and demand side i.e. PCSos participants along the entire innovation chains. Ulate *et al.* (2018) indicated that most developing countries still have small clusters of social structures defined by geopolitical, socio-economic and cultural ties particularly in rural areas and thus it is ineffective to apply top-down strategies for attaining sustainable development to communities. Unfortunately, many developing countries particularly in Africa have tended to strongly use non-participatory strategies in issues relating to development (Ayana *et al.*, 2018) innovations dissemination approaches inclusive. It is urged that the major reason for at least partial failure of innovations dissemination lies upon the uni-directional

approaches used in their dissemination (Elton, 2003). The findings of this study therefore mainly concur with this observation. This implies that the PCSos have been largely denied effective involvement in the approaches they should rightfully manage and possibly benefit more from them. The findings are also in contrast with the Multi-dimensional Innovation (MI) model which emphasise for the need for interactive strategies between technical and demand side of the innovation actors. Such synergy was largely missing. It was also revealed that there were some occasions where bottom up approaches were applied whereby farmers and or PCSos came to seek for some innovations particularly improved practices e.g. diseases and or drought-tolerant coffee seedlings from TaCRI.

Similar occasional scenarios were also revealed in MoCU, TCDC, SIDO and VETA. Various scholars have emphasised that development strategies that adopt bottom up approach where end-users are actively involved in decision making facilitate better achievement of the targeted objectives (Meslin, 2010; Koontz and Newig, 2014; Russell, 2015). This study however revealed a limited active involvement of PCSos as innovation end users. This means that GCSOs were unlikely to be able to successfully meet innovations dissemination activities since active involvement of the end users was minimal.

Scholars have urged on the need for the combination between bottom up approach and top down approach to form a hybrid approach i.e. interactive approach that is dictated and determined by the factors at both central and local levels (Mctigue *et al*., 2018; Ulate *et al*., 2018). Usually, there is more synergy when people analyse a common problem or need jointly and design appropriate solutions or approaches relevant to the identified problem or need (Chambo, 2010). In this study however such synergies occasionally existed. This was so because the study revealed incidences where end users were involved in innovation needs assessment and some decisions on the innovations dissemination approaches. Nonetheless, such incidences were not common in the studied organisations. This implies participatory innovations dissemination approaches were not often times practiced.

3.2. Innovation Users Involvement in Innovation Dissemination Process

The study established that all of the studied GCSOs have occasionally involved innovation users in innovations dissemination. Nevertheless, the nature of their involvement is skewed more on passive participation than interactive participation or more inclusive participation. In this paper, passive participation means PCSos were not vigorously involved in most of the key innovation processes but rather as unilateral submissive recipients. Similarly, interactive participation connotes a joint analysis and implementation of innovations dissemination action plans between GCSOs and PCSos. This implies that innovation users' active involvement in the innovation chain activities was minimal. Several factors such as source of the innovations support or influence and the innovation perceptions on the intended users dictated this. Moreover, there were occasions where intended innovation users i.e. PCSos were not entirely involved in the innovations dissemination process. One of the KIs from MoCU said that:

"As an organisation we have sometimes found ourselves trapped in the need to apply certain approaches that leave aside the end users' aspirations in a hurry to meet funders, government or even politicians' desires" (KI 2, MoCU, Feb. 2018).

There was concern that there were incidences where PCSos were not entirely involved in the innovations dissemination process because such innovation activities were eventful resulting from certain donor, government or political directives and or demands. This means that under such circumstances there was no room for engaging the end users especially at the crucial innovation processes. The end users thus were mainly involved at the final stages as innovations recipients. The study revealed also occasions where top down approach was applied which largely leaves end users decisions and or aspirations aside. Several reasons including meeting pre-determined donor or funders' conditions e.g. strict deadlines usually deliberated without end users involvement and the thinking that some GCSOs experts can decide what is the best for the PCSos were mainly identified.

Wearing (2008) indicated that in most cases people in positions of authority may be regarded as influential and hence their wants are more considered than those of users. Under such influence innovation experts tend to

substitute their perceptions for those of potential users. Similar concerns on the approaches that leave aside PCSos were recorded at SIDO, VETA and TaCRI. A KI from TaCRI said that:

> "*In 2017 the government through the minister responsible for agriculture directed us to supply improved coffee seedlings to farmers and PCSos free of charge and promise to subsidise the production costs. To date, no subsidy has been provided and as a result all coffee seedlings have been collected and there is no more seedlings production*" (KI 2, TaCRI, Jan. 2018).

It was revealed that formerly TaCRI used to charge TZS 300 per seedling to farmers and PCSos and this was a consensus between the two parties. The government intervention on the process was found to be detrimental to the organisation as the directive was implemented but the subsidy was not provided. There were concerns also that since farmers and PCSos were literally advised to go and collect improved coffee seedlings, it is likely that not all seedlings were planted as the recipients were not prepared to do so. Mussa (2013) established that usually politicking distorts effective performance since it allows inclusion of personal interests for personal gains at the expense of others such as farmers and other intended beneficiaries.

This implies contrary to participation rules unpredictable government influences partly hinder effective innovation dissemination approaches among the studied GCSOs. This was the case because the end users who are mainly smallholder farmers and PCSos were not given a chance to decide on the issues that eventually touched their welfare. The cross-checking visits made to some PCSos revealed that in most cases they were not involved in innovation processes including its dissemination.

Most PCSos interviewees expressed concern that they were not aware of some GCSOs innovations. One of the KIs from surveyed PCSos said that:

> "*GCSOs seem not to believe that we are key partners in the innovation process and possibly that is why they exclude us in key stages of such activities*" (KI, PCSo, Feb. 2018).

They indicated that they have been participating in some innovation practices from private organisations such as non-governmental organisations and other private providers rather than from the surveyed GCSOs. A review of the PCSos visitors' books revealed that MoCU and TCDC were the frequent visitors to them. TaCRI was also a frequent visitor in the coffee growing areas. However, most of their visits with the exception of TaCRI focused more on conventional trainings rather than on innovation dissemination practices. This shows that GCSOs are leaning more on conventional training than innovation skills, a practice that contributes into few innovations dissemination to PCSos. They also expressed concern that in most cases they are involved as innovation recipients but not part of the dissemination process or approaches. This implies PCSos were in most cases sidelined in most innovation activities and thus were not aware of the whole gamut of innovations dissemination approaches.

ICA (2013) indicated that there is good evidence to suggest that providing the consumers or innovation users with a voice inside an organisation or actors working with them produces better and responsive activity outcomes. Such voices however were largely missing in the studied GCSOs. This implies that in most cases, the innovation dissemination approaches used were not pro-end users' as were mainly top down in nature. The findings of this study are largely contrary to the Multi-dimensional Innovation (MI) Model which emphasises on the need for interactive approaches between the technical and demand side of the innovation actors. Such interaction is necessary for ensuring innovations dissemination output sustainability (Poncian, 2014; Nakhshina, 2016; Kerr *et al.*, 2017) since it provides an avenue for both sides to discuss and decide on the best approaches suitable to their contexts.

3.3. Constraints to Inclusive Innovations Dissemination among Studied GCSOs

Innovation activities in the public sector have been encountering numerous setbacks or barriers. Such setbacks may be classified into three categories which are political barriers encompassing those arising from political environment, internal barriers arising within the organisation and external barriers resulting from the obstacles

caused by external environment (Boris, 2006). In this section, the major constraints to inclusive innovations dissemination among GCSOs are described with a wide perspective to cover the three categories Table 2.

Table-2. Constraints to inclusive innovations dissemination among GCSOs.

GCSO	Constraints to inclusive innovations dissemination (in order of preference from the most important to the least important constraint using pair wise ranking matrix)
MoCU	i. Lack of willingness, innovations dissemination proactiveness and change management culture among staff and management. There is also lack of innovations institutionalisation making it neither prioritised nor allocated resources. Risk aversion habit also exists. ii. Inadequate innovations dissemination incentives and absence of failure analysis systems. iii. Lack of a unit mandated for innovations researching, piloting and dissemination. iv. Lack of innovations dissemination strategies monitoring and evaluation. v. Lacking patenting of innovations, innovation policy and practical innovation training. vi. Lack of innovations dissemination collaboration among GCSOs.
TCDC	i. Inadequate resources mainly innovative personnel to enable innovations dissemination. ii. Lacking innovations dissemination incentives and unwillingness to facilitate innovations dissemination. This encompasses low emphasis on appropriate dissemination approaches. iii. Lack of facilities e.g. incubators for piloting and demonstrating innovations dissemination, lack of innovations research, documentation and dissemination unit, etc. iv. Government policies and regulations where the government is still the major player and not a mere regulator and hence sometimes give directives affecting dissemination. v. Inadequate rewards on innovations dissemination including innovation training.
VETA	i. Failure to capitalise and commercialise on innovations dissemination (lack of will). ii. Inadequate incentives, recognition and appreciations of innovations dissemination efforts. iii. Inadequate resources to invest sufficiently in terms of staff, facilities and innovation technologies (existing are obsolete) also low dissemination and commercialisation efforts. iv. Inadequate protection of intellectual property rights (discourage skilled & talented staff). v. Lack of collaboration among organisations to share innovations dissemination skills. vi. Lack of end users (PCSos) demand for innovations since we work on demand basis. vii. Lack of recognition of innovators and lacking patenting initiatives.
SIDO	i. Unwillingness to prioritise and utilise available resources for innovations dissemination. ii. Inadequate incentives and emphasis on innovations dissemination approaches. iii. Inadequate resources to facilitate innovations dissemination including insufficient skilled staff, obsolete technologies, inadequate innovation trainings, etc. iv. Absence of innovation units dealing with specialised sectors such as co-operatives. v. Lack of innovation dissemination strategies, promotion and monitoring mechanisms. vi. Lack of patents for our products making them available and copied by others.
TaCRI	i. Inadequate funding for mass production and innovations dissemination. ii. Government policies and regulations e.g. unpredictable government/political directives affecting innovations dissemination processes, influence of foreign innovations, etc. iii. Lack of networking on innovations dissemination among GCSOs. iv. Unavailability of innovation facilities e.g. innovation incubators, etc.

Inadequate access to finance is considered one among the major barriers to innovations development and dissemination in Tanzania (HDIF, 2014). Interestingly, this study identified unwillingness by GCSOs management to prioritise and allocate available resources for innovations dissemination and inadequate innovations incentives among staff and management as the key barriers. This implies that to such organisations innovation activities are a neglected practice. Thus lacking genuine innovation activities commitment and inadequate nurturing of relevant and sufficient innovation incentives were the key setbacks prior to mobilisation of needed resources.

On the other hand, inadequate resources mainly financing and personnel was the next most adverse constraint. This implies that innovation dissemination constraints are intertwined in a way that may require a holistic approach in addressing them. This is because dealing with only one or few setbacks may not result into intended innovations dissemination. A study conducted in Poland, Belgium, Slovenia, Malta and Luxembourg on the innovation barriers indicated that lack of management willingness and support was the key barrier to innovation activities in the first three countries while the same factor was not of high importance in the other two countries (Raipa and Giedraityte,

2014). This implies that the barriers to innovations dissemination are context specific hence may vary from one organisation to another or from one country to another.

On the GCSOs unwillingness to support innovations dissemination it was revealed that some limited resources such as personnel, finance and others were available but were neither prioritised nor allocated for innovation activities in most of the studied GCSOs. It was found out that innovation activities could not be effectively implemented due to lacking proactive innovation culture among management and staff. One of the KI from MoCU narrated that:

"*Successful innovations dissemination requires new thinking by the leadership and staff that can nurture and embrace proactive culture towards innovation. This is possible but we need to shift gears to avoid the concept of talking daily of lack of funding. If this syndrome continues, everybody will lose hope and there won't be any innovations*" (KI 3, MoCU, Feb. 2018).

This implies that innovation activities were not sufficiently promoted in MoCU. Diyamett and Wangwe (2006) and DFID (2014) indicated that insufficient resources prioritisation and utilisation for innovation activities is a problem inherent in many public organisations in Tanzania. As a result change management challenge among such organisations including GCSOs is persistent. Manimala *et al.* (2006) emphasised that some meritorious innovations may not be implemented and disseminated partly because of lack of adequate change management strategies on the part of the innovation facilitators. Such fault may be associated with resistance to change as management and staff are used to a particular style of doing their jobs.

Moussa *et al.* (2018) and Wagenaar and Wood (2018) emphasised that public sector innovation suffers from some fundamental constraints resulting from change resistant nature of public bureaucracy and inherent risk aversion habit. Such change resistance may be associated with failure of the system to analyse innovations dissemination failures and document lessons from it Manimala *et al.* (2006). The other concern is inadequate innovation incentives among staff and management. It was revealed that innovation activities were not sufficiently recognised, promoted and rewarded in most of the studied organisations. A KI from VETA claimed that:

"*There have been no formal systems for recognising, appreciating, rewarding and promoting innovations dissemination. Innovation activities are mainly done at individual efforts with no collective unit for its design or dissemination. Other supportive environment such as innovations protection e.g. patent rights policy is also missing.*" (KI 1, VETA, Dec. 2017).

Similar concerns were revealed in other organisations with the exception of TaCRI and to some extent MoCU which were found to have some formal systems for promoting and rewarding innovation activities. This implies that there were no systematic approaches or organisational systems in place for rewarding and or reinforcing innovations dissemination in most of the studied organisations. Incentives such as innovation rewards, prizes, competitions, performance reviews, token/fund, promotion, recognition, etc were largely missing. Nam (2019) revealed that the absence of competition due to institutionalised monopoly and monopsony of the public sector demotivates efforts towards innovation.

Furthermore, some other forms of incentives such as innovation patents and copyright issues were entirely missing in most of studied GCSOs with the exception of TaCRI. This has its cost implications since GCSOs were unable to claim innovations ownership and prevent others from copying them. Studies have shown that there is association between incentives and resources utilisation ability (Hollander and Kadlec, 2015; Murphy *et al.*, 2016). This implies that there may be resources in place but if the innovators are not sufficiently motivated to develop and disseminate innovations then little is likely to be attained on the same. Additionally, resources inadequacy was also revealed to be one of the key barriers to innovations dissemination. All of the studied GCSOs indicated that innovations dissemination initiatives were constrained by inadequate resources mainly in terms of funding and skilled personnel. It was found that the majority of the personnel were not capacitated by their organisations with adequate innovation skills and training. Research has indicated that most public organisations in SSA are characterised by substantial lack of human competencies and skills resulting from inadequate financial investment

and utilisation on the same (George *et al*., 2016; Uden *et al*., 2017). Other resources that were revealed to be limited include lack of physical facilities such as specialised units or departments responsible for researching, testing, demonstrating and disseminating innovations, lack of incubators where innovation ideas could be nurtured and inadequacy of other facilities such as vehicles, premises, among others. Technological resources such as state-of-the-art laboratories, internet connected computer laboratories, training equipments, workshops and others were highly inadequate while most of the available ones were obsolete.

All such resources inadequacy was revealed to be constraining innovations dissemination to PCSos. Bradley *et al*. (2012) and George *et al*. (2016) established that most public organisations in developing countries have been operating below the technology frontier due to resources inadequacy. This implies that resources limitation has squarely been constraining effective innovations dissemination among studied GCSOs. In addition to the major barriers discussed in this section other identified constraints include unpredictable government influences and or directives, lack of innovations dissemination collaboration and or networking among GCSOs, low innovations demand, influence and desire for foreign technologies over local ones, risk aversion habit among staff and management, lack of patenting rights, lacking practical innovation training, low emphasis on innovations dissemination and commercialisation and poor documentation and archiving of innovation practices for possible future improvement and up-scaling.

3.4. Study Contribution and Theoretical Reflection

This study highlights on the necessity for inclusive innovation dissemination approaches as an endeavor for enabling more innovations dissemination from GCSOs to PCSos in Tanzania. It assessed and critiqued the currently applied innovations dissemination approaches among studied organisations while enunciating on the need for interactive approaches that fully engage the innovations technical side (the GCSOs) and the demand side (the PCSos). On the theoretical contribution the study make use of the Multi-dimensional Innovation (MI) model which literally emphasises that successful innovations dissemination is a function of need recognition between demand and technical side. The study establishes that there was minimal relationship between the two sides. This implies that limited interaction existed between the GCSOs as innovation technical side and PCSos as innovation demand side, a situation that partly explain as to why few innovations are disseminated to PCSos. Thus, since interactive innovations development and dissemination was not adequately implemented among the studied GCSOs the findings confirm the MI model. This implies that the interactive approaches necessary for enabling successful innovations dissemination were largely lacking unlike the model postulation that emphasise on the need for the GCSOs and PCSos to actively interact in enabling successful innovations activities.

4. CONCLUSIONS

With an increasing concern for inclusive innovations dissemination approaches efforts are required to ensure its successful intervention and implementation. This study concludes that there are no institutionalised approaches regarding innovations dissemination among studied organisations. Thus the choice of innovation dissemination approaches was influenced by prevailing situations based on who initiated the process e.g. the innovators, innovation users, donors, government or politicians. It is advised that the GCSOs executives and personnel should work to ensure inclusive innovations dissemination approaches that are clients/users oriented as opposed to the existing predominantly context biased approaches.

It is also concluded that the innovations dissemination approaches applied in most of the GCSOs are not inclusive of the demand and supply side of the innovations actors. Most approaches largely leave behind the PCSos as innovation users in several key decision making aspects. The PCSos are mainly involved at final stages of innovations dissemination as passive recipients. The study recommends to GCSOs authorities and personnel to ensure genuine, comprehensive and interactive approaches that considers innovation end users i.e. PCSos as active

participants in the whole innovation value chain. This means that there should be deliberate efforts to make PCSos part and parcel of the innovation process right from idea sourcing, selection, conversion and dissemination. On the other hand, the PCSos should also be proactive in ensuring they become a part and parcel of the innovation value chains. This can be done through their own initiatives in actively making innovation facilitators more accountable to them. Their own initiatives in building internal innovation capabilities through mobilising own resource base specifically for innovation activities is also advised.

All in all, the study concludes that numerous setbacks have been constraining inclusive innovations dissemination among GCSOs. The key ones include perceived unwillingness by the GCSOs to prioritise and utilise available resources for innovation, inadequate innovations dissemination incentives and inadequate resources among others. It is recommended that GCSOs executives should genuinely work to ensure a shift in mindset among themselves and their supporting team in appreciating the potential of innovation towards their organisation's success and growth. The shift in mind set if genuinely executed, is likely to result into witnessing of deliberate efforts towards innovation activities prioritisation which is currently missing.

It is also recommended that GCSOs executives, personnel and other co-operative stakeholders such as the co-operative member-based organisations, the government, private sector and others should work to ensure clear and formal innovation incentives in their organisations. This should go hand in hand with ensuring sufficient resources to enable implementation of such incentive systems and other innovations dissemination activities. The GCSOs executives and personnel should work to mobilise resources from various sources such as own innovation projects, research projects, allocating a special budget for innovation activities from their main sources of income, conducting general fund raising purely directed for innovation activities, and the like. Efforts should also be made by the GCSOs executives to establish and maintain mutual innovation dissemination collaborations and networks. Such efforts should aim at complementing and optimising the use of available scarce resources among GCSOs to address the numerous innovations development and dissemination constraints. Similarly, such efforts should also aim at developing inclusive ABCs of innovation as a cross-cutting issue to enable innovation team work among GCSOs.

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