

Research Article

Evaluating Rural Land Administration Institutional Efficiency from Modern Land Administration Systems Perspective: In Case of Awi Zone, North-Western Ethiopia

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Abstract

This study is aimed to evaluate the institutional efficiency of rural land administration from the perspective of modern land administration systems in Awi zone Amhara region Ethiopia. The study employed a mixed research approach to evaluate the efficiency of rural land administration. Moreover, the study used various data collection tools such as questionnaires, interviews, focus group discussion, observation, and document review to acquire relevant data. The study pursued the influence of explanatory variables namely legal framework, digitalization, valuation and compensation, good governance, data quality, capacity building, and customer satisfaction on the efficiency of rural land administration. Furthermore, descriptive and inferential statistics were used to analyze quantitative data. Consequently, the study found that the legal framework and customer satisfaction are the most significant factors that affect the efficiency of rural land administration. However, the study finding revealed that lack of clear and uniform legislations and service delivery negatively affected the success of rural land administration. Thus, the prospects to assure efficient rural land administration are provision of unambiguous laws, delivering services impartially, and providing capacity-building training for experts are suggested as a vital to implement modern land administration systems to modern society.

Keywords

Rural Land Administration, Efficiency, Performance, Legal Framework, Capacity Building, Data Quality, Good Governance, Valuation & Compensation, and Computerization, Binary Logistic Model

1. Introduction

The concept of Land, in modern land administration, defines resources and buildings as well as the marine environ-

ment essentially, the land itself and all things attached to it. Land is not just the earth that people walk on. It is funda-

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mentally the way people think about a place [1]. Historically, modern land administration systems and resulting best practices realistically became established in the late 18th or early 19th century the establishment of modern land administration systems by colonizing powers such as England, France, The Netherlands, Germany, Portugal, and Spain. Today, the challenges in most developing countries are to integrate these so-called 'modern' land administration systems with indigenous cultures and tenure systems and rapidly expanding informal sectors and institutions [1]. Moreover, the modern land administration system is the most time-consuming and expensive task in implementation [2].

The Ethiopian government, in its effort to end poverty and achieve sustainable development, has been issuing various urban and rural land-related policies, strategies, plans and programs. Ethiopia, in the last two decades, adopts some legal and policy positive measures to improve the old long-lasting poor land administration system [3]. However, those positive measures failed to continue in application to address local circumstances.

"As stipulated on "FDRE Rural Land Administration and Use Proclamation" No (FDRE 456, 2005) [4], article 17 sub-article 1 Region shall establish institutions at all levels that shall implement rural land administration and land-use systems, and shall strengthen the institutions already established. Amhara national regional state introduces the modern land administration system as a regional level independently before two decades where its land administration system is the land administration system is an essential issue to Amhara national regional state concerning socio-economic, cultural, political, and environmental development [5]. Though, study on systematic evaluation of rural land administration efficiency on implementation of modern land administration is remaining untouched.

In a general sense, the institutional setting is one of the most important factors in contributing to the success of LASs [6]. Seamless study portrays that evaluating or measuring the performance of a process or a system of land administration is a basic prerequisite for improving productivity, performance, and efficiency [7]. Moreover, several study frameworks and methodologies show that any attempt to evaluate, characterize, and to assess land administration systems in the world was developed [8]. However, often they wouldn't properly address local problems and situations of progressive land administration systems in developing countries. In the land administration field, the coordination and development of reform projects and the evaluation of national land administration systems became more and more of an issue over the last decade [9]. Methods of evaluation were developed by research, training, adoptive implementation, and proper criticism citation. The evaluation framework includes the political, cultural and legal aspects, the efficiency of institutions, the status of implementation of core land administration functions, the impact of operational, external factors, and existing monitoring mechanisms.

Numerous studies indicate that attempt to evaluate and quantify efficiency of land administration system based on frameworks of policy, management and operational levels, implementation of review processes and the impact of external factors was failed. However, this study attempted to quantify the explanatory variables in numeric value. The explanatory variables such as capacity building, data quality, good governance, customer satisfaction, and legal framework are determinant factors that affect the efficiency of rural land administration. Thus, this study aims to evaluate the efficiency of rural land administration from the perspective of modern land administration systems. Hence this study particularly identified the determinant factors that affect the success of rural land administration.

1.1. Statement of the Problem

In a general sense, the institutional setting is one of the most important factors in contributing to the success of LASs [10]. According to [7], study portrays evaluating or measuring the performance of a process or a system of land administration is a basic prerequisite for improving productivity, performance, and efficiency. Most recent findings revealed that many study frameworks and methodologies show that any attempt to evaluate, characterize, and to assess land administration systems in the world was developed. However, often they could not properly address local problems and situations of progressive land administration systems in developing countries [11, 12]. Ethiopia, in the last two decades, takes some legal and policy positive measures to improve the old long lasting poor land administration system [3].

However, there was not seen continuity in the applicability of those positive measures on local circumstances. According to [5], study also revealed that LAS in Amhara National Regional State seems to be wellstructured from the regional level to the village/kebele level. Thus, research on the systematic evaluation of the performance and efficiency in coordination between woreda and local kebelelevel land administration institutions is inadequate. According to [8], study revealed that weakness in the implementation of the land administration system in ANRS was several problems encountered.

Problems such as lack of proper professionals to fill the job positions, unqualified data management system, the land tenure insecurity, the important files were not documented safely and not fully computerized. These similar problems are provoked in Awi Zone, Banja Woreda rural land administration office. Therefore, this research is inspired to fill methodological gaps which were most commonly employed method to evaluate land administration system that is qualitative analysis method and case study, whereas this research was employed mixed-method and binary logistic regression model analysis to evaluate the effect of independent variables on the efficiency of rural land administration and use, and also this research has a scope difference than prior researches.

Finally, this study advocates strengthening institution performance by directing relevant implications for detected problems in the study area.

1.2. Objectives

The overall objective of the study is to evaluate the institutional efficiency of rural land administration on the perspective of modern land administration systems in Banja woreda, Awi zone, Northwestern Ethiopia.

To address the general objective the following specific objectives are forwarded:

1. Assessing implementation practices of the modern land administration system in the study area.
2. Identifying the institutional capacity on the performance of Banja woreda rural land administration and use office.
3. Evaluating the technical capacity on the performance of Banja woreda rural land administration and use office.
4. Investigating the status of customer satisfaction on the services delivery by Banja woreda rural land administration and use office.

1.3. Research Hypothesis

The hypotheses are predictions about the outcome of the results, and they may be written as alternative hypotheses specifying the results to be expected. They also may be stated in the null form, indicating no expected difference or no relationship between groups on a dependent variable [13]. Therefore, to verify the relationship between the dependent variable and independent variables, to accept or reject the significance of the study, the following hypotheses were developed regarding the factors on the efficiency of the rural land administration system in the case of Banja woreda office.

- H1: legal framework
- H2: valuation and compensation practice
- H3: capacity-building
- H4: accessibility of computerization
- H5: provision of updated data quality
- H6: good governance
- H7: customer satisfaction.

1.4. Significance of the Study

This study is vital to strengthen the institutional performance of Banja woreda rural land administration and use office on the implementation of modern land administration systems. This study would also significantly point out the problems and gaps faced on the institution and the study were tried to illustrate the problem alleviation mechanisms. Moreover, this research would serve as an essential standing clue for who deals with the further related study. This study uniquely established the factors affecting the efficiency of rural land administration by using inference based. Conse-

quently, this study would guide those working in land administration to incorporate modern land administration systems as an essential benchmark for the development of associated institutions. Justifications for selection of woreda level institution in integration with kebele organization level rather than regional and zonal level, it's because at the bottom major land administration tasks are highly taking place, and due to various cases like land-related disputes are provoked in case of ownership, boundary inaccuracy, land transaction inefficiency and ineffective land use management, and also lack of qualified professionals at both woreda and kebele level for specified activities. Therefore, this study would be important to alleviate problems confronted and suggests a responsible body to enhance institution performance and efficiency.

2. Research Methods and Materials

2.1. Description of the Study Area

This study would be conducted in Banja woreda, Awi zone, Amhara national regional state. The study area is located 128 km far from Bahir Dar city, 487 km far from the capital city of Ethiopia Addis Ababa. The Banja woreda comprises 25 kebeles, total population number 99097 and area in hectare 50,175, elevation 2600, and total population density 1.975 [14]. The study woreda bordered in the east by Tilili, west by Chagni and Fagita Lekoma woreda, north by Sekela and southeast bordered by Ankesha woreda (Figure 1).

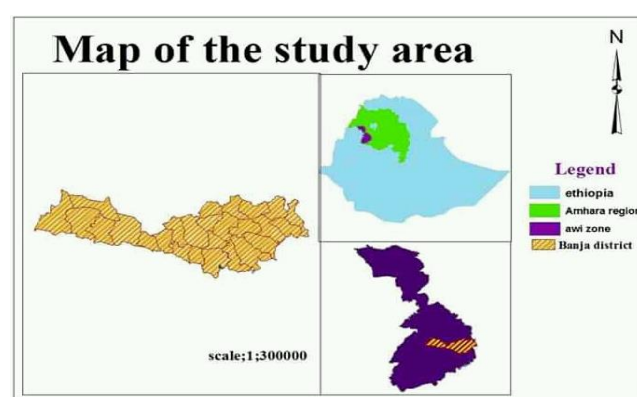


Figure 1. The study area map.

2.2. Research Approach

The purpose of this research is predominantly to evaluate the institutional efficiency of rural land administration from the perspective of modern land administration systems. The study used a mixed method research approach hence; the research design was explanatory sequential mixed method design. Moreover, this study employed various data collec-

tion and analytical methods [15]. Depending on the nature of the data study were used both primary and secondary data sources. The primary data was collected through structured interview, open ended and close ended questionnaire with 185 sample households. Besides, key informant interview and focus group discussions were held with 15 officials, heads and experts, and with 10 local households.

The secondary sources of data were various journals, land registration office documents, empirical evidences of land administration office, land administration legal evidences and reports. Furthermore, the sampling techniques that the study was employed both purposive and simple random sampling to obtain relevant data from proposed samples. Employing various sampling techniques would help to increase the study certainty and validity.

Moreover, this study were employed both descriptive statistics and econometric models to measure the relationship between variables. Using descriptive statistics the mean, range, frequency minimum as well as maximum values of variables and cross tabulation results were indicated. While, using inferential analysis binary logistic regression model, collinear test, hosmer lem show and goodness fit test, level of significance were measured. The statistical analysis tool SPSS26 was employed to attain reliable results. Consequently, the result obtained was used as an indicator of the relationship between dependent and independent variables.

2.3. Sampling Techniques

The study was used both probability and non-probability sampling methods. In probability sampling, the research employed systematic random sampling, the reason that the study used a systematic random sampling method because the numbers of selected rural landholders are large. In the non-probability sampling method, the study employed purposive sampling. The reason that the study used purposive sampling to investigate the cases in staff quality management and to adhere to the samples or critical cases judged in office.

2.4. Target Population

The target population and key informants of this study comprised the customers/ households, experts, heads and managers of the woreda office, and experts of kebele organization. The target population was devised for this study from the selected three kebeles (Sankit ledeta Bassa Jankuta) rural landholders. The study total households are 2901, and key informants are from Banja woreda rural land administration and use officials include 1 manager, 4 department heads, 10 experts, 10 professionals, and 25 kebele experts.

2.5. Sample Size

The target population, N, is known, the study was used Cochran's (1996) formula to determine the sample size, n from the study population, N and e is the probability of error

(within the desired precision of 0.05) with 95% confidence level. From target population of 2901 households implies 185 sample respondents approximately. The questionnaire was distributed within every 16th of the total population by using systematic random sampling. Where, N = Target population, n = sample size, e = 0.05 = (for 95% confidence level) p = 2% or 5%, q = 1-p = 0.98, e = 0.05, $z^2 = (2.005)^2 = 4.020025$.

$$n = \frac{z^2 \times p \times q \times N}{e^2(N-1) + z^2 \times p \times q}$$

$$= \frac{4.020025 \times (0.02) \times (1-0.02) \times (2901)}{[0.0004(2900)] + 0.0788} = 185$$

By using proportional formula the study obtained the required samples, $853 \times 185 / 2901 = 55$, $1181 \times 185 / 2901 = 75$, $867 \times 185 / 2901 = 55$.

2.6. Data Sources and Instrumentation

The study has gathered data from primary and secondary sources. The primary data generated from woreda rural land administration and use officials, such as woreda/ kebele experts, professionals, customers, and households. To realize the above process the primary data collection was used multiple sources of evidence such as survey questionnaire, participant observation, structured interviews, and focus group discussion with kebele committees and officials of rural land administration. Moreover, the structured interview would have employed for a personal interview with the selected managers, and department heads and of the woreda experts, and also by using a systematic random sampling method the questionnaire was utilized for each sample of the study. Whereas, secondary data were collected from different sources, such as from relevant related literature, unpublished documents, office registers or registry books, government, and non-government reports.

Further, the quantitative instrument for survey questionnaire was developed to obtain an understanding of the relationship between the variables (social, economic political, organizational, and environmental) in the study area. The structured questionnaire, which is designed on the ordinal scale of measurement basis, was used to evaluate the correlation between dependent, independent, and intervening variables of the research. To communicate effectively with the respondents, the researcher has translated the questionnaire into the local language. While, the qualitative instrument for an interview guide was developed to interview the selected interviewee /key informants face to face and the responses were also recorded manually. The study was applied focused group discussions with selected kebele committees, with elders to gather relevant data. Observation was also another qualitative instrument in which the observer participates in the daily activity of the people under study, either openly in the role of researcher or covertly in some disguised role, observing things that happen, listening to what is said, and

questioning people, over some length of time [12]. Participant observation was utilized as an additional instrument for evaluating the time management of managers, the way of service delivery to the customers and to assess data management qualities.

2.7. Data Analysis

The qualitative analysis was aimed to describe data gathered from structured interviews, focus group discussion, participant observation, and document analysis. Moreover, the qualitative analysis would be described using open coding techniques i.e. representing the data or texts by applying labels or codes that can relevantly support the mere description of information's gathered qualitatively. Quantitative data was gathered by distributing close-ended questionnaires. After the quantitative data were collected relevant data analysis, summarizing, and presenting were undertaken, and the latest version SPSSv26 software was used to analyze numerical data in terms of descriptive and inferential statistics. Furthermore, a binary logistic regression analysis was employed to investigate customer satisfaction level, institutional capacity, and technical capacity of the office in line with objectives. The reason that a binary logistic regression model was used due to the categorical and dichotomous nature of the dependent variable i.e. to obtain the probability of two possible outcomes either efficient or not.

2.8. Model Specification

Binary logistic regression is one of multivariable statistical analysis which is used to calculate the probability of two outcomes [16]. In this study, the two possible outcomes are whether Banja woreda rural land administration and use office would be efficient or not efficient. Here the appropriate form for the dependent variable would be dummy variable taking the values 0 and 1 since two possible outcomes are probable; $Y_i = 1$, rural land administration and use office is efficient 0, is not efficient. The independent variables that affect the rural land administration and use efficiency as indicators are legal framework, customer satisfaction, data quality, good governance, capacity building, valuation and compensation, and computerization. Thus, the researcher had predicted the probability of rural land administration and use office efficiency based on these explanatory variables. The formula of the model seems as follows: $\ln [P_i / (1 - P_i)] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \epsilon_i$ Where: P_i is the probability of an outcome β_0 = Coefficient $\beta_1 - \beta_6$ = Regression Coefficients representing the contributions of each independent variables $X_1, X_2, X_3, X_4, X_5, X_6, \dots, X_n$ to the predictors of dependent variable Y ϵ_i = error term.

3. Results and Discussion

3.1. Reliability and Validity Analysis

To measure the consistency of the questionnaire particularly the Likert-scale, the reliability analysis is essential in reflecting the overall reliability of questions representing explanatory variables. To carry out the reliability analysis, Cronbach's alpha test is the most common measure of scale reliability and a value greater than 0.7 is very good acceptable.

Table 1. Reliability statistics.

Variables	Number of Items	Cronbach's Alpha
Legal framework	4	0.891
Computerization	3	0.841
Capacity building	3	0.714
Good governance	4	0.736
Data quality	3	0.723
Compensation and valuation	4	0.810
Customer satisfaction	3	0.782
Overall scale reliability	36	0.937

Source: Survey results, 2023

Thus, as it can be seen from above Table 2, the all explanatory variables reliability statistics reveals that the cronbach's alpha test value is greater than 0.7 and result is acceptable.

To determine the validity of the instrument, a pilot test has been conducted on 10% of the main sample 15 usable questionnaire was employed by the researcher to be confident with the reliability of the study.

3.2. Demographic and Socio-Economic Characteristics

The demographic characteristics of households' concerning gender status show that 59.8% were male respondents and the remaining 40.2% were female respondents. This indicates that in the study both males and females were fairly participated to provide relevant data. Respondents in age between 18-30 years account for 58 (32.4%) of the total respondents, followed by the age group 30-50 years which comprise 72 (40.2%) of valid responses, followed by age group above 50 years comprises 49 (27.4%). This description specifies that the majority of the respondent in this study was the age status between 30-50 years. As far as from the sample respondent of rural landholders the male-headed accounts 55

(30.7%), the majority of respondents were both male and female-headed owners that cover 81 (45.3%), the remaining respondents were female-headed owners they account 43 (24%) of total respondents.

3.3. Demographic Characteristics of Land Administration Officials

About 50 questionnaire survey was provided for Banja woreda rural land administration officials and kebele experts and all of the respondents were replied appropriately. This was to address the perception of officials on technical capacity, institutional capacity, and current practice of rural land administration implementation. Of this mainly included demographic characteristics of officials were such as gender, education level, the field of study, and work experiences. In terms of gender status of officials, about 31 (62%) were male respondents and the remaining 19 (38%) were female respondents. This designates that in the study both males and females were appropriately participated to provide intended data. The survey resulted most of the respondents have first degree 24 (48%) and ranging 4 (8%) of officials were second degree holders in qualifications. The rest ranging about 22 (44%) were diploma holders.

To describe the field of the study of respondents; surveyor accounts 16 (32%), the following covers 10 (20%), 17 (34%), and 7 (14%) were geography, land administration, and other departments respectively. Here, the majority of respondents were surveyors and land administrators. These point out that the rural land administration office was as good as it fulfilled the required positions to perform tasks. Likewise, about 4 (8%) of the officials have less than 1 year work experience, 13 (26%) of respondents have work experience between 1-3 years, 19 (38%) have work experiences of between 4-6 years, 12 (24%) between 7-10 and 2 (4%) have above 10 years respectively.

3.4. Current Rural Land Administration System (RLAS) Practice

The current rural land administration system implementation practices assessed through interview focused on the attitude of managers and heads. Hereafter, the researcher raised the proposed questions, the first do you believe that the current land administration system applies to local cultures, political, socio-economic, and environmental aspects? The interviewee replied that the current modern land administration system is clear and also basically incorporated the core functions of the land administration system. However, there were major challenges encountered on the implementation of land administration system (LAS) were; lack of qualified experts which can manipulate technical tasks, lack of enough capacity building, shortage of budget, lack of vehicles for field works, inappropriate office management and there were inadequate office spaces, and also lack surveying instruments

to undertake field tasks.

The succeeding interview response reveals that the implementation of four core land administration functions was integrated into one institution. The core land administration functions are land tenure, land value, land use, and land development. Moreover, the successful implementation of the core functions was identified. Consequently, the indicators revealed from the interviews in apart of land tenure; registration, and issuance of first-level book holding were accomplished, updating ongoing and land transactions also continuing. In the case of land value; interview response displays there was no clear valuation procedure for rural land expropriation situation and also the compensation practice for displacing was unfair and untimely.

Regarding land use and land development implementation of land use; there was unfit land use planning and realities on the ground, but there was in progress to improve base maps with comparing ground survey inputs acquired by surveying experts. Land development control was not well practiced in the Banja woreda land administration office. Consequently, there was an expansion of illegal settlements or construction on kebele centers planned for rural development programs. Therefore, relied on the interview results of core functions; land tenure and land value implementation tasks are in good progress, whereas land use and land development practices are less emphasized. The focused group discussion was concerned with the selected kebele committees on the basic issues such as 'what are the major rights and restrictions of rural landholders?' Bundle of rights on private land such as the right to use, right to transfer, right to possess, right to rent for a specified period, and not right to the sale. 'The rights and restrictions on communal land' such as the right to restrict nonmembers, the right to use collectively with members, the duty not to damage communal property, and obligation to improve a communal property collectively.

The next FGD issue was concerned about the major cause of conflicts in your area. Hence, the FGD response reveals that the major causes of conflicts were boundary conflicts, easement disputes/right to way, and overlapping ownership on a single parcel due to illegal issuance of the book of holding. The succeeding issue taken into account with FGD was 'Do you have your own office and archive for documents?' They replied there was no office to perform tasks, and similarly, there was a lack of awareness creation and capacity building. Moreover, the FGD response conveys that there wasn't coordination between kebele experts and committees to build a successful land administration system. Additionally, participant observation was emphasized to evaluate the time management of office, the way of service delivery of officials, and also to assess data management qualities. As a result, the participant observation reveals that there were no clear time management strategies for work, the customers were partially satisfied with the way of service delivery and customers were frequently disappointed to successfully resolve land dispute cases, and also the vital documents weren't organized safely

and securely. Generally, several discussion results obtained from key informant interviews, FGD, and participant observation illustrates that the current implementation practice of Banja woreda rural land administration and use office is less efficient.

3.5. Institutional Capacity of RLAS

The 2011 report of the World Bank revealed that the rural land administration institutions are highly constrained by low staff capacity. Moreover, the situation is immensely complicated at the national level where more of the required position is not occupied by qualified professionals and skilled

man experts.

3.5.1. Legal Framework

Some several laws and acts deal with the land, the relationship between landlord and tenants, mortgagor and mortgagee, assessment and collection of land tax, and land acquisition for a public purpose. All these are administered and maintained by land administration institutions. So the main aspects of the legislative framework of land administration incorporated in this study analyzed as follows in Table 2. The researcher pursued to know the respondent's opinion on legal framework parameters.

Table 2. Legal framework aspects.

No	Statements		Strongly disagree	disagree	neutral	agree	Strongly agree	Total
1	Gaps and inconsistencies in the Legal system are causing a big challenge in your daily work.	Frequency	7	12	5	13	13	50
		Percentage	14.0	24.0	10.0	26.0	26.0	100
2	The land administration legal frameworks shall be changed to improve the efficiency and effectiveness of your daily work	Frequency	13	17	7	10	3	50
		Percentage	26.0	34.0	14.0	20.0	6.0	100
3	In your office legal specialists sufficiently support in respect of legal issues	Frequency	11	20	8	7	4	50
		Percentage	22.0	40.0	16.0	14.0	8.0	100

Source: Survey results, 2023.

Above table indicates gaps and inconsistencies in the legal framework impacts on the efficiency of the rural land administration daily work'. According to the respondent's, the majority (52%) was agreed and strongly agreed in which that gaps and inconsistencies in the legal system are causing a big challenge on the ERLA in the study area. The legal framework for land administration system should be radically changed to improve the efficiency and effectiveness of your daily work. According to survey, the majority (60%) respondents replied disagree and strongly disagree. This implies that most of the respondents expressed their opinion that the current legal framework does not completely change to improve the efficiency and effectiveness of rural land administration. In terms of office legal specialists support in legal issues, the response rate indicates that the majority of the respondents 62% were disagreed and strongly disagreed. This conveys that the legal specialists do not sufficiently support in respect of legal issues.

Therefore, the overall analysis result depicts that a legal framework affects the efficiency of rural land administration and use office. Moreover, the results of the findings of [17]

revealed that officials from the land office have also confirmed that land-related regulations and guidelines are lacking clarity and not fully harmonized to provide efficient LA services. In a related study, indicated that increasing regulation of the land, the inclusion of all private rights, as well as public restrictions and responsibilities concerning the legal situation of the land, is becoming more and more of an issue for a fair and transparent land market and efficient land administration system.

3.5.2. Valuation and Compensation

The international standards of valuation have been increasingly adopted. Appraisers should employ appropriate methods and techniques to produce acceptable valuation outputs following requirements in the law. Moreover, the valuation and compensation practices vary contingent on socio-economic, environmental, and traditional aspects of different localities. Thus, the processes should be in a manner of employing clear and fair calculation methods of valuation and compensation.

Table 3. Valuation and compensation aspects.

Questions		Frequency	Percent
Is the amount of money payable to evicted landholders is fair enough?	Low	24	48.0
	Fair	26	52.0
Do expropriation conducted for projects planned for public purposes?	Never	28	56.0
	Always	22	44.0
	After	12	24
Is compensation always paid before evicted from their land?	Before	8	16
	Before and after	30	60
Total		50	100

Source: Survey results, 2023.

As stated in table above, to address explanatory variable adequacy of money payable to evicted landholders. The response rate of 26 (52%) respondents' shows that the compensation paid for evicted landholders was fair. The remaining 24 (48%) respondents replied that the compensation paid for evicted landholders was low. The succeeding question 'the expropriation conducted only for projects planned for public purposes'? A response rate of 28 (56%) replied that never, that was not only for a public purpose but also for private investment and other urban expansion purposes. The other groups' responded 22 (44%) of respondents were supported always expropriation conducted for the public purpose only. The last question 'Is compensation always paid before eviction from their land?' the response rate with 12 (24%) was replied the compensations always paid after the eviction of their land, 8 (16%) respondents replied the compensation always paid before, and the remaining majority 30 (60%) respondents replied that both before and after expropriated their land.

This directs the response of the respondents varies depending on their incidence of knowing the practice of expropriation and compensation. Consequently, based on the above response results, valuation, and compensation affect the efficiency of the RLA office. Additionally, valuation and compensation impacts were; due to lower compensations paid for evicted landholders, timely unpaid compensation, and also unfairness of payments were major difficulties revealed from interview results of the study. Subsequently, a similar study

depicted that the compensation paid for victims was very low and cannot be considered as fair compensation [8].

3.5.3. Good Governance

Good governance principles and dimensions are used commonly as indicators of the performance of land administration institutions. Three central good governance principles namely transparency and accessibility of information, participation, equity, and accountability were considered as indicators [5].

As shown on below Table 4, the accountability of officials by their faulty actions and decisions; respondent rates 8 (16%) of strongly disagree, 8 (16%) of disagree, 9 (18%) replied neutral. The rest response rates of 19 (38%) and 6 (12%) replied agree and strongly agree. This implies that more than half 50% of officials were agreed for accountability to their faulty action and decisions. The survey also assessed the equal access to land information without discrimination for all as indicator. The response rates 13 (26%) strongly disagree, 18 (36%) disagree that means there was no fair access to land for all, and remaining 11 (22%) and 8 (16%) of respondents strongly agree and agreed on equal access to land without discrimination for all. This insights about 62% of respondents replied disagreed on the statement of equal access to land without discrimination for all. Another principle of good governance incorporated in this study is existence of clear and open service procedure in office.

Table 4. Indicators of good governance.

No	Statements		Strongly disagree	disagree	neutral	agree	Strongly agree	Total
1	There is the accountability of land officials for their action or decision	F	8	8	9	19	6	50
		%	16.0	16.0	18.0	38.0	12.0	100

No	Statements		Strongly disagree	disagree	neutral	agree	Strongly agree	Total
2	Equal access to land without discrimination for all.	F	13	18	0	11	8	50
		%	26.0	36.0	.0	22.0	16.0	100
3	There is a clear and open service procedure in your office	F	14	19	4	9	4	50
		%	28.0	38.0	8.0	18.0	8.0	100

Source: survey result, 2023.

As per result, the response of strongly disagree rates 14 (28%), disagree 19 (38%), neutral 4 (8%), and following agreed and strongly agreed takes 9 (18%) and 4 (8%) in turn. Hence, the majority of respondents with 66% disagreed as there was no clear and open service procedure in the study office. Therefore, from the three principles of good governance emphasized in this study two of the principles response result reveals that there is an influence of good governance on the efficiency of the RLAS. Moreover, the related study finding revealed that making certain information available reduces the chances of corruption, enables the public to make informed decisions, and performance and efficiency of land administration institutions [18, 5].

3.5.4. Capacity Building

Capacity building requires adequate investment in human resources training and staff development, and in technical resources, including buildings and equipment [19]. One of the weakest links in the civil service is the lack of focus on building institutional set up with clear roles and responsibilities. Addressing these obstacles is no simple task mainly due to a lack of focus on the capacity building initiative towards promoting sustainable institutional capacity. As indicated in

Table 5, in this section the researcher tried to address the sufficiency of human resource development program in land administration system. Response rates 35 (70%) respondents replied there was no sufficient professional and technical training, and lack of awareness to perform land administration tasks. Whereas the remaining 15 (30%) respondents' replied there was sufficient expertise training, policy awareness and four core land administration functions implementation procedures. In terms of efficiency of field equipment for land administration tasks in office, about 30 (60%) of respondents reacted that there was no sufficient surveying equipment's. However, the remaining accounts 20 (40%) replied there was sufficient field equipment. The office space and working environment suitability to undertake land administration tasks was surveyed. The 29 (58%) respondents replied there was not sufficient space of the office to execute tasks. However, the remaining 21 (42%) of respondents replied there were sufficient chairs and shelves. The last issue raised to the official was transportation facilities to perform tasks. Accordingly, the response rates 28 (56%) of respondents countered there were not sufficient vehicles to facilitate field works of the RLA office. Though the remaining respondents' 22 (44%) replied sufficiently.

Table 5. Aspects of capacity building.

Questions		Frequency	Percent
Is the human resource development program in your woreda sufficient	not sufficient	35	70.0
	sufficient	15	30.0
Do you have enough field equipment for land administration tasks in your Woreda	not sufficient	30	60.0
	sufficient	20	40.0
Is the office space enough and suitable to undertake land administration tasks	not sufficient	29	58.0
	sufficient	21	42.0
Do you have enough transportation facilities to perform your tasks?	not sufficient	28	56.0
	sufficient	22	44.0
Total		50	100

Source: Survey results, 2023.

3.5.5. Technical Capacity of RLAS

A land administration system contains, on one hand, the database containing spatially referenced land data, and on the other hand the procedures and techniques for systematic collection, updating, processing, and distribution of the data to the end-users in an efficient manner. The technical aspects play an important role in all parts of the land administration system including system development, data (capture, maintenance, access), and process designing [20, 21]. All these aspects are most important to improve the efficiency of LAS by considering the pace of technology change and societal needs within a certain environment.

3.5.6. Computerization

Computerization of land administration records is one of the on-going activities enhance access to land records and reduce the ability of corrupt practices, which will improve the quality of service. As shown in Table 6, to measure the computerization, level of knowledge on the land information software like ISLA (Information System for Land Administration) and NRLAIS (national rural land administration information system) was assessed. Thus, with a response rate of 7 (14%) were

excellent, 14 (28%) very good, 14 (28%) good and the remaining 15 (30%) rates poor. Thus, the survey result point outs maximum rate of respondent's knowledge on land information software was poor to perform efficient land administration tasks. The subsequent question is on ability of backup procedures. About 6 (12%) of respondents were excellent, 15 (30%) very good, and the remaining 16 (32%), 13 (26%) results good and poor respectively. This result implies that the highest response rate 58% of respondents replied there was good and poor reliability of system backup procedures in Banja woreda land administration office.

Therefore, relied on the above result, the incomplete performance of computerization negatively affects the efficiency of the RLAS. According to [8], finding revealed that the delay in computerization can negatively affect the implementation of the cadastral system. In another related study, implementing the computerized system enabled users to sign up for users' right and carry instant searches online, enhance service delivery, improve tenure security, and assures efficient and effective LAs. A similar study confirmed that a manual system that is inherent and prone to errors and manipulation can hurt the reliability of the system.

Table 6. The aspects of computerization.

No	Statements		excellent	Very good	good	poor	Total
1	How would you rate your level of Knowledge on the Land Administration Information System?	F	7	14	14	15	50
		%	14.0	28.0	28.0	30.0	100
2	How reliable is your current system backup procedures?	F	6	15	16	13	50
		%	12.0	30.0	32.0	26.0	100

Source: Survey results, 2023.

3.5.7. Data Quality

There are areas where no proper land records are prepared due to the absence of the consolidation, settlement operations, and absence of new technologies. The land record data in the present LAS needs to be organized in a better way to provide full coverage of the parcel [21]. In Table 7, the accuracy of

land administration data in land administration system was surveyed. Thus, the respondent's rate 8 (16%) of strongly disagree, 19 (38%) of disagree, and the remaining 9 (18%), 10 (20%), 4 (8%) respondent rates neutral, agree and strongly agree respectively. The majorities (54%) of respondent disagree on the data accuracy and quality, this response result shows there was no precision of data contained in the Banja woreda rural land administration office.

Table 7. Data quality measurement criteria's.

No	Statements		Strongly disagree	disagree	neutral	agree	Strongly agree	Total
1	land administration data contained in	F	8	19	9	10	4	50

No	Statements		Strongly disagree	disagree	neutral	agree	Strongly agree	Total
	your system is accurate	%	16.0	38.0	18.0	20.0	8.0	100
2	Archives to store land-related data are secure and safe	F	12	18	0	12	8	50
		%	24.0	36.0	.0	24.0	16.0	100
3	The land administration data contained in your system are all up-to-date	F	8	19	9	10	4	50
		%	16.0	38.0	18.0	20.0	8.0	100

Source: Survey results, 2023.

The following statement that land administration archives to store land-related data are secure and safe. The respondents' replied 12 (24%) strongly disagree, 18 (36%) of disagree and the remaining rates 12 (24%) of agree and 8 (16%) of strongly agree. Trusted on the above analysis, more than half of the response rate that 60% of respondents replied strongly disagree and disagree; this tells the archives to store land-related data were not in a safe and secure condition. The last statement, land administration data contained in your system are all up-to-date; this rates with 8 (16%) of strongly disagree, 19 (38%) of disagree, and the following response rates 9 (18%), 10 (20%), 4 (8%) respondents reply neutral, agree and strongly agree respectively. As a result, the above responses rates 52% of strongly disagree and disagree with the data contained in land administration were all up to date.

Therefore, the above overall analysis result reveals that there wasn't the accuracy of land data, all archives were not secure and in a safe condition, and also not up to date. This inherently points out that the quality of data affects the efficiency of RLA. Moreover, the related study disclosed that land administration system has adequate infrastructure to provide up to date and accurate land information, data input is reliable and there are efficient processes to reduce risks of difficulties. The supplementary study revealed that improved land record data eases the way for sorting, accessing, and disseminating this data at the local level for the users to produce an efficient land market. All these aspects are most important to improve the efficiency of LAS [20].

3.5.8. Status of Customer Satisfaction

Organizations providing land administration services still need to monitor performance and quality of service provided to the public. It may difficult to measure the satisfaction level

using direct indicators but the customers were asked to express their satisfaction with the services they received from the land office. As shown in the Table 8, customer satisfaction on dispute handling mechanism; response rates 98 (54.7%) of respondent replied as they are dissatisfied. Moreover, as the researcher revealed from focused group discussion with kebele committees land disputes like boundary disputes, land transaction disputes, and easement conflicts were not resolved properly. Whereas, the 81 (45.3%) of respondents' replied that satisfied with dispute resolution mechanisms like the elderly (informal dispute resolution mechanism) were practiced and usually formal way of the resolution also emphasized by both kebele and woreda experts. Therefore, the above response rate indicates that the majority (54.7%) of respondents replied dissatisfied with the practice of the dispute handling mechanism in LAS.

The customer satisfaction on the appointment time of the service delivery, bout 103 (57.5%) of respondents replied as they were dissatisfied. However, the other group response rate 76 (42.5%) of respondents were satisfied with the service delivery of officials within the appointed time. The proceeding question, customer satisfaction on the attitude of the employees in the service delivery this response rate 108 (60.3%) respondents replied dissatisfied with the attitude of officials to provide necessary services. Though, the remaining 71 (39.7%) of respondents were satisfied with the attitude of officials on service delivery at the intended extent. In the next point, customer satisfaction on the completeness of data in service delivery; this response rate 93 (52%) of respondents replied as they were dissatisfied with the completeness of data in service delivery. However, the remaining 86 (48%) of respondents were satisfied with the completeness of information in service delivery.

Table 8. Aspects of customer satisfaction.

Questions		Frequency	Percent
Customer satisfaction on dispute handling mechanism	Dissatisfied	98	54.7
	Satisfied	81	45.3

Questions		Frequency	Percent
Customer satisfaction on the appointment time of the service delivery	Dissatisfied	103	57.5
	Satisfied	76	42.5
Customer satisfaction on the attitude of the employees in the service delivery	Dissatisfied	108	60.3
	Satisfied	71	39.7
Customer satisfaction on completeness of data in service delivery	Dissatisfied	93	52
	Satisfied	86	48
Customer satisfaction on amount of payments/fees for the service	Dissatisfied	113	63.1
	Satisfied	66	36.9
The satisfaction of customers on clarity/transparency of the service delivery	Dissatisfied	103	57.5
	Satisfied	76	42.5
Customer satisfaction on the motivation of officials for service delivery	Dissatisfied	105	58.7
	Satisfied	74	41.3
Total		179	100

Source: Survey results, 2023.

The succeeding question, _customer satisfaction on the number of payments/fees for the service; the response rate with 113 (63.1%) replied dissatisfied with the number of payments or fees for services. Whereas, the remaining 66 (36.9%) of respondents were satisfied with the fair amount of charges they incur. The following question, satisfaction of customers on clarity/transparency of the service delivery, the majority of 103 (57.5%) respondents replied they were dissatisfied with the clarity and transparency of service provided. Though, the remaining 76 (42.5%) of respondents reply indicates that they were satisfied with the clarity and transparency of service delivery.

Moreover, the related study naked that transparency and accessibility of information is a critical component for the effective and efficient functioning of LASs. The customers have provided the reasons for their low rating to service satisfaction level. Most of the customers have put reasons as long waiting time for the service, unavailability of qualified and ethical staff in the land office, and also a high amount of charges for services are encountered as major challenges on Banja woreda rural land administration office. Therefore, the overall descriptive analysis result of representing the customer satisfaction variable designates that dissatisfied.

3.6. Inferential Analysis and Interpretation

Inferential statistics is the procedure by which conclusions about a population based on the information contained in the sample which was drawn from respondents (Kothari, 1990). Thus, among inferential statistics methods, this study was employed a binary logistic regression model for investigating the research hypothesis. Binary logistic regression model was

used to analyze the effect of explanatory variables on the response variable (ERLA). Binary logistic regression is a type of logistic regression analysis that the response variable is categorized by two categories or dichotomous. Whereas, independent variables can be more than one categories, continuous and ranked order.

Legal framework influences: Based on the regression analysis of the Table 9 below, the legal framework is significant at a 5% level of significance. Hence, the result shows that the legal framework has a significant effect on the efficiency of rural land administration. Interpretation: Beta coefficient $\beta_1 = -8.060 < 0$. Hence the reference category has disagreed. Odds ratio $\text{Exp}(B) = 0.071 < 1$. Therefore, the probability of ERLA is less likely for the response category than the referent category, i.e. higher respondents who responded disagreed on the aspects of legal framework compared to those who agreed; keeping all other independent variables are constant.

Customer Satisfaction: The analysis result reveals that customer satisfaction has influence on the efficiency of rural land administration, so the null hypothesis (H_0) is rejected. Hence, the conclusion of the analysis result conveys that all explanatory variables of customer satisfaction have a significant effect on ERLA at a 95% confidence level.

Valuation and Compensation: practice of valuation and compensation is significant at 5% level of significance. This implies there is a significant non-linear relationship between efficiency of rural land administration and practice of valuation and compensation. Henceforth, the analysis result portrays that good practice of valuation and compensation has a significant effect on the efficiency of rural land administration. Interpretation: Beta coefficient $\beta_2 = 1.697 > 0$. Hence,

the reference category is 'very low'. Odds ratio $\text{Exp}(B) = 2.898 > 1$. Thus, the probability of ERLA is more likely for the response category than the referent category, i.e. 2.898 times higher the respondents who replied 'fair' on the aspects of valuation and compensation compare to those who replied 'very low'. Keeping all other independent variables are constant.

Capacity Building: the capacity building is significant at 5% level of significance. So there is a significant non-linear relationship between the efficiency of rural land administration and capacity building. Later, the result shows that lack of capacity building has a significant effect on the efficiency of rural land administration. Interpretation: Beta coefficient $\beta_3 = -0.456 < 0$. Hence, the reference category is 'not sufficient'.

Odds ratio $\text{Exp}(B) = 0.634 < 1$. Therefore, the probability of ERLA is less likely for the response category than the referent category, i.e. higher respondents who responded 'not sufficient' on the aspects of capacity building compared to those who replied 'sufficient'. Keeping all other variables are constant.

Computerization: The accessibility of computerization is significant at 5% level of significance. So there is a significant non-linear relationship between the efficiency of rural land administration and computerization. Hence, the result reveals that the accessibility of computerization has a significant effect on the efficiency of rural land administration.

Interpretation: Beta coefficient $\beta_4 = 1.865 > 0$. Hence reference category is 'poor', Odds ratio $\text{Exp}(B) = 9.228 > 1$. Therefore, the probability of ERLA is more likely for the

response category than the referent category, i.e. 9.228 times higher the respondents who responded 'excellent' on the aspects of computerization compared to those who replied 'poor', keeping all other independent variables are constant.

Data Quality: providing updated data quality is significant at 5% level of significance. So there is a significant non-linear relationship between efficiency of rural land administration and data quality. Henceforward, the result revealed that providing updated data has a significant effect on the efficiency of rural land administration. Interpretation: Beta coefficient $\beta_5 = -8.936 < 0$. Hence the reference category has disagreed. Odds ratio $\text{Exp}(B) = 0.037 < 1$.

Thus, the probability of ERLA is less likely for the response category than the referent category, i.e. higher respondents who responded disagree on the aspects of data quality comparable to those who replied agree. Keeping all other independent variables are citrus paribus.

Good Governance: good governance is significant at 5% level of significance. Henceforth, the result indicated that the principles of good governance has a significant effect on the efficiency of rural land administration. Interpretation: Beta coefficient $\beta_6 = -1.422 < 0$. Hence the reference category has disagreed. Odds ratio $\text{Exp}(B) = 0.421 < 1$. Thus, the probability of ERLA is less likely for the response category than the referent category, i.e. higher respondents who answered disagree on the indicators of good governance compared to those who replied agree. Keeping all other independent variables are constant (Appendix-1).

Table 9. Summary of hypothesis result.

No.	Hypothesis	P-value	Results of findings
1.	Legal framework (LGF) influences the ERLA	.002	Accepted
2.	The accessibility of computerization (COP) influences the ERLA.	.016	Accepted
3.	Practice of valuation and compensation (VC) influences the ERLA	.013	Accepted
4.	Good governance (GG) influences the ERLA.	.027	Accepted
5.	Updated data quality (DQ) influences the ERLA.	.044	Accepted
6.	Capacity building (CB) influences the ERLA.	.040	Accepted
7.	Customer satisfaction (Cust) influences the ERLA	0.05	Accepted

Statistically significant variables at 95 percent confidence interval: Source; Survey results, 2023.

4. Conclusion

The main objectives of this study were evaluating the institutional and technical capacity of RLAS which influences the efficiency of Banja woreda rural land administration office. This study examined the effects of a legal framework,

accessibility of computerization, provision of capacity building, the practice of valuation and compensation, updated data quality, and principles of good governance on the performance of Banja woreda rural land administration office. As far as, this study also scrutinized the status of customer satisfaction level on the service delivery. The study also measured the relationship between the efficiency of the rural land ad-

ministration system and its explanatory variables.

Hence, the study settled that at a 5% level of significance, there is a strong significant relationship between legal framework, accessibility of computerization, the practice of valuation and compensation, provision of capacity building, updated data quality, and good governance and efficiency of rural land administration. Furthermore, the study also established that customer satisfaction has a strong significant effect on the efficiency of the rural land administration system in the study area. The study hypothetically discovered that the legal framework, accessibility of computerization, the practice of valuation and compensation, provision of capacity building, updated data quality, and good governance are the determinant factors that affect ERLA in the study area. Finally, the researcher concludes that the legal framework is the most significant factor amongst the variables that affect the efficiency of rural land administration in the study.

Therefore, this study is vigorous to alleviate the problems provoked in the Banja woreda rural land administration and use office by taking into account the solutions like provision of clear and uniform legislations, implementing of improved technology to perform technical activities of land administration, keeping the archives updated and secured, suitably performing good governance in advance to assure customer satisfaction, timely and fairly paying compensation for victims, and also provision of regular awareness creation to the unqualified experts as well as land owners are fundamentals to realize successful and efficient land administration system.

Therefore, based on these research findings and conclusions the researcher forwards the following recommendations:

The legal framework related to the rural land administration system should be clear and easily understandable by officials and customers. Hence, the government, policy makers and academicians cooperatively should revise existing guidelines and reestablish holistic uniform legislations that can be reduce the confusions and diputes regarding land issues.

The concerning body should give attention to employ additional experts and build capacity of existing experts.

The land administration services have to be provided with the help of technology which also support to make the system efficient, transparent, and accountable.

The government, policy makers and academicians should develop improved clear and fair valuation and compensation method that enhances the satisfaction of customers and assures efficient land administration system.

Banja woreda rural land administration office should take into account to improve the security of land data and protect informal land registration updates.

Weak governance was witnessed in Banja woreda RLA of-

fice. Hence, there must be a strong, thorough, and close inspection of how employees are serving the customers.

Banja woreda RLA office should design the strategy that assures efficiency and effectiveness to satisfy its customer desires. The government in turn must give due emphasis to supporting local government capacity with the required control to serve and satisfy the community.

Abbreviations

ANRS	Amhara National Regional State
ERLA	Efficiency of Rural Land Administration
RLA	Rural Land Administration
ISLA	Information System for Land Administration
NRLAIS	National Rural Land Administration Information System
FGD	Focus Group Discussion
LAS	Land Administration System
SPSS	Statistical Package for Social Science
FDRE	Federal Democratic Republic of Ethiopia

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Mihret Fentahun Yeneneh: Conceptualization, Resources, Project administration, Data curation, Funding acquisition, Investigation, Methodology, Software, Supervision, Validation, Visualization, Writing – review & editing

Dereje Shitu Shiferaw: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft

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Data Availability Statement

The data is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

Appendix

Table A1. Significance of explanatory variables.

Variables in the equation	B	Sig.	Exp (B)
LGF	-8.060	0.002	0.071
VC	1.697	0.013	2.898
CB	-.456	0.040	0.634
COP	1.865	0.016	9.228
DQ	-8.936	0.044	0.037
GG	-1.422	0.027	0.241
Constant	-20.471	0.001	2154.000
Cust. Mot	1.229	0.023	3.417
Cust. APPT	-.933	0.001	.393
Cust. Comp	.875	0.040	2.398
Cust. Pay	1.114	0.032	3.046
Cust. CL/TRY	-3.941	0.017	.019
Cust. ATT	-8.082	0.000	.000
Constant	4.696	0.000	109.488

Where; Cust_MOT=Customer satisfaction on the officials motivation

Cus_APPT= customer satisfaction on appointment time

Cust_Comp= customer satisfaction on data completeness

Cust_on pay=customer satisfaction on payments

Cust_CL/TRY= customer satisfaction on clarity and transparency of service

Cust_ATT= customer satisfaction on the officials attitude.

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