The Establishment of Government Green Procurement Practices in Malaysia: The Way Forward

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Abstract: In simple terms, Government procurement refers to the acquisition of supplies, services and works in accordance with current rules and regulations of the Government to ensure that tax payers' money is spent efficiently, wisely and best value for money. Similar to other countries, Government procurement in Malaysia is a vital aspect of financial management systems as public expenditure consumes immense amount of allocation, reaching more than 25 percent of Gross Domestic Product (GDP). In line with the Government's aspirations in mainstreaming environmental considerations in its national agendas, Government Green Procurement (GGP) could be used as a means to reduce the negative impact on the environment. In addition, GGP has the potential to accelerate economic growth, and this made GGP implementation crucial to balance Malaysia's economic progress and environmental preservation needs in achieving high income developed nation by 2020. Hence, the implementation of GGP in Malaysia aims ultimately to minimize the impact on the environment, accelerate the national economy development and promote sustainable development. However, many factors need to be considered to ensure its implementation will not marginalized the growth of local industry and the development of Bumiputera (indigenous) entrepreneurs. The existing Government procurement mechanisms which include laws and regulations should be reviewed to enable its implementation. Related laws and regulations with regard to Government procurement comprise Financial Procedure Act 1957 (Amendment 1972), Ministerial Functions Act 1969, Government Contracts Act 1949 (Revised 1973), Delegation of Powers Act 1956, Treasury Instructions (AP), Treasury Circular Letters (SPP), Federal Central Contract Circulars (PKP), Treasury Circulars (PP), Treasury Instruction Letters (SAP), Manual and Guidelines. This paper analyses the AP and SPP to identify evaluation and selection criteria that take into account in the tendering processes and examine the extent of AP and SPP taken into consideration the environmental criteria. AP and SPP are selected in this study because they are major accounting and financial regulation in the Malaysian Government's financial management systems. The study reveals that the present Government procurement emphasizes on the most favorable offer in terms of price and quality, but there is no specific environmental criterion. Nevertheless, there are several criteria that could be interpreted as contributing towards environmental preservation because those criteria are consistent with the principle of GGP. The study suggests a number of measures that could be taken into consideration to kick-start the implementation of GGP in Malaysia, among others include (i) Giving price preferences for environmentally friendly products and services, (ii) Giving preference to suppliers that comply with the environmental management systems (EMS), (iii) Giving preference to environmentally friendly products and services based on the Weighted Point Evaluation Method (WPEM), (iv) Implementing products/services stewardship scheme for

manufacturers/producers under the Central Contract/Panel Contract Systems, and (v) Enhancing the implementation of electronic procurement

***Keywords*:** government procurement, government green procurement, sustainable development, green economy

INTRODUCTION

The primary objective of government over the years in Nigeria as regards sustainable development has been to improve the living conditions of its citizens through appropriate policies. In Nigeria, the livestock sector provides employment for many families. The practice ranges from extensive to intensive animal husbandry, which includes poultry, piggery, sheep and goat and cattle. The sector suffers from several limiting factors ranging from poor infrastructures, low productivity, inadequate capital, poor credit delivery, to low returns on investment. There is the general belief that all of these problems can be ameliorated if credit is made available to the farmers. According to [1], lack of adequate funding of the agricultural sector has led to low productivity, rural-urban migration and as such a threat to the food security programme of the Federal government. However government has adopted several agricultural policies and developmental programmes to address these problems. These include credit allocation and control, institutional credit incentives to farmers and the establishment of highly subsidized lending institutions to improve growth and development of the sector and affect standard of living of the people. Despite all these initiatives of government, livestock production is yet to meet the protein needs of the growing population. This study was therefore undertaken to examine the effect of available credit facilities from both institutional and non-institutional sources on small ruminant production which is also a major source of protein.

The importance of agricultural credit in agricultural production can never be over emphasized, particularly when agricultural production is linked with the availability of funds for all farm operations. This recognition has led government at all levels to establish one form of agricultural credit scheme or another to help address the challenges associated with credit delivery to all categories of farmers. Despite all these efforts by government to make credit available for farm operations, farmers are still in dire need of adequate capital. The poor performance of these schemes and its implications on farm operations has resulted in poor output in agricultural production.

According to [2], the uncoordinated and inconsistency in the Nigerian credit polices as it concerns agriculture has led to uneven distribution of credit to all the sectors of agriculture as well as the non-performance of the sector. In consideration of the importance of the livestock sub-sector and the problems it has gone through just like other sub-sectors of agriculture in acquiring credit for its operations it has become imperatives to find out how available credit if any has impacted on the production of sheep and goat. The study therefore

identified the sources and volume of credit facilities available to sheep and goat farmers in the study area, identified areas where credit sourced by the farmers was applied, assessed the effect of credit obtained on their output and income and examined the effect of the socio-economic characteristics of the farmers on their access to credit facilities.

The issue of credit as it affects agriculture in general has been examined by many authors but little or nothing has been done to specifically focus attention on how those involved in sheep and goat production have coped regarding this issue. Most conclusions reached by the various literatures on credit were mainly aimed at addressing the issues of crop production, fishery, forestry and general livestock production, but concrete information on credit as it concerns sheep and goat production is lacking.

It is expected that this study will specifically address the issue of credit as it affects sheep and goat production and also give insight into the developmental problems associated with the sector and the findings reached will not only provoke further research, but also generate appropriate information for policies that are more result and people oriented. This would be of valuable benefit to policy makers, farmers and the lending institutions.

[3] noted that adequate capital must be provided to the sector to enhance rapid and continual use of growth inputs. It in this perspective and stressed that unless production credit is made available on suitable terms, the majority of small scale farmers that constitute over 90% of farmers will be seriously handicapped in adopting profitable techniques. Hence credit is a major factor in agricultural production and development and the lack of it is usually given as the explanation for many of the problems facing the sector in developing countries. [5] argued that if credit was made available on a continuous basis, the retarded growth and development currently being experienced by the sector will give way to modernization.

[6], on their part examining the provision of nutritive browses as supplement for goats considered availability of credit facilities as basis for development of the goat sub-sector of agriculture. [7] on the issue of the goat types of Ethiopia and Eritrea

also reviewed credit as a basic consideration for their expansion, management as well as development.

The entire agricultural sector and indeed the livestock sub-sector depends on sustainable credit for possible expansion and development. [8], describe the development of the sector to be dependent on the amount of financial resources the government can make available to it. Supporting this view is [9]Ajakaiye (1998) where he attested to the important role of credit in small-ruminant development, he thus recommended that government at all levels should as a matter of policy mandate the commercial banks to adhere strictly to all the credit initiatives put in place by the government through the Central Bank of Nigeria (C.B.N) to ensure effective credit delivery to the livestock sub-sector and indeed the entire agricultural sector as a way of guaranteeing economic development of the country

METHODOLOGY

Area and scope of study

The study covered nine local government areas in Delta State, Nigeria, and the rationale for the choice of these local government areas rested on the following: (a) Large population of sheep and goat as compared to other local government areas in the state (b) Long history of rearing sheep and goat in the state.

Delta State was carved out from the defunct Bendel State and lies within longitude 50° and 60° East and latitudes 50° and 60° 30' North. It is bound in the north by Edo-State, Bayelsa State in the south-west, in the east and north-east by Anambra and Kogi States respectively, while to the south is the Atlantic Ocean, (Delta State Ministry of Information, [10]

The selected LGAs were, Isoko South, Warri North, Patani, Oshimili South, Ndokwa West, Ika South, Ethiope West, Ughelli North and Uvwie Local Government Areas.

Data Collection: Both primary and secondary data were used to elicit information for this study. The secondary data were obtained from the publications of the State Ministry of Agriculture and Natural Resources, journals, the internet, as well as the State Ministry of Information and Orientation. In the collection of the primary data copies of a well structured and pre-tested questionnaire were administered through personal interview.

Sampling procedure

The multi-stage sampling procedure was adopted in this study and three stages were involved. This first stage involved the purposive selection of the nine local government areas.. At the second stage, there was the random selection of two villages/towns in

each of the selected local government areas while at the third stage 20 sheep and goat farmers in each of the villages/towns were randomly selected giving a sample size of 360, however only 330 copies of the questionnaire were retrieved and used for the analysis. The total sample is shown in Table 1.

Analytical techniques

Data collected for the study were analyzed using both descriptive and inferential statistics. The descriptive statistics involved the measures of central tendencies such as arithmetic means, percentages, and frequency counts. Under the descriptive approach, information on the sources and volume of credit by credit beneficiaries were summed up according to sources, and averages were computed for each group and were used for comparative analysis with non-beneficiaries. Descriptive statistics were also employed in investment areas where credit sourced by beneficiaries where possibly applied.

For the effect of credit on production for credit beneficiaries compared to those without credit use, the unequal sample t-test, [11] was employed and is stated as Eq (1).

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\left[\frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 1}\right]\left[\frac{1}{n_1} + \frac{1}{n_2}\right]} \quad (1)$$

Where:

$\bar{x}_1$ = Sample mean of group 1(credit beneficiaries)

$\bar{x}_2$ = Sample mean of group 2(non credit beneficiaries)

n_1 = Sample size in group 1(credit beneficiaries)

n_2 = Sample size in group 2(non-credit beneficiaries)

S_1^2 = Sample variance of group 1 (credit beneficiaries) given as Eq (2)

$$\frac{\sum_{i=1}^{n_1} x_1^1 - \frac{\sum x_1^2}{n_1}}{n_1 - 1} \quad \ldots(2)$$

S_2^2 = Sample variance of group 2 (non-credit beneficiaries) given as Eq. (3)

$$\frac{\sum_{i=1}^{n_2} x_2^2 - \frac{\sum x_2^2}{n_2}}{n_2 - 1} \quad \ldots\ldots\ldots(3)$$

The t–statistic was then used to test the statistical significance of the effect of accessed credit by beneficiaries.

Table 1: Distribution of respondents in the sampled area

Senatorial District	Village/Town	Distributed Copies	Retrieved Copies
Delta North			
Oshimili			
	Okpanam	20	18
	Anwai	20	19
Ika South			
	Abavo	20	16
	Boji Boji Uwa	20	20
Ndokwa West			
	Kwale	20	17
	Iselegu/Osisa	20	20
Delta South			
Isoko South			
	Oleh	20	20
	Otor-Oweh	20	20
Warri North			
	Koko Town	20	15
	Ajagbodudu	20	15
Patani			
	Water side	20	18
	Patani town	20	15
Delta Central			
Ethiope west			
	Oghara	20	18
	Jesse	20	20
Ughelli North			
	Agbarho-Otor	20	20
	Agbarho	20	20
Uvwie			
	Effurun	20	20
	Osubi	20	17
Total **9**	**18**	**360**	**330**

The logit model

The logit model which examined the conditional probability of a single qualitative variable, given a set of other variables (which may be qualitative or cardinal) was also adopted to verify the socio-economic characteristics of the farmers as they affect access to credit. The model was based on earlier publications by [12], [11], [12] and [13], [14] , is given as Eq (4):

$$P(Y = 1/x) = \exp([(\sum b]_k X_k)) \Big/ [1 + exp(\sum b_k X_k)] \quad \text{......(4)}$$

The decision by the credit granting institutions as regard granting or not granting credit to applicants yielded a qualitative response variable (socio-economic characteristics) hence its analysis by the logit model. The question in this model is the probability (P) that Y takes' on the value 1 or 2 (that is decision to grant or not to grant credit by credit institutions depending on the observed variables (in this case, the socio-economic variable of the farmers) is Eq (5)

$$P = P\left(y = 1/X_i\right) \ldots \ldots \ldots \ldots x_k \quad \text{..(5)}$$

The relationship between y and Xi is given by the unknown parameters (b_k) which are to be estimated using the maximum likelihood estimation (MLE). The Logit likelihood is given as Eq (6)

$$L(y / (x_1 b)) = \Pi_1(i = 1)^T N \ \{((exp([\Sigma b]_k X_k))/(1 + exp([\Sigma b]_k X_k))\}^T y_i \ \{1/(1 + exp([\Sigma b]_k X$$

$$\text{...(6)}$$

Explicitly expressed in odds ratio form as Eq (7);

$$Logit \ (P_L) = ln\left(\frac{P_i}{1 - P_i}\right) = b_o + b_i x_{i1} + b_2 x_{i2} \ldots \ldots + b_k x_{kt}$$

$$\text{.........................(7)}$$

Where P = probability that a farmer with a particular socio-economic characteristics may get credit.

1-P_i = probability that a farmer with a particular socio-economic characteristic may not get credit.

bi = parameters to be estimated by maximum likelihood (MLE) whether a farmer with a particular socio-economic characteristics may or may not be granted credit by credit institutions as Eq (8).

$$\left(\frac{Pi}{1 - Pi}\right) = Odds \ ratio.$$

$$\text{...(8)}$$

X_i ....X_k = Socio-economic characteristics of the farmers.
X_1 = age
X_2 = sex
X_3 = marital status
X_4 = educational level
X_5 = farming experience
X_6 = household size
The t – statistic was used to test the statistical differences.

RESULTS AND DISCUSSION

Socio-economic characteristics of sheep and goat farmers

The socio-economic characteristics of the farmers as presented in Table 2, showed that majority of the farmers were males (57.87%) as against 42.6% being female. The farmers were also found to be middle aged (51-60 years) with mean ages of 49 and 48 for beneficiaries and non beneficiaries of credit respectively. This findings also agrees with [15] that due to the massive rural - urban drift of our able - bodied men and women, the mean active farming age now falls between 45-60 because according to them this group of persons are either retired from other businesses or are tired of the life-styles the city does offer.

On marital status and family size, over 60% of the respondents were married with average family size of 6 persons. The findings equally agrees with [16] which states that family size between 5 – 10 is very meaningful particularly when they are involved in the agricultural activities of the family, they thus help to reduce labour cost for the family.

Table 2: Socio-economic characteristics of sheep and goat farmers in the study area

Socio-economic variable	Credit Beneficiaries			Non credit Beneficiaries			Total			
	Freq	**%**	**Mean**	**Freq**	**%**	**Mean**	**Freq)**	**%**	**Mean**	
Age										
30 and above	38	17.4		24	21.4		62	18	43.5	
31-40 years	36	16.5		17	15.2		53	16.1		
41-50 years	43	19.7		22	19.6		65	19.7		
51-60 years	52	23.9		24	21.4		76	23.0		
61-70 years	27	12.4		12	10.7		39	11.8		
> 70	22	10.1	49	13	11.6	48	35	10.6	48.5	
Sex										
Female	95	43.6		44	39.3		139	42.2		
Male	123	56.4		68	60.7		191	57.9		
Marital status										
Single	16	7.3		12	10.7		28	3.5		
Married	144	66.1		24	66.1		218	66.1		
Divorced/separated	34	15.6		19	17.0		53	16.1		
Widow/widowers	24	11.0		7	6.3		31	9.4		
Level of Education										
No formal education	56	25.7		23	20.5		79	23.9		
Primary	49	22.3		22	19.6		71	21.5		
Secondary	68	31.2		41	36.6		109	33.0		
Tertiary	45	20.6		26	23.2		71	21.5		
Farming experience										
10 and below	64	29.4		33	29.5		97	29.4		
11-20 years	83	38.1		39	34.8		122	37.0		
> 20	71	32.6		40	35.7		111	33.6		
Household size										
4 and below	106	48.6		48	42.9		154	46.7		
5-10	80	36.7		47	42.0		127	33.5		
> 10	32	14.7		17	15.2		49	14.8		

Table 3: Sources and volume of credit accessed by beneficiaries

Credit sources	Freq	%	Volume (₦)	Mean (₦)	S. Deviation
Friends and relatives	21	12.72	1,158,000	38,600	25001.275
Co-operative societies	84	50.90	9,534,976	74,492	92089.908
Thrift/Esusu	45	27.27	1,817,000	40,377	25083.759
Commercial Banks	10	6.06	1,210,000	121,000	947.120
Money Lenders	5	3.03	222,000	44,400	146.625
Total	**165**	**100**	**12,733,188**	**318,869**	**75355.36**

Table 4: Utilization of acquired credit by respondents

Areas	Frequency	Percentage
Acquisition of more animals	82	37.61
Housing provision	103	47.24
Veterinary service provision	63	28.89
Use of concentrate feed	72	33.02
No traceable investment	36	16.51
Total	**356***	**163.27***

Table 5: Comparison of income of beneficiaries and non beneficiaries

Credit Status	Frequency (₦)	Annual Mean (₦)	Difference (₦)	t-value
Beneficiaries	165	121,050.46		15.15*
			91.733	
Non Beneficiaries	165	29.316.96		

Source: Field survey
*Significant at 5%

Table 6: Parameter estimates based on the logit model

Variable	parameter estimate		std.error	t-values		Odd ratio	
X_1 age		0.016		0.011		1.455	1.0161
X_2 gender		0.763*		0.252		3.028	2.1447*
X_4 education		0.588*		0.221		2.661	1.8004*
X_5 farming experience	0.027		0.016		1.688	1.0274	
X_6 household size		-0.024		0.026		-0,828	0.9763
constant	1.001		0.478		094	2.7210	
Goodness of fit:							
No of observation 330							
chi-square (X^2) = 36.12							
Likelihood ratio 62.7							

Source: Field survey
*Significant at 5%

With respect to education, the results indicate that majority (70%) of the respondents had one form of education or the other. Their high literacy level could have accounted for the over 50% loan applications recorded in the study. Education according [17] create positive attitude towards the adoption of modern farming innovations including accessing credit for expansion leading to more profit. On farming experience about 74% of the loan beneficiaries had up to 20 years experience. This shows that the sheep and goat business was well established in the study area

Credit sources and volume

Credit sources and volume as shown in Table 3 revealed that the major sources available for credit seekers were friends and relatives, co-operative societies, thrift/esusu, commercial banks, as well as money lenders. A total volume of ₦12,733,188 was sourced from the different sources of credit. Co-operative societies provided the highest amount of credit (₦9,534,976) as shown in the table followed by thrift/esusu (₦1,817,000) commercial money lenders (₦222,000). This result confirms the findings of [18] which identified co-operative societies as a major factor that has led to the growth and development of the livestock sector. This according to them is made possible due to the credit provision initiatives of the co-operative societies.

Utilization of acquired credit by respondents

Table 4 shows the different areas where acquired credit was applied by those who had access to credit. The investment by the beneficiaries were made in areas such as housing, acquisition of more and better breeds of animals, provision of veterinary services as well as provision of concentrate feeds. All these initiatives were geared towards modernizing the sector in attempt to bring about intensive production. All these efforts according to credit beneficiaries were relatively new and if sustained with regular credit, will bring about substantial improvement in the sector especially in the area of building modern pens for their animals which used to roam about.

Effect of Credit on Output and Income

The effect of credit was observed in areas such as acquisition of more animals which led to increase in stock population, better infrastructure for stocks, improved veterinary services for stocks and increased income for those farmers who had access to credit.

For instance, for credit beneficiaries an annual mean income of ₦121,050.46 was recorded as against ₦29,316.96 for non-beneficiaries of credit with mean annual difference of ₦91,733 which was significant at 5% level. It was also observed that for credit beneficiaries before the use of credit an annual mean

income of ₦31,334.86 was recorded as against ₦66,550.46 after the use of credit. This gave an annual mean difference of ₦35,215, which was also significant at 5%. The general results thus indicated that credit had significant influence on the production of small-ruminants in all the sampled areas as shown in Table 5.

Effect of respondents' socio-economic characteristics on their access to credit

The results of the logit analysis presented in Table 6 showed two variables; gender and education having significant effect on farmers' ability to access credit, as shown by the high coefficient values of 0.763 and 0.538 for gender and education respectively which indicates that being a male and having some form of education may increase the probability of being granted credit for sheep and goat production.

The results agree with and [19] that education and gender have significant effect on farmers' access to credit facilities. They asserted that most lending institutions as well as the cultural settings in Nigeria favour the male gender when it comes to granting of credit. Education also indicated high probability of increasing respondents' access to credit. People with some form of education are preferred based on the simple fact that they are better equipped to manage their resources efficiently and take advantage of new techniques of production.

Summary

The study examined the effect of credit on the production of small ruminants and the major findings are as follows:

(a) The study revealed that there were more male sheep and goat farmers than females within the age group of 51-60 years and farming experience of up to 20 years.

(b) Majority were married and had one form of formal education or the other with over 50% of them having access to credit with up to 90% obtaining their credit from informal sources.

(c) Results also showed that about 70% of the respondents invested the accessed funds in developmental areas of sheep and goat production such as the provision of pens (houses) purchase of concentrate feeds, acquisition of better breeds of stocks and improved veterinary services.

(d) There was significant difference between output and incomes of beneficiaries and non-beneficiaries of credit.

(e) Gender and education were the main socio-economic factors that affected access to credit.

CONCLUSION

Findings from the study established the usefulness of credit in the production of sheep and goats. It can be concluded that credit has positive effect on stock size, infrastructural development, output and income of farmers and that the production of sheep and goat could gradually move from the present extensive (traditional system) to more intensive production system, if regular credit is made available

RECOMMENDATIONS

Based on the findings of the study the following recommendations were made: (a) Co-operative societies in particular should be encouraged, by way of occasional grants/credit. This will in-turn enable them support their members for possible expansion. This has become necessary considering the findings from the research, which revealed that over 75% of available credit came from the co-operatives societies. (b) Government may also look into the issue of encouraging the formal sources of credit to compliment the effort of the informal sources. (c) Considering the positive effect of credit on output and income, all goat and sheep farmers may be advised to take advantage of available credit to improve their production. (d) Credit bodies may also be advised to be gender balanced in the choice of their beneficiaries rather than being more favourably disposed to granting loans to males. (e) Since education also had some influence in accessing credit, farmers should avail themselves of some form of educational opportunities to improve their access to credit.

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