

## Impact of Proactive Land Acquisition Strategy on Physical Capital Livelihood of Beneficiaries in Dr. Kenneth Kaunda District, South Africa

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**KEYWORDS** Land Reform. Beneficiaries. Projects. Livelihood. Physical Capital. South Africa

**ABSTRACT** This study analysed the impact of PLAS projects on physical capital livelihood of beneficiaries in Dr Kenneth Kaunda District Municipality. Fifty-four out of 97 beneficiaries were selected through stratified random sampling from the four local municipalities in the district. A structured questionnaire informed by the study objectives was used to collect data and analyzed using version 21 of Statistical Package for Social Sciences (SPSS) with frequency count, percentage and Wilcoxon test. The results show that majority (54%) of farmers were above 50 years of age, 64% were males; most projects (75%) have one beneficiary; sizes of the project land of the beneficiaries range between 55.7 and 1500 hectares; majority (67%) of beneficiaries have more than 10 years of farming experience; majority (76%) of beneficiaries have access to extension agents; only a few of the PLAS projects have benefitted from the Recapitalization and Development Programme. The results of the Wilcoxon test showed that significant difference exist in 12 out of 13 indicators of physical capital before and after PLAS projects. Departmental Recapitalization and Development Programme should be fast tracked to benefit all farmers and be effectively implemented as per policy document

### INTRODUCTION

The South African Land reform refers to the transfer (redistribution) of land and agricultural enterprises to previously disadvantaged persons in fulfilment of the government's objectives to address the past injustice of land dispossession and promote Black Economic Empowerment (DLA 1997). The objectives of South African land reform programme include redressing the injustices caused by past land reform policies, supplying both residential and productive land for the poorest section of the rural population, helping to raise incomes and productivity through the provision of support services and building the economy by generating large-scale employment and increasing rural incomes. The three main pillars of the land reform programme are Land Restitution, Land Redistribution and Tenure Reform. Regarding agriculture, the Land Redistribution Programme targeted to redistribute 30% of agricultural land by 2014 (ANC 1994).

Between 1994 and 1999, the land redistribution programme was implemented through the Settlement/Land Acquisition Grant (SLAG) sub-programme. The SLAG sub-programme failed due to: large group approach, protracted conflicts

among group members, insufficient grants, and poor project coordination by programme implementers, bureaucratic processes, and insufficient post-transfer support to projects. SLAG also failed to make a significant contribution to the development of semi-commercial and commercial black farmers. As a result, SLAG was halted in 1999 as informed by the policy review undertaken by the then Department of Land Affairs (DLA) (now called Department of Rural Development and Land Reform (DRDLR)).

Land Redistribution for Agricultural Development (LRAD) was then introduced in 2001 to replace SLAG. LRAD aimed to improve nutrition and incomes of the rural poor, stimulate growth from agriculture, empower beneficiaries to improve their economic and social well-being, and to enable those presently accessing agricultural land in communal areas to make better productive use of their land (DLA 2001). LRAD was designed as a market-driven programme, providing larger grants to emerging black farmers with the aim to create 70 000 Black commercial farmers within 15 years. LRAD was also seen as a vehicle for advancing the policy objective of distributing 30% of commercial agricultural land to previously disadvantaged persons by 2014. The programme was also highly

criticised for its slow pace on transferring land to previously disadvantaged people. A lack of access to capital and the market, poor infrastructure, a lack of mentorship and limited financial management skills contributed to the failure of LRAD projects. Mostly beneficiaries of land reform are resource-poor, and most of them have no capital besides the grant for purchase of farm land. Funds from the government were also not allocated according to the needs of the farmers. All these challenges led to the termination of the programme in 2008 (DRDLR 2011).

The Proactive Land Acquisition Strategy (PLAS) was officially launched in 2006 after which LRAD was phased out. PLAS aims to support local government to develop area-based planning and improve coordination among the institutions responsible for land reform. The objectives of PLAS are to contribute to growth, employment creation and equity (DLA 2006). The new strategy also aims at speeding up the transfer of land through the proactive acquisition of the land in the market by the government for redistribution purposes. Under PLAS, the land is only permanently transferred to beneficiaries after they have demonstrated their production skills and capability in three seasons of monitoring by Agricultural officials (DLA 2008). In 2008, the DRDLR introduced the "use it or lose it" principle that enables the government to repossess the land it judges as not being used productively. By not transferring the land directly to the beneficiaries, the government pressurizes beneficiaries to use land according to government's command to avoid dispossession. For the government, productive use of the land means producing for the markets.

In general, the main aim of the land reform programme through the PLAS sub-programme is to improve the livelihood of the previously disadvantaged South Africans for improved income distribution, employment creation, improved standard of living and general economic growth. Ellis (2000) defines livelihood as a particular way of living and stated that livelihood system may include farming activities and income, non-farming activities and sources of income, off farm activities, non-income related activities and non-activity related sources of income. According to Chambers and Conway (1999), "a livelihood is sustainable when it can

cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and future, while not undermining the natural base." Thus livelihood is categorized into: physical, financial, human, social and natural capitals. The programme was expected to impact positively on the beneficiaries in the aforementioned livelihood capitals. The PLAS programme has been implemented since 2006 with cardinal aim of improving the livelihood of beneficiaries. Since the SLAG and LRAD failed, it is critical to conduct intermittent evaluation of the new programme (PLAS) to ascertain if the desired objectives of the programme are being achieved. Such evaluation will provide the correct basis for informed decision to steer the projects to achieve the desired results. The results of such assessment will also be very helpful in improving the programme. Hence, this study analysed the socio-economic characteristics and impact of the PLAS projects on physical capital livelihood of beneficiaries on "before" and "after" basis. Physical capital comprises the basic infrastructure and goods needed by farmers for production in order to support productivity in their respective farms or projects. Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive. Producer goods are the tools and equipment that people use to function more productively.

## MATERIAL AND METHODS

The study was conducted in Dr Kenneth Kaunda District Municipality of the North-West Province of South Africa. The main economic activity in the Dr Kenneth Kaunda District Municipality of the Northwest Province is Agriculture, mainly crops and livestock production. Temperatures range from 17° to 31°C (62° to 88°F) in the summer and from 3° to 21°C (37° to 70°F) in the winter. Annual rainfall totals about 360 mm (about 14 in), with almost all of it falling during the summer months, between October and April. The district is divided into four local municipality which are Ventersdorp, Tlokwe, Matlosana, and Maquassi Hills (SSA 2003). The the population of the study included beneficiaries in all the 36 PLAS projects in the district. Fifty-four out of 97 beneficiaries were selected through stratified

random sampling from the four local municipalities in the district (Mouton and Babbie 2000).

A structured questionnaire based on the study objectives was used to collect data from the sampled beneficiaries. The researcher conducted the interviews himself which enabled him to explain the questions thoroughly to the respondents and also collected some information which were originally not in the questionnaire. Data collected was sorted, coded, and analyzed using version 21 of Statistical Package for Social Sciences (SPSS). Frequency count, percentage and tables were used to summarize the results. The frame-work designed for the analysis is shown in Table 1.

A Wilcoxon test was used to analyse the “before” and “after” effect of PLAS on physical capital livelihood of the beneficiaries. The Wilcoxon signed-rank test applies to two-sample designs involving repeated measures, matched pairs, or “before” and “after” measures like the t-test for correlated samples. The Wilcoxon signed rank sum test is non-parametric version of a paired samples t-test. The Wilcoxon signed rank sum test was used as the researcher did not wish to assume that the difference between the two variables is interval or normally distributed (but assume the difference is ordinal). The test is robust and highly efficient for moderate-to-heavy tailed underlying distributions. In particular, it is a real improvement over the sign test and is almost fully efficient when the underlying distribution is normal. Wilcoxon signed-rank statistics can be computed as sign statistic of the

pair wise averages of data (Hettmasperger et al. 1997).

## RESULTS AND DISCUSSION

### Demographic and Socio-economic Characteristics of Beneficiaries

The demographic and socio-economic characteristics of respondents are presented in Table 2. The results show that majority (54%) of farmers were above 50 years of age while 7.5% of them are less than 30 years of age. The small percentage of young people participating in these projects may be as result of their perception that agricultural related projects are for old aged people. This finding poses a threat to future of agriculture and national food security as most farmers are old aged. This finding is consistent with that of Anyanwu (1992) who indicated that younger men have no interest in agricultural activities. The results in Table 2 also indicate that the total number of beneficiaries in the projects is 97 of which 64% were males with 36% as females. This can be attributed to the perception of Africans that agriculture is for men only. This result is similar to that of Antwi and Oladele (2013) which stated that majority (54%) of the beneficiaries in the study of performance of LRAD projects in Ngaka Modiri Molema were men, and 46% as women. Moloji (2008) stated that a lot has been achieved with respect to gender equality but redistribution of resources and power has not shifted the structural forces with respect to the oppression of women. Thus, there

**Table1: Framework of physical capital impact**

<i>Physical capital</i>	<i>Measure level before the project</i>		<i>Level after the project</i>	
	<i>High F (%)</i>	<i>Low F (%)</i>	<i>High F (%)</i>	<i>Low F (%)</i>
<i>Sub-variables</i>				
Transport	“	“	“	“
Established market	“	“	“	“
Auction	“	“	“	“
Road accessibility	“	“	“	“
Electricity availability	“	“	“	“
Storage facilities	“	“	“	“
Fencing	“	“	“	“
Animal handling facilities	“	“	“	“
Irrigation infrastructure	“	“	“	“
Dipping facility	“	“	“	“
Breeding infrastructure	“	“	“	“
Production infrastructure	“	“	“	“
Telephone facility	“	“	“	“

**Table 2: Demographic characteristics of PLAS project beneficiaries (n=54)**

<i>Demographic characteristics</i>	<i>Frequency</i>	<i>Percent</i>
<i>Age of Respondents</i>		
Less than 30	4	7.5
31- 40	9	16
41- 50	12	22.5
Above 50	29	54
Total	54	100
<i>Population Group</i>		
	Frequency	Percent
Black African	53	98.1
Coloured	1	1.9
Total	54	100
<i>Total No. of Project Beneficiaries</i>		
	Frequency	Percent
No. males amongst beneficiaries	62	64
No. females among beneficiaries	35	36
Total no. of beneficiaries	97	100
<i>No. of Youth Among Project beneficiaries</i>		
	Frequency	Percent
No. of beneficiaries per project	30	31
Only 1	27	75
More than 1 beneficiaries	9	25
Highest number of beneficiaries per project	1	35
<i>Marital Status of Respondents</i>		
	Frequency	Percent
Married	33	61
Single	11	20
Widowed	7	13
Divorced	3	6
Total	54	100
<i>Educational Qualification of Respondents</i>		
	Frequency	Percent
None	10	18
Primary	15	28
Secondary	21	39
Tertiary	8	15
Total	54	100
<i>Household Size of Respondents</i>		
	Frequency	Percent
Less than 6	15	28
6 and above	39	72
Total	54	100
<i>No. of Dependent</i>		
	Frequency	Percent
Less than 3	13	24
3- 6	9	17
Above 6	32	59
Total	54	100
<i>Farm Size (in hectares)</i>		
	Frequency	Percent
Less than 500	33	61
500- 1000	9	17
Above 1000	12	22
Total Hectares	36 projects	31,607.914ha
<i>Farm Experience (in years)</i>		
	Frequency	Percent
Less than 6 years	6	11
6- 10 years	12	22
Above 10 years	36	67
Total	54	100
<i>Involved in Non-farm Activities</i>		
	Frequency	Percent
Involved	26	48
Not involved	28	52
<i>Sources of farming information</i>		
	Frequency	Percent
Project officer/extension agent	41	76
Newspaper/radio	8	15
Internet	5	9
Total	54	100
<i>Living on Project Premises Permanently</i>		
	Yes	63
	No	37

is still a need to enhance and emphasize more on women involvement in agricultural projects such as LRAD and PLAS projects.

The results in Table 2 show that most projects (75%) have one beneficiary with only 25% having more than one beneficiary per project. One of the major reasons which contributed to the failure of LRAD projects and replaced with PLAS was much conflict in projects with many beneficiaries. Learning from experience, the Department of Rural Development and Land Reform (DRDLR) took decision to reduce or to have only one or two beneficiaries per project with the aim of eliminating conflicts as it affects productivity. The highest number of beneficiaries per project was 35. However, this project was LRAD project and the DRDLR bought it back from the same beneficiaries with an aim to revive it as there was nothing happening on the farm. The results as presented in Table 2 indicate that majority (98%) of respondents were African blacks (Tswana, Xhosa, Sotho and Zulu tribes); only 2% of the respondents were coloureds. This is consistent with the finding of Aliber (2011) that majority (79%) of the population of Dr Kenneth Kaunda District is composed of African Black and other groups share 21% of the population. The results also indicate that majority (61%) of respondents were married, while 20, 13 and 6% were single, widowed and divorced respectively. This high percentage of marriage can be attributed to the fact that most (78%) respondents were old people and family-orientated. The marital status of farmers could be regarded as a true reflection of their age groups (Yomi and Odefadehan 2007).

The findings as indicated in Table 2 show the educational background of respondents in the study area. Access to education is an essential tool in promoting sustainable economy, household and society since trained people are the key to development. Education may have a long term influence on agricultural productivity. It is widely believed that the educational level of farmers enhance their information seeking behaviour, enterprise selection, as well as adoption of agricultural innovations. The finding shows that 18% of respondents do not have formal education; 28 and 39% of respondents have primary and secondary education respectively with only 15% having tertiary education. This result is not in line with that of Antwi et al. (2013) which established that 46% of LRAD ben-

eficiaries had attained education level of less than matric, 28% had matric while about 26% of the beneficiaries had tertiary level education. The results in Table 2 indicate that 28% of beneficiaries have household sizes of less than 6 members; and those with more than 6 members are 72%. It also revealed that respondents with less than 3 dependents were 24%; while respondents with 3 to 6 dependents were 17% with 59% of respondents having more than 6 dependents. These high household sizes may be as a result of high illiteracy level among the respondents. Thus, residents may not have much knowledge with respect to the use of birth control methods hence high birth rates.

The sizes of the land at the disposal of the beneficiaries range between 55.7 and 1500 hectares. Sixty-one percent of respondents have land size of less than 500 hectares, 17% have land sizes between 500 and 1000 hectares while 22% have more than 1000 ha. Number of years spent in farming serves as measure of experience and as a direct indicator of production knowledge and individual expertise to some extent. The results as indicated in Table 3 revealed that majority (67%) of respondents have farming experience of more than 10 years, 22% have between 6 and 10 years of experience while 11% have less than 6 years of farming experience. The results indicate that the PLAS beneficiaries are experienced farmers who are aware of benefits from agricultural projects. However, this finding is not similar with that of Bayene (2008) which stated that participation of farmers in agricultural projects decreases with increasing years of experience of farmers because as the farmer grows older he/she tend to loose propensity to commercialise or to produce for the market and practice subsistence farming.

The findings as indicated in Table 2 revealed that majority (76%) of respondents have access to extension agents while 15 and 9% use radio and internet respectively as their sources of information. The possible reason is that majority of them were old aged people with low level of formal education hence more preference for direct interaction with extension officers using their own languages. The finding is consistent with Opara (2008) who found that majority (88.2%) of farmers preferred the extension agent to the other sources of information. However, Mohammed et al. (2005) in a survey of 186 commercial farmers between November 2002 and February 2003

stated that farmers' main source of information vary according to the type of enterprise. They found that poultry and dairy farmers depend largely on information provided by veterinarians while horticulture and crop farmers rely mainly on the advice of extension agents. The results in Table 2 also show that majority (63%) of beneficiaries were staying at the projects premises permanently while 37% of them stay outside the premises of the projects. Some of the farmers who do not stay on the farm indicated that they have no farm houses at all. Not staying full time on projects premises may expose the PLAS projects to theft and vandalism of available assets and property.

### Impact of PLAS on Physical Capital Livelihood

The results of physical capital aspects of the projects on "before and after" basis is presented in Table 3 which include: accessibility to transport, established market, accessibility to auctions, road accessibility, storage infrastructure, fencing, electricity availability, animal handling facilities, irrigation infrastructure, telephone facility, breeding infrastructure, production infrastructure, and dipping facility. The results indicate that transport infrastructure among beneficiaries improved from 11.1% to 24% after the projects. However, majority of respondents have not experienced such benefit as they still rely on public transport and hired transport in case of special transportation needed to and from the project premises. The findings indicate that established market among beneficiaries improved from 3.7% before the projects to 24% after the

projects. It was noted that projects with reliable access to established market are mostly those that are currently assisted financially by government through the Recapitalization and Development Programme (RADP). The funding helped the beneficiaries who received it in terms of quality and quantity of the produce which enabled them to meet the required standard to secure market contracts.

The results as presented in Table 3 show that accessibility to auction among beneficiaries improved from 5.6% before the projects to 65% after the projects. The respondents reported that they did not prefer the auction market but there were no better available high value markets for their produce. Auction are often seen as a shortcoming by the respondents as they are not sure of what to expect in terms of revenues and this affects the projects in terms of planning and projections of expected returns. The results also indicate that road accessibility improved from 35.2% to 65% after the projects. Most of the projects are located not too far from main roads or tar roads. However some of the roads that directly link the farms to the villages or towns are not in good condition. Thus, affecting business for those farmers who sell their produce at the farm gates as their farms were not easily accessible.

The results presented in Table 3 indicate that most (100%) of the projects originally had storage facilities but as a results of lack of sense of ownership, poor monitoring mechanism and lack of finance to maintain the storage infrastructure, has led to serious deterioration beyond repairs. Thus, renovating the current existing storage

**Table 3: PLAS project impact on physical capital**

<i>Physical capital</i>	<i>Before the project</i>		<i>After the project</i>	
	<i>High F (%)</i>	<i>Low F (%)</i>	<i>High F (%)</i>	<i>Low F (%)</i>
<i>Sub-variables</i>				
Transport	6 (11.1)	48 (88.9)	13 (24)	41 (35.2)
Established market	2 (3.7)	51 (94.4)	13 (24)	41 (44.4)
Auction	3 (5.6)	51 (94.4)	35 (65)	19 (53.7)
Road accessibility	19 (35.2)	35 (64.8)	35 (65)	19 (44)
Electricity availability	10 (18.5)	44 (81.5)	34 (63)	20 (37)
Storage facilities	0 (0)	54 (100)	10 (18.5)	44 (81.5)
Fencing	4 (7.4)	50 (92.6)	23 (42.6)	31 (57.4)
Animal handling facilities	1 (1.9)	53 (98.1)	14 (25.9)	40 (74.1)
Irrigation infrastructure	0 (0)	54 (100)	5 (9.3)	49 (90.7)
Dipping facility	0 (0)	54 (100)	3 (5.6)	51 (94.4)
Breeding infrastructure	0 (0)	54 (100)	7 (13)	47 (87)
Production infrastructure	0 (0)	54 (100)	23 (42.6)	31 (57.4)
Telephone facility	31 (57.4)	23 (42.6)	40 (74.1)	14 (25.9)

**Table 4: Wilcoxon sign rank test results on physical capital**

<i>Physical capital sub-variables</i>		<i>N</i>	<i>Mean rank</i>	<i>Sum of ranks</i>	<i>Z</i>	<i>P</i>
Transport after and before the project	Negative ranks	1	16.00	16.00	-5.209	0.000
	Positive ranks	30	16.00	480.00		
	Ties	23				
	Total	54				
Established market after and before the project	Negative ranks	0	0.000	0.00	-4.899	0.000
	Positive ranks	24	12.50	300.00		
	Ties	30				
	Total	54				
Auction after and before the project	Negative ranks	1	12.50	12.50	-4.491	0.000
	Positive ranks	23	12.50	287.50		
	Ties	30				
	Total	54				
Road accessibility after and before the project	Negative ranks	1	15.00	15.00	-5.014	0.000
	Positive ranks	28	15.00	420.00		
	Ties	25				
	Total	54				
Electricity availability after and before the project	Negative ranks	1	13.00	13.50	-4.707	0.000
	Positive ranks	25	13.50	337.50		
	Ties	28				
	Total	54				
Storage facilities availability after and before the project	Negative ranks	0	0.00	0.00	-3.162	0.002
	Positive ranks	10	5.50	55.00		
	Ties	44				
	Total	54				
Fencing after and before the project	Negative ranks	0	0.00	0.00	-4.359	0.000
	Positive ranks	19	10.00	190.00		
	Ties	35				
	Total	54				
Animal handling facilities after and before the project	Negative ranks	1	8.00	8.00	-3.357	0.001
	Positive ranks	14	8.00	112.00		
	Ties	39				
	Total	54				
Irrigation infrastructure after and before the project	Negative ranks	0	0.00	0.00	-2.236	0.025
	Positive ranks	5	3.00	15.00		
	Ties	49				
	Total	54				
Dipping infrastructure after and before the project	Negative ranks	0	0.00	0.00	-1.732	0.83
	Positive ranks	3	2.00	6.00		
	Ties	51				
	Total	54				
Breeding infrastructure after and before the project	Negative ranks	0	0.00	0.00	-2.646	0.008
	Positive ranks	7	4.00	28.00		
	Ties	47				
	Total	54				
Production infrastructure after and before the project	Negative ranks	0	0.00	0.00	-4.796	0.000
	Positive ranks	23	12.00	276.00		
	Ties	31				
	Total	54				
Telephone infrastructure after and before the project	Negative ranks	1	6.00	6.00	-2.714	0.007
	Positive ranks	10	6.00	60.00		
	Ties	43				
	Total	54				

infrastructure may cost even more than buying or installing new ones. About 18.5% of the projects after benefiting from the recapitalization programme have better storage infrastructure. The results also indicate that fencing on

the farms improved from 7.4% before the projects to 42.6% after benefiting from PLAS. Fence is very important infrastructure on most farms. It provides security against theft; use to demarcate grazing camps and help to confine

livestock on farms. Animal handling facilities on the projects also improved from 1.9% before the project to 25.9% after the project. The improvement may be attributed to those farms that have benefited from the government's recapitalization programme. The results in Table 3 also show that irrigation infrastructure, production and breeding infrastructure as well as dipping facility were non-existent on the beneficiaries' farms. However, through the recapitalization programme of PLAS, the aforementioned infrastructure on the projects has improved from 0.0% to 9.3, 5.6, 13 and 42.6% respectively.

#### **Wilcoxon Sign Rank Test Results on Physical Capital Impact**

Table 4 indicates the Wilcoxon sign rank test results on physical capital. In all 13 variables were considered under physical capital impact on "before" and "after" basis; results of 12 sub-variables with the exception of dipping infrastructure showed that significant difference exist in physical capital before and after PLAS projects. The impact of PLAS projects and physical capital livelihood were negatively related implying that discontinuation or no participation in PLAS projects will decrease physical capital in respect of the 12 significant sub-variables of physical capital.

#### **CONCLUSION**

The results show that majority (54%) of farmers are above 50 years of age while 7.5% of them were less than 30 years of age; the total number of beneficiaries in the projects is 97 of which 64% were males with 36% as females; most projects (75%) have one beneficiary with only 25% having more than one beneficiary per project; 18% of respondents did not have formal education; 28 and 39% of respondents have primary and secondary education respectively with only 15% having tertiary education; sizes of the land at the disposal of the beneficiaries range between 55.7 and 1500 hectares; 61% of respondents have land sizes of less than 500 hectares; 17% have land sizes of between 500 and 1000 hectares while 22% have more than 1000 ha; majority (67%) of respondents have farming experience of more than 10 years, 22% have between 6 and 10 years of experience while 11% have less than 6 years of farming experi-

ence; the PLAS beneficiaries are experienced farmers who were aware of benefits from agricultural projects; majority (76%) of respondents have access to extension agents while 15 and 9% use radio and internet respectively as their sources of information; only a few of the PLAS projects have benefitted from the recapitalization finance; majority (63%) of beneficiaries stay at the projects premises permanently while 37% of them stay outside the premises of the projects; farmers who do not stay on the farm have no farm houses; and not staying full time on projects premises may expose the PLAS projects to theft and vandalism of available assets and property.

The results of the analysis showed that some of the key physical capital livelihood indicator variables improved but were very lowly achieved, such as: means of transport (24%), established market (24%), storage facilities (18.5%), animal handling facility (25.9%), irrigation infrastructure (9.3%), dipping facility (5.6%) and breeding infrastructure (13%). The results further indicated that significant difference exist in physical capital before and after PLAS projects in respect of accessibility to transport ( $Z = -5.209$ ;  $p = 0.000$ ), established market ( $Z = -4.899$ ;  $p = 0.000$ ), accessibility to auctions ( $Z = -4.491$ ;  $p = 0.000$ ), road accessibility ( $Z = -5.014$ ;  $p = 0.000$ ), storage infrastructure ( $Z = -3.162$ ;  $p = 0.002$ ), fencing ( $Z = -4.359$ ;  $p = 0.000$ ), electricity availability ( $Z = -4.707$ ;  $p = 0.000$ ), animal handling facilities ( $Z = -3.357$ ;  $p = 0.001$ ), irrigation infrastructure ( $Z = -2.236$ ;  $p = 0.025$ ), telephone facility ( $Z = -2.714$ ;  $p = 0.007$ ), breeding infrastructure ( $Z = -2.646$ ;  $p = 0.008$ ), and production infrastructure ( $Z = -4.796$ ;  $p = 0.000$ ). Thus discontinuation or no participation in PLAS projects will decrease physical capital in respect of the 12 significant sub-variables of physical capital.

#### **RECOMMENDATIONS**

It is evidence that most of PLAS beneficiaries in the study area were facing many challenges of physical capital on the projects. The following were recommended based on major findings of the study: Government need to consider building RDP houses in some of PLAS projects so that beneficiaries can stay on the projects on permanent basis to ensure security and total commitment to the project; Departmental Recapitalization And Development Programme should be fast tracked to benefit all farm-



ers and be effectively implemented as per policy document. Other grants should be initiated to assist PLAS projects so that beneficiaries can acquire the needed physical capital to ensure effective and efficient farm activities on the PLAS project. Farm visits and communication between Extension Agents and farmers need to be planned strategically so that there is consistency in terms of reports and feedbacks to beneficiaries. Government need to assist beneficiaries to find established markets to ensure good value for the farmers' produce, hence better financial returns for sustainability. Government also need to ensure that women and youth are encouraged and are given same or equal opportunity as men to participate in PLAS projects.

#### ACKNOWLEDGEMENTS

The authors gratefully acknowledge the financial support to the study from Food Security Niche research unit of North-West University, Mafikeng Campus, South Africa.

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