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AN INVESTIGATION OF THE EFFECTS OF PROCUREMENT METHODS ON PROJECT DELIVERY IN THE ZAMBIAN ROAD SECTOR

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Sundie Silwimba^α & Dr. Balimu Mwyia^α

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The aim of the research was to investigate the effects of procurement methods on project delivery in the ZRS. Primary data was obtained using structured questionnaires and interviews. The study used seventy (70) respondents who were experts in procurement and road construction project management in the ZRS.

The findings revealed that the ZRS is governed by the Zambia Public Procurement Authority's Public Regulations and guidelines, Act of 2008. The other procurement guidelines which are also used in the ZRS are World Bank procurement guidelines for loans and borrowers and the European Union (EU) procurement guidelines. On the other hand, critical procurement factors that affect project delivery were; release of project funds, procurement guidelines, project procurement management training, working capital and presence of a monitoring and evaluation (M&E) unit. It was found that there was no major relationship between the performance of past projects and the procurement methods used. To the contrary it was established that there was a strong relationship between the procurement factors and the project delivery methods used in the ZRS. It is therefore recommended that project funds should be released on time for road projects to be successfully implemented in the ZRS industry as well as embracing best global procurement methods, regulation guidelines and project delivery methods.

Keywords: *procurement methods, project delivery, zambian road sector, construction industry and procuring guidelines.*

1. INTRODUCTION

In Zambia, procurement methods employed to award a contract opportunity to a contractor or consultant for the supply of goods, public works and services in the construction industries include but are not limited to:

international open bidding (IOB), national open bidding (NOB), open selection (OS); limited bidding (LB); limited selection (LS); simplified bidding (SB); direct bidding (DB); force account (FA), public private partnership (PPP) and contractor facilitated initiative (CFI) model (Zambia Public Procurement Act, 2011).

With the foregoing, when government agencies, multilateral development banks and public private institutions are overwhelmed with a variety of choices to make in deciding which procurement methods to use, it becomes a challenge, to come up with a suitable method. The challenge lies in the fact that for example in the execution of engineering project works, planning for the unforeseen is usually a standard practice. Therefore, it is very difficult to ultimately foretell at project inception stage the probable risks of using one type of procurement method against the other (Chartered Institute of Building, 2010).

II. STATEMENT OF THE PROBLEM

In 2011, the government of the republic of Zambia (GRZ), through the road development agency (RDA) unveiled an ambitious road programme, in a bid to open up the country and spur socio-economic development. The notable road programmes introduced among others into the road sector annual work plan (RSAWP), were the link Zambia (LZ) 8000 and Pave Zambia (PZ) 2000 road programmes (Road Development Agency, 2015).

The LZ 8000 programme involves the construction to bituminous standard of 8000 kilometre roads within the core road network (CRN) of Zambia in order to connect strategic provinces, districts and villages within the country. The target group in this programme are high-tech road contractors, consultants, skilled personnel with a few unskilled workers. While the PZ 2000 programme is aimed at constructing and paving 2000 kilometres of low volume roads using paving bricks, in urban areas throughout Zambia. The PZ programme being a labour based intensive programme has an emphasis on the utilization of local resources such as labour and materials. The project was intended to employ youths and reduce high unemployment levels in the country among the youths and also encourage small scale enterprises (SMEs)

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To help investigate the inter-play between procurement of road projects and successful project

RDA

THE LINK ZAMBIA 8000 PROJECT

PHASE I
PHASE II
PHASE III

Legend

- Phase I: Black line
- Phase II: Purple line
- Phase III: Green line

Scale

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000 4010 4020 4030 4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170 4180 4190 4200 4210 4220 4230 4240 4250 4260 4270 4280 4290 4300 4310 4320 4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 4460 4470 4480 4490 4500 4510 4520 4530 4540 4550 4560 4570 4580 4590 4600 4610 4620 4630 4640 4650 4660 4670 4680 4690 4700 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800 4810 4820 4830 4840 4850 4860 4870 4880 4890 4900 4910 4920 4930 4940 4950 4960 4970 4980 4990 5000 5010 5020 5030 5040 5050 5060 5070 5080 5090 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5210 5220 5230 5240 5250 5260 5270 5280 5290 5300 5310 5320 5330 5340 5350 5360 5370 5380 5390 5400 5410 5420 5430 5440 5450 5460 5470 5480 5490 5500 5510 5520 5530 5540 5550 5560 5570 5580 5590 5600 5610 5620 5630 5640 5650 5660 5670 5680 5690 5700 5710 5720 5730 5740 5750 5760 5770 5780 5790 5800 5810 5820 5830 5840 5850 5860 5870 5880 5890 5900 5910 5920 5930 5940 5950 5960 5970 5980 5990 6000 6010 6020 6030 6040 6050 6060 6070 6080 6090 6100 6110 6120 6130 6140 6150 6160 6170 6180 6190 6200 6210 6220 6230 6240 6250 6260 6270 6280 6290 6300 6310 6320 6330 6340 6350 6360 6370 6380 6390 6400 6410 6420 6430 6440 6450 6460 6470 6480 6490 6500 6510 6520 6530 6540 6550 6560 6570 6580 6590 6600 6610 6620 6630 6640 6650 6660 6670 6680 6690 6700 6710 6720 6730 6740 6750 6760 6770 6780 6790 6800 6810 6820 6830 6840 6850 6860 6870 6880 6890 6900 6910 6920 6930 6940 6950 6960 6970 6980 6990 7000 7010 7020 7030 7040 7050 7060 7070 7080 7090 7100 7110 7120 7130 7140 7150 7160 7170 7180 7190 7200 7210 7220 7230 7240 7250 7260 7270 7280 7290 7300 7310 7320 7330 7340 7350 7360 7370 7380 7390 7400 7410 7420 7430 7440 7450 7460 7470 7480 7490 7500 7510 7520 7530 7540 7550 7560 7570 7580 7590 7600 7610 7620 7630 7640 7650 7660 7670 7680 7690 7700 7710 7720 7730 7740 7750 7760 7770 7780 7790 7800 7810 7820 7830 7840 7850 7860 7870 7880 7890 7900 7910 7920 7930 7940 7950 7960 7970 798

The overall project performance of past road projects in the Zambian road sector stood at 53 percent as shown in figure 2.

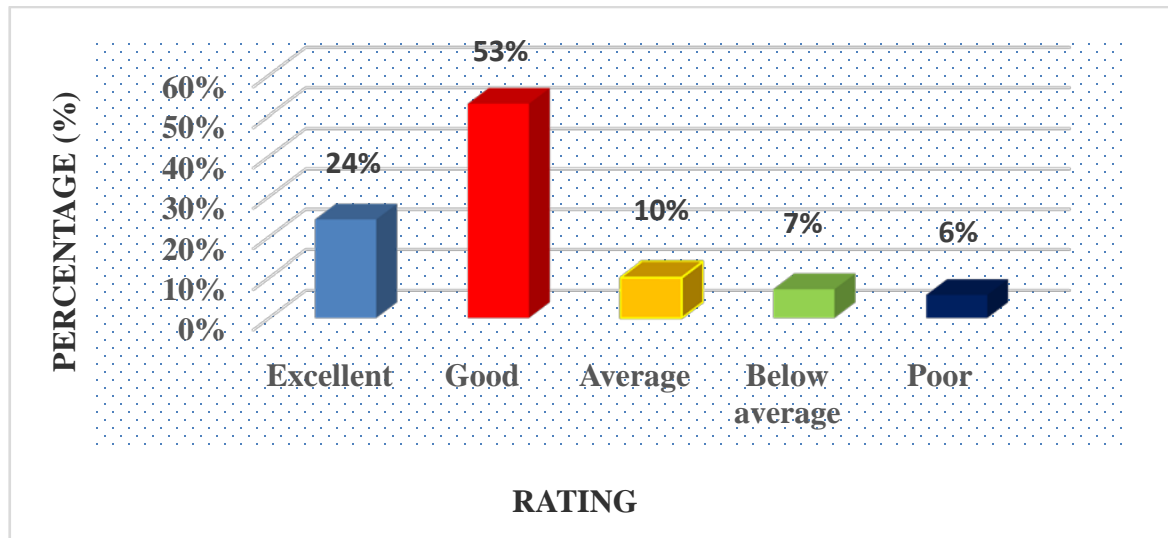


Fig. 2: Showed the overall performance of projects under the Link Zambia 8000

III. OBJECTIVES

- A. To investigate the effects of procurement methods on project delivery in the Zambian road sector.

IV. LITERATURE REVIEW

Procurement is defined as “a business management function that ensures identification, sourcing, access and management of the external resources that an organization need or may need to fulfil its strategic objectives” (CIPS, available at www.cips.org/Documents../definitions_of_procurement_and_scm.pdf);

As “the acquisition by means of a public contract of works, supplies or services by one or more contracting authorities from economic operators chosen by those contracting authorities, whether or not the works, supplies or services are intended for a public purpose” (EU, Public Contracts Regulations, 2015);

“A major part of the PEM cycle by which the local administration buys works, goods, and services” (Abrahams, 2013); and or, for the purpose of this study procurement was defined as:

“A process which embodies value for money as its core principle while embracing many virtues such as transparency, competition, efficiency, accountability, fairness and economic realistic project schedules in the public PEM cycle”.

This process is employed during the acquisition of public services, works and goods such as road contract works, in this context by the road implementing agencies, intended for the rehabilitation, maintenance, upgrading and or construction of public roads in the ZRS industry.

The essential objective of procurement is to ensure that all the fundamental principles governing the PEM cycle are adhered to, with a successful delivery of needed facilities to the public in order to spur eco-socio infrastructure development (Zambia Public Procurement Act, 2011).

V. PLAN PROCUREMENT

A Plan Procurement is a phase which seeks to answer questions as to: what exactly should be procured? How should the procurement be done? In what quantity should we procure? What exactly should be procured and when should procurement be done? Further, Plan procurement may be defined as the progression Phase of describing the range of a project/ programme to be undertaken by governments, organisations or institutions in order to ascertain the ideal project needs to be met by procuring services from the Private Sector (Canada, 2011).

VI. PROCUREMENT METHODS

Procurement methods have remained the same over the years while organizations have strived to employ different project delivery system (Baccarini, 2008). Other alternative procurement methods may be used by government agencies, multilateral development banks and public private institutions in cases where the ICB or the NCB would not be the best economic and cost effective methods (World Bank, 2011).

In Kenya, the government of the republic of Kenya through the public procurement oversight authority (PPOA) devised the procurement manual for works and came up with procurement methods, namely: open tendering; request for proposals for works and

consultants; restricted tendering; direct procurement or single sourcing; low value procurements also known as request for quotations or minor works only; two staged tendering and specially permitted procurements (or PPP Contracts) (PPOA, 2009).

However, this research focused on the ZPPA's public procurement ACT of 2008, which provides a wide range of procurement methods that are available for use by all procuring entities in Zambia. Against this background, the road sector in Zambia have the privilege to access from a pool of variant procurement methods as outlined below (Zambia Public Procurement Act, 2011):

a) *Open bidding*

Open bidding refers to a type of procurement method in which a procuring entity publicly invites eligible bidders to tender or offer to execute an advertised work or service through a purchasing of a solicitation document or following an outlined instruction to bidders as may be outlined in the advert. Open bidding is also a benchmark for effective and efficient public procurement in that it promotes fairness, transparency, value for money and helps to reduce collusion, fraud and corruption. In addition, this method of procurement may be used to obtain eligible service providers and civil works contractors in the road sectors (WBa, 2014).

According to ZPPA Act of 2008 the public procurement regulations, 2011, open bidding may be national open bidding (ONB) or international open bidding (IOB) and requires that all procuring entities use this method of procurement for goods, works and non-consulting services. Further, the condition precedent in Zambia is that award of a contract opportunity is biased to determination of the bid with the lowest evaluated price (Zambia Public Procurement Act, 2011).

b) *Open Selection and Limited Selection*

The objective of open selection is to encourage the participation of the Private Sector and enable the clients to obtain the best possible shortlist worthy value for money. This type of procurement is meant for consulting services and it is usually designed as an open tender in order to encourage competition. In addition, open selection can either be open international selection (OIN) or national open selection (NOS). Despite being open to the public, open selection may prescribe specific qualification criteria to guide in the eligibility of the targeted road service providers required to participate in the bidding process. The criterion applied in the ZRS may range from affiliation to the national council for construction in respect to grade, status of a company such as citizen owned company (COC) to the domicility status of the bidding firm (NCC, 2003).

Selection tendering at national and international frontier is sought when the estimated value of the procurement surpasses the given threshold in the procurement guidelines, the consulting services could not be accessed under competitive price or from at least three suppliers/ consultants in Zambia or in the region. Consequently, procuring entities are allowed to carry out a limited selection of consulting services, where the consulting services are only available from a limited number of suppliers or on grounds of emergency. This procurement method is tailored for consulting services only in which bids are obtained through specific invitation to a shortlist of bidders without advertising in any media accessed by the public (ZPPA, 2011).

The challenges to these types of procurement are similar to open bidding. Consultancy services calls for quality and cost based selection criteria. It also requires highly qualified professionals with experience. Therefore on these aspects local firms usually fall short of the required criteria and usually most jobs are taken by foreign based consulting firms. However, in certain instances a number of projects are delayed while awaiting the selection of consultants' mobilization of foreign consultants whose efficiency to mobilise from their countries is a challenge (Salleh, 2009)

c) *Limited bidding and direct bidding*

Limited bidding (LB) is a type of procurement which in reality is international competitive bidding except the design under this one is that eligible contractors are invited in person through writing instead of advertising in the media. On the other hand, though there is a limit in terms of number to be shortlisted it is anticipated to be broader enough to assure competitive prices. In addition, Direct bidding (DB) is another type of procurement in which a procuring entity engages a bidder directly without subjecting him/her to any form of competition. This may happen only in emergence cases otherwise this kind of procurement may lead to corruption in the selection of contractor or consultants (World Bank/IBRD, 2011).

Other Instances in which these kind of procurements may arise could be due to lack of many service providers in such works which are being sought to be done. Besides these, it can also be used when the proposed contract amount is not lucrative to attract foreign based contractors or suppliers (Asian Development Bank, 2015).

However, these types of procurement can be highly abused by procuring entities as they may become a source of corruption, collusion and fraud by avoiding open bidding, so that preferred contractor (s) can be handpicked. In its current form, the ZPPA Act shows inadequacies in ensuring that a maximum number to be shortlisted is enshrined in the act, other than stating that it should be broad enough and does not state that those

to be qualified for short listing or single sourcing, should have had first passed a pre-qualification stage conducted by the procuring entity. Failure to have these clauses under the two procurement methods gives room for manipulation on the part of the contracting authority to invite any contractor of their choice. Besides, the methods lack the fundamental principles of procurement such as competition, fairness, transparency and value for money (Skitmore, 1997).

d) *Simplified bidding*

This is a type of procurement method used by contracting authorities in Zambia in circumstances where the threshold for procurement does not exceed K500 Million for goods, works and non-consulting services. While for consulting services, this method is applicable only when the threshold for procurement does not exceed K300 Million (Zambia Public Procurement Act, 2011).

A threshold for procurement is not in any way a fundamental principle that should govern a choice of a procurement method because project costs are determined by contracting authorities. Therefore, contracting authorities may adjust project cost in order to avoid competition and give themselves an advantage to benefit from a project by ensuring that it falls below a less competitive threshold. Because project costs with lesser thresholds does not attract competition from non-regional contractors and on the other hand having a higher project cost such as the one falling under the threshold for international competitive bidding (ICB) reduced into a threshold for simplified bidding only increases the time taken during procurement process and eventual successful project delivery (AfDB, 2014).

e) *Procurement of infrastructure for private financing and award of concessions*

This refers to comparable contracting, service concessions that the government may enter into with private investor to develop, operate and manage a public facility such as a road over a period of time for a return on their investment. Zambia is currently considering a number of road projects on the core road network to be carried by public private partnership (PPP) or contractor facilitated (CFI) model (RSAWP, 2017).

Procurement of infrastructure project entered into by governments use concession agreements which comes in variant forms, not limited to the following: build-lease—transfer (BLT); build-rent-transfer (BRT); build-own-operate (BOO); and build-own-operate-transfer (BOOT). These types of procurement methods are not good for developing nations like Zambia because infrastructure development is undertaken based on borrowings and the repayment period is usually very long, like it was in the case of the Suez canal which had a concession period of 99 (ninety-nine) years. This length period of time is too long for the

concessionaire and the financier of a special purpose vehicle (SPV) to continue enjoying the benefits out of a constructed facility at the expense of the public of an origin country (Bunni, 2005).

Furthermore, designing, structuring and financing private and public projects poses great risks during both the pre and post construction phases. Some of the notable risks of these procurement methods which can subsequently haunt the origin country after assuming overall responsibility to care and maintain the constructed infrastructure are: increased interest rate risks which emanate from fluctuations in interest rates and depreciation of currencies against the major global currencies, especially volatile currencies are those amongst developing countries compounded by the risk of exchange rates (Gatti, 2008).

f) *Community participation in procurement*

This is a situation where the success of a project is anchored on the utilization of the local resources that may range from, human resource, materials and technical know-how. In addition, achievement of certain social problems like poverty may be reduced by implementation of labour intensive programmes like the Labour-based road projects. This kind of projects enable the participating locals to earn salaries and be able to better their livelihood at household levels (Puddephatt, 2012).

This type of procurement is not good because it take place outside the confines of the fundamental principles of procurement as defined in this study, such as competition, transparency and fairness. A person in authority may prefer to implement a labour intensive project in his home town or place of origin based on ethnicity grounds, while disadvantaging other communities, this is so, because community participation doesn't have well defined criteria to follow but simply depends on special discretion of those in authority. That is, basically obtaining community labour, either on a voluntary or paid basis similar to a private contractor may be engaged to carry out specified works by contracting authorities (UNCDF, 2013).

VII. METHODOLOGY

The initial stage of the research reviewed the existing literature on the investigation of effects of procurement methods on project delivery from journals, books, internet and other secondary sources. Based on the obtaining findings from secondary data, questionnaire was designed.

The questionnaire was designed with three sections; section one (1) addressed demographical aspect of respondents, section two (2) addressed the procurement methods used in the construction industry while section three (3) was a guide interview with structured questions tailored to aid the researcher

during interview of the identified key experts. The key experts were drawn from institutions which are at the centre of procurement, implementation and policy regulation in the ZRS. The target institutions to help with the research were: The RDA, MHID, NRFA, ZPPA, NCC, EIZ and the private contractors as well as consultants practicing in the ZRS.

Having had the institutions to help with the investigation or research, the appropriate sampling method which was adopted was purposive sampling method. Therefore, procurement officers, contract managers, senior engineers, site engineers, contractors and consultants among many other professionals in the ZRS who have been involved in actual contract procurement and project delivery of road works were identified, administered with questionnaires and interviewed. The overall sample size of the respondents was seventy (70).

Data collection comprised both primary and secondary data. Further, the collected data was analysed using Microsoft Excel 2013.

VIII. FINDINGS AND RESULTS

The assessment of project works was limited to the projects that were unveiled after 2011, particularly those under the link Zambia 8000 project. During the interview of key experts, the identified desk engineers and project managers with at least ten (10) years' experience were interviewed and gave their view point concerning the performance of road projects under their charge.

The interviewee from Road Development Agency (RDA) said, "In most cases works contracts commenced before the finalisation of the designs and engagement of consultants to the projects. He further explained that this situation usually occurs due to stakeholder pressure, though mostly it is from politicians. He also stated that this situation always had retrogressive effects on successful project delivery because it is very difficult to monitor or supervise a project without designs". In addition, the interviewee disclosed that notable effects of works that commenced without designs and consultants on projects, experienced re-works and delays in completion of works. This was so because when the consultant finally got on site they found that contractors had wrongly executed certain works and therefore correction became inevitable. Consequently, project cost overruns, delays and re-works had characterized the ZRS sector. On the other hand, experts from NCC revealed that during assessment of some of the past and on-going projects they had encountered poor quality of works executed and point out that corruption should be the root cause of such substandard works noticed. They hinted that

despite some of the project having had timely release of project funds, the quality of works left much to be desired. The interviewee also said incompetency of consultants and contractors had also contributed to project failure in the ZRS.

IX. CONCLUSION

The different types of procurement methods employed in construction of road projects has a vital role in the successful selection of a contractor to be awarded a contract opportunity and subsequent completion of the project. However, the findings of this research study concerning, the relationship between procurement method and success project delivery indicated that: A procurement method cannot be singled out to be the reason for project success or failure alone. Because every procurement method have their own procedures to follow and once they are followed the project delivery takes place with their due conditions to be met; and the conditions to be met during project delivery are the implementation of procurement factors which have been extensively analysed to establish their impact on project delivery.

X. RECOMMENDATIONS

Based on the findings from this study, the following recommendations are being made:

1. The Road Sector Annual Work Plan (RSAWP) should consider being framed based on the definite available funds. Presently, road sector strategic work plans are framed taking into account counterpart funding as well as revenue that the Agency have no direct control over. Further, Government should streamline the collection of revenue and decentralize collections so that Agencies like the National Road Fund Agency (NRFA) are allowed to fully collect all its revenue and operate according to its mandate: to mobilise road fund for the maintenance, rehabilitation and construction of public roads in Zambia. Such a move can certainly remove the red tape revealed in the disbursement of road user fees from the Ministry of Finance (MoF) to NRFA.
2. Works contracts should never be allowed to commence without project designs. The implementing Agency such as RDA should be supported and respected to operate independently and remove the current direct influence that comes from politicians.
3. National Council for Construction (NCC) and Zambia Public Procurement Authority (ZPPA) regulations and guidelines should be reviewed to incorporate best practices and stakeholders such

as contractors should be allowed to be part of the review exercise so that their concerns are incorporated as well. Further, adjustments of guidelines such as advance payment should not be altered only in the interest of government but any such adjustment made must be subjected to all the stakeholders before amendments are done. Presently, the RDA law on limiting advance payment to ten (10) percent and seven and half (7.5) percent to local contractors and foreign contractors, works against best practices and therefore, hinders successful negotiations regarding the same, which is an international contract administration norm.

This researcher strongly recommends that government through the Attorney General and ZPPA rescinds its decision on limitation of advance payment in order to improve the capacity of contractors.

4. Government and procurement entities should enforce a policy which should prevent personnel without formal procurement training from handling assignments related to contract administration. Further, personnel in the institutions engaged in contract administration should have a cycle deliberate policy of training their staff in procurement and contract administration training courses.
5. Government should devise deliberate policies which favour improvement of contractor's capacity such as payment high advance payment to contractors as opposed to minimisation of advance payment to contractors. Further, the current 20 percent sub-contracting policy which mandates every high tech contract awarded to major contractor to sub-contract 20 percent of the total contract sum to Zambian local contractors. The policy was meant to build capacity of the local contractors through knowledge transfer. However, it was revealed that more is expected to be done beyond the 20 percent policy pronouncement. Because, most local contractors are not acquiring high-tech knowledge transfer through the 20 percent sub-contracting policy since their capacity is too low and therefore, they are only sub-contracted to carry out very low level works such as bush clearing and grubbing. Therefore, this researcher recommends that government should consider empowering small scale contractors with equipment and financial capacities so that once sub-contracted to carry high-tech works they are able to execute them and thereby acquire knowledge.

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