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INFRASTRUCTURE GOVERNANCE: THE EFFECTS OF POOR SECTORAL-COORDINATION AMONG INFRASTRUCTURE SECTORS OF ADDIS ABABA (THE CASE OF ROAD AND LIGHT RAIL CONSTRUCTION PROJECTS)

Mahlet G. Yilema
Addis Ababa, Ethiopia
mahaliye.mahaley@gmail.com

Abstract
Proper coordination among road authorities and utility service providers in urban infrastructure development plays an important role in determining the quality of urban infrastructure service delivery and residents' quality of life. However, urban infrastructure development in the developing world is often subjected to haphazard planning, disjointed implementation, and poor post-installation management. This is also true for the Ethiopian urban centers which are characterized by, among others, poor inter-sectoral coordination among infrastructure service providers that has posed several of challenges and inconveniences to the residents of the city. This study investigated the effects of poor sectoral coordination among infrastructure service providers of Addis Ababa aiming to show the magnitude of its consequences. In doing so, the study selected two active railway and road construction projects and collected data from Addis Ababa utility service providers and road and railway authority as well as businesses, institutions, and households located in the two project areas. The research ascertained that the effects of poor coordination among the infrastructure sectors of Addis Ababa are severe to the point of leading businesses to bankruptcy, putting residents' lives in danger and causing long term negative psychological attitude towards infrastructure development projects which will have a long-term dominos effect on the economic, physical and social development of the city and the nation at large. Both utility service providers and the road authority have failed to ensure the safety of residents and their properties, deliver quality service, manage their discrepancies, and meet residents' basic demands. This calls for due attention and urgent action from concerned authorities and corporations besides policymakers.

Keywords: Infrastructure, Sectoral-coordination, Utility services, Road/Light-rail construction

1. Introduction

Urban areas are always in progress since they are epicenters of development and they accommodate large number of residents mainly resulted from natural increase and rural-urban migration. Rapid population growth as well as dense and haphazard structuring in many cities have led to an increase in demand for utility services and consequently, in the resources used for the construction and maintenance of utilities and roads. This has forced many cities to engage in massive infrastructure expansion projects to meet the ever-increasing demands of their residents.

Ethiopia is one of the fastest economically growing countries in Africa with a double-digit GDP growth accompanied by a large amount of investment in the infrastructure sector (Deloitte, 2016). The government's ambitious public infrastructure investment plans and programs are aimed at supporting a steady rate of economic growth (KPMG, 2012, OECD, 2016, World Bank, 2015, AfDB, 2016) witnessed by the increased focus on infrastructure development in Ethiopia especially in urban areas over the past

decades (MoFED, 2010). As a result, the capital city Addis Ababa, has seen tremendous changes in its infrastructure development in the past couple of years including the first sub-Saharan Africa urban light railway transit. Addis Ababa has an estimated population of some 5 million through other higher estimate are of around 7 to 8 million (Briggs, 2015). According to the Central Statistics Agency (2010) Addis Ababa is urbanizing at a rate of 4.4 annually and is one of the fastest growing cities in Africa. These dynamics indicate there will be an increasing and changing demands from the urban population which can only be accommodated by the city administration through efficiently managed and effectively delivered urban infrastructure. In response to these changes, the current government of Ethiopia has been and still is involved in wide-range infrastructure development projects in telecommunications, energy, water services, and roads, especially in the capital city (MoFED, 2010). However, the expansion and provision of such infrastructure and its related services face the challenge of coordination on multiple levels: policy and planning, financial and technological, institutional and governance. The lack of coordinated and integrated infrastructure and services planning, and implementation has exacerbated the problems observed in the infrastructure development effort of the city.

It is acceptable that infrastructure works mostly result in inevitable social, economic and environmental problems but the absence of integration exacerbates them. Although the main goal of infrastructure and utility service providers is to provide quality services to residents at a reasonable price and make the life in cities easier, due to lack of coordination, service costs increase, projects get delayed, safety of residents is in dangered, unexpected conflicts with utilities arise, results unnecessary utility relocations and damage to utilities and the subsequent untimely loss of utility service, etc. These summarize what has been and still is happening in the city of Addis Ababa. The residents and the city have been incurring tremendous costs to repair the damage to houses and streets caused by the uncoordinated activities of the utility corporations. The residents endure a great deal of inconvenience because of frequent interruptions and outages of services. The cost of rehabilitating damaged streets and other infrastructure left in disrepair by these public corporations has become an added burden on the taxpaying residents of Addis Ababa (Meheret Ayenew, 1999). Although there have been some attempts to strengthen the coordination of infrastructure and utility service providers in Addis Ababa, such as establishing a committee, which was not successful, Ethiopian policymakers and concerned authorities give meager attention to the problem. The researcher believes, one of the main reasons for the poor attention given to the issue is the lack of understanding on the magnitude of impact from different angles and on different stakeholders including but not limited to individuals, households, institutions, business establishments, utility and other infrastructure service providers, the city and nation at large.

Thus, this study intends to investigate the economic, social and environmental effects of poor inter-sectoral coordination among urban infrastructure and service providers of Addis Ababa on households, pedestrians, institutions and business establishments, and infrastructure service providers with the aim of shading light on the magnitude of the consequences of their uncoordinated plans and activities to urge actions against the causes. This paper also aims to stimulate debate and discussions among policymakers, municipalities, utility and road authorities putting the participation of residents in decision making at the center.

Selection of the study area

As mentioned above, massive infrastructure projects are undergoing in the country however the concentration is higher in the capital city Addis Ababa where immense developments and improvements are undergoing. Among the new infrastructure development works, the light rail transit project and construction of new roads and improvement of existing roads are the major once where this study emphasizes on. Although lack of coordination during infrastructure development projects is prevalent in all regions and cities of Ethiopia Yirsaw (2012), the problem is much more serious in the capital city where

the concentration of projects as well as the number of population is significantly higher. The problem in Addis has gotten even worse following the light rail transit project construction work undergoing by the Ethiopian Railway Corporation. The railway has a total length of 34.25 km (North-South line 16.9 km and East-West line 17.35 km) providing the capital city Addis Ababa with a mass transit system (MoFED, 2010).

The case projects selected for the study are two infrastructure development project works currently undergoing in Addis Ababa; Winget to Enkulal Fabrica road construction project and Atikilt tera to Autobis-tera light rail transit project. The projects are selected purposely for the following reasons: The light rail transit project undergoing from Atikilt tera to Autobis-tera is a place where the largest market in Africa; Merkato, and the largest vegetables and fruits selling market in the city; Atikilt Tera are found. Besides, the study area is a place where lots of business activities take place with high mobility and movement of people, things and vehicles. The second study area selected is the road construction project currently undergoing from Enkulal Fabrica to Winget, which is one of the delayed projects in the city. The construction of the road is delayed because of the land compensation process and the inability to relocate electric lines and water pipes. Following this, lots of complaints have been and still are being raised by the residents, business establishments, governmental and other institutions in the area. With these facts, the two projects were very convenient to show the impact of the disintegrated infrastructure development works in the city.

2. Research Methodology

Case study approach was used for this study as an appropriate research strategy to help understand the problems identified in depth. Accordingly, the study employed multiple data sources and multiple data collection techniques for multi-perspective analysis and triangulated results. Hence, both primary and secondary data is collected from the target infrastructure service providers, institutions, business establishments, households and residents of the city. The infrastructure and utility service providing institutions selected for the study are; Addis Ababa water and sewerage authority (AAWSA), Ethiopian Telecommunications Corporation (ETC), Ethiopian Electric Power Corporation (EEPCo), Addis Ababa City Administration Road Authority (AACRA), and Ethiopian Railway Corporation (ERC). The second set of respondents of the study are households, business establishments, and institutions located in the study areas. A combination of purposive and systematic random sampling was used to select samples in this regard. First, households, business establishments, and institutions located immediately along the two project sites are considered for further sampling. In the second stage sample, respondents were drawn from the groups using systematic random sampling technique. For this case, respondents were picked from every fifth household, business, and institution to make up a sample size of 20% since the list and number of the households, institutions, and businesses were not known. Besides, randomly selected pedestrians from the study areas are considered for the study.

To elicit the necessary information for the study, interviews, and questionnaires were considered as the major data-gathering tools. In addition to this, the study used field observation and pictorial data collection. Thus, three sets of semi-structured interview questions were administered. The first set of interviews were administered to purposely selected experts working in the utility companies while the second set of interviews were conducted with experts working at Addis Ababa City Administration Road Authority and Ethiopian Railway Corporation. Structured questionnaires were used to collect information from selected households, business establishments and institutions in the study areas regarding the various social, economic and environmental problems they are facing due to the problem under review. The target households, business establishments, and institutions are selected based on their location and proximity to the areas of project execution especially those located immediately along the road are considered for the

study. Finally, a field survey was undertaken by the researcher to assess the condition of the existing infrastructure construction work within the boundary of the study area. The two tables below (Table 1 and Table 2) summarize the number of respondents and instruments used to collect data.

Table 1: Distribution of respondents by category from each study area

Respondent category	Sample respondents		Total	Instrument
	Project 1	Project 2		
Households	24	23	47	Structured questionnaires
Business establishments	27	25	52	Structured questionnaires
Institutions	12	11	23	Structured questionnaires
Pedestrians	6	6	12	Semi structured interview
Total	**69**	**65**	**134**	

Project 1: Winget to Enkulal Fabrica road construction project

Project 2: Atikilt tera to Autobis-tera light rail transit project

Table 2: Distribution of respondents from each institution and instruments of data collection

Target institutions	Number of Respondent/experts	Instrument
EEPCo	6	Semi-Structured Interview
ETC	6	Semi-Structured Interview
AAWSA	5	Semi-Structured Interview
AACRA	7	Semi-Structured Interview
ERC	1	Semi-Structured Interview
Total	**26**	

3. Results and discussion

In trying to understand the effects of lack of coordinated infrastructure development works, data is collected from various sources, analyzed and discussed in the sections that follow. Before presenting the various effects of the problem, a before and after analysis is done to compare the different services before the implementation of the projects and after the execution has started based on respondents' response scaling the services from "excellent" to "very bad". Following, the different effects of poor coordination during the project implementation on households, businesses, institutions and utility and road authorities are presented. The complaint handling mechanisms, service cut announcements and compensation-related issues are discussed as well. Responses from residents as well as service providers are analyzed together for triangulated results.

3.1 Utility service provision before and after the project implementation

The following table illustrates community survey responses comparing utility services before and after the implementation of the two infrastructure projects.

Table 3: Utility services before and after project execution in the two study areas

Responses	Atikilttera – Autobis-tera LRT project						Wingate - Enkulal Fabrica road project					
	Water		Electricity		Telecom		Water		Electricity		Telecom	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Excellent	-	-	-	-	-	-	13%	-	7%	-	1%	-
Very good	-	-	5%	-	-	-	32%	-	31%	-	37%	-
Good	63%	-	75%	3%	54%	-	48%	16%	48%	8%	37%	5%
Bad	28%	22%	16%	29%	40%	24%	5%	8%	12%	21%	21%	13%
Very bad	2%	63%	4%	54%	6%	63%	1%	67%	2%	69%	4%	82%
No change	-	9%	-	14%	-	13%	-	8%	-	2%	-	-
No response	7%	6%	-	-	-	-	1%	1%	-	-	-	-

As can be deduced from the data presented in table 3 above, there is a significate difference in the delivery of utility services before and after the execution process has started. Majority of the respondents from both the project sites implied that water, electricity and telecom services were delivered in a much better way than the current service delivery. The current state of utility service delivery is mainly rated as bad and very bad by respondents from all categories. Comparing the responses from the two project areas, the problem seems more prominent in road construction project area.

Following, respondents were asked to indicate the frequency of water, electricity, and telecom service interruptions. Table 4 below summarizes the responses from the two project areas.

Table 4: Frequency of utility services interruptions project execution in the two study areas

Responses	Atikilttera – Autobis-tera LRT project			Wingate - Enkulal Fabrica road project		
	Water	Electricity	Telecom	Water	Electricity	Telecom
Very often	43%	30%	31%	59%	63%	69%
Often	40%	44%	54%	14%	21%	17%
Sometimes	7%	26%	11%	14%	13%	10%
Occasionally	3%	-	4%	5%	1%	2%
Rarely	-	-	-	6%	2%	2%
No-response	7%	-	-	2%	-	-

As can be noted from the above responses, all the services are interrupted frequently in both project sites and the problem is precarious in the road construction project site. Respondents further added that there were times where water service was out for 10 to 15 days straight. Anyone can simply imagine living for 10 days or so without water. Similar experiences have happened with electricity services going out for several days. Experts from the utility service providers were asked the reasons for the frequent service interruption in these areas.

According to experts' responses from AAWSA, lack of coordination with AACRA and the process of securing the position of pipelines before the construction of the road are the main reasons for the service interruptions. The reasons provided by EEPCo for the frequent service interruptions in the study areas include lack of capacity to upgrade the existing infrastructure, low quality of spare parts used to replace the damaged lines during relocations, overloading of transformers in substations and failure of technicians to properly do their jobs in the fields. Community survey respondents also complained about technicians being corrupt and abusing the current unfortunate situation to get bribes from residents. They sometimes malfunction on purpose, so they can get bribes, especially from business establishments to fix what they have purposefully tampered.

The first reason provided by experts of ETC is power interruption. Since the network lines and fibers operate using electric power, they stop working when electric power is interrupted. The other reasons are interruptions during relocations and repairing of damaged lines and cables during relocations and installations. Moreover, the experts ascertained that once the cables and network lines are damaged, even if they are repaired, they will provide low quality and interrupted service.

3.2 Effects of poor coordination

3.2.1 Effects on households

Residents from the two project sites endure a great deal of inconvenience due to the frequent service interruptions in different forms. Households are one category targeted for this study and textual data has been collected from respondents regarding the various problems they have faced due to the frequent service interruptions. According to the responses collected, households suffer more from water and electricity service interruptions. Below are selected responses from household respondents;

"We can't cook without water or wash our clothes, we are suffering" (a woman from Filance Medhanialem)

"as you can see everything is dusty due to the construction and we don't have water to wash" (household respondent around Enkulal fabrica)

"…. Even to bring water from other areas is difficult because the road is excavated. People fall and get injured while crossing the road carrying water" (resident from Habtegiorgis Dildiy)

"we are forced to incur an unnecessary cost to buy water from other places. we buy bottled water for drinking because water from the tap is not clean" (resident in Gojam berenda)

"we can't use electronic materials at all such as refrigerators, we can't charge our phones, we can't make enjera or cook without power" (a woman from Filance)

"we can't watch TV, we are always behind in accessing the latest information" (Enkulal Fabrica)

3.2.2 Effects on business establishments and institutions

In areas where road and railway construction projects are underway, there is an expected level of interruption in utility services and congested transportation system which results in a reduced movement of activities and consumers are less interested to go to such places. When such problems are exacerbated because of lack of coordination between road authorities and utility service providers, the negative impacts on businesses increase in terms of revenue generation and the amount of tax to be collected from those business establishments. Institutions such as hospitals, schools, and banks located in such project sites are also victims of the uncoordinated activities of utility and road authorities.

In this regard, business establishments located in both project sites were asked to explain the changes in their businesses after the project executions started with regards to profit and number of customers. Institutions were also approached with similar questions in terms of the number of their service users such as students and patients as well as the changes in the level of their revenues generated. As can be seen from the table 5 below, in both project sites, both profit/revenue and the number of customers/service users has significantly decreased and is still decreasing according to the respondents. The respondents claimed that this is due to the frequent service interruptions and the delays in fixing the problems. Furthermore, businesses have been affected by the disintegrated activities of road and utility authorities and have faced property damages, time and data loss, machinery damage, lower productivity and some even bankruptcy.

Table 5: Profit (revenue) and the number of customers (service users) after the construction works

Responses	**Atikilttera –Autobis-tera LRT project**		**Wingate-Enkulal Fabrica road project**	
	Customers/service users	Profit/revenue	Customers/ service users	Profit/revenue
Increasing	-	-	-	-
Decreasing	83%	79%	86%	85%
No change	11%	12%	3%	3%
Can't judge	6%	9%	11%	12%

Below are selected responses from business establishments regarding the various problems their businesses are facing due to the frequent service interruptions.

"our customers are going away because we can't serve them with enough water" (a cafeteria around Autobis-tera)

"we are incurring an unnecessary cost for generators" (Gas station, Pastuer)

"we have to taste materials before we sell them, but we can't do that because of the frequent power interruptions" (electronics shop around Gojam berenda)

"we can't operate machines, computers or cameras without power" (photoshop around paulos)

"Can you imagine our job without power? We are bankrupted" (internet café around Medhanialem)

An owner of a fruit shop located in the road construction project site shared his experience because of the poor coordination of utility and road authorities the impacts on his business.

"I feel helpless with the situation am facing because of this project. While excavating, they hit a big sewer line right in front of my shop and as you can see, there is a hole filled with sewer waste and no one is doing anything about it. No one would like to pass by here let alone come to my shop to buy or eat fruits."

As can be seen from picture 1 below taken during data collection, a main sewer line was hit during excavation by contractors hired by Addis Ababa road authority. The contractors claim that they were not aware that a mainline existed while experts from AAWSA argue the road authority should contact them before starting any kind of road contraction projects. The fruit shop is now at the mercy of the cooperation between AAWSA and AACRA to repair the damages which could take months.

Picture 1: Photos taken around filance Medhanialem, (April, 2015)

Similarly, institutions located in the two project sites were approached to explain the problems they faced due to the frequent service interruptions. Below are sample responses from a secondary school, a hospital, and a bank.

"we can't duplicate exams without power, we are forced to postpone exam schedules, plasma services have been interrupted, extension (night) classes have been stopped due to power outages" (Addis Ketema Preparatory School)

"we are struggling to serve our customers efficiently without stable power and internet services. we are losing our customers and experiencing loss of data due to frequent network interruption" (Bank around Medhanialem)

"we can't use our laboratories and equipment without power, so patients are forced to wait long for results and we are incurring additional fuel costs for generators" (Pawlos Hospital)

3.2.3 Effects on the daily life and safety of residents

The most visible inconvenience created because of poor coordination among infrastructure development authorities is to pedestrians and residents of the city. Additional transport costs, time loss, physical injury, increased incidence of dust induced lung diseases, traffic jams, lack of transport services, environmental pollution, noise pollution, and safety hazards are among the problems mentioned by interviewed pedestrians. Safety of the workforce and residents must be an absolute priority for any construction project.

Such a project as road and light rail must commit to preventing injury to residents and workers because of construction activities. Although only construction personnel should be permitted to enter the working corridor, consideration needs to be given to those who may not understand the hazards posed by the construction activity such as children and the visually impaired. Field observations revealed that there are no signs or other measures taken by contractors to keep residents and pedestrians out of the construction corridor. Furthermore, electric and fiber cables, concrete and plastic pipes, wide ditches filled with sewer wastes are left everywhere completely unprotected.

The following picture (picture 2) was taken in Atikilttera to Autobis-tera LRT project site around Addis Ketema Preparatory School. The first picture shows a busted sewerage line and a ditch filled with liquid sewage while the second picture shows pedestrians trying to walk around a ditch filled with liquid sewage and surrounded by telecom and electric cables and wires posing physical and health hazards to the residents as well as pedestrians. *A random pedestrian from Autobis-tera said, "sewerage lines blow up every time and they stink so much we are sick all the time"*.

Picture 2: Photos taken at Autobis-tera next to Addis Ketema preparatory school (April, 2015)

Interview with experts from AACRA revealed that there are no appropriate measures undertaken to ensure the safety of people from accidents which may happen in the project sites including falling into trenches. The following picture (picture 3) shows heavy machinery operating while people are trying to move around within less than 50cm. This is how a woman from Gijam-berenda expressed her fears *"with the ditches and the heavy equipment operating, I get very scared to cross the road*".

Picture 3: Photos taken around Gojam Berenda (April, 2015)

Talking more about safety, there are open manholes more than 2Ms deep almost every 100ms of the side road in the Winget to Enkulal fabrika project site. These manholes are open and unprotected anyone could

fall let alone kids and the visually impaired. This is how a random pedestrian expressed his concerns about the open manholes and ditches; *"An old lady fell in one of the manholes and nearly died"*.

Picture 4: photo taken around Pasteur, (April, 2015)

There are ditches and pits everywhere left open and unprotected, filled with solid and liquid wastes and they are being sources for bad smells and home for bacteria.

Picture 5: Photo taken around Medhanialem (April, 2015)

Picture 6 below also substantiates the responses of community survey respondents and pedestrians regarding the safety of the environment. A water pipe was damaged in this specific location during construction and left unrepaired for about a month. It is common to see cars stuck and swamped, highly congested traffic especially during rush hours, very difficult for a pedestrian to cross the streets and almost impossible for people with disability. On top of that, public transports especially minibus taxis are forced to diverge route leading to increased transportation tariff, lack of access to transport services, higher fuel consumption, damages to cars, etc. Furthermore, there is an increased traffic load on neighborhood streets due to the complete closure of the main streets under construction which forced vehicles to use narrow streets inside residential areas as alternatives. This caused increased traffic load especially during rush hours limiting resident's movement especially children in the neighborhoods. Community survey respondents indicated that the streets are not safe for children as well as people with disabilities to move around like they used to.

Picture 6: Photo taken around Autobis-tera (April, 2015)

3.2.4 Effects on utility service providers and road authority

Utility and infrastructure service providers are also victims of the absence of coordination in infrastructure development works. They incur massive amounts of unnecessary costs due to lack of coordination and communication among themselves. Among the most prominent are repetition of works, delays in projects, accidents and injuries, decreased revenue due to service interruptions, property damages, customer dissatisfaction, and lower service quality. For instance, ACCRA has paid ETC a total of 15,086,371 birr for relocations in the two case project sites which were not foreseen during the planning phase.

Unplanned relocations and their related costs and inconveniences were emphasized by interviewed experts from utility service providers. Unplanned relocations cause additional (unnecessary) financial and human resource costs which could be invested in other productive projects. Relocations also cause damages to the property which are often difficult to quickly replace and the carrying capacity could be minimized. As explained by one of the experts from ETC, there are times, mainly during road construction works, where underground fiber cables will be installed overhead until construction is finished. This could cause so much effect on the properties as well as the quality of service provided.

"Underground cables are expected to serve 20 years, but if they are installed overhead, their service year will decrease by half which means they could only serve 10 years. Moreover, they will be exposed to the sun, rain, criminal activities and other physical accidents and their life will even be lower than 5 years. Hence our network lines are not serving the time they are expected to because of frequent unplanned relocations" (ETC)

It is difficult to provide quality services after relocations because the lines will not be in the same condition as they were before relocations. Frequent service interruptions and poor-quality services will also lead to lower revenue generated by the service providers and poor service delivery.

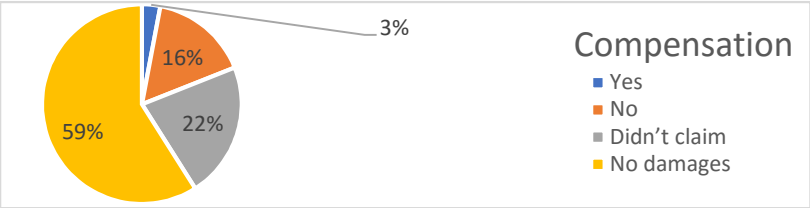
3.3 Compensations, Service cut announcements and Complaint handling

3.3.1 Compensations for property and other damages

Property damage was mentioned by community survey respondents as one of the problems caused by the frequent power interruptions. According to EEPCo, customers have the right to claim compensation for property damages caused by high power released by the corporation. Similarly, it was learned from experts of AACRA that residents can claim compensation for damages related with the construction of roads such as compensation for relocations, for other property damages caused during the construction, physical injuries, etc. Thus, community survey respondents were asked if they have received compensations for

property and other damages (if any) caused by these authorities. As illustrated in figure 1 below, out of the total responses, only 3% of them have received compensations while 16% haven't received anything. The rest 22% did not claim at all.

Figure 1: Compensation for damages



The researcher further asked those respondents who haven't claimed for any compensation to explain their reasons. The results are illustrated in figure 2 below.

Figure 2: Reasons for not claiming compensations

As can been seen from figure 2 above, of the total respondents (27) who have not claimed for compensations, 56% (15) of them indicated bureaucracy as their main reason for not claiming followed by 12% (3) who does not know the legal procedures for doing so leaving 8% (2) who didn't claim due to the weak enforcement of such cases. The rest 24% forwarded other reasons such as; "I fixed it myself", "it is time taking", etc. Below is a sample response from anonymous respondent working in a Bank explaining the response they got for their claims for compensation:

> *"Once, 8 computers got damaged due to high power release and electrical disturbances and we claimed compensations from EEPCo. The technicians came and looked at the computers and said the damages are not because of power so they will not compensate. This is what they do; they come and check for the sake of procedural formality but will give you the same answer every time"* (Bank located around Pasture)

3.3.2 Service cut announcements

Announcing service cuts earlier before the services are out is one of the responsibilities of service providers. Residents and customers of these services should be informed about service outages in advance so that they can take measures accordingly. In this regard, community survey respondents were asked if they receive announcements from the target service providers regarding service cuts. The responses from residents indicate that they do not receive notifications or warnings before service cuts. This is mainly because such interruptions are not planned by the service providers. Experts from the target service providers claimed that they always announce service cuts earlier under normal circumstances however if the service

interruptions are caused due to line damages or relocations, they rather focus on maintaining and fixing than announcing it. This is how an expert from ETC replied;

"We don't announce service cuts occurred due to damages earlier because we don't see it coming ourselves, but we try to fix it as soon as possible" (ETC)

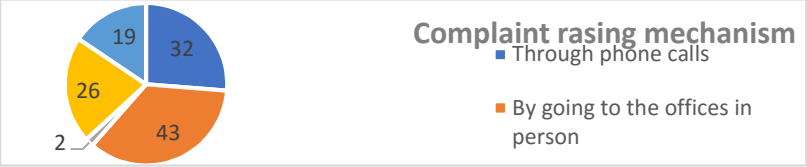
This implies that the majority of the service interruptions and cuts are unexpected and unplanned caused by accidents and damages that are unforeseen by service providers mainly due to lack of coordination among themselves during project executions.

3.3.3 Complaint raising and handling mechanism

Residents and customers of utility services are the main victims of the disintegrated activities of service providers and road construction authorities. As mentioned above, unannounced frequent service interruptions are one of the main problems residents near project sites had to face. Consequently, they have the right to issue their complaints and demand immediate responses from service providers. Given the frequency of service interruptions and related effects on service users, proper complaint handling system should be in place by service providers.

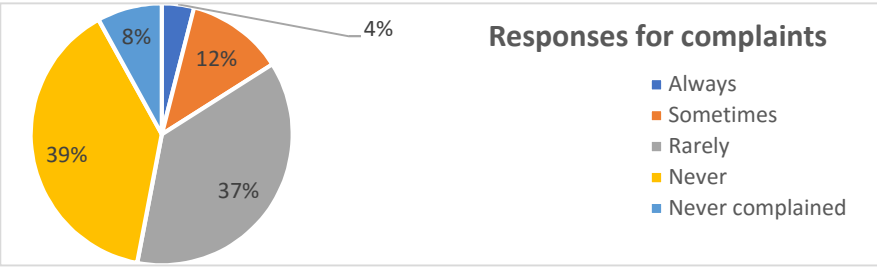
In this regard, community survey respondents were requested to indicate how they raise their complaints and evaluate the complaint handling system of service providers.

Figure 3: Complaint rasing mechanisms



The figure 3 above highlights how residents raise their complaints. Of the total responses, the most prominent was "by going to the offices in person" followed by "through phone calls" while who do both accounts 26 responses being the third common response. Only two respondents said they use mass media to complain. The rest have not complained at all. The next important question posed was how often they get immediate responses to their complaints. Figure 4 below presents the results from community survey respondents.

Figure 4: Responses to complaints



As can be noted from the figure, 39% of the respondents never got responses for their complaints while 37% said they rarely get responses which in general indicate a poor complaint handling mechanism. The

researcher further asked the respondents how content they are with the compliant handling mechanisms of service providers. It was found out that almost all the respondents are dissatisfied with complaint handling mechanisms of those institutions especially EEPCo. They further complained that they are forced to bribe the technicians and employees of the corporation to get immediate responses. Especially business establishments are suffering from such problems. An anonymous business owner said:

> *"Once, I called and reported to EEPCo because power was out for days and they sent a technician. I was not surprised when he asked me to give him some money and I did because I didn't have any other option. Unfortunately, I found out he didn't fix it after he was gone. I called to tell him that it was not fixed. what he said after that was surprising. They are doing business not serving the community"*

Out of the total respondents, 8% of them said they never complained. Sample reasons from respondents include;

> *"It's just a waste of time. Nobody listens to you"* (Cafteria around Enkulal fabrica)
>
> *"They don't care so they don't respond. Why should I bother for no response?"* (respondent from Habte Giorgis Dildey)
>
> *"I don't know what to do; I don't know how to complain. I just wait"* (a housewife from Medhanialem)

4. Conclusions

Proper coordination among road authorities and utility service providers in urban infrastructure development plays an important role in determining the quality of urban infrastructure service delivery and residents' quality of life. Sectoral coordination at different levels has an indispensable role in enhancing safety, eliminating unexpected conflicts with utilities, avoiding unnecessary utility relocations and damage to utilities and the subsequent untimely loss of utility service, the possibility to extend or maintain the service life of the roads, and mainly the livelihood of urban dwellers. However, urban infrastructure development in the developing world is often subjected to haphazard planning, disjointed implementation, and poor post-installation management. Usually, inadequate attention is given to the interdependencies between infrastructure systems, the urban functions to be served and to the sustainability of the facilities. This is also true for the Ethiopian urban centers which are characterized by, among others, poor inter-sectoral coordination among infrastructure service providers that has posed a great deal of inconveniences and challenges to residents of the city. It is in this context that this study investigated the various effects of poor sectoral coordination among infrastructure service providers of Addis Ababa aiming to show the magnitude of its consequences.

Based on the responses of community survey respondents, it was found out the quality and stability of utility services has significantly decreased since the beginning of the two project implementations which was manifested in the frequency of service interruptions and length of service outages. Due to this, households are suffering from lack of proper and sufficient access to water for drinking, cooking and cleaning at the same time frequent power service interruptions impairing their daily household course and making their lives difficult. Businesses and institutions located in the two project sites are losing customers, incurring additional cost for alternative sources of power and water services, lower revenue to the point of bankruptcy, poor service delivery, property damage, etc. Given the nature of the study areas as business centers of the city with high economic activities, these problems have a severe impact on the economic development of the city in terms of, but not limited to, lower revenue generation, lower revenue/tax

collection, reduced employment and employment opportunities. Residents are suffering from poor educational and health services from institutions such as schools and hospitals located in the study areas. The most visible effects of poor coordination among infrastructure sectors are on the safety and daily life of residents and pedestrians. Residents are forced to deal with additional transport costs, time loss, physical injury, increased incidence of dust induced lung diseases, traffic jams, lack of transport services, environmental pollution, noise pollution, and safety hazards are among the problems mentioned by interviewed pedestrians. Both utility service providers and the road authority have failed to ensure the safety of residents and their properties. Poor complaint handling and absence of prior service cut announcements by the infrastructure services add to the frustration of residents and service users. This has made service users vulnerable for abuse and manipulation by corrupt employees and technicians of the corporations who take bribes claiming they will fix problems.

The effects of poor coordination among the infrastructure sectors of Addis Ababa are severe to the point of leading businesses to bankruptcy, putting residents' lives in danger and causing long term negative psychological attitude towards infrastructure development projects which will have a long-term dominos effect on the economic, physical and social development of the city and the nation at large. This calls for a due concern and an urgent action from concerned authorities and corporations besides policymakers.

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