Effects of Cadastral System on Mining Title Administration in Nigeria

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Abstract

The study evaluates the operation and effectiveness of cadastral system on mining title administration in Nigeria. The study used a random sampling technique to collect data from 100 respondents. Data collected was analyzed using Statistical Package for Social Science (SPSS) and Pearson correlation was used to test the hypotheses. The findings revealed that 71% of the respondents agreed that cadastral system allow smooth efficient designations of decisions. This implied that the lengthy and costly procedure for title registration in Nigeria has been reduced drastically by cadastral system by maintaining a chronological record of all applications for mineral titles in a priority register and also maintains a general register which is to be used for all other types of application where registration of the priority is not required. Moreover, lapses and overlapping problem have been prevented this was made possible by the system by checking the eligibility of applicants and making decisions to grant or refuse applications especially in the case of new applications. Also, the conflict between small and large customers has been reduced drastically by strictly adhere to first come first served ground rules by cadastral system. The study therefore recommended that licensing should start and finish at zonal offices particularly for small and artisan miners in order to ensure efficient performance.

Introduction

Mining sector has remained a positive core contributor to the sustainable socio-economic development of mineral producing countries for many years. Recent economic research findings indicate that earnings from solid minerals contribute handsome share of the Gross Domestic Product (GDP) of such countries as Ghana, Canada, Australia, and South Africa among others. In 2007, for instance, the mining sector contributed 5% to Ghana's GDP, 7% to South Africa's GDP and 3% to Canada's GDP [1]. In Nigeria however, the situation is pathetically not comparable despite the country is extraordinary endowed with a vast range of solid minerals and yet the mining sector contributes only partly 1% to the Nation's GDP [2]. The development of mining in the economy, however, is not only dependent on the availability of resources, but has much more to do with the ways in which these commodity systems are socially organized [3]. These socially organized systems include political, economic and cultural processes, such as an efficient legal and regulatory framework, security of tenure, investment risks, transparency and efficient administration, all of which create a favourable climate for investment [4]. In order to capture revenue from extractive activities, the Nigerian Constitution in the first instance states that all mineral resources belong to the government. The Federal Government as the owner of these resources grants permits, licenses and leases for reconnaissance, prospecting and extraction to interested persons/organizations [5]. In the solid minerals sector, any individual or organization wanting to explore for, extract or sell minerals, must lawfully obtain the relevant license from the Mining Cadastral Office (MCO).

Prior to 2006, the MCO operated under the mines department, not as an autonomous body. The mines department at that time concurrently supervised mining activities, which was characterized by a multiplicity of functions; outdated mineral titles that rendered the entire cadastral system opaque; and the issuance of mining rights without recourse to the Mining Act. Thus, the Nigerian mining cadastral was symbolized by policy inconsistency, where the policy makers had undue regard for the law [6]. For example, the discretionary powers bestowed on the minister and other mining officials by the 1999 Mining Act provided an avenue for the arbitrary revocation and allocation of mining titles over the years. This lack of transparency and accountability has created an unfavorable investment climate for Nigeria to harness fully its multi-billion-dollar-valued solid minerals sector. The sector became flooded with speculators that discouraged genuine local and foreign mining investors. The extent of these problems was confirmed by the outcome of the reform exercise that led to the case-by-case revalidation of all the known mining titles/rights. To reduce this moribund situation, the government of Nigeria has over the past few years, made aggressive efforts towards the institutionalization of the necessary strategic frameworks for the mining sector to thrive. A key component of the plan to revitalize and resuscitate the Nigerian mining sector is the computerization of the procedures of the MCO, the principal public institution that manages mining titles in the country. The system has the responsibility to administer mineral titles and maintain a cadastral register on behalf of the federal government, such that it gains investors' confidence, and provides information on the state of mining activities to the investors and the public [7]. The mining cadastral is the substance of the Minerals and Mining Act of 2007, which guarantees a secure mineral rights system, by recording the geographical location, ownership, type of mineral rights and validity period, compliance with environmental obligations and social agreements, and also payment of required fees. The current state of modernizing the cadastral system from a mining register to a mining cadastral allows for the acquisition of a variety of licensing scales that range from a few meters in the case of quarry or

small-scale mining, to hundreds of square kilometers for exploration and eventual mining [7]. Whatever the scale, the new system captures all the transactions that take place during the lifetime of the mine from application through to granting, fees payable, tracking of annual reports, change in ownership, and finally, relinquishment or revocation of the title. As a first step in implementing the cadastral system for mining in Nigeria, a computerized mining cadastral system was introduced, and in the process, mineral titles were revalidated. Therefore, this study is carried out carefully to evaluate the impacts of cadastral system on mining titles administration in Nigeria [8-12].

Research Question

The following were the research question posed to guide the study.

- Does the cadastral system help preventing overlaps in mining operations in Nigeria?
- Does cadastral system allow well-organized designation pertaining to mining in Nigeria?
- Has the cadastral system enable the Federal, State and Local government improved the development of mineral operation in Nigeria?

Statement of the Hypothesis

Based on the objectives of the study and the stated research question one hypothesis was formulated to address the research problem:

H0: Cadastral principles do not significantly affect mining title administration.

H1: Cadastral principles significantly affect mining title administration.

Materials and Methods

The research design used was the survey method which involves the use of interview and structured questionnaire. The questionnaire was divided into personal bio-data of the respondent and questions drawn from respondents to measure the effects of cadastral system on mining title administration in Nigeria. The targeted population for the study includes small and medium development enterprise in Nigeria, Ministry of Mine and Steel Development, corporate bodies, professionals and managers in the field of mining across the Lagos, Ondo, Ogun, Ekiti, Kogi and Kwara states. The individuals participated in the study are specialists in the field of mining industry which were able to respond to the questions. 105 questionnaires were randomly distributed to the respondents of which 103 questionnaires were returned. Three of the returned questionnaires were not well completed while 100 questionnaires were well completed and used for the analysis. Data were analyzed using SPSS version 16. The descriptive statistical techniques, frequencies and percentages were used. The hypotheses were tested using Pearson Correlation analysis at 1% and 5% significant level [13-17].

Results and Discussion

Personal bio–data of the respondents

Table 1 shows that 77% were male and 23% were female. It can be deduced that male dominated mining profession although more females are coming into the profession now. 92% of the respondents

were in 20-45 years category which constituted the bulk of the sample while 8% of the respondents were above the age of forty-five as shown in Table 1.

Sex	F	%	Age	F	%	Marital status	F	%
Male	77	77.0	20-45	92	92.0	Married	23	23.0
Female	23	23.0	> 45	8	8.0	Single	77	77.0
Total	100	100.0	Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)								

Table 1: Demography.

It means that the ages of the respondents under consideration are between the age of maturity, dynamism, responsibility and commitment.

Educational Qualification	F	%	Grade Level	F	%
AL/OND/NCE	2	2.0	Management Level	30	30.0
BSc./B.Eng./Masters, etc	98	98.0	Middle Level	49	49.0
-	-	-	Lower Level	21	21.0
Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)					

Table 2: Educational qualification, grade level and discipline.

Research questions on cadastral system

Knowing what cadastral system is all about	F	%	Mining cadastral system has relationship between workflows	F	%	Mining cadastral system recognizes area with small size	F	%
Strongly Agree	71	71.0	Strongly Agree	17	17.0	Strongly Agree	6	6.0
Agree	27	27.0	Agree	59	59.0	Agree	15	15.0
No Opinion	2	2.0	Disagree	15	15.0	Disagree	26	26.0
-	-	-	Strongly Disagree	4	4.0	Strongly Disagree	51	51.0
-	-	-	No Opinion	5	5.0	No Opinion	2	2.0
Total	100	100.0	Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)								

Table 3: Knowledge about cadastral system, workflow relationship and recognition area.

Table 2 represents the highest level of educational qualification the experts had obtained. 98% of the respondents had B.sc/B.Eng./HND. This implies that nearly all of the respondents were university graduate and therefore having knowledge about the study.

Table 2 also reveals that majority of expertise in the field of mining fall under middle level. This level implement the policy and plan by top managers, they supervise and coordinate mining activities of lower line managers in an organization.

Table 3 reveals that 98% of the respondents agreed that they know what cadastral system is all about. This means that the entire respondents familiarize with the question and thus make the instrument easy to administer. Also, the table shows that a total of 76% of the respondent believes that there is concrete relationship between workflows i.e. one action from the other. The fact that 5% of the respondents do not have knowledge of the question could mean that they don't upgrade themselves in the working capacity of the cadastral system. Moreso, a total of 76% of the respondents disagreed that such area of 50m x 50m dimension is too small for any mining activities. 21(21%) of the respondent either agreed or strongly agreed that the system recognized the dimension. They argued that the area is too small and would not guarantee the taxation policy. Therefore recommends for the upgrading of the system to capture any acceptable hectare of land for mining activities.

History of an Area during Renewal of License	F	%	Cadastral system has stabilized and regulated the errors in mining operations	F	%	Online transaction portals bring about transparency in cadastral system	F	%
Strongly Agree	9	9.0	Strongly Agree	25	25.0	Strongly Agree	36	36.0
Agree	53	53.0	Agree	38	38.0	Agree	51	51.0
Disagree	4	4.0	Disagree	19	19.0	Disagree	3	3.0
Strongly Disagree	28	28.0	Strongly Disagree	15	15.0	Strongly Disagree	5	5.0
No Opinion	6	6.0	No Opinion	3	3.0	No Opinion	5	5.0
Total	100	100.0	Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)								

Table 4: Renewal of license, errors in mining operations and transparency in cadastral system.

Table 4 depicts that 62% of the respondents agreed that the system does not show the history of the area during renewal of the license. This means that the system is not effective as regard the history of the relinquished area. However, as one of the objectives of mining cadastral system is to receive and dispose of applications for the transfer, renewal, modification, and relinquishment of mineral titles or extension of an area, therefore, the geographical accessibility of an area must be incorporated into the system to achieve this goal and for proper monitoring of event going on the land during renewal of license. 63% of the respondents agreed that cadastral system has stabilized and regulated the errors in mining operations as shown in Table 4. This means that, Nigeria computerized mining system has helped the mining sector to function relatively well in achieving their objectives. Also, 87% of the respondents agreed that online system enables the public to have access to their document over the internet.

External users are given access to non-confidential database over the internet	F	%	Cadastral system allow smooth efficient designation of decisions in mining	F	%
Strongly Agree	5	5.0	Strongly Agree	46	46.0
Agree	22	22.0	Agree	25	25.0
Disagree	21	21.0	Disagree	19	19.0
Strongly Disagree	43	43.0	Strongly Disagree	8	8.0
No Opinion	9	9.0	No Opinion	2	2.0
Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)					

Table 5: Access to non-confidential in cadastral system database and designation of decisions.

64% of the respondents disagreed that external users are given opportunity to view non-confidential documents in the database over the internet as shown in Table 5. However, this means that the mining cadastral system database is not well known to users. Also, the table reveals that 71% of the respondents agreed that cadastral system is working efficiently in designation of decisions pertaining to mining operations in Nigeria while 27% of the respondents felt that decisions is not efficient. Hence, mining cadastral office must ensure that users

have knowledge about the choice of title before undergo any mining operations.

Cadastral system has reduced unnecessary conflicts between small and large mining customers	F	%	Mining cadastral system has solved the problem of overlapping	F	%	Cadastral system has enabled the federal, state and local government improved the mineral operations	F	%
Strongly Agree	59	59.0	Strongly Agree	75	75.0	Strongly Agree	26	26.0
Agree	36	36.0	Agree	19	19.0	Agree	70	70.0
No Opinion	5	5.0	No Opinion	6	6.0	Disagree	1	1.0
Total	100	100.0	Total	100	100.0	No Opinion	3	3.0
						Total	100	100.0
Source: Field data survey (2015)								

Table 6: Mining conflicts, problems of overlapping and mineral operation improvement.

Table 6 indicates that 95% of the respondents which constituted the highest population agreed to the question that mining cadastral system has helped to solve the conflicts between the small and large mining company customers. Also, the table shows that 94% of the respondents agreed that mining cadastral has eliminated overlapping (i.e. checking the eligibility of applicants and making decisions to grant or refuse applications especially in the case of new applications). Finally, 96% of the respondents agreed that cadastral system has improved the mining operations. Therefore mining cadastral system has create enabling environment for federal, state and local governments to maximize the positive role the mining sector can play in promoting rural economy and also helped in support mutually beneficial partnership between the mining industry and states and local government.

Mining cadastral system observe "first comes, first served" ground rules	F	%	Cadastral system were carried according to the mining law and regulations for the investor	F	%	Cadastral system formulate policy according to mining law and regulation	F	%
Strongly Agree	65	65.0	Strongly Agree	36	36.0	Strongly Agree	19	19.0
Agree	26	26.0	Agree	57	57.0	Agree	71	71.0
Disagree	3	3.0	Disagree	1	1.0	Disagree	2	2.0
No Opinion	6	6.0	Strongly Disagree	4	4.0	Strongly Disagree	5	5.0
Total	100	100.0	No Opinion	2	2.0	No Opinion	3	3.0
			Total	100	100.0	Total	100	100.0
Source: Field data survey (2015)								

Table 7: First comes, first served ground rules; mining law and regulation and cadastral system policy.

Table 7 reveals that 91% of the respondents agreed that the rule of "First Comes, First Served" were fully observed while 3(3%) of the respondent disagree. However, the table also shows that 93% of the respondents agreed that cadastral system carried out their operations in accordance with the mining law and regulations for the investor. Therefore, the cadastral system has enabled the foreign investor to have advantage in mining operations by regulating the law to suite them. Moreso, Table 7 shows that 88% agreed that the intention of mining law and regulation were carried out accordingly in practice and management data in formulating policy making. It can therefore be deduced that cadastral system has helped in management of data for the policy making.

Testing of Hypothesis

H_o: Cadastral principles do not significantly affect mining title administration.

H_1: Cadastral principles significantly affect mining title administration.

n other to test the formulated hypothesis the responses from questions 28, 29 and 30 were correlated together as shown in Table 8.

Table 8 shows that the correlation of variables 28 and 29 and 30 was statistically significant with a p-value of less than 0.01. At 1% level of significance, the statistic is higher than the critical value as shown in Table 8.

	Variable 28	Variable 29	Variable 30
V28 (Pearson correlation)	1	0.529**	0.513**
Sig. (2-tailed)	100	0.000	0.000
N		100	100
V29 (Pearson correlation)	0.529**	1	0.601**
Sig. (2-tailed)	0.000	100	0.000
N	100		100
V30 (Pearson correlation)	0.513**	.601**	1
Sig. (2-tailed)	0.000	.000	100
N	100	100	
**correlation is significant at the 0.01 levels			

Table 8: Correlation of variables 28, 29 and 30.

The analysis shows that null hypothesis which is Cadastral principles do not significantly affect mining title administration (H_o) is rejected and alternative hypothesis which is Cadastral principles significantly affect mining title administration (H_1) is accepted.

Conclusion and Recommendation

This study examined the effects of the cadastral system on mining title administration in Nigeria. It was shown that cadastral system has allowed well-organized designation of decisions pertaining to mining and Land Use Act in Nigeria. It has ensured the chronological record of all applications for mineral titles in a priority register which is to be specifically used to ascertain the priority and registration of application for exclusive rights or free areas and also maintain a general register which is to be used for all other types of application where registration of the priority is not required. Moreover, it has been statistically shown through the survey conducted for this study that cadastral system has helped in overcoming all the lapses on mining titles especially in the case of new applications and the problems of first come, first serve ground rules but there are some teething problems still facing the system. As a result of these, the following recommendations are hereby suggested to the organization:

- Licensing should start and finish at zonal mine offices particularly for small and artisan miners.
- Use of the Logical Framework Assessment (LFA) may be used for project formulation and implementation.
- Cost for acquiring mining licenses should further be reduced.

- Limit the time to use the license and create a watertight system based on first come first serve-guaranteeing confidentiality to the person who puts in an application
- Cadastral systems must be kept up-to-date otherwise there is little for their establishment.
- The design of cadastral systems must be appropriate for the needs of title holders and not a central government bureaucracy.

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