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The Right-of-Way Management and Cost Effectiveness on the Road Construction Projects: The Case of Selected Projects Ethiopian Roads Authority

Dawit Solomon Kidane[1]

Abstract

Like many other developing countries, Ethiopia faces significant challenges related to road projects, most notably the issue of Right of Priority (ROW). There are several factors that contribute to these public road problems. Therefore, this study seeks to determine the magnitude of the problems faced by right-of-way stakeholders in Ethiopian Road Authority road construction projects, the factors that contribute to these underlying problems, and their ramifications for road construction. will do. To gather expert opinion from the sector, a wide range of questionnaires were developed and distributed to sector participants such as customers, consultants, contractors and local governments. The research method was based on a questionnaire. Respondents unanimously agreed that priorities have a negative impact on road project costs. Questionnaire surveys were analyzed using Relative Importance Index (RII) ranking. The main findings of the paper were delayed compensation and budget shortfalls in road site compensation with customer/owner related issues, exaggerated land valuation rates, lack of local government awareness, and illegal construction activities on the site. Road owners within right-of-way boundaries, premature demolition of compensated land, and premature removal of compensated utilities from road right-of-way are viewed as serious road right-of-way management and cost-effectiveness issues. . Road construction projects, and some irresponsible actions by road construction companies, are considered essential signs of right-of-way problems and should be addressed for fair and smooth road construction operations. Finally, the work conveyed key recommendations for the Ethiopian Road Authority to work with affected people to implement on a case-by-case basis.

Key Words: Right-of-Ways management, Ethiopian roads authority, cost effectiveness

[1]*Email dawsolki@gmail.com*

Introduction

Right-of-way acquisition is the process by which the client successfully acquires land for construction and other purposes without impediment imposed by applicable laws and procedures applicable in the country. In his Guide to Real Estate Acquisitions for Local Governments in the United States, he divides land acquisition into five phases: planning, appraisal (evaluation), negotiation, asset management, and relocation (FHWA, 2009).

Road construction requires the acquisition and expropriation of land for the construction of sites, access roads, campsites, quarries, pit rentals, and other similar activities. According to the ERA Restoration Regulations (Regulation No. 247/2011), he is responsible for preparing his RAP for road projects and initiating land acquisition and expropriation. As stated in its powers and duties ERA is responsible for the activities that are directly related to land acquisition and many others. Such activities prepare or cause the preparation of designs and feasibility, environmental and other related studies required for road works, determining the extent of land required for its activities in the adjacency of roads, cause the use of, free of charge, land and quarry substances required for the purpose of road works, camp, offices, storage of equipment and other related services, acquire land required for road works by paying compensation for land possessors and property owners in accordance with the law and take necessary measures to protect the environment whenever road works are undertaken. In this activity the ERA Right-Of-Way Management Directorate is responsible for making available the required land for road construction and maintenance, the establishment of materials sources (borrow pits and quarries) and campsites and for implementation of Resettlement Action Plans (RAP). The current Right of ways activity is seen as having or harboring inefficiency when if it is left to continue as it is, it may intricate the whole organization's system. The external and internal environmental factors necessitate the need for enough quality roads to be availed, which almost looks challenging with these prevailing customary practices of right-of-way undertakings.

Problem Statement and Objective of the Study

As evidenced by various stakeholder meetings and timely organizational reports, most of the road projects that have been implemented have been completed beyond budgeted costs and scheduled completion times. Firdissa (2018), in her Oromia Road Authority study on identifying delay factors

in her Oromia Rural Road construction project, reported that the severity of public road problems was the highest among others. Road delay factors reported by clients as contractors. ERA has found common practice in implementing road projects to manage road obstructions simultaneously with road construction. However, road site management, including identification of obstacles, communication and negotiation with local administrations and road site owners, assessment and evaluation for compensation, mobilization of resources for compensation, and acquisition of the property itself free of obstructions. makes it possible. Necessary road construction becomes more difficult.

Lack of timely budget for compensation and abrupt start of road projects are other factors limiting the completion of road right-of-way prior to the commencement of road projects. There were a myriad of factors contributing to this cost and time overrun challenge, including: B. Road right-of-way issues such as lack of well-placed contractors or consultants, early release of funds by sponsors, and shortages of building materials have attracted the attention of researchers.

Land acquisition for road construction is a fundamental activity after road planning. Now, road project developers and consultants are complaining about the premature expropriation of these coveted lands. Most contractors agree that right-of-way issues are the first and most important factor in requesting an extension to complete road construction. Most stakeholders also agree that right-of-way issues can account for a large portion of claim costs (whether unnecessary losses or failure of the employer to meet the contractor's own liability). the amount you paid for it). The planned right-of-way budget may not be able to offset the actual expenditure and the organization (ERA) may have to request additional budget. These are just a few of the many issues plaguing organizational management today and needing everyone's attention.

Public road management is a long process involving stakeholders from the Ethiopian Road Authority for public road management. There are empirical studies dealing with land tenure, obstruction removal, and/or land acquisition that affect construction projects in general and road projects in particular. Researchers identified the root cause of land management as a major impediment to the implementation of road projects in the Ethiopian Road Authority, but did not identify or recommend the root cause in detail. However, research and recommendations on the root causes of ineffective public road right-of-way management undermining road project performance at the Ethiopian Road Authority are not covered.

Therefore, the research question is stated as "the negative impact of public road management issues on the timely completion and cost-effectiveness of ERA road construction projects and their mitigation mechanisms". This study focuses on identifying key stakeholder-related issues related to right-of-way management that adversely affect the performance of road projects and addresses the issues faced by right-of-way management stakeholders. It ranks as the main obstacle. of road projects of the Ethiopian Road Authority. The general objective of the research is to identify the problem of rights-of-way management and cost effectiveness of road construction projects in the Ethiopian Roads Authority. The specific objectives are to: identify the most significant actors and rank the related problems constituting right-of-way management that have negative effects on road project performance; and assess the magnitude of right-of-way management problems on the cost effectiveness of ERA road projects.

Review of Related Literature

The Project Management Institute (PMI) defines a project as "an ad hoc effort undertaken to produce a unique product, service, or result." According to Robert K. Wysocki (2014), a project is a unique and complex series of interconnected activities that have a goal or purpose and must be completed by specified dates, within budget, and according to specifications.

The business-oriented definition of a project, by the same author, Robert K. Wysocki (2014), is a set of finitely dependent activities whose successful completion yields the expected business value that validates project execution. will be Gary (2003) also defines a project as an interim effort to achieve a specific goal. Projects are essentially answering to needs and solutions to problems. It's also usually a solution that promises financial benefits. In most ventures, the basic goal is to make money or save money. An investment plan to build and/or expand such facilities in order to improve the development of society's products and services over a period of time.

Road Construction Project

Road construction is an integral part of any construction project. A road project is a linear, recurring engineering construction project that requires external organizations for its implementation, and is a one-off effort undertaken to produce a unique product: road infrastructure (Assefa, 2008). Urban roads serve a variety of mobility needs, including general public, commercial, goods, and emergency vehicles. Maintaining traffic flow during construction is a

significant challenge. The number of complex projects in urban areas is expected to continue to grow. Aging road infrastructure, restricted right-of-way (ROW), and increasing urban population are making construction projects difficult on existing congested urban road projects. In densely populated urban areas under construction, the entire mobility system must be considered (Council, 2011). Complexity is a key factor when it comes to the details of urban road construction projects. Urban road projects are built in physically constrained environments. Existing road networks are dense and often intertwined with other infrastructure. Land scarcity in urban environments means high land acquisition costs, which in turn makes relocation of people affected by road projects very difficult.

Project scope management includes the processes necessary to ensure that the project includes all required work and only the work required for successful completion of the project. Project scope management is about defining and controlling what is and isn't included in a project. Project cost management includes processes related to planning, estimating, budgeting, and cost control to ensure that projects are completed within approved budgets. should be completed.

Cost management is the process used to minimize the cost of a project while maintaining an acceptable level of quality and scope of deliverables for the duration of the project. The purpose of the cost management process is to track progress, compare actual and planned values, analyze the impact of variances, and adjust against those variances. Project costs are the amounts required to complete all project activities (Abubeker, 2011). Project cost has proven important as a major factor in project success. Despite its proven importance, it is not uncommon for construction projects to fall short of budget and on target. Failure to perform cost control functions often results in project overruns with immediate impact on construction stakeholders. According to the Planning and Management Department of the Ethiopian Roads Authority, the budget for road opening is allocated separately from the budget allocated by the government for road construction projects.

The Stakeholder Cooperation Department of the Ministry of Construction of Ethiopia identified construction professionals, contractors and consultants, construction associations, financial institutions, construction machinery and raw material suppliers in its guidelines to identify a list of stakeholders in the construction industry. I put it on the list. However, researchers on the stakeholder impact analysis of road construction projects in Ethiopia (Sintayehu A, et al., 2015) found a broader set of We identified a list of stakeholders as key. performer of the project.

Identifying stakeholders is not enough, but most important is stakeholder engagement and management throughout the project lifecycle. The prevailing practice of stakeholder management in government projects views stakeholders as passive listeners to government agendas rather than active participants in decision-making. An evaluation of rural land valuation and compensation practices in Ethiopia showed that there were instances of landowners being forcibly evicted from their landholdings (Anteneh A., 2007). Reaching out to a wide range of stakeholders with project management skills during a construction project is a daunting task for builders. Winch (2010) classified construction stakeholders into her two main categories of insiders and outsiders. Customers, consultants, and contractors make up the internal stakeholder category, and public and private stakeholders make up the external stakeholder category.

Land Management Modernization Study (2021) ERA in the process of land acquisition, meetings with various stakeholders. Contractors, consultants, private and public agencies directly influenced homeowners and business owners, farmers and townspeople, utilities and other government agencies. Project risk management includes the process of performing project risk management planning, identification, analysis, response planning, and monitoring and control (PMBOK, 2008). It includes processes, tools, and techniques that help project managers maximize the likelihood and consequences of positive events and minimize the likelihood and consequences of adverse events. range and quality.

Project risk management is most effective when first implemented early in the project life and is responsible throughout the project life cycle. Right-of-way (ROW) clearances are defined as those instances where there is an interest in land acquired and include all necessary procedures to acquire the property. In some cases, land and interests in land must be acquired outside of an existing ROW for or by the utility. ROW acquisition and easement adjustment are almost always on the critical path of an infrastructure project. It is important to identify and focus on all parcels within the ROW, but especially those that might cause delay, such as those that may require eminent domain acquisition or have other inherent problems. Utilities with a history of slow response when adjusting should be aggressively managed. It should be noted that ROW and utility adjustment issues may be of concern even in cases where the parcel or utility is owned by a separate public entity. A strategy must be developed to address these problematic parcels and/or utility adjustments (Bingham, 2010).

According to Caltrans (2007), the process of right-of-way risk identification produces: right-of-way relocation requires more time than planned; unforeseen railroad involvement; resolving objections to right-of-way appraisal takes more time and/or money; the Right-of-Way datasheet is incomplete or underestimated; the discovery of hazardous waste in the right-of-way phase; seasonal requirements during right-of-way relocation; utility company workload; financial condition; and expired temporary construction easements.

Right-of-Ways Acquisition

Delays in the acquisition process due to a multitude of causes will usually lead to major construction phase delays. Identifying the delay factors allows for better time management of the process. The right-of-way acquisition process is not only an economic issue that needs to be executed in a timely manner, but it is also a socially sensitive and personal issue in most cases. It deals with public and private property ownership. (Aleithawe, I., 2010)

Acquiring rights-of-way for transportation projects can be costly and time-consuming. Right-of-way administrators and managers are constantly looking for ways to reduce duration and save money. Delays in the right-of-way acquisition process can lead to major delays in the construction phase.

Right-of-ways Acquisition is a part of the highway and transportation project development process. Right-of-way acquisition begins with the collection of data such as project plans, preliminary right-of-way and utility assessments, identification of the owners of the required properties (title), survey maps, etc. Then appraisals are made to determine the fair market value of each property. Based on the appraisals, the agency will contact the property owners, present the estimated compensation value, and negotiate with the owners. If acquisition negotiations are unsuccessful, the quick-take process and condemnation (or eminent domain) will typically follow. If the title and possession are transferred to the agency, acquisition and relocation will take place. Right-of-ways must be acquired early, after environmental clearance, and once the decision to purchase a parcel has been made (David, J., 2016).

Planning is the first phase of the right-of-way acquisition process and mainly involves environmental assessments, location and design studies, and public involvement activities. The laws require environmental assessments during the planning phase that primarily measure the social, economic, and environmental impacts of a project's right-of-way acquisition and any relocation it might occasion. For instance, these assessments include determining the number of people or businesses displaced by the project or the impacts on community services, wetlands, wildlife habitat, etc. (David, J., 2016). Public involvement is as critical as the environmental assessment during the planning phase. The purpose of initial public involvement is to notify a community of the agency's intentions and communicate the necessity of a project. Moreover, in public forums, the people of affected communities can learn about a project's possible social and environmental impacts and voice their opinions on the project and the right-of-way acquisition process. There are several avenues for such communication with the public: public meetings, newspapers, television advertisements, and letters.

Property valuation is the heart of all economic activity. Everything we do as individuals or as groups of individuals in business or as members of society is influenced by the concept of value. A sound working knowledge of the principles and procedures of valuation is essential in all sorts of decisions relating to real estate buying, selling, financing, developing, managing, owning, leasing, trading, and in the ever-more-important matters involving income tax considerations (Pornchokchai, 2006). The goal of this phase, valuation, is to establish the amount of just compensation for a parcel by having the land appraised and the appraisal reviewed. Such a valuation is the logical next step after the planning phase is complete. The amount defined in the approved appraisal should be the basis of the offer of just compensation. However, this appraisal requirement can be waived if a parcel is donated or if the proposed parcel has a value below a predefined amount. Once the appraisal report is prepared, it must be approved by a qualified reviewer. The purpose of the appraisal review is to ensure that the appraisal is complete, meets all requirements, and contains accurate information.

Compensation: whether in financial form or as replacement land or structures, is at the heart of the expropriation of a parcel, and to meet the needs of public services and other economic and social needs of the society, the government uses expropriation (compulsory acquisition) as an

alternative tool to secure land for development. The process, however, brings tension for people who are threatened with dispossession (David, J., 2016).

Negotiation is the part of the process in which agencies make offers to property owners for the acquisition of real property and improvements. Agencies also make payments for properties and notify property owners to vacate during this phase. If negotiation fails, the phase usually shifts to condemnation proceedings (David, J., 2016).

Relocation, where residences, businesses, farms, and non-profit organizations are displaced due to federal or state projects designed for the benefit of the public (Kara, 2006), can be divided into four parts. The first part, relocation planning, analyzes the location, size, and schedule of the displaced residents. Second, the Uniform Act requires that relocating residents be given general information on the project, notified of their eligibility for the relocation, and served with written notice of a 90-day eviction. Relocated residents also have a right to obtain pertinent information, counseling, and advice from an advisory service provided by the agency.

The construction of roads requires land acquisition and expropriation for the rights-of-way, access road construction, campsites, quarry sites, borrow pits, and other similar activities. According to the reestablished regulation of ERA (FDRE, 2011), it is responsible for the preparation of resettlement action plans (RAPs) for road projects and to initiate land acquisition and expropriation. As stated in its powers and duties, ERA is responsible for the activities that are directly related to land acquisition and many others. Such activities prepare or cause the preparation of designs and feasibility, environmental, and other related studies required for road works, including determining the extent of land required for its activities in the adjacency of roads, causing the free use of land and quarry substances required for the purpose of road works, and providing camps, offices, storage of equipment, and other related services. They also acquire the land required for road works by paying compensation for land possessors and property owners in accordance with the law and take necessary measures to protect the environment whenever road works are undertaken, and they are undertaken, by acquiring road.

Ethiopian Road Authority, in its standard operational procedures that guide road project execution, tracks the road construction project's progress from identification through preparation and implementation. ERA is practicing a sort of project management practice to complete a given road

project. Building the capacity of its team with standard project management practices and institutionalizing them is an important task. The project management profession is continually improving through the application of ethical principles that are intact and computer-assisted systems that would close the loopholes in the traditional approach that caused a lack of accountability and transparency.

Right of Way acquisition is part of the complex process of ERA road construction projects. The rights-of-way management process begins with preliminary activities that include identification of the obstacle properties and property owner, evaluation and estimation the obstacle properties, prepare compensation and effect payment for the property owner, remove the property from the Right-of-ways limit and handover the acquired land (ERA Right-of-ways Management Standard Operating Procedures, 2021).

Figure 1

ERA Right-Of-Ways Management Workflow

Source: ERA Right-of-Ways Management Modernization Study

According to the proclamation No. 1161/2019, the power to expropriate rural or urban land holdings by a woreda or an urban administration for public purposes, paying compensation in advance, exists where it believes that the land should be used for a better development project to be carried out by public entities, private investors, cooperative societies, or other organs, or where such expropriation has been decided by the appropriate higher regional or federal government

organ for the same purpose. In the above proclamation, property evaluation committees will be established both in rural and urban areas that are traversed by the road project. The composition and number of the committee's members will be established as per the proclamation. Before the start of the creation of valuation awareness, training has to be given to the local administration heads members on the laws and regulations of the country on the land acquisition and resettlement process, and also the same to the Woreda Compensation and Grievance.

In ERA road construction projects and right-of-way management activities, there are different actors or stakeholders involved. Such as the client, the designers, the contractor, the supervision consultant, the woreda/town/local administration, the right-of-way officer or agent who coordinates the right-of-way work, the right-of-way property owners, the proclamation 1161/2019 itself, and the utility provider organizations. These actors or stakeholders may impact the project positively and negatively.

Empirical Literature

Ahmed (2020) investigates that ROW acquisition costs may include the market value of the parcel, damage done to the remainder of the land, condemnation or litigation costs, and delay costs associated with the acquisition of the parcel. Urban counties are facing more condemnation cases for parcels located in urban areas when compared to ROW acquisition cases in rural areas.

Kamanga and Steyn (2013) also examined the causes of delay in road construction projects in Malawi, identified 72 typical causes of delay. Among the top ten causes listed were: shortage of fuel, insufficient contractor cash flow, shortage of foreign currency for importation of materials and equipment, slow payment procedures adopted by the client in making progress payments, insufficient equipment, delay in relocating utilities, shortage of construction materials, delay in paying compensation to landowners, shortage of technical personnel, and delay in site mobilization.

Shimeles (2019) conducted a questioner survey, case study, and open-ended questionnaire in Addis Ababa Roads Authority, have pointed out that the main causes of road construction project time delay are right-of-way problems, design-related problems, lack of integration with utility providers, delay in payment of executed work, shortage of materials and equipment on site, and

delay to deliver the site. (Shambel G., D. Patel, 2018), with their study of factors influencing time and cost overruns in road construction projects: Addis Ababa identified land acquisition and construction delays, design changes, less material and equipment supply by contractors, and incomplete designs as the main sources of delay and cost overruns, respectively.

Semira (2021) in her thesis study found that delays in paying compensation to land owners are client-related, while delays in relocating utilities are external-related causes that were found to be the most influential factors of road construction delay causes in the Addis Ababa City Road Authority. According to the study conducted by Getachew Taye (November 2019), the factor that influenced construction cost overruns identified in his survey questionnaire was one of 34 typical causes of cost overrun factors based on respondents' responses for each variable cost overrun factor. One of the top ten causes of construction cost overruns is a land acquisition problem, which was ranked eighth in the project-related factor category. According to the study conducted by Wonderwesen Tesfaye (2019), the cause of right-of-way conflict in AACRA is that property owners have no interest in leaving their original parcel, and property owners expect a high amount of compensation. Poor communication among the different utility companies, due to poor scheduling review among utility companies, and due to right-of-way plan changes, revisions, and design changes during utility relocation are the main influences.

Method of the Study

The study is descriptive and continues research method refers to the type of research question, design, and data analysis that would be applied to a given topic. A descriptive research design was used to evaluate the involvement of right-of-way management actors and stakeholders in right-of-way acquisition practices and road project cost effectiveness.

Primary and secondary data are used in relation to the topic under discussion. The primary source of data is obtained through direct personal investigations of respondents and surveys using questionnaires. The collection modes are through printed questionnaires. The secondary data refers to that information that has already been documented by the client or owner. Therefore, the study or findings are supported by the secondary data. The sources of data are the main parties in the road construction projects, namely the owner/client, contractors, consultants, and woreda/town/local administrations.

In this study, respondents were selected based on their experience, knowledge, and participation in Ethiopian Roads Authority road construction projects. The study adopted a purposive and proportional sampling method. (Tayie, 2005) explains a purposive sample as one that comprises subjects who are selected based on certain specific characteristics needed for a study and rules out subjects who do not meet this standard. This necessitated the use of purposive sampling techniques for the study.

$$n = \frac{N}{1+N(e)2}$$

Where:

N = Total number of relevant people in the organization and outside the organization

n = Actual sample drawn (corrected sample size)

e = Margin of Error

The study participants were composed of professionals from four target populations: clients, contractors, consultants, and local administrations who had been engaged in Ethiopian Roads Authority road construction projects. From the target population, the researcher has purposefully distributed 156 questionnaires to the client: 11 to the right-of-way management team leaders and construction management team leaders, 92 to the project engineers, and 53 to the right-of-way management officers, who were able to answer the research questions; and 8 to the contractor, 8 to the consultant, and 8 to the local administrations for those who have been actively engaged in the Ethiopian Roads Authority road construction projects.

To get primary data, a structured questionnaire was adopted from previous researchers, which helped obtain direct information from the target population. Thus, a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) was used in the study. Among the available techniques for secondary data collection methods, document review is employed to collect relevant secondary data from secondary sources (documents and client reports). The relevant information is used as a benchmark against the primary data that was collected to support the research. From the total 180 distributed questioners, 147 are filled and collected, 15 are rejected, and 33 questioners missed 132 responses applicable in the data analysis, which makes a percentage of 73.3 response rates.

The information gotten from the test organization were analyzed concurring to the objective of the consider. The survey was collected and analyzed employing a quantitative information collection strategy. utilizing Microsoft Exceed expectations and STATA 14 computer program. In arrange to guarantee coherent completeness and consistency of reactions, information altering and coding have been carried out by the analyst.

The information, which were gotten from surveys, were analyzed utilizing distinctive expressive measurable strategies like recurrence, basically to decide the relative significance of different variables that contribute to right-of-way administration issues in street development ventures. The investigation of the information comprised of calculating the Relative Significance File (RII) and positioning the components in each category based on the RII. The Relative Significance Record (RII) approach is utilized to depict the relative significance of the particular causes and impacts based on the probability of event and impact on the venture utilizing the Likert scale. In expansion, the higher esteem of the record of relative significance (RII) is the basic cause or affect component and is decided by condition.

$$\text{RII}= \frac{\sum W}{A \times N}$$

Where,

RII = Relative Importance Index

W= the weight given to each problem by the respondents from 1, 2, 3, 4 and 5 for Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree respectively.

A = the highest weight (in this case, 5 is the highest weight), and;

N = the total number of respondents.

Findings and Discussion

Ranking of Right-of-Ways Management Actors Related Problems

The first specific objective of the study was related to identifying the most significant actors and ranking the related problems constituting right-of-way management that have a negative impact on road project performance in road construction projects of the Ethiopian Road Authority that have been identified. These right-of-way management-related problems were ranked based on their Relative Importance Index (RII).

Table 1

Ranking of Right-Of-Ways Management Actors Related Problems

Right-of-Ways Management Problems	RII	Actors Category	Rank
Delay compensation payment	0.852	Client	1
Exaggerate property valuation rate	0.838	Woreda/Town/Local Administration	2
Illegal construction operating	0.833	Right-of-ways Property Owners	3
Not to demolish the compensated property on time	0.83	Right-of-ways Property Owners	4
Shortages of budget for Right-of-ways Compensation	0.826	Client	5
Exaggerated valuation rate	0.812	Utility Providers organizations	6
Untimely remove the compensated utility lines from the Right-of-ways limit	0.811	Utility Providers organizations	7
Property valuation differences between woreda and town	0.803	Woreda/Town/Local Administration	8
Consider Right-of-ways as secondary work	0.798	Woreda/Town/Local Administration	9
They stop construction operation due to property valuation rate	0.798	Right-of-ways Property Owners	10

Source: Own Computation

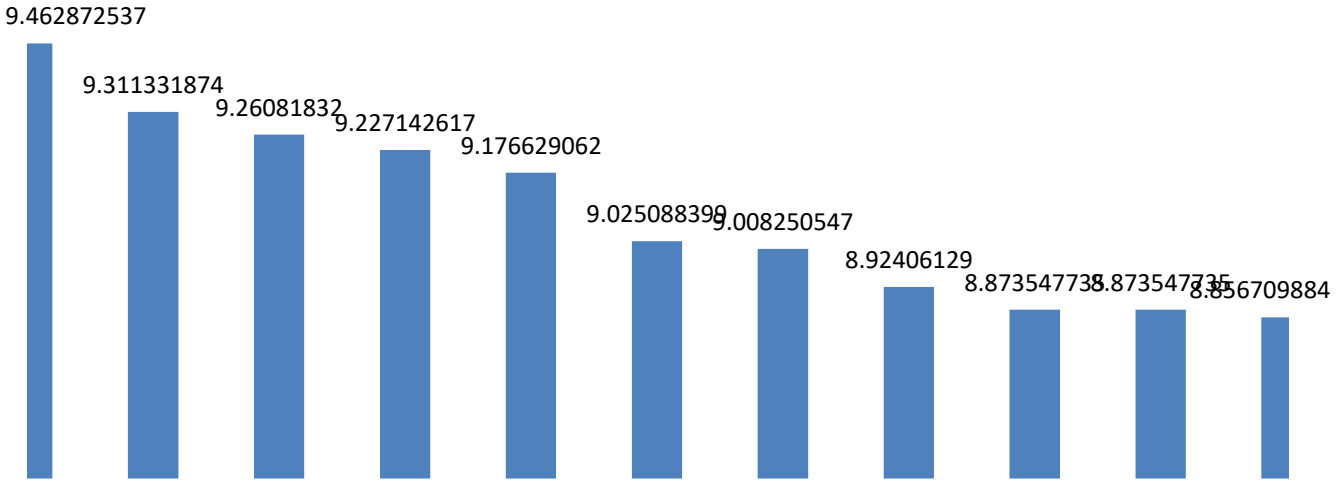
The above table, show that the factor that influencing right-of-way management of road construction projects cost effectiveness from the questionnaire survey was identified based on respondents' responses on each variable of right-of-way management actors related problems and select top ten. Delay compensation payment and Shortages of budget for right-of-way compensation were ranked the 1st and 5th, categorized in client related factor of right-of-way management problem with RII values of 0.852 and 0.826 respectively.

Exaggerate property valuation rate, property valuation differences between woreda to woreda and town to town, consider right-of-way activity as secondary work and lack of awareness were ranked the 2nd, 8th, 9th and 10th, categorized in local administration related factor of Right-of-ways management problem with RII values of 0.838, 0.803, 0.798 and 0.797 respectively. Illegal constructions operating in Right-of-ways limit, not to demolish the compensated property on time and they stop construction operation due to property valuation rate were ranked the 3rd, 4th and 9th, categorized in Right-of-ways property owners' related factor of right-of-way management problem with RII values of 0.833, 0.830 0.798 respectively.

Exaggerated valuation rate and untimely remove the compensated utility lines from the right-of-way were ranked the 6th and 7th, categorized in utility providers' organizations related factor of right-of-way management problem with RII values of 0.812 and 0.811 respectively.

Figure 2

Percentage of Top Ten Right-Of-Ways Management Problems



Source: Own Computation

The client's delay in making compensation payments to the landholders and property owners on time will prevent the property owners from removing their estimated property from the right-of-ways, thus delaying the construction of roads in the area. And also, penal according to the literature reviewed above (Proclamation, 2019), according to Article 3 Sub-Article (a), (b), and (c), the client included and property developed, or any change made under the above statements of this article, in the valuation for compensation and led to paying extra cost. According to the literature reviewed (M. J. Kamanga and W. J. van der M. Steyn, 2013), delayed compensation payments cause project delays and have a negative impact on the total cost of the project.

Local administrations and utility provider organizations exaggerated estimate of the value of property can lead to shortages of budget for compensation, property valuation differences between woreda to woreda and town to town, unnecessary exchange of correspondence transfers, unplanned budget costs, and unnecessary compensation payments to property owners, as well as delay in compensating the property owners and protecting them from having their property demolished from the right-of-way on time.

As the above findings show, the right-of-way property owners' refusal to demolish the compensated property, illegal construction operating in the right-of-way limit, right-of-way property owners, and woreda administrators lack of awareness about the benefits and general process of the project and compensation can lead to disagreement and road construction disruptions. Therefore, according to the above (Proclamation No. 1161/2019) and ERA Right-of-Way Management Standard Operating Procedure (SOP), the City or Woreda Administration and ERA should consult landholders who are to be displaced at least one year before they hand over their holdings on the type, benefits, and general process of the project.

Right-of-Ways Management Cost Effectiveness

The secondary data documentation reviewed at the central region construction projects management and financial management directorates of ERA revealed that the right-of-way cost of the projects results in budget shortages, delayed compensation payments, and exaggerated property valuation rate factors that delay the removal of the properties from the right-of-way limit.

Table 2 below shows that all undergoing and completed sample projects cost effectiveness of the right-of-way expenditure is higher than the projected right-of-way budget, and the projects right-of-way budget percentage increase showed negatively, which led the organization to request an additional right-of-way management budget from the government.

According to the findings of this thesis, local administrations and utility provider organizations used an exaggerated estimate of the value of property, which caused the difference between the planned compensation and the actual cost. And also, there is no guarantee to the stoppage or interruption of right-of-way expenses, even after the completion and handover of the road project, and there is an erratic nature to the cumulative expenditure, and no one can make a good forecast since the prevailing right-of-way factors are volatile in nature.

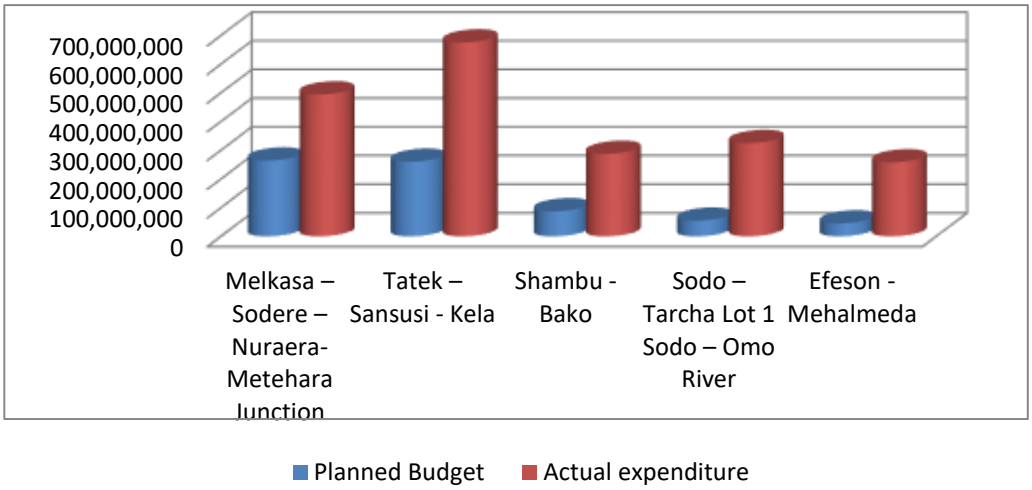
Table 2

Comparison of Right-Of-Ways Budget and Expenditure

Name of the Project	Project Status	Planned Right-of-ways Budget	Actual Disbursement	Difference	% Increase
Melkasa – Sodere – Nuraera - Metehara Junction	ongoing	264,150,000	494,491,694.90	-230,341,695	-87.20
Tatek – Sansusi -	completed	260,000,000	675,566,174.75	-415,566,175	-159.83
Shambu - Bako	Completed	87,538,000	287,364,280.75	-199,826,281	-228.27
Sodo – Tarcha Lot 1 Sodo – Omo River	Completed	54,778,000	325,111,778.47	-270,333,778	-493.51
Efeson -	Completed	45,038,000	257,766,315.77	-212,728,316	-472.33

Source: ERA's Financial Management Directorate)

Figure 3
Comparison of Right-Of-Ways Budget and Expenditure



Source: Own Computation

Table 3:
Comparison of Project Contract Amount and Right-Of-Ways Compensation Amount

Name of the Project	Project Length in km	Contract amount (in Birr)	Total Right-of-Ways Compensation amount (Birr)	Compensation for utility providers organization	Compensation for individuals Right-of-Ways Property Owners	Magnitude of Right-of-Ways Management Problem
Melkasa – Sodere – Nuraera-Metehara Junction	94	1,203,129,756	494,491,695	152,312,014	342,179,681	Severe
Tatek – Sansusi - Kela	14.5	737,176,032	675,566,174	291,959,712	383,606,463	Severe
Shambu - Bako	60	993,109,810	287,364,280	133,476,031	153,888,250	Severe
Sodo – Tarcha Lot 1 Sodo – Omo River	75.6	1,328,412,050	325,111,778	116,130,555	208,981,224	Severe
Efeson - Mehalmeda	60.68	1,352,642,535	257,766,316	123,346,654	134,419,662	Severe

Source: compiled data from ERA

As shown in Table 3, the right-of-way compensation amounts and the magnitude of the right-of-way management problem show that farmlands, quarry and borrow sites, subcamps, residential houses, business shops, and utility lines are the right-of-way issues mentioned in the problem of right-of-way management of the road construction projects. All the sampled projects have severe right-of-way management problems, and the entire sampled projects compensation amount is high due to their construction period. The removal of right-of-way obstructions is manifested both in the sampled ongoing and completed projects without variation in prevalence. The right-of-way management process and cost effectiveness of right-of-way compensation are challenges both in the rural and urban sections.

Further, the data shows that, as was true in the case studies of Ahmed AbdelaTY (MMarch 2020), right-of-way compensation, especially in urban areas and for utility providers property relocation, is so high that the relocated properties of the utility providers' organizations within the right-of-way limit are state-owned, while most of the utility providers properties are imported from foreign countries. In terms of purchasing power, replacing the utility providers' properties with new ones is also causing foreign exchange losses and is causing significant losses. And also, the budget ERA uses for compensation prevents the country from spending money on other development projects that the people need.

Conclusion and Recommendations

This study is undertaken to identify the problem of right-of-way management and the cost effectiveness of the road construction projects in the case of ERA in the selected five projects and to explore respondent's perception on right-of-way management problem mitigation as part of the objectives. The findings identified that all the related right-of-way management problems fairly influenced the successful completion of right-of-way handover for the road construction projects. In these right-of-way management-related problems, delays in compensation payments and shortages of budget for right-of-way compensation are recorded as owner/client-related right-of-way management problems. Exaggerate the property valuation rate and property valuation differences between woreda to woreda and town to town; consider right-of-way activity as secondary work; and record a lack of awareness in local, woreda, and town administrations about right-of-way management-related problems. Illegal constructions operating in the right-of-way limit, not to demolish the compensated property on time, caused the right-of-way property owners

to stop construction operations due to property valuation, which was recorded in right-of-way property owners' related right-of-way management problems. Exaggerated valuation rates and the untimely removal of compensated utility lines from the right-of-way were recorded in utility organization-related right-of-way management problems. These were all identified as the top ten right-of-way management problems. This implies that all the problems were considered the negative impact of right-of-way management cost effectiveness on the road construction projects.

Although all actors' related right-of-way management problems were rated highly by the respondents, some items under the right-of-way management problems show average to high importance to the road construction right-of-way management success. Delay compensation payments, shortages of budget for Right-of-ways compensation, an exaggerated property valuation rate, a lack of awareness on the part of local administrations, Right-of-ways property owners making illegal constructions operating in the Right-of-ways limit, failing to demolish the compensated property on time, and untimely removal of the compensated utility lines from the Right-of-ways are found to be severe problems of Right-of-ways management and the cost effectiveness of the road construction projects.

These are not exhaustive right-of-way-related problems, but they are selected to bring them to the attention of those concerned. Those who are interested in the details can see them in the appendices section. The rent-seeking attitude became critical and gained sway among some contractors, supervisors, design consultants, woreda administration, and property owners. With ERA, a lack of organizational readiness to protect right-of-way problems in advance is also critical.

Hereunder are the recommendations proposed to be implemented by the Ethiopian Roads Authority in cooperation with those concerned, as the case may be: A study shall be conducted to establish an independent organization or agency that may be responsible for establishing a nation-wide right-of-way property evaluation base price and dealing with all right-of-way-related issues before and after road construction. The organization or agency may handle all right-of-way management issues for public organizations.

A systematic and planned continuous awareness-creation plan could be prepared for local, town, or woreda administration, including right-of-way property owners. ERA's communication directorate and right-of-way management directorate can jointly perform the duty. Try to secure

enough budgets to finish the right-of-way issue before the construction contract is awarded. A serious communication strategy is needed to convince the sponsoring organizations before In order to reduce the cost of the right-of-way and to reduce the cost of replacing the service provider's properties with another costly property, if possible, construct the road in a different direction or bypass in the areas where there are not many public properties and utilities. Devise mechanisms through which to carry out effective supervision and control systems that make the road contractor, the designer, supervisors, and counterpart engineers accountable for major problems created while the design is in use.

The duties and responsibilities of each entity must be revised, brainstormed by the stakeholders, and clearly set aside for accountability. ERA shall play a leading role in utilizing the efforts of the recently organized "ministry of urban and infrastructure development for coordinating different public organizations undertakings and urging for better coordination achievement. ERA takes initiative action to bring it to the attention of those concerned and to inject the needed change into and enforce the implementation of Proclamation No. 1161/2019. Employ transparency by making publicly available the details of right-of-way property valuation procedures at the woreda and town levels, so that whenever there is malpractice in the right-of-way procedure, it will be identified and corrected.

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