



## Determination of Forgery Risk Indicators in Land Transaction Documents in Ghana

<sup>a</sup>Samuel Boamah Asiedu, <sup>b</sup>Emmanuel Offei Akrofi, <sup>c</sup>Eric Kwabena Forkuo

<sup>a</sup>Lecturer, Sunyani Technical University, Department of civil engineering, Sunyani, Ghana. [sbasiedu@stu.edu.gh](mailto:sbasiedu@stu.edu.gh)

<sup>b</sup>Lecturer, Kwame Nkrumah University of science and technology, Department of geomantic engineering, Kumasi, Ghana. [eoffeiakrofi@gmail.com](mailto:eoffeiakrofi@gmail.com)

<sup>c</sup>Lecturer, Kwame Nkrumah University of science and technology, Department of geomantic engineering, Kumasi, Ghana. [eric.forkuo@gmail.com](mailto:eric.forkuo@gmail.com)

### Corresponding Author:

Samuel Boamah Asiedu

### Corresponding E-mail:

[sbasiedu@stu.edu.gh](mailto:sbasiedu@stu.edu.gh)

Received: 19/December/2023,

Accepted: 01/January/2024,

Online: 04/January/2024

### Managing Editors

Prof. Kwadwo Adinkrah-Appiah

Prof. Samuel Wiafe

Dr. Stephen Okyere-Boateng

Prof. Hongjun Liu

### How to cite:

Samuel Boamah Asiedu, Emmanuel Offei Akrofi, Eric Kwabena Forkuo (2024).

Determination of Forgery Risk Indicators in Land Transaction Documents in Ghana.

*Journal of Engineering Applied Science and Humanities*, 8(3), 202-212.

10.53075/ljmsirq/65564565466%445

**Abstract:** The multiplicity of land transactions takes place on the same land parcel coupled with myriad documentation efforts by both statutory and customary tenure systems. These are susceptible to fraud and concomitant land disputes. Land transaction documentation flaws are a significant cause of land ownership and boundary disputes in Ghana. The research investigated current land transaction documents, and identifiable flaws, and explored probable means of altering genuine land transaction records with the intent of deceiving the innocent purchaser or unsuspecting vendor. An embedded mixed method of research approach was adopted for the study. A cross-sectional survey was undertaken to assess respondents' knowledge of land acquisition and the acceptability of various land documents as authentic enough to legitimize one's interest in land. Both cadastral plan and spatial planning extracts were key in identifying authentic land transaction records based on geometrical accuracies and the delineation of parcels. Results revealed that the availability of the affected parcel was barred from any encroachment and boundary disputes, and prospective buyers became forgery-risk-averse in ascertaining all other risk factors within the transaction attribute records. However, conflicting ownership, the absence of regional number-defaced seals on cadastral plans, site plans, and statutory declarations without legal authority were considered viable forgery risk indicators. It was recommended that the Government of Ghana should secure the creation and establishment of a multipurpose digital cadastre to ensure sanity in the Ghanaian land market.

**Keywords:** Disputes, Documents, Land Ownership, Land Transactions

### 1. INTRODUCTION

Most transaction documents are printed or electronically produced documents with legal support. These documents were created by the vendor (grantor), who is one of the parties to the transaction, and were given to the buyer (grantee). Both fixed and variable data are used to create transaction documents. The buyer must be permitted to make an autonomous judgment regarding the purchase of the land, or another course of action based on the vendor's paperwork. Through this activity, land transactions become more open and equitable (Dos Santos

Cunha, 2011; World Bank Group, 2016). The constitution of Ghana obligates the vendor to disclose any information that could make the transaction dangerous or eventually void. To determine the risk in the transaction as feasible, these facts must be revealed by the transaction paperwork. These papers are either hand-delivered to the buyer or sent to them electronically. According to the principles of good land governance, the transaction must be equitable, effective, and accountable (Arial et al., 2011; Locke & Henley, 2016b).

Therefore, all information supporting the transaction's legitimacy must be made transparent to all

participants. Documentation frauds are still feasible even with automated land registration systems because some persons try to take advantage of the system's flaws by collaborating with the registry personnel to trick the system (Cheng et al., 2006; Stanfield et al., 2008). Illegal land transaction documentation sometimes results in land disputes, which lead to public brawls and lengthy violence in many Ghanaian communities. Due to legal action taken against any of the parties, numerous construction projects are put on hold. Consequently, paramilitary organisations called "land guards" have been formed in Accra, using force to seize lands from private developers. People who have legally acquired lands are denied access to their building plots, which discourages investment and, as a result, undermines public confidence in Ghana's land administration system. Even though, there have been numerous studies on the security of tenancy and land disputes in Ghana, little attention has been paid to the documentation of land transactions (Antwi & Adams, 2003; Bansah, 2017; Barry & Danso, 2014; Locke & Henley, 2016a; Patapaa, 2018). Since most parcels in Ghana are not registered, many land transactions have not been properly documented. Most land documents have easily forgeable information, and the Ghanaian system for property transactions underutilises security measures. Due to security flaws in the documentation; forgery, multiple allocation, impersonation, and parallel registration are all possible. Every land deal necessitates the buyer's diligence (Karki et al., 2013).

However, what happens if the buyer is unaware of the fraudulent arrangement they are being led into? Are there any recourses available in the Ghanaian land administration system to stop the fraud from happening? Every land document including inaccurate information or data renders the land transaction illegitimate (Biraro et al., 2021). The parties to the transaction prepare transaction documentation using both fixed and variable data. Without interacting with the Lands Commission, it is nearly impossible to quickly verify the documentation provided by the real estate vendor in Ghana (Locke & Henley, 2016). The commission can only report on registered parcels, and this creates an avenue for fraud and protracted land disputes (Abdulai & Owusu-Ansah, 2014; Mintah et al., 2021). The law courts in Ghana are overwhelmed with a myriad of land disputes. The land disputes in Ghana are made worse by scattered land records, forged documents, weak data protection, regulations, and cumbersome verification process. Besides, stringent identity checks are rarely done during the registration process (Gyamera et al., 2016, 2018). Land delivery services are not well decentralised across Ghana. Low levels of automation of the land delivery services in Ghana make verification very challenging.

The corrupt staff of both the commission and the customary stool land secretariat also hamper good land governance principles by producing fake land documents to unsuspecting clients (Gyamera *et al.*, 2018). The production of fake land documents eventually brings about a dispute

over ownership and property boundaries, loss of conserved areas, and many more (Panda et al., 2021). A parcel in dispute may have a different set of documents presented by the aggrieved parties. Until the truth is revealed by an adjudication committee or a law court, the dispute lingers on. Problematic land documents create dispute on property boundaries, ownership and marked land use (Eck, 2014; Paaga, 2013). The absence of standardised land documents and parcel repository system in Ghana facilitate the forging of land documents. If the land purchaser can do due diligence, a future dispute is averted. Hence, there is the need to fashion out means of classifying land documents accepted in the land market in Ghana. This study, therefore, delved into the role played by land transaction documentation in the incidence of land disputes in Ghanaian communities.

The study was driven by; identifying the various land documents demanded by purchasers of lands, investigating how forgery is carried out in land transactions, and determining indicators of forgery risks in land transactions in Ghana.

### 1.1 Trends in land transaction documentation in Ghana

Ghana operates both customary and statutory land transaction systems. Both systems involve the use of documents to record the transaction that occurred between the transferor and the transferee. The customary land transactions dominate the transaction regime in Ghana (Hilhorst et al., 2015). Most of the customary land transactions are recorded at the customary land secretariat or the stool lands office, but stringent measures are rarely put in place to bring sanity to the land administration system in Ghana (Iyengar, 2015). In some instances, land transaction records are not kept due to fraud tendencies. Tracing history of land transactions becomes a conundrum for the jury in any land dispute (Okyere, 2021).

Corrupt lands commission staff also connive with fraudsters to falsify land documents and make validation of land transaction documents mirage for those seeking justice (Pandey, 2018; Patapaa, 2018). Any documents issued by the grantor in any land transaction is recipe for a potential land dispute when due diligence is not followed. Most land documents are not highly personalised to make falsification difficult for fraudsters (Dos Santos Cunha, 2011). Parties to an ownership land dispute present different sets of land transaction with variable details from different grantors or even the same grantor. The vigilance of the grantees would have reduced such fraud tendencies, but such virtue is mostly ignored in land transactions especially where the deal is between acquaintances. Many land dispute cases in law courts are heavily plagued with forged land transaction documents and identity thefts. Court experts will spend much time trying to reveal the mysteries behind the transactions.

### 1.2 Accuracy of details on land documents

The data or information on the land documents can be assessed for accuracy based on the font, style, date,

spacing of characters on the form, tone or temperature of colour and many more. Some of the information provided that is acquired through measurement is easily forged on land documents such as the dimension of plot and size (area), and unless compared with the already recorded one, it is difficult to detect the altered figure. Any information provided looks correct. On the other hand, handwriting styles and signatures require more complicated means of forging them (Zaborowski, 2021). The grid shown on site plans for the same geographic plot location may appear differently even when the geometrical shape of the plot in dispute may be the same. Plot numbering order may also follow a different pattern. Complex alteration is required to create a counterfeit site plan and cadastral plan due to how they are prepared. Other land documents such as deed of transfer, land allocation, and lease may be easily altered, hence, it is possible to have more than one person holding the full set of land documents to sell to an unsuspecting client. Some corrupt staff of the land sector agencies in Ghana also create pseudo documents to outwit clients to sell lands to them. Typically, these lands are located within the heart of towns and are very attractive to developers.

## 2. MATERIALS AND METHODS

The study used the mixed method approach for the research employing both qualitative and quantitative analyses to obtain the results. The qualitative aspect of the study employed document analysis of samples of land transaction documents such as site plans, cadastral plans, land allocation notes, indenture, and land ownership search certificates. Photocopies of leases belonging in the previous owners and land certificates were inspected during the pilot survey lapses based on forgery tendencies prescribed by the Lands Act 2020 (Act. 1036) Section 277, and the Criminal Offenses Code. A checklist for the questionnaire survey was then developed based on the fraud risks observed from the inspected land documents to determine which acts would be taken as an affront to the land laws. Checklist for measuring fraud / dispute risks in land transactions was done as indicated in the following:

- Plans used in the land transaction;
  - Planning status of the locality indicated on the plan
  - Dimensions of plot indicated on the site plan
  - Edging of the affected plot on the site plan
  - Use of appropriate seals of the Physical Planning Department of the Metropolitan / Municipal / District Assemblies (MMDA) involved in the preparation of site plans
  - Relationship between the description of the plot on the plan and the physical location of the plot indicated on the site plan

- The regional number used to register the cadastral plan meant for the transaction
- Certification by licensed surveyor indicated on the cadastral plan
- Authorisation of cadastral plan by the Director of Surveys
- Relationship between the cadastral plan and the physical location of the plot
- Field inspection conditions;
  - Survey beacon arrangement
  - Dimension of plot based on beacon positions
  - Number of survey beacon present at the time of inspection
- Transaction narratives;
  - Allocation notes – use of serial numbers
  - Use of seals of stool making the grant
  - Appearance of indenture material
  - Covenant terms in the indenture
  - Use of legal seals
  - Execution of transaction portrayed by the indenture
- Certificates;
  - Use of seals in the lease
  - Reference numbers used in the lease document
  - Execution of the transaction portrayed in the lease
  - Quality of paper used in the preparation of the lease
  - Ownership search certificate reference numbers
  - Ownership certainty revealed by the search

The quantitative aspect of the study made use of the checklist stated earlier in the preparation of structured questionnaire to solicit the views and risk awareness of respondents. The respondents were recruited from four localities (Ayeduase, Kotei, Twumduase, and Deduako) within the Oforikrom Municipality. Using confidence level of 95 % and margin of error of 5 % on proportion of population of 50 % from 213,126 (Ghana Statistical Service, 2021) a sample size of 384 was estimated for the survey. However, 400 questionnaires were administered within the four localities through a simple random sampling approach. Three hundred and ninety-five (395) forms were received from the respondents from the four localities within the municipality. The responses were entered in Microsoft Excel table and formatted to suite the SMART PLS 4 for the statistical analysis to be conducted. A linear regression model was created with the variables where 'risk of forgery' was set as the dependent variable, and all the other risk indicators associated with the various land documents likely to be used by the vendors in land transactions were also made independent variables in the model, factors

associated with site plan, cadastral plan, indenture, statutory declaration, allocation notes, leases, and land ownership certificates. The details of the results and the inferences drawn demonstrate research participants'

knowledge on land acquisition in Ghana and fraud risks with the documentation. Figure 3 provides the methodology flowchart of this study.

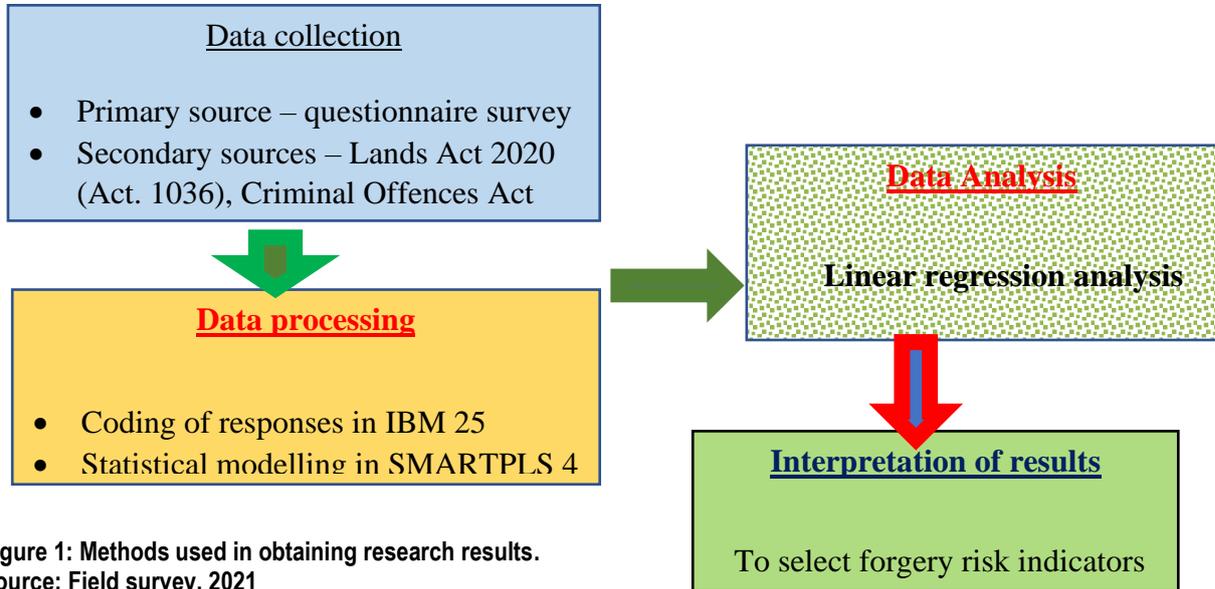


Figure 1: Methods used in obtaining research results.  
Source: Field survey, 2021

### 3. RESULTS

This section deals with outcome of the processing of field data and how they relate to the research. The analysis was done on demographics (gender, marital status, level of education and age) of respondents.

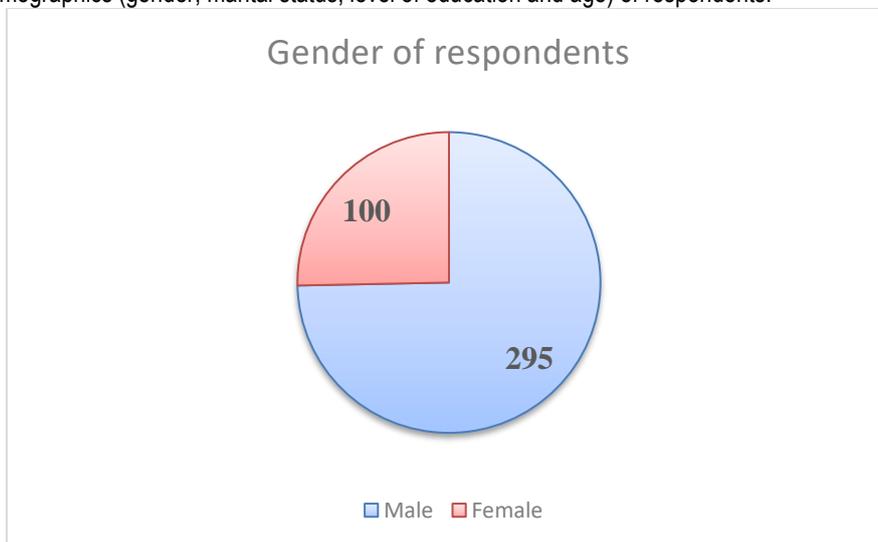
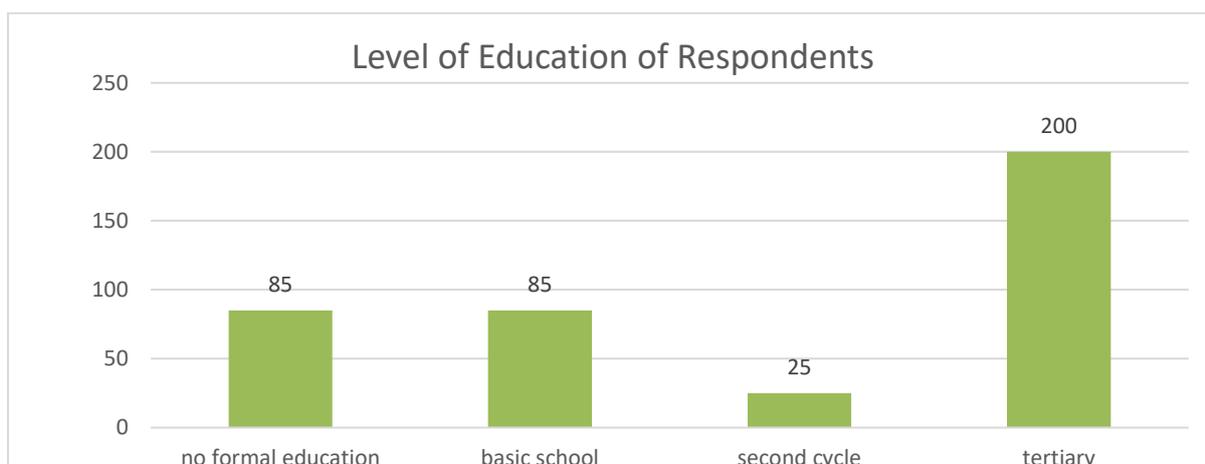


Figure 2: Gender distribution of respondents  
Source: Field survey (2021)

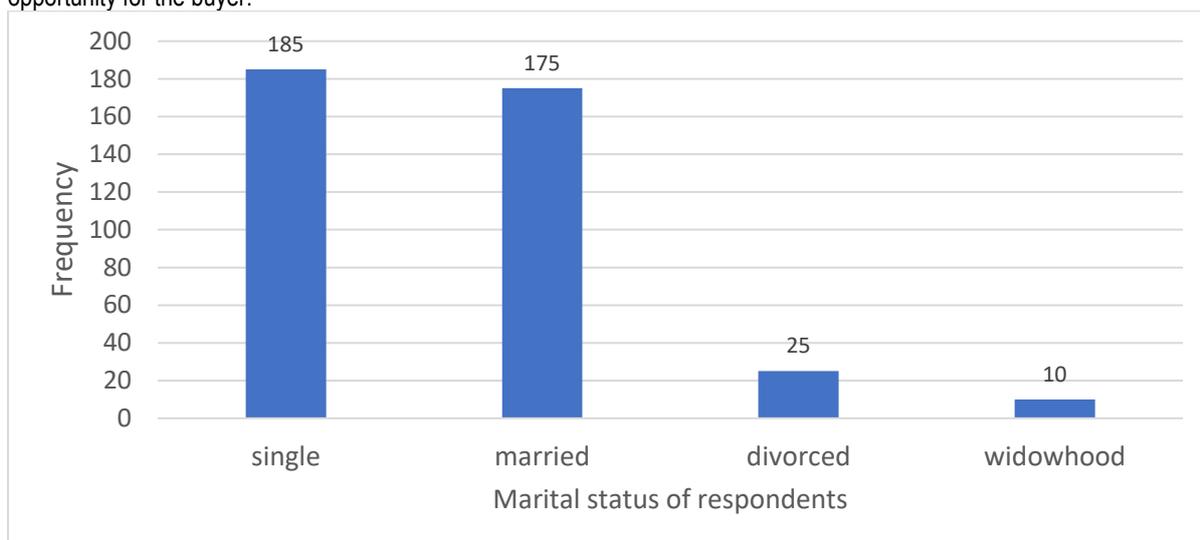
Majority of the research participants were males demonstrating the male (63.7 %) dominance in land related issues than their female (36.3 %) counterparts within most Ghanaian communities. As land transaction in Ghana is not restricted to a section of people, the survey was therefore, open to anyone with an experience in land disputes irrespective of gender. The purchasing power of potential grantees drives land purchases, and none of the genders are discriminated against.



**Figure 3:** Level of Education of respondents

**Source:** Field survey 2021

From figure 3, it could be seen that; significant number of respondents is educated and can be assessed on knowledge regarding land acquisition. The knowledge is a prerequisite for conducting a low risk- or risk-free land transactions. In analysing the risks connected with the entire transaction process, knowledge gained via training or actual learning in real estate and related sectors would be valuable. Furthermore, the detection of fraud or dispute risks would provide a strong profit opportunity for the buyer.



**Figure 4:** Marital Status of Respondents

**Source:** Field survey, 2021

There is a split between those married and those who are unmarried. Marriage increases women access to land, but it does not guarantee security of tenure. Land like any other immovable property continues to attract spousal interest. Based on the position of the land laws, Act 1036 (2020), properties acquired by the couple cannot be alienated by one party or purport to convey interest in the affected property alone. When analysing field data, it is crucial to include marital status. This does not exclude single people from acquiring property to meet their basic needs for shelter, and they will undoubtedly engage in land transactions.

**Table 1:** Only one document accepted by respondents

s/n	Document received	Number of cases
1	Lease	112
2	Land certificate	144

**Source:** Field survey 2021

If given the option, one is more inclined to accept a land certificate as confirmation of ownership to the land, but the purchaser must check its authenticity. Due to gaps in the deed registration, it is possible for leases to overlap. The strict controls put in place throughout the title registration process make it impossible for fraud to be linked to land certificate transactions. Hence, a greater number of the respondents would like to receive a copy of land certificate belonging to the grantor of the land.

**Table 2.** Two sets of documents

s/n	Documents received	Number of cases
1	Site plan, indenture	119
2	Site plan, allocation note	125
3	Site plan, ownership search certificate	143
4	Site plan, lease	106
5	Cadastral plan, indenture	85
6	Cadastral plan, statutory declaration	74
7	Cadastral plan, ownership search certificate	95
8	Cadastral plan, allocation	81

**Source:** Field survey, 2021

Table 2 indicates that, a greater number of the respondents would like to receive the site plan and ownership search certificate to ascertain who they will be doing the land transaction with. Cadastral plan and statutory declaration by land owners was the lowest because of the cost of acquiring the cadastral plan and most people would not want to do anything in the law court. Besides, the declaration will have to be published for 21days and many may not be patient enough to wait.

**Table 3.** Three Sets of documents

s/n	Documents received	Number of cases
1	Site plan, allocation note, indenture	88
2	Cadastral plan, allocation note, indenture	68
3	Site plan, ownership, lease	91
4	Cadastral plan, ownership, lease	69
5	Site plan, allocation note, statutory declaration	84
6	Cadastral plan, allocation note, statutory declaration	63

**Source:** Field survey, 2021

From Table 3, site plan, ownership search certificate and a copy of lease for the vendor had the highest preference and the lowest came from the cadastral plan, allocation note and statutory declaration from the owner of the land. Many prospective purchasers may not have the patience to wait for 21days to possess their land.

**Table 4.** More than three sets of documents

s/n	Documents received	Number of cases
1	Site plan, indenture, allocation note, lease	72
2	Cadastral plan, indenture, allocation note, lease	62
3	Site plan, indenture, allocation note, lease, ownership certificate	65
4	Cadastral plan, indenture, allocation note, lease	56

**Source:** Field survey, 2021

With more than three land transaction documents, respondents want to receive site plan, indenture, allocation note and lease in any land deal. Cadastral plan, indenture, allocation note, and lease had the lowest preference as documents for the land transaction. As the number of transaction documents increases, the preference for site plan over cadastral plan also increases. Hence, the site plan is more familiar with the respondents than cadastral plan.

**Table 5:** Forgery Risk Indicators

Risk Indicator	Indicators - forgery risks
R1	Risk with allocation note no serial number
R2	Risk with ownership certificate- ownership conflict
R3	Risk with cadastral plan with no regional number
R4	Risk with cadastral plan not risky so far as the land is available
R5	Risk with cadastral plan with no authorizing signature
R6	Risk with indenture defaced
R7	Risk with ownership certificate no reference
R8	Risk with site plan unknown zoning status
R9	Risk with indenture torn
R10	Risk with lease not executed
R11	Beacons present misplaced
R12	Risk with statutory declaration stained
R13	Risk with site with dimension not indicated

R14	Risk with statutory declaration with no legal authority
R15	Risk with lease no reference number
R16	Risk with site plan with plot not edged pink
R17	Risk with indenture no seal
R18	Risk with statutory declaration no seals
R19	Dimension of plot different from specified
R20	Risk with statutory declaration defaced
R21	Risk with cadastral plan with director of survey
R22	Risk with site plan not risky so far as plot can be identified
R23	Risk with site plan with no seal
<b>Risk Indicator</b>	<b>Indicators - forgery risks</b>
R24	Risk with indenture not executed
R25	Risk with allocation note no seal
R26	Risk with indenture covenant terms ambiguous
R27	Risk with lease no seals
Intercept	Intercept

**Table 6.** Forgery risk indicators considered by respondents in Land transactions

Risk Indicators	Unstandardized coefficients	Standardized coefficients	SE	T value	P value	2.50%	97.50%
R1	0.481	0.541	0.075	6.405	0	0.333	0.629
R2	-0.28	-0.312	0.072	3.909	0	-0.421	-0.139
R3	0.203	0.235	0.052	3.918	0	0.101	0.305
R4	-0.074	-0.037	0.084	0.873	0.383	-0.239	0.092
R5	0.039	0.04	0.051	0.77	0.442	-0.061	0.139
R6	0.085	0.076	0.067	1.278	0.202	-0.046	0.217
R7	-0.235	-0.189	0.07	3.332	0.001	-0.373	-0.096
R8	-0.013	-0.015	0.037	0.361	0.718	-0.085	0.059
R9	-0.165	-0.127	0.065	2.541	0.011	-0.293	-0.037
R10	-0.18	-0.119	0.071	2.537	0.012	-0.319	-0.04
R11	0.096	0.104	0.061	1.578	0.115	-0.024	0.215
R12	0.054	0.041	0.082	0.652	0.515	-0.108	0.215
R13	-0.087	-0.086	0.056	1.55	0.122	-0.198	0.023
R14	0.321	0.3	0.08	4.029	0	0.164	0.477
R15	0.033	0.036	0.068	0.484	0.629	-0.101	0.168
R16	0.062	0.06	0.04	1.561	0.119	-0.016	0.14
R17	0.373	0.311	0.068	5.471	0	0.239	0.508
R18	0.096	0.084	0.078	1.235	0.217	-0.057	0.248
R19	-0.081	-0.087	0.056	1.458	0.146	-0.191	0.028
R20	0.189	0.132	0.086	2.208	0.028	0.021	0.358
R21	0.03	0.032	0.053	0.563	0.574	-0.075	0.135
R22	-0.118	-0.064	0.085	1.393	0.165	-0.285	0.049
R23	-0.062	-0.074	0.032	1.943	0.053	-0.124	0.001
R24	0.061	0.069	0.05	1.225	0.221	-0.037	0.159
R25	0.454	0.332	0.083	5.476	0	0.291	0.616
R26	-0.229	-0.221	0.056	4.077	0	-0.34	-0.119
R27	-0.309	-0.226	0.097	3.182	0.002	-0.5	-0.118
Intercept	-247.333	0	113.922	2.171	0.031	-471.353	-23.313

Source: Output of statistical analysis, 2022

**Forgery risk indicators considered by respondents in Land transactions**

The respondents were made to indicate some acts by vendors which they considered as risky in land transactions that are likely to lead to forgery of genuine land transaction records or cause land transaction fraud as shown in Table 5. From Table 6, judged from the value p -

value > 0.05 and the T-value < 2.00 at confidence level of 95 % in the linear regression modelling; some of the forgery risk indicators show no statistical significance with the regression model obtained. Hence, they would not be considered as risky in the land transaction documentation process. These included;

- R4 Risk with cadastral plan not risky so far as the land is available
- R5 Risk with cadastral plan with no authorizing signature
- R6 Risk with indenture defaced
- R8 Risk with site plan unknown zoning status
- R11 Beacons present misplaced
- R12 Risk with statutory declaration stained
- R13 Risk with site with dimension not indicated
- R15 Risk with lease no reference number
- R16 Risk with site plan with plot not edged pink
- R18 Risk with statutory declaration no seals
- R19 Dimension of plot different from specified
- R21 Risk with cadastral plan with director of survey
- R22 Risk with site plan not risky so far as plot can be identified
- R24 Risk with site plan with no seal

- R25 Risk with allocation note no seal
- R26 Risk with indenture covenant terms ambiguous
- R27 Risk with lease no seals

The study kept site plan and cadastral plan in each set as means of describing the affected parcel. The risk factors ought to be considered in conducting land transactions if disputes are to be avoided to provide enough security of tenure for land purchasers. The land laws of Ghana (Lands Act, 2020 (Act 1036); EVIDENCE ACT, 1975 N.R.C.D. 323, 1975) prescribe that the vendor is legally obliged to provide the purchaser with better proof of title to the land he/she wishes to transfer. The proof of title is demonstrated in the documentation process. Forged documents will therefore, affect the title of the purchaser.

**“Copies of extract as evidence 139.** A copy of an instrument, an extract of the register or a certificate of registration signed by a Land Registrar shall be receivable in evidence in court without further or other proof, unless the copy, extract or certificate is proved to be a forgery” (Lands Act, 2020) **Section 16—Provisions Relating to Fraud.**

*“For the purposes of any provision of this Code by which any forgery, falsification, or other unlawful act is punishable if used or done with intent to defraud, an intent to defraud means an intent to cause, by means of such forgery, falsification, or other unlawful act, any gain capable of being measured in money, or the possibility of any such gain, to any person at the expense or to the loss of any other person”* (EVIDENCE ACT, 1975 N.R.C.D. 323, 1975).

On the other hand, some of the respondents were able to identify some forgery risk indicators during the survey. From the table 6, it could be inferred that these indicators were showed statistical significance with the model based on the p-value < 0.05 and T- value > 2.00 at the confidence level of 95 %. Forgery risk indicators considered by the respondents were:

- R01 Risk with allocation note no serial number
- R02 Risk with ownership certificate- ownership conflict
- R03 Risk with cadastral plan with no regional number
- R07 Risk with ownership certificate no reference
- R09 Risk with indenture torn
- R10 Risk with lease not executed
- R14 Risk with statutory declaration with no legal authority
- R17 Risk with indenture no seal
- R20 Risk with statutory declaration defaced

#### Challenges encountered in land transactions

Respondents reported 148 cases of multiple sales or multiple allocations during the survey. One hundred and thirteen (113) cases of forgery were reported. Corruption among land administration staff were also reported in 85 cases. One hundred and four cases of high cost of registration were also reported. Lastly there were 50 cases of loss of land documents.

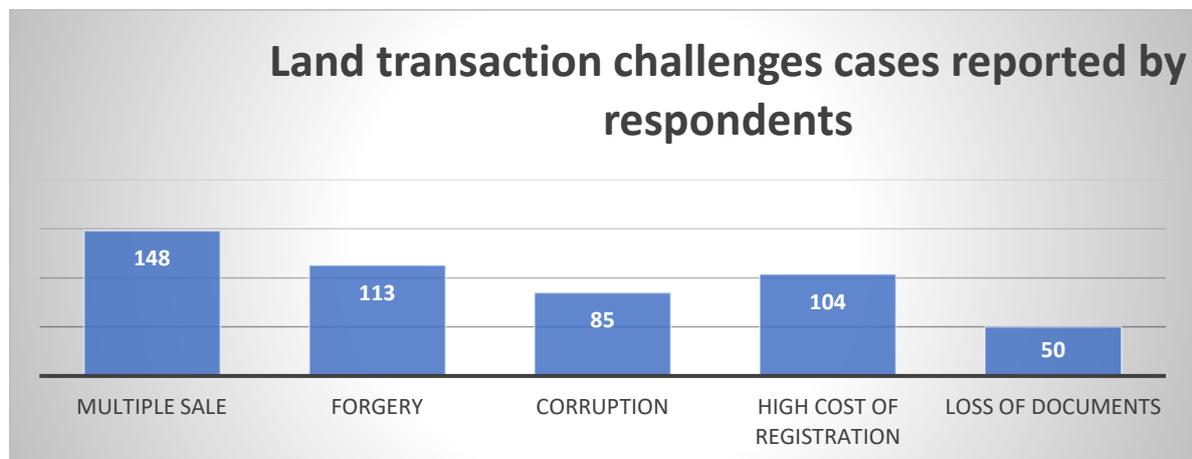


Figure 5: land transaction challenges cases  
Source: Field survey, 2021

#### 4. DISCUSSIONS

The research established sets of documents received by purchasers of land that fall under four categories. These include one (1) set (Copies of lease or land certificate), two (2) sets, three (3) sets and more than three (3) sets of documents in land transactions (Kombe et al., 2017). Majority of the respondents indicated desire to receive land title certificate but this is only available for plots of land within title registration areas. Again, only few parcels haven't been leased within the vested areas. Predominant in the documents used in the transaction, site plans come with little security features and ease of counterfeiting. Cadastral plans are quite robust in certification and approval from licenced surveyors and director of surveys with unique regional numbers for registration. But cadastral plan preparation is limited to only few licenced surveyors across the country given room to quack surveyors creating fake plans. Some skill is required to identify counterfeit plans used in land transaction, but it is not available to most prospective land purchasers. Site plans and cadastral plans are more technical than the rest of the land documents so most of the forgery occur within other land transaction documents (Brown & Hughes, 2017).

Land documents such as allocation note, indenture, ownership search certificate and statutory declaration by land owners are sealed by signatures, watermarks, embossment, and emblems. All the aforementioned are forged by fraudsters to outwit their victims in land transactions. As stated by Brown (1964), fraud was present when the plaintiff was coerced into relinquishing a signed written instrument in exchange for the assurance that a parole agreement would suffice. This may be achieved through the use of deception or concealment. When the plaintiff was coerced into forgoing a signed written instrument under the promise that a parole understanding would suffice, fraud had occurred. This may be achieved through the use of deception or concealment.

The fraudulent transaction eventually ends up in land dispute when there is ownership conflict, boundary disputes and encroachment. The absence of readily available database to cross check the authenticity of land documents makes forging of land documents easier for corrupt land officials and fraudsters and consequently increasing land disputes in Ghana. The land certificate which is the most secured land document one can obtain from a land transaction, is not personalised, and secured enough to prevent counterfeiting and forgery. Fraud in land transaction involving land certificate mostly carried out by attempts to create an existing original copy by changing serial numbers and certificate numbers which would be difficult to detect just by mere inspection. Weakness in the current regime of land transaction documentation favour multiple allocations, impersonation and misrepresentation created through fraud by false pretence. Generally, the Lands Commission can only verify registered lands archived within the records section. Hence, many fraudulent land deals are not detected early enough until there is a dispute on the land between parties claiming ownership over the

same land or disagreement on beacon position. (Salifu *et al.*, 2019)

Researchers discovered from the survey that there is low motivation among the purchasers to verify the identity of the grantor or his/her representative and the documents supplied for the transaction. This action further exposes most prospective grantees to ownership and boundary disputes. The weakness in most land transactions is evidenced in high number of reported cases of land ownership disputes, fraudulent land deals, corruptions, and violent dispossession (Sewornu et al., 2015). Some grantees acquire land without doing inspection so documents they received purporting that the land is vacant or undeveloped only to be surprised by an adverse claim and fierce resistance from neighbours. In addition, inadequate skills among land purchasers to identify fake land documents contribute to high incidence of land disputes in Ghanaian law courts. Deliberate acts of soiling, crumbling, and defacing of land documents are done by fraudsters to divert attention from incriminating details on fake land documents. The knowledge of the purchaser will be helpful in assessing risks associated with all land transaction documents in ameliorating land disputes in Ghana. It could be deduced from the statistical analysis that the risks associated with land documents influence land transaction challenges. If most of the risks are assessed and well managed in land transaction documentation, land disputes will be averted.

#### 5. CONCLUSIONS

From the study, it could be deduced that land transaction documents with the land market in Ghana comprise; allocation note, site plans, cadastral plan, deed of indenture, statutory declaration, ownership search certificate, and copies of lease or land certificate. The land documents herein studied exhibited weakness in protecting the details of the land owner or landholder against falsification of previous transaction records, forgery, and counterfeiting. The seals used to secure the land transaction documents are mostly embossed emblems of the Ghana government, which can be reproduced easily. Signatures of key officers approving land transactions are not codified with symbols to make their falsification more strenuous for the fraudsters. Verification of land transaction documents are regarded as adding to the land acquisition cost, so they are not mostly done. Thus, transaction risks are not detected by the purchasers. Risk of fraud in transaction ranging from simple to complex cannot be identified and traced by the respondents. Hence, most land transactions are potential land disputes that occur as contention over either ownership or boundary due to lapses in land transaction documentation (Abdul Karim *et al.*, 2011). Most land transactions, therefore, are potential land disputes that occur as contention over either ownership or boundary due to lapses in land transaction documentation.

## 6. RECOMMENDATIONS

The study suggests further research into how land transaction details could be kept safe. As a result, it recommends the following:

- The Lands Commission must curb falsification of land transaction details through the use of voidable stickers, barcodes and QR codes.
- Government must encourage the use of security marks (double ended encryption) to digitally protect signatures, and identification numbers.
- The Lands Commission should adopt a technology to uniquely link the parcel details to the identity of the land holder to avert multiple sale of the same land.
- Designated place for land transactions should be identified by policy makers through a physical location or an online platform.
- Creation of multipurpose digital cadastre should be vigorously pursued by the government of Ghana to bring sanity to the land market.

## 7. ACKNOWLEDGEMENT

The researchers are grateful for the assistance offered by the Licensed Surveyors Association of Ghana, the SMD staff in Sunyani and Kumasi, and the participants in the unstructured interviews. Additionally, we appreciate the staff and students at Sunyani Technical University and the Geomatic Engineering Department at KNUST for directing us to victims of illegal land deals in Ashanti and Bono regions. The registrars of the High Court and Circuit Courts in Sunyani were very helpful in providing details on the types of land dispute cases they receive.

## REFERENCES

- Abdul Karim, N. S., Raja Othman, R. A., Ismail, M. S., & Maidin, A. J. (2011). Identifying and overcoming the risk of fraud in the Malaysian electronic land administration system. *2011 International Conference on Research and Innovation in Information Systems*, 1–6. <https://doi.org/10.1109/ICRIIS.2011.6125671>
- Abdulai, R. T., & Owusu-Ansah, A. (2014). Land information management and landed property ownership security: Evidence from state-sponsored court system. *Habitat International*, 42, 131–137. <https://doi.org/10.1016/j.habitatint.2013.11.005>
- Antwi, A. Y., & Adams, J. (2003). Rent-seeking Behaviour and its Economic Costs in Urban Land Transactions in Accra, Ghana. *Urban Studies*, 40(10), 2083–2098. <https://doi.org/10.1080/0042098032000116121>
- Arial, A., Fagan, C., Zimmermann, W., & Hardoon, D. (2011). *Corruption in the Land Sector* (ISSN 1998-6408). <http://www.fao.org/3/am943e/am943e00.pdf>
- Bansah, D. K. (2017). *Governance Challenges in Sub-Saharan Africa: The Case of Land Guards and Land Protection in Ghana* [Kennesaw State University, Georgia]. [http://digitalcommons.kennesaw.edu/incmdoc\\_etdhtmlp://digitalcommons.kennesaw.edu/incmdoc\\_etd/14](http://digitalcommons.kennesaw.edu/incmdoc_etdhtmlp://digitalcommons.kennesaw.edu/incmdoc_etd/14)
- Barry, M., & Danso, E. K. (2014). Tenure security, land registration and customary tenure in a peri-urban Accra community. *Land Use Policy*, 39, 358–365. <https://doi.org/10.1016/j.landusepol.2014.01.017>
- Biraro, M., Zevenbergen, J., & Alemie, B. K. (2021). Good Practices in Updating Land Information Systems That Used Unconventional Approaches in Systematic Land Registration. *Land*, 10(4), 437.
- Brown, M., & Hughes, A. K. (2017). Is Land Tenure “Secure Enough” in Rural Rwanda? *2017 World Bank Conference on Land and Poverty*, 28. [https://www.chemonics.com/wp-content/uploads/2017/03/Secure-Enough-Land-Tenure\\_2017.pdf](https://www.chemonics.com/wp-content/uploads/2017/03/Secure-Enough-Land-Tenure_2017.pdf)
- Cheng, J., Turkstra, J., Peng, M., Du, N., & Ho, P. (2006). Urban land administration and planning in China: Opportunities and constraints of spatial data models. *Land Use Policy*. <https://doi.org/10.1016/j.landusepol.2005.05.010>
- Dos Santos Cunha, A. (2011). The social function of property in Brazilian law. *Fordham Law Review*, 80(3), 1171–1181. <https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=4763&context=flr>
- Eck, K. (2014). The law of the land: Communal conflict and legal authority. *Journal of Peace Research*. <https://doi.org/10.1177/0022343314522257>
- Ghana Statistical Service. (2021). Ghana 2021 Population and Housing Census (PHC). In *Preliminary Report of Ghana 2021 Population and Housing Census* (Vol. 59). [https://census2021.statsghana.gov.gh/LandsAct, Pub. L. No. 1036, GPCL, Assembly Press Accra 16 \(2020\).](https://census2021.statsghana.gov.gh/LandsAct, Pub. L. No. 1036, GPCL, Assembly Press Accra 16 (2020).) <http://home.gis.gov.gh/wp-content/uploads/2020/05/LAND-BILL-2019.pdf>
- Gyamera, E. A., Duncan, E. E., Kuma, J. S. Y., & Arko-Adjei, A. (2016). LAND CONFLICTS IN GHANA, CAUSES, EFFECTS AND RESOLUTION. *Proceedings of 4th UMaT Biennial International Mining and Mineral Conference*. [https://www.researchgate.net/publication/316554067 LAND\\_CONFLICTS\\_IN\\_GHANA\\_CAUSES\\_EFFECTS\\_AND\\_RESOLUTION/link/5903873c0f7e9bc0d58d7ad4/download](https://www.researchgate.net/publication/316554067 LAND_CONFLICTS_IN_GHANA_CAUSES_EFFECTS_AND_RESOLUTION/link/5903873c0f7e9bc0d58d7ad4/download)
- Gyamera, E. A., Duncan, E. E., Kuma, J. S. Y., & Arko-Adjei, A. (2018). LAND ACQUISITION IN GHANA; DEALING WITH THE CHALLENGES AND THE WAY FORWARD Hydrological Studies of UCC Research Station View project Ghana Lands in Focus View project. *Journal of Agricultural Economics, Extension and Rural Development*, 6(January), 664–672. <https://www.researchgate.net/publication/322404530>
- Hilhorst, D., Huberta, M., & Meunier, F. (2015). How Innovations in Land Administration Reform Improve on Doing Business. In *How innovations in land*

- administration reform improve on doing business : cases from Lithuania, the Republic of Korea, Rwanda and the United Kingdom.*  
<http://documents.worldbank.org/curated/en/450041467995100809/How-innovations-in-land-administration-reform-improve-on-doing-business-cases-from-Lithuania-the-Republic-of-Korea-Rwanda-and-the-United-Kingdom>
- Iyengar, S. (2015). Governance. In *Tribal Development in Western India*.  
<https://doi.org/10.4324/9781315656663>
- EVIDENCE ACT, 1975 N.R.C.D. 323, Pub. L. No. 323, Laws of Ghana (1975).  
[http://elibrary.jsg.gov.gh/fg/laws of ghana/2 REP/EVIDENCE ACT, 1975 N.R.C.D. 323.htm](http://elibrary.jsg.gov.gh/fg/laws%20of%20ghana/2REP/EVIDENCE%20ACT,%201975%20N.R.C.D.%20323.htm)
- Karki, S., Thompson, R., & McDougall, K. (2013). Development of validation rules to support digital lodgement of 3D cadastral plans. *Computers, Environment and Urban Systems*, 40, 34–45.  
<https://doi.org/10.1016/j.compenvurbsys.2012.10.007>
- Kombe, C., Manyilizu, M., & Mvuma, A. (2017). Design of Land Administration and Title Registration Model Based on Blockchain Technology. *Journal of Information Engineering and Applications*.
- Locke, A., & Henley, G. (2016a). *Urbanisation, land and property rights: The need to refocus attention* (Issue January).  
<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10309.pdf>
- Locke, A., & Henley, G. (2016b). *Urbanisation, land and property rights* (Issue January).
- Mintah, K., Boateng, F. G., Baako, K. T., Gaisie, E., & Otchere, G. K. (2021). Blockchain on stool land acquisition: Lessons from Ghana for strengthening land tenure security other than titling. *Land Use Policy*, 109, 105635.  
<https://doi.org/10.1016/j.landusepol.2021.105635>
- Okyere, D. B. (2021). *Country profile of the land administration domain for Ghana: with the inclusion title, deeds, customary and informal systems of land registration*. University of Twente.
- Paaga, D. T. (2013). Customary Land Tenure and Its Implications for Land Disputes in Ghana : Cases from Wa , Wechau And Lambussie. *International Journal of Humanities and Social Science*, 3(18), 263–270.
- Panda, S. K., Mohammad, G. B., Nandan Mohanty, S., & Sahoo, S. (2021). Smart contract-based land registry system to reduce frauds and time delay. *Security and Privacy*, 4(5), e172.
- Pandey, P. (2018). Can blockchain spark off the reincarnation of India's living dead? 2018 *International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies*, 3ICT 2018.  
<https://doi.org/10.1109/3ICT.2018.8855731>
- Patapaa, J. (2018). *Rot At Lands Commission\_ Officials Collaborates With Landguards to Fake Documents \_ Ghanaian Democrat*. Ghanaian Democrat.  
<https://ghanaiandemocrat.com/rots-at-lands-commission-we-bribe-officials-to-change-orininal-land-titles-chief-landguard-reveals/>
- Salifu, F., Abubakari, Z., & Richter, C. (2019). Innovating Along the Continuum of Land Rights Recognition: Meridia's "Documentation Packages" for Ghana. *Land*, 8(12), 189.  
<https://doi.org/10.3390/land8120189>
- Sewornu, R. E., Quaye, B., & Namikat, N. D. (2015). Land Tenure Security in Ghana. In *Securing land and poverty rights for poor*.  
<https://unhabitat.org/books/land-tenure-security-in-selected-countries/>
- Stanfield, J. D., Underwood, J., Gunaskera, K., & Ernst, C. (2008). Land registration and land fraud in the United States. *Seminar on Risk Reduction in Land Fraud*, 22–23.
- World Bank Group. (2016). *Doing Business 2016: Measuring Regulatory Quality and Efficiency*. Washington, DC: World Bank.  
<https://doi.org/10.1596/978-1-4648-0667-4>
- Zaborowski, T. (2021). It's all about details. Why the polish land policy framework fails to manage designation of developable land. *Land*, 10(9), 890.