

Socio-demographic Characteristics of Co-operatives Governing Boards and its Influence on Innovations Design: A Case of Chilanga, Kabwe and Kafue Districts, Zambia

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Abstract

This paper assessed the influence of socio-demographic characteristics of co-operatives governing boards on innovations design. The study was conducted in Kafue, Kabwe and Chilanga Districts, Zambia. Qualitative data were collected using semi-structured interview guide and focus group discussions and were analyzed using content analysis. Quantitative data were collected using questionnaires and were analyzed using statistical package for social science computer program. The study revealed that, studied co-operatives rely mainly on one's degree of trustworthiness as a key attribute for a leadership post than on other important attributes like academic qualifications, expertise, exposure, etc. It was also revealed that age, education level and trainings attended by the respondents had no influence on innovations design. Furthermore, governing boards' exposure, number of members who actively access services, innovation support provided and motivational packages offered had significant influence on innovations design in studied co-operatives. This paper recommends that given the current global demand for innovative leadership and governance, professional attributes are important for one to be elected a leader in co-operatives. Co-operative education and training is also emphasized to members and leaders to make them aware of the current global requirements for professional leadership among other recommendations as detailed in this paper.

Key words: Socio-demographic characteristics, governing boards, innovations, innovations design, primary co-operative societies

1. INTRODUCTION

As the world is increasingly becoming entrepreneurial, innovation will be the prime factor for the success of any sector. The cooperatives sector with its intrinsic advantages may have good opportunity to surge ahead, and emerge as leaders (ICA, 2015). The ICA believes that cooperatives⁵ with their values which are very much centered on sustainability are a successful model for today's world. A look at the best cooperative practices around the globe clearly indicates

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⁵ This paper defines co-operatives as an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (ICA, 2013).

that innovation is key to the success of many cooperatives. However, innovation as a professional strategy has yet to take deep roots in the functioning of cooperatives. Lack of good governance cripples the functioning of many of the cooperatives, due to which they fail to devise innovative technological and management strategies (ICA, 2015). Despite the many problems facing cooperative societies, the most significant problem preventing them from responding successfully to the newly deregulated markets is their failure to recognize and develop professional co-operative innovation and management (World Bank, 2012).

This paper is grounded on the assumption that the failure to sufficiently devise and utilize innovations by co-operative societies is largely a result of governing board's professional inability resulting from engaging incompetent (i.e. unskilled, less educated, lacking innovation support, unmotivated, less exposed etc) personnel in the boards. Organizational capabilities for innovation encompass the abilities of organization members and the organization's key characteristics i.e. governing boards. Organizational abilities for innovation include specialized knowledge, creativity and commitment to the organization by its key characteristics. It also requires ability to develop a long-term vision for the organization, absorbing information generated by other agents (also called the absorptive capacity), creating new knowledge and using this knowledge to develop innovations that address commercial, social, organizational, or technological needs or opportunities (Davila *et al.*, 2006).

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Farmer organizations (co-operatives inclusive) require effective governing expertise to facilitate designing and utilization of innovations. In enabling such organizations develop their capacities to innovate; it is important for the board of directors to focus not only on technical or commercial issues, but in developing good governance and creating structures and incentives for innovation (Sivertsen, 1996). The governance system must be able to provide direction to various actors/stakeholders and steer the innovation system as a whole. There are concerns that successful co-operatives are those governed by professional boards (World Bank, 2012).

It has been argued that the involvement of the ordinary members on the boards of co-operatives will mean they are more likely to lack the knowledge and expertise to effectively challenge management proposals and decisions (Cornforth, 2004). This paper borrows insights from Managerial Hegemony Theory that assumes that although shareholders (in this paper, co-operatives members) may legally own and control their corporations, they no longer effectively control them. Control is instead ceded to professional managerial class (Berle, and Means, 1932; World Bank, 2012; Cornforth, 2004). This implies that there should be professional board of directors that is capable of

bringing innovations (new ideas, improvements and implementable solutions) in the co-operative organizations. The managerial hegemony perspective suggests that professionalism of the managerial cadre of the co-operatives is pivotal to the organization's success since the management duties are entrusted to the board of directors by the members.

3.0 MATERIALS AND METHODS

3.1 Study Area

This paper entails on how the socio-demographic characteristics of the co-operatives governing boards influence innovations design in selected primary co-operative societies⁶ (PCSos) in Kabwe, Kafue and Chilanga Districts, Zambia. The districts were strategically selected as smallholder farmers in these areas have managed to organize and operate some successful and enterprising dairy, multipurpose and Agricultural Marketing Co-operative Societies (AMCOS) as a means of generating income and reducing poverty. The study sample constituted all active AMCOS, multipurpose and dairy co-operatives in the study areas. The dormant (no operations undertaken) PCSos, including 486 in Kabwe, 108 in Kafue and 69 in Chilanga districts (DCDR, 2016) were left out in this study as they lack innovation attributes. This study therefore, involved only the active organizations where a total of 26 (6 dairy and 20 multipurpose/AMCOS) PCSos formed the sampling frame for the study.

Then 10 most active PCSos (out of 26 PCSos) were purposively chosen for the study. The chosen PCSos were Mulungushi AMCOS, Chanyanya Smallholder AMCOS, Kabwe Multipurpose Co-operative Society and New Kafue Multipurpose Co-operative Society. Others were Masengo, Balaka, Fengrove, Mpima, Mapepe and Kasavasa dairy co-operative societies. The reason for picking the most active PCSos was that the study sought to document on the best innovative practices that are occurring in co-operatives in relation to the socio-demographic characteristics of its governing boards. Then, all board members in the selected PCSos (usually seven) were purposively included in the study. Purposive sampling technique was used because the study intends to specifically involve the board members of the PCSos as they are considered to possess the necessary information and attributes pertinent to the study.

The justification for selecting governing boards; they are the ones that have been mandated by the owners of the co-operatives (members) to oversee the day to day operations and hence are expected to possess requisite professional characteristics for championing various innovations in the organizations. Hence, 70 board members (35 from Kabwe, 21 from Chilanga and 14 from Kafue) formed the sample size of the study. Survey questionnaires, semi-structured interviews and focus group discussions (FGDs) with the governing boards of the studied PCSos formed the basis for data collection for the study. Distributions

⁶ Primary co-operative societies refer as the most basic or lower level co-operatives.

and magnitude of individual variables among interviewees which include percentages and frequencies were determined. Logistic regression model was used to test the influence of PCSos governing boards' socio-demographic variables on innovations design.

3.2 Data Analysis

This study used an empirical model to assess socio-demographic characteristics that influence innovations design. The assessment focused socio-demographic characteristics of leaders of the governing boards of the PCSos as the unit of analysis. In practice, logit and probit models yield estimated choice of probabilities that differ by less than 0.02 and which can be distinguished in the sense of statistical significance, only with very large samples (Aldrich and Nelson, 1990). Consequently, there is little to guide the choice between the two. The choice of specification remains fairly arbitrary revolving around practical concerns such as the availability and flexibility of computer programs and personal preference and experience (Malamsha and Kayunze, 2014; Aldrich and Nelson, 1990).

Due to the estimation problems associated with the applications of multivariate regression models that use qualitative dependent variables, this study employed linear probability models as alternatives (Aldrich and Nelson, 1990). The only problem with the linear probability model specification is that $\sum b_n X_{in}$ is used to approximate a probability number $[P_i [P_i=P (Y_i=1)]]$, assumed to be constrained from 0 to 1 while $\sum b_n X_{in}$ is itself not constrained. One way of approaching this problem is to transform P_i through logarithmic transformation to obtain the function (Wooldridge, 2003).

$$P_i = \exp(Z_i) / [1 + \exp(-Z_i)] = 1 / [1 + \exp(-Z_i)]$$

This expression commonly referred to as "logistic function" is continuous and can take on any value from 0 to 1. It is near to zero when Z_i is near negative infinity and then increases monotonically with Z_i . It goes to 1 as Z_i goes to positive infinity. The function is in fact as smooth S-shaped curve asymmetric about the point $Z_i = 0$. Unlike the linear specification, it satisfies the 0-1 constraint on P_i without also constraining $Z_i = \sum b_n X_{in}$. The characteristics of the function $P_i = \exp(Z_i) / (1 + \exp(Z_i))$ makes it an alternative to the linear probability model for dichotomous dependent variables. The use of monotonic transformations (probit or logit specifications) guarantees that predictions lie within the unit interval (Capps and Cramer, 1985; Malamsha and Kayunze, 2014).

The binary logistic regression equation was therefore established as follows;

$$\text{Logit}(P_i) = \log(P/1-P_i) = b_0 + b_1 X_1 + b_2 X_2 + \dots + b_n X_n \dots \dots \dots (1)$$

Where:

Logit (P_i) = \ln (odds/event) that is the natural log of the odds of an event occurring

P_i = prob (event), that socio-demographic characteristics will influence innovation designs

$1-P_i$ = prob (event), that socio-demographic characteristics will not influence innovation designs

b_0 = constant of the equation, b_1 to b_n = coefficients of independent/response variables

n = number of independent variables, x_1 to x_n = independent variables (for socio-demographic characteristics) entered in the model, x_1 = age of the respondent, x_2 = education level of the respondent, x_3 = trainings attended, x_4 = exposure to what is happening to other organizations, x_5 = number of members who access services from the co-operative, x_6 = innovation support provided and x_7 = motivational packages offered. Statistical Package for Social Science (SPSS) computer program was used for performing data analysis.

4. RESULTS AND DISCUSSION

4.1 Socio-demographic Characteristics of the Interviewees

4.1.1 Age, Sex and Marital Status

The age of the respondents was established to ascertain the involvement of different categories of members in leadership affairs in PCSOs. The study results reveal that the respondents aged between 18- 35 years constituted 2.9%, those between 36-55 years constituted 54.3% while those aged more than 55 years were 42.9%. Most of the respondents are in their late thirties, forties and early fifties. If intentions are properly executed, this age group can form a nucleus for agricultural transformation among smallholder farmers (Njau and Diyamett, 2014). Furthermore, interviewed respondents were both male (65.7%) and female (34.3%). The findings indicated that male dominance still characterizes most of the leadership positions in the surveyed PCSOs. It was established during FGDs that this trend remains because a small number of women run for election in co-operative societies. Generally in Sub-Saharan Africa women are less educated and therefore are more likely to be in unskilled jobs (Rwebangira, 1996). Approximately 87.1% of the interviewed respondents were married, 8.6% were widowed, 2.9% were divorced, and the remaining one respondent (1.4%) was single (Table 1). It is generally accepted that marriage imposes a sense of responsibility among people (Njau and Diyamett, 2014) and therefore majority of respondents are expected to be the committed leaders.

4.1.2 Education

The ultimate objective of education is to increase labor productivity and thus it is a productive factor that is very important for one's ability to utilize efficiently various resources that are available in a certain organization (Regnar *et al.*,

2002). The study revealed a moderate rate of literacy among respondents where about 30% of the respondents had upper secondary education (grade 10-12), 20% had a college education, another 20% had primary education (grade 7), 18.6% had junior secondary education (grade 8-9), 6.1% had vocational education and the remaining 4.3% had university level education (Table 1). This education level is expected to satisfactorily enable a person (as a leader) to interact with different stakeholders within and outside the co-operative movement and implement the key innovative decisions necessary for co-operative growth.

Table 1: Demographic characteristics of respondents

Variable	Category	Frequency	Percentage
Sex	Male	46	65.7
	Female	24	34.3
	Total	70	100
Age (years)	18-35	02	66.7
	36-55	36	33.5
	Above 55	32	42.9
	Total	70	100
Marital status	Single	01	1.4
	Married	61	87.1
	Widow	06	8.6
	Divorced	02	2.9
	Total	70	100
Education level	Primary (grade 7)	14	20
	Junior secondary (grade 8-9)	13	18.6
	Upper secondary (grade 10-12)	21	30
	College	14	20
	Vocational education	05	6.1
	Tertiary education	03	4.3
	Total	70	100

4.2 Governing Boards Expertise and Occupations

Respondents were asked to tell whether ones expertise was used as a criterion for considering somebody for a leadership/governing boards post. It was established that all (100 percent) of the respondents indicated that one's expertise wasn't a key consideration rather one was legible for a leadership post provided that he/she is trusted by fellow members and has met membership conditions. The governing boards should be elected on the basis of their expertise and contacts so that they are in a position to add value (innovate) to their organizations (Kirkland, 1994; Cornforth, 2004). The findings from this study however, were contrary to the above contentions. The findings were also

contrary to the Managerial Hegemony Theory that proclaimed that control in organizations governing boards should be ceded to professional managerial class (Lorsch and Maciver, 1989; Cornforth, 2004) where in this study professionalism is not a criterion for somebody to become a leader.

4.2.1 Trainings Attended by Studied Co-Operatives Governing Board

The board leaders were asked to tell whether they have ever attended any trainings designed to enable them carry well their duties. All of them admit that they have at one point attended some leadership trainings. In establishing the training packages covered, it was found that 34.5% mentioned co-operatives leadership and management, 24.1% crop and animal production, 21.2% mentioned record keeping, 10.3% mentioned roles and responsibilities of members and the remaining 9.9% indicated marketing and entrepreneurship skills (Table 2).

Table 2: Training Packages Provided to Governing Boards

Responses*	Frequency	Percentage
Co-op leadership & management	70	34.5
Crop & animal production	49	24.1
Record keeping/bookkeeping	43	21.2
Roles & responsibilities of members	21	10.3
Marketing & entrepreneurship	20	9.9
Total	203	100

* Note: results based on multiple response questions

4.3 Regression Results on Socio-demographic Factors and its Influence on Innovation Designs

The Binary Logistic regression (logit model) was performed to test the extent to which the selected independent variables (age, education level, trainings attended, exposure, number of members accessing services, motivational packages and innovation support provided) influence innovations design in the surveyed PCSos. The outputs of the model were as follows;

4.3.1 Omnibus Test of the Coefficients of the Model

The omnibus test is a test of capacity of all predictors (independent variables) in the model jointly to predict the response (dependent variable). A finding of significance means that there is adequate fit of the data to the model and that at least one of the predictors is significantly related to the response variable (Garson, 2008; Malamsha and Kayunze, 2014). Based on this explanation, the results in Table 3 shows that there was significance at the 0.001 level ($p=0.000$), hence the data entered in the model adequately fitted it.

Table 3: Omnibus Tests of Model Coefficients

	Chi-square	Df	Sig.
Step	44.484	5	< 0.001
Block	44.484	5	< 0.001
Model	53.397	5	< 0.001

4.3.2 Model summary

The Cox & Snell R Square and Nagelkerke R Square are important outputs of the binary logistic regression model. The Cox-Snell R Square and Nagelkerke R Square are attempts to provide a logistic analogy to R² in the Ordinary Least Square regression, hence are called pseudo R². Nagelkerke R Square is a modification of Cox-Snell R Square to assure that Cox-Snell R Square varies from 0 to 1 making it difficult to interpret. Hence, Cox-Snell R Square must be modified (Malamsha and Kayunze, 2014).

Table 4: Results of Regression Analysis (Model Summary)

-2log likelihood	Cox & Snell R Square	Nagelkerke R Square
13.447	0.536	0.869

Nagelkerke R² is normally higher than Cox-Snell R² and is the most reported of the pseudo R² estimates (Garson, 2008; Malamsha and Kayunze, 2014). Therefore based on the results in Table 4 which showed that Nagelkerke R² was 0.869, it means that the independent variables entered in the model explained 86.6% of variance in the dependent variable.

4.3.3 Explanatory Variables, β Coefficients and Correlations

The explanatory variables, β coefficients and correlations were tested for the purpose of establishing the significance of such variables in affecting variance responses. In order to be certain that explanatory variables are significantly important in affecting the variance of the response variables both the β values and the correlations should be significant (Malamsha and Kayunze, 2014). Such requirement helps to contain the problem whereby sometimes logistic regression coefficients are found to be insignificant when the corresponding correlations are found to be significant and vice versa (Garson, 2008). In this study the analysis tested (at $p < 0.05$) indicated that respondents exposure on what is taking place in other organizations has a significant contribution (p -value =0.009 and $\beta = 0.026$) to the innovation practices that were designed in the surveyed PCSos. This implies that more innovation practices were recorded in the PCSos in which its governing boards had exposure and knowledge on what innovations are being applied in other organizations and hence adopted some of them to their organizations. For instance, more innovations (3 or more) were recorded to be designed by the governing boards of all of the studied dairy co-operatives and few of the AMCOS and multipurpose co-operatives (i.e. New Kafue multi-

purpose co-operative and Chanyanya AMCOS) where its governing boards reported to have regular exposure to innovations happening outside their organization than those reported little or no exposure at all.

Some of the innovations reported to be designed in the surveyed dairy co-operatives include established livestock feed and drugs outlets, constructed own dip tanks for treating livestock, constructing own milk collection centers, maintained milk selling contract with buyers (e.g. Parmalat), formed own association for milk producers and formed rotating savings and credit groups for serving members with affordable loans. All of the surveyed dairy co-operatives reported nearly similar innovations implying that they had an opportunity (exposure) to learn from one another. The innovations in new Kafue multipurpose co-operative include managing production and selling of river sand bricks, pavements, etc, rented its warehouse to a private company as source of income, operating chicken project and ensuring yearly dividends to members as motivational package. On the other hand, innovations in Chanyanya AMCOS include renting its land to a private company, invested some shares in the same company and established out-grower schemes for its members.

The PCSos that were found to have limited exposure also reported some few innovations designed by their governing boards. They include Kabwe multipurpose co-operative which designed a seasonal bulking and selling (at peak season) of maize project and operating a retail grocery and Mulungushi AMCOS where its building is used as maize store where it buys and sell maize to the government through the Food Reserve Agency (FRA). The age, education level and trainings attended tested at ($p < 0.05$) indicated that there were no significant differences on such variables between the governing boards of the PCSos in which more innovations were recorded and those with little or no innovations that are taking place (Table 5). This implies that even in those PCSos where little or no innovations were designed, its governing boards were nearly of the same age groups, education levels and had attended similar trainings. Although education level of the respondents was not statistically significant (at $p < 0.05$ and $p\text{-value} = 0.566$) it was established during FGDs that education is a key variable when it comes to nurturing designing of innovations in PCSos. Co-operatives require competencies and skills for them to become innovative and competitive, and this can be attained through education (Goedhuys *et al.*, 2014). Likewise, trainings attended were found to be insignificant despite its importance contribution to innovations design. This study established that none of the trainings provided to the governing boards were directly related to innovations design. Most of the trainings attended by the respondents focused on other aspects such as co-operative leadership and management, crop/animal production, record keeping/book keeping, roles and responsibilities of members, marketing and entrepreneurship.

Another strong predictor of the innovation design practices in the surveyed PCSOs was the innovation support provided. The influence of innovation support findings tested at $p < 0.05$ produced statistically significant results (at p -value = 0.002 and $\beta = 0.018$) as indicated in Table 5. The findings entails that there has been considerable amount of innovation support extended to most of the surveyed PCSOs. This implies that the innovations recorded to be designed by the governing boards have been energized by the support (moral and material) provided by the Government of Zambia (GoZ) and other stakeholders. For instance, the GoZ through its District Co-operative and Agricultural Department provides trainings to co-operatives. It also facilitates auditing (external auditing) and regulation of co-operatives. Likewise, the GoZ extended some financial support to renovate some of the dairy co-operative society's structures/buildings. It also buys maize from co-operatives through the FRA. Other supports came from donor agencies including trainings, equipments and financial support. Among the donor agencies that were found to be working with the studied PCSOs include Heifer International, GART, SNV, Land O' Lakes International and USAID.

The FGDs with the governing boards of the studied PCSOs indicated that external support received is crucial for their survival and growth. They indicated that in case the support cease then they are unlikely that they will be able to run the existing activities on their own. For instance, the Kanyanya smallholder AMCOS has a written (15 years) contract with the British private company (InfraCo Africa) currently using the co-operative land for production of wheat and other crops and that at the end of the contract, the farm, machineries, a warehouse, irrigation facilities, tractors, harvesters, etc will be handled to the co-operative. To date, five years before the expiry of the contract, the governing boards confess that they are not ready to operate the project and would wish to provide more time to the investor before they take over after the contract expires. Similar feelings were recorded in other PCSOs which have been receiving various supports from the government and donor agencies. Tefera (2008) and Franks (2011) established similar scenario as that, most co-operatives in developing world have for long time being unable to devise own innovations making them resort to external support. They have been suffering from resources incapability as they lack sufficient trained personnel, financing, technology and physical resources.

The other strong predictor of the determinant influencing innovation practices in the surveyed PCSOs was the number of active members accessing services provided by the studied organizations. The analysis tested (at $p < 0.05$) on the influence of the number of members accessing services in the surveyed PCSOs produced statistically significant results (p -value =0.007 and $\beta =0.023$) as indicated in Table 5. This implies that there were significant numbers of members who visit and access services in the PCSOs in which more innovations

are designed/prevaling than in the ones in which there were little or no innovations that are taking place.

Motivational packages offered to the board leaders in some of the PCSOs are not a predictor of innovations designed in the surveyed PCSOs (not statistically significant at $p < 0.005$). Although not statistically significant, during interviews and FGDs study participants indicated that since governing boards spend most of their time doing the organization activities without any pay (volunteer basis) then provision of some motivational packages to cover for their transport, communication costs/air time, breakfast and lunch may improve their morale to work for the betterment of the organizations and hence contributing to innovation designs. Studies have shown that, there is association between motivation packages/incentives available and resources utilization capability to design innovations (Hollander and Kadlec, 2015; Murphy *et al.*, 2016). This implies that, organizational resources specifically personnel are likely to be motivated to innovate when they are motivated in terms of financial or non financial benefits. Damschroder *et al.* (2009) indicated that, incentives such as performance reviews, financial rewards, or simply getting recognition of what has been done increase the likelihood of successful innovation activities.

Table 5: Variables in the Equation

Variable	β	S.E.	Wald	Sig.	df.	Exp (β)
Age of the respondents	-0.094	0.104	0.807	0.369	5	0.911
Education level of the respondents	0.161	0.281	0.330	0.566	5	1.175
Trainings attended	0.173	0.295	0.347	0.583	5	1.192
Exposure of the board leaders to innovation	-1.319	0.502	6.920	0.009	5	0.029
Number of members who access services	-1.665	0.247	7.236	0.007	5	0.023
Innovation support provided	0.593	0.188	9.926	0.002	5	0.018
Motivational packages offered to leaders	73.513	4.200E3	0.000	0.986	5	8.440E3

5.0 CONCLUSIONS AND RECOMMENDATIONS

This study revealed that, the key criterion for considering someone for a leadership /governing board post in the studied PCSOs is not his/her expertise/professionalism but rather one's trustworthiness provided that such person has met membership conditions. Other criteria such as education qualification, the trainings attended and degree of exposure, etc. however important they are but received little considerations. This shows that, studied PCSOs are likely to miss the necessary innovation leadership attributes since most of the professional were not selected to co-operative leadership. It contravened the Managerial Hegemony Theory's condition which requires shareholders with the expertise should be entrusted to occupy the leadership position such professionals are very few in the co-operatives, they stakeholders should consider delegating control of

their organizations by such elite. This is because such professionals can share and practice possessed management expertise which may incorporate innovation skills. Likewise, age, education level and trainings attended by the studied governing boards were found to have no significant influence on innovations design in the studied PCSos. On the other hand, FGDs indicated that education qualifications and relevant trainings are important attributes that can facilitate co-operatives governing boards to design certain innovations. This implies that, education/training and innovation designs are directly related but however such education or training must be innovation tailored. Even members in the governing boards indirectly agreed on influence of training package and exposure to have positive impact to innovation design; for those who actively accessed services and motivational packages were found to have significant influence on innovations design in the studied PCSos. This implies that in order for internally initiated innovations to occur in co-operatives those who are mandated to govern the organization should possess certain positive socio-demographic attributes shown above.

The current globalization age calls for organizations' expertise governance, therefore, governing boards of PCSos should be elected based on the skills, knowledge and expertise possessed. Thus, expertise/ professionalism as criteria for ascending to co-operative leadership in organizations should be given equal weight as other factors i.e. trustworthiness, meeting membership conditions, etc. which are missing in the present regulations and by-laws of the studied PCSos. This study further recommends that, co-operative education and training should be mandatory to co-operative members and leaders to be provided on regular bases so as not only to prepare members to become innovators and but also to groom competent governing board leaders locally and globally. Furthermore, more efforts should be made to ensure that, internal capacity building on the co-operatives systems and PCSos in particular are encouraged and supported by the government and the donor community. This will empower PCSos with capacity building in terms of education and trainings, financing etc. for sustainable development in future.

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