Contract Management Performance of Ethiopian Pharmaceuticals Supply Agency

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This is to certify that the thesis prepared by Yikeber Gebeyaw, entitled: Contract Management Performance of the Ethiopian Pharmaceuticals Supply Agency and submitted in partial fulfillment for the requirements for degree of Degree of Masters of Science (Health Supply Chain Management) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

Background: The government of Ethiopia spends more than 4.9 billion birr per annum for the procurement of pharmaceuticals. However, little is known how well performance is managed.

Objective: To assess contract management performance at Ethiopian Pharmaceutical Supply Agency

Methods: Descriptive study design using quantitative and qualitative data collection techniques was employed. 159 declared purchase orders (from July 1, 2017 to June 30, 2018) were taken using simple random sampling method after listing chronologically by time of purchase orders issuing. Six informants were selected with purposive sampling for interview. Quantitative data were analyzed and summarized in descriptive statistics using Microsoft excel for percentage analysis and Statistical package for Social Science version 20.0 for suppliers' lead time analysis. Qualitative data were analyzed by classifying factors affecting contract management performances. Results were presented in tables, figures and narratives.

Results: Asian (64.64%) and African (24%) manufacturers were found to be the top suppliers of agency. Domestic manufacturers' market share was 24% of which Addis Pharmaceuticals Factory (68%) was the top supplier of agency. Average foreign and domestic suppliers took 98 and 186 days to deliver products. Suppliers' fill rates were 97.6%. Perceived causes of the agency strong performances were the implementation of public procurement agency guideline, restructuring of contract management internal process, the start of monitoring and evaluation, commitments of employees, collaboration with relevant stakeholders. The main factors perceived to weak performance were delay in contract management activities, weak use of technology, and weak monitoring and evaluation practices.

Conclusion and Recommendation: Indian and Chinese manufacturers were top foreign suppliers. Almost all suppliers delivered ordered medicines with the required amount. However, it took longer lead time than agreed. Workflow reform, using of public procurement agency guideline, protracted operations, competency gaps, shortage of hard currencies and weak system automation and integration were factors affecting contract performances.

Working with selected suppliers carefully, automating and integrating contract activities, implementing performance improvement tools like Plan-Do-Check-Act cycles, and capacitating the staffs should be done to improve contract management performance of the agency.

Key terms: suppliers' compliances, contract performance, and contract terms and conditions

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Abbreviations and Acronyms

APF	Addis Pharmaceuticals Factory
CA	Contract Agreement
CAD	Cash against Document
CPT	Carriage Paid To
EBY	Ethiopian Budget Year
EPHARM	Ethiopian Pharmaceuticals Manufacturing Share Company
EPSA	Ethiopian Pharmaceuticals Supply Agency
ESLMTSE	Ethiopian Shipping Lines, Maritime and Transit Services Enterprise
EU	European Union
FCA	Free Carrier
FMHACA	Food, Medicines and Healthcare Administration and Control Authority
FMOH	Federal Ministry of Health
FOB	Free on Board
GDP	Gross Domestic Product
GF	Global Fund
GRNF	Goods Receiving Notification Form
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IACCA	International Association for Contract and Commercial Management
ICB	International Competitive Bidding
INCOTERMs	International Commercial Terms
L/C	Letter of Credit
NGOs	Non-Governmental Organizations
PDCA	Plan-Do-Check- Act
PFSA	Pharmaceuticals Fund and Supply Agency
PHARMID	Pharmaceutical Importer and Distributor
PLMP	Pharmaceutical Logistics Master Plan
POs	Purchase Orders
PP	Public Procurement
PPA	Public Procurement Authority

RDF	Revolving Drug Fund
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Sciences
USAID	United States Agency for International Development
USD	United States Dollar
WTO	World Trade Organization

1. Background

1.1 Introduction

Procurement is the process of acquiring goods, works or services through purchasing, manufacturing or donation. It is also the process of hiring or obtaining services by contractual means. When this process is performed by a public body using public funds, it is known as public procurement (Van Weele, 2006).

Public procurement is essential for reduction of poverty and delivery of healthcare services, infrastructure expansion, educational development and other services. It supports government functions in achieving political, economic and social objectives within the country (WTO, 2003).

Globally, 18.4% of the World Gross Domestic Product (GDP) is spent on public procurement. In developing countries, the percentage is higher, ranging from 40% in Malawi to 70% in Uganda (Migosi et al., 2013).

Similarly, in Ethiopia, more than 60% of the total public expenditure is spent on public goods; this implies the country has very high public expenditure compared to global average of 12-20% (Tesfahun, 2011).

Procurement of pharmaceuticals is the largest components of health spending next to the staff salary. It is estimated to be from 14% in Europe (European Commission, 2008) to 50% in developing countries (Vian, 2008).

In Ethiopia, the public pharmaceutical procurement capacity has grown from 524 million birr in 2007/08 to 10.1 billion birr in 2017/18. Of the total procurement made, domestic procurement accounts for 0.5 billion (4.9%) and foreign procurement accounts 9.6 billion birr (95.1%) (PFSA, 2018). Effective and efficient management of such huge valued procurement is a concern for a public procurement personnel as well as procurement entity (PPA, 2011).

Even though, size of the annual procurement and distribution of pharmaceuticals is growing significantly, the gaps in procurement management such as procurement visibility and contract management specifically contract administration, suppliers' compliance to contract terms and

conditions, implication of contract management practices on cost and availability of products were not measured and explored (PFSA, 2018).

1.2 Statement of the Problem

Contract management performance is essential to ensure the objectives of the procurement practices are achieved, and all contractual responsibilities as well as activities are accomplished efficiently by contracting entities (PPA, 2011).

Currently, EPSA procures health commodities worth of 10.1 billion which (0.5%) of the country's GDP (World Bank, 2018). This huge amount of money has to be spent on cost effective manner to provide reliable services at an agreed standard and price. However, this seems not happening at the agency.

For instance, in 2016, Ethiopia has thrown away 69 million condoms that worth £1.38 million due to poor quality (Fana, 2016). In the same year, domestic pharmaceuticals manufactures delivered only 63% of the total orders they received from EPSA. This even decreased to 58.9% in 2017/18 (PFSA, 2018).

Delayed delivery of products from domestic and international suppliers, irregularity of fill rates, frequent stock outs of essential medicines, poor satisfaction of customers, and lack of clear systems of recognition or punishment based on the performance of the suppliers with their commitments made during contract agreements are the common challenges of the agency experienced to perform based on its mission (PFSA, 2016). But, these gaps were not fully investigated and the dimensions of the performances were not measured as well as determined in scientific ways.

Even if the performance of contract management activities greatly affect medicines supply and resources management with respect to medicines delivery time, fill rate, contract execution costs, and overall satisfactions of customers.

The gap of contract management is also reflected by unaffordability of medicines, unavailability of medicines and irrational use of medicines by customers which implies the desired devotion is not given with respect to investigating contract management problems and taking appropriate recommendations for interventions.

Thus, this study was conducted to assess contract management performance of EPSA with respect to supplier's compliances with terms and conditions of the contract. It is one of key factors that affect contract achievement. It was also to explore the main factors of contract management performance.

1.3 Delimitation of the Study

The focus of this study was to assess contract management performance of EPSA. EPSA has 19 hubs within 180 to 300 kilo meters radius throughout the country organized into Northern, North Western, Western, Southern, Eastern and Central clusters (PFSA, 2018). Of these only EPSA head office does the procurement and manages contract from the international sources. This made the study to be limited at head office only. Also, the agency is mandated to procure pharmaceuticals (medicines), medical equipment, laboratory chemicals and reagents as well as medical supplies; however, this study is limited to contract management performance with respect to pharmaceuticals procurement only which is managed by EPSA head office due to time and financial constraints.

Contract management includes suppliers' compliance and buyer's compliance to terms and conditions of contracts, and other factors that are not detected during contract signing. In this study, I assessed to suppliers' compliance to terms and conditions of contracts specifically fill rate, lead time, and sources of supply, success and deterring factors of contract accomplishment.

2. Literature Review

2.1 Overview of Concepts

2.1.1 Contract Management and Contract Compliance

Contract management is a process that clarification of contract management and is how contract actualization is managed. Contracting process includes categorizing and administration contract that are essential during the entire contracting process in order to secure quality, efficiency and effectiveness (Angelov, 2006).

Pharmaceuticals procurement contract is complex process as it needs thorough management of storage condition, transportation modality and condition, delivery time. It takes a long period of time, sometimes a year and has many processes (Aberdeen Group, 2005: Costa et al, 2009).

Contract compliance is the performance of conforming to contract agreements between buyer and suppliers that embraces liabilities for all reasons of non-compliance. Contract compliance may be internal or external. Internal compliance can be taken as either conforming to the rules in the agreement by purchasing organization such as payment terms and minimum order requirements or purchasing with agreement only (Aberdeen Group, 2006). Market place, political, legal and socioeconomic environments are external influences that have impact on contract compliance (Enock, 2015).

Even though, the compliance varies from contract to contract, buyers to buyers, and suppliers to supplies; the compliances of suppliers and buyers to contract commitments have effect on contract performance (Mohammed, 2014).

The contract between the supplier and buyer governs the relationships between contracting parties. The most efficient contract includes the right mix of behavioral and outcome-based motivations to encourage the supplier to act in the interests of the buyer (Matiwos, 2013).

2.1.2 Legal Regulations and Contract Environment

Contract deliverables as quantity, quality, and time of delivery, payment processing and monitoring to update to account for change orders during the execution of the contract, and key

performance indicators shall be clearly stated in contracts and managed accordingly during contract execution (World Bank, 2017).

According to contracts management principles and regulations of University of KWAZULU-NATAL (2013) suppliers shall be treated with thorough strategies by buyer to monitor performance and sharing information about pricing, time of delivery and service satisfaction. Acceptance of products that are defective on arrival, incorrect invoices, failure under warranty and mean time of deliveries for quantity and qualities of products will be included during performance monitoring.

As noted by public procurement agency of Ethiopia, contract is good if it satisfies the benefits of the organization. Specifically, it should entail what the organization wants to obtain, avoid and gives options if things go in the wrong way, it should be clear, it should be void of wrong commitments and contain means for dispute resolution and termination (PPA, 2011).

Payment processing of the products delivered varied for domestic and foreign sourced products. Cash against document, letter of credit and advance payment method are commonly used by public procurement bodies. The payment periods are scheduled as first, second and third L/C periods that implies one L/C period covers ninety days. In case of domestic sourced products with advance payment, the cost of procurement is done based on the amount of product delivered and the value of paid in advance. Cash on delivery method of payment is also used for products delivered 100% of the ordered quantity and the payment is done within forty five days after delivery of products based on contract agreement. During advance payment, suppliers are required to submit advance payment security in an amount equal to the advance payment they receive in the form of a certified cheque or unconditional bank guarantee at their options from a reputable bank together with their request as per the contract (MoFED, 2010).

By the end of 2025, Ethiopia plans to raise the value of market that will be held by local pharmaceutical and medical supplies manufacturers to 50% (FMOH and MOI, 2015).

2.1.3 Terms and Conditions of Good Contracts

Procurement planning and scheduling, developing specifications, awarding decisions, and disclosure and contract management need be stated during contractual agreements. During contracting, contract terms, saying that costs must be in line with the market and the budget, and that contract terms should be fair and reasonable (World Bank, 2012).

Types of products, prices, security and access to the purchaser's premises, delivery, property and risk, damage in transit, inspection, rejection and guarantee, labeling and packaging, corrupt gifts or payments, intellectual property rights, health and safety, indemnity and insurance, discrimination, blacklisting, data protection, termination, recovery of sums due, compliance with the law, audit, dispute resolution, governing law, and force majeure are conditions and terms considered during contracting (NAC, 2018).

According to South African public procurement experiences, the tender process from the entire contract and terms and conditions are established and obtained from the invitation to tender, the submitted letter and the acceptance letter. The parties of contract, who are responsible for what, who have the rights for what should be clearly defined in the contract for legal binding as well as health relationship within the business making practices (Alida, 2016).

Contract commitment should include contracting parties, scope of contract, general and specific conditions i.e. penalty issues, methods of payment, invoicing and taxes, procedures for purchase ordering, guarantees, termination of contracts, force majeure, exculpatory, hold harmless, and waiver clauses, limitation of liability, trademark and advertising, code of conduct, notices, compliance management, modification of agreement and originality of agreement (PPA, 2011).

2.2 Theoretical Framework

According to World Bank contract management principles (2017), the Borrowers' contract management approach and effort should link to the degree of vitality of the procurement to the venture financed by the World Bank and/or others. However, contract management approach must be based on origin of supplier and volume, risk and value of the contract.

Globally, almost 2 billion people have no regular access to essential medicines. In some Africa and Asia countries, more than half of the population has no regular access (WHO, 2007). But, improving access to medicines could potentially save 10 million lives yearly (Dickens, 2011).

Pharmaceuticals procurement is not simply the act of buying rather it encompasses a complex range of functions, business, information technology, safety and risk management, and legal systems designed to address procuring bodies' requirements (Ombaka, 2009).

Procurement bodies need to consider the use of balanced scorecard that involves both quantitative and qualitative contract performance measures. It is a modern technique to monitor, track, visualize and rate the supplier performance (Croydon, 2013).

Prompt management of contracts is crucial to make all commitments and activities are completed properly by supplier and buyer. There should be routine monitoring of current contract so that swift corrective measures can be taken when problems arise or preventive action taken when problems are foreseen (PPA, 2011).

2.3 Empirical Review

2.3.1 Global and Local Reviews

While conducting any business operation through buying and selling interaction, breaches might be occurred as natural or artificial problems affect supplier and buyer relationships. Those braches must be managed in appropriate way for healthy business operations. The common solutions for breach of contract mainly focus on damages, particular performance, contract cancelation, penalties and amendment (Roythornes Solicitors, 2012).

Dispute is natural in business, but should be managed wisely for success of the business to change dispute into opportunities for improvement (MHSW, 2008).

Information exchange among stakeholders in profitable and nonprofitable organizations is crucial activity to transfer messages for the required partners for cooperative interactions. It is also the power for successful performance accomplishment of any business processing and transactions (MHSW, 2008).

In Ethiopia, supply performance for domestic manufactures in 2016/17 was 63% but decreased to 58.9% in 2017/18 from total annual procurement contracts committed with public pharmaceuticals procurement agency. This supply performance reduction indicates that there is a gap in contract management as the supply performances come after contract awarding of annual procurement quantities which is the basic activity of contract management. From the total 2017/18 purchased contracts, 62% was awarded through international open bidding, 33% was awarded through direct and the rest was through limited bidding (PFSA, 2018).

2.3.2 Contract Management Performance

In State of Queensland, a key issue in contract management is the monitoring of the supplier's performance to ensure standards are met in accordance with the contract. The extent of performance monitoring applied to a supplier should be determined by the level of risk involved in the procurement and the nature of the goods or services provided. Good monitoring of contractor performance progressively anticipates, identifies and facilitates correction of shortcomings (State of Queensland, 2018).

The performance of suppliers depends significantly with conformity to the order, delivery dates, storage conditions as well as addressing the identified problems (MHSW, 2008).

Contract lifecycle management in compliance to regulatory requirements, performance visibility, understanding of terms and conditions and monitoring supplier compliance to negotiated terms and conditions are required during contract execution (Aberdeen Group, 2007).

According to the practice in Kenya, contract monitoring is a valuable step in public procurement as it ensures that services or products delivery is undertaken as per the contractual terms and conditions (Kenya, 2012).

Pharmaceutical procurements can be monitored and evaluated using percentage by value of pharmaceuticals purchased through competitive tender, from local manufacturers, average lead time for sample of orders, average time period for payment for sample of orders (MSH, 2012).

In EPSA, periodic review of contract performance is acknowledged by minimum standards. The agreements have verified to give clear focus to commitments and accountability, great stability

and response to critical activities, to verify responsiveness including quick response to customer service requests, or resolving weaknesses by due dates as well as minimizing unplanned services. The procurement lead time was 150 days and suppliers lead time was 90 days (PFSA, 2017: PFSA, 2018). Average procurement lead time was 240 days and domestic manufacturers' market share was 25% before 2015 (FMOH, 2015).

2.3.3 Advantage of Contract Performance Management

About 77% of IACCM member businesses indicated that contractual delays or cost overruns represent a regular source of loss; a further 53% underlined claim and dispute settlements, with 26% experiencing losses and delays from contract termination and 26% firms face returns leakage from insolvency (IACCM, 2012). Thus, contract management performance has advantage in reduction of liquidation damage, trade disputes, extended products deliveries and increment of procurement costs.

It is valuable that contract management is successful if: delivery continues to be acceptable by both parties and the expected business benefits, supplier is cooperative and responsive, supplier appreciates its commitments, no disputes, objective variation over changes and issues arising and achievement of goal with minimal resources (Singleton and Burnett, 1997).

Proper management of contract and measuring performance has an advantage to reduce inventories in supply chain by reducing lead time. This is used in reduction of the replenishment lead time from suppliers and its variability which in turn reduce inventories for cycle service levels above 50% (Sunil Chopra, 2004).

Good contract management can reduces the cost of procurement processes. Study has shown that, on average, 6% value of contract per annum is invested by the client in managing domestic contracts and 12% of international costs were removed through consistent contract management. Thorough contract management and performance measurement can reduce up 40% of complaints due to weak management of contract (Cullen et al, 2014).

Contract management performance has long term effect on reduction of procurement cost, customer satisfaction and reduction of inventory holding costs of a firm. Just-in-time delivery of products, reduction of sources, evaluating suppliers based on quality and delivery performance,

establishing long-term contracts with suppliers like framework contracts, and avoiding non-value adding process like elimination of paperwork, and demand integration includes increased accessibility of demand information to facilitate greater responsiveness to the changing needs and efficient delivery, coordinated planning, and better logistics communication are some of the activities that make contract managements to be valuable (Frohlich and Westbrook, 2002).

2.3.4 Factors Affecting Contract Performance

Buyer-supplier trust has multiple impacts on supplier performance transactions between organizations, and reduces transaction costs. Buyers and suppliers relationships lead costly business transactions if these are done in win-lose relations, but cost saving and profitable if these are guided by collaborative relations (Todd and John, 1996).

The government concerns and choices of investment in case of limited foreign currencies are important to improve the governance and foreign exchange utilization performance (Gulati and Nickerson, 2008).

According to the study reported by China, delivery of essential medicines procurement is affected by the procurement volume and procurement price. The procurement volume has inspired the suppliers to deliver timely and lower transportation as well as demurrage costs. Small procurement price has also negative implication to deliver the products according to the contractual agreements (Yuqing et al., 2016).

According to Joan and Elizabeth (2017) information technology has influences on contract management practices. The technology that organization deploys and utilization can affect the business making positively or negatively. The positive effect might lead to good customers' satisfaction, responsive for changes in business and profitable in the market. But, it might create areas for weak market completion, dissatisfaction of customers, ultimately costly dealing.

Delay of delivery, increase of defects, and delivery of low quality goods or delivery not at all are the causes for poor procurement performance that most frequently faced in business transaction specially in case of multiple supplying products or services (Gordon and Murray, 2009).

Budget allocations for contracts and contract activity timelines are the factors that affect the contract performance. Proper allocation of the required resources and appropriate planning of time to perform contract activities are the factors that make contract performances are as the standard set during contractual agreements. Contract management influences procurement performance to a great extent that entails planning, organizing, controlling and directing payments affects procurement performance (Japheth, 2013).

Staff training and employees' motivation are an important factor in the management of public contracts. Staffs training based on the areas of practices to perform their works, and the motivation package to retain the trained manpower as well as feedback based on the performance they achieved in the contact management activities are essential for contract performances improvements (Waigwa and Njeru, 2016).

Payment delay, unrealistic delivery duration, low cash flow, items' cost fluctuation, contract awarding criteria that favors lowest bidder, inadequate experience in line of business and lack of contract management experience are factors that contribute for weak performances of contract accomplishments besides the force of majeure like destructions of the organization by natures or nurtures, distortion of the collaborative relationships (Olusegun and Bamidele, 2018).

Cost increment, contract variation and unrealistic products delivery affect contract achievements. Cost escalations, variations, and delivery of counterfeit products are often due to poor contract management performance that contracts may be expanded or varied by not more than 20% of the original value of the contract and for all other goods and services by not more than 15% (National Treasury, 2015a:3).

Method of procurement to access products, training, motivation, procurement negotiation skills, creativity, interpersonal and analytical skills and deployment of staff based on their skills and resource allocation are factors that affect procurement performance (Senait et al, 2016: Baynesagn, 2017).

Delay in delivery of products lead to penalty. The delay in delivering the products ordered lead to penalizing the suppliers. The penalty is 2% of the full contractual transaction price for each new week of delay and penalty (Skanska, 2018: PPA, 2011).

2.4 Research Gaps

Regardless of great interest from experts, academicians and researchers, the role of contract management performance at EPSA has not been addressed. Most of studies at EPSA were focused on pharmaceutical distribution and storage system, logistic management information system, costing and financial management system, assessment of human resources retention and satisfaction, warehousing and warehouse management system and employees training and development practices rather than contract management performance that has great impact for medicines availability, resources management and improving customers' satisfactions. In addition, the studies are efficiently achievable in developing countries where accessing technologies are not high, and level of bureaucracy is high for practicing to ensure economic use of resources and to achieve the missions of the organizations.

2.5 Conceptual Framework

Figure 1: Conceptual framework of contract management performance (Researcher's idea, 2019)

As shown in the figure above (figure 1), the explanatory and outcome variables are summarized in the table (table 1) below. The outcome variables were expressed based on explanatory variables. But, the relations among explanatory variables were not considered in this study.

Fill rate is the proportion of customer orders that a company's stock at hand can satisfy without back orders. Back orders are orders for a product which is temporarily out of stock. Fill rate is the fraction of consumer demand that current stocks can meet without losing sales. We can also express this figure as a percentage of total orders. A lead time is the latency between the initiation and completion of a process. It is the time from the moment the customer places an order (the moment the supplier learns of the requirement) to the moment it is ready for delivery.

Sources information on certain potential suppliers can be collated from previous internal recorded performance, annual reports, catalogue library, publications, trade directories, exhibitions, other buyers, sourcing agents, distributors, embassies, trade consultants, existing suppliers, customers and colleagues. Success factors are is any knowledge, skill, trait, motive, attitude, value or other organizational characteristic that is essential to perform the job or role and that differentiates solid from superior performance. But, deterring factor are factors that discourage, curb, restraint, impede, hinder and defensive measures of contract management performance.

Table 1: Explanatory and outcome variables to assess contract management performance

Explanatory Variables	Outcome Variables
Time of product delivery	Supplier's lead time
Quantity of delivered product	Supplier's fill rate
Origin of suppliers	Sources of delivered product
Success factors of contract performance	Identified success factors
Hindering factors of contract performance	Identified hindering factors

3. Research Objectives

3.1 General objective

To assess contract management performance of public pharmaceuticals procurement at EPSA

3.2 Specific Objectives

I. To assess suppliers' compliance with the terms and conditions of contracts

II. To explore factors affecting contract management performances at EPSA

4. Research Methods

4.1 Study Setting

The study was carried out at EPSA head office which is located in Addis Ababa in front of St. Paul's Millennium Medical College Hospital. It was established in 2007 by Proclamation number 553/2007 as per national pharmaceutical logistics master plan (PLMP). The agency raised the number of its branches from 11 when it was functioning as PHARMID before 2007 to 19 hubs. EPSA head office is organized in to 19 directorates, out of which 7 are in charge of pharmaceuticals supply chain management: quantification and market shaping, capacity building and operation research, distribution and fleet management, contract management, quality control and assurance, tender management, and warehouse and inventory management.

Medical doctors, pharmacy professionals, health officers, medical laboratory professionals, accounting and finance professionals and experts, economics graduates, management graduates, biomedical engineers and other support staffs are the mix of staffs hired and deployed by the agency to achieve its mission and goals.

EPSA is working to ensure the availability, accessibility, and affordability of essential medicines with appropriate quality, safety, and efficacy. It uses innovative programs such as Integrated Pharmaceutical Logistics System (IPLS) to create a strong, unified, healthcare supply chain in the country, drug and therapeutic committee (DTC) and clinical pharmacy services in collaboration with governmental and development partners.

The procurement capacity of the agency was increased by more than tenfold from 524 million birr to 10.1 billion birr within 11 years from 2007/08 to 2017/18. The domestic procurement of the agency was increased from 550 million birr to 822 million birr within 8 years 2010/11 to 2017/18. Currently, the number of health commodities procured and distributed by the agency is more than 1,371 line items of both health program commodities (101) and budget commodities (1,270) from domestic and international manufacturers.

The distribution of the agency was increased from 642 million birr within 2007/08 to 16.2 billion birr within 2017/18. Currently; the storage capacity of the agency is increased from 16,760 meter cubed to 531,620 meter cubed. The agency has also managed to raise the number of vehicles that

transport health commodities to branches and health facilities from 21 in 2008 to more than 200 in 2018 (PFSA, 2018).

4.2 Study Design and Period

Descriptive research design with qualitative and quantitative data collection techniques was used to assess contract management performance at EPSA.

This study was covered the procurement data from July first, 2017 to June end, 2018(2010 EBY-Ethiopian Budget Year). Data were collected from April, 2019 to May, 2019.

4.3 Population of the Study

4.3.1 Source Population and Data Sources

The source populations of this study were all contract documents in the Ethiopian Pharmaceuticals Supply Agency (EPSA).

All pharmaceuticals' procurement documents that were archived manually and electronically from July, 1/ 2017 to June, 30/ 2018(July, 1/2009 to June, 30/2010 E.C) were used as data sources. Employees working in procurement were also data sources.

4.3.2 Study Participants and Documents

For the qualitative part, employees who were directly involved in contract management activities were included.

For the quantitative part, all declared purchase orders (POs) of medicines, contract agreements, shipment documents and delivery invoices were reviewed. Declared procurement documents are archived procurement documents that the delivery of medicines is finalized and the contract issues with suppliers are closed.

4.4 Inclusion and Exclusion Criteria

The researcher used inclusion criteria to ascertain potential participants or data sources for inclusion and exclusion criteria to exclude them from inclusion in the study.

All employees who were directly involved in the pharmaceuticals procurement contract management activities during data collection process were included in the study.

Declared purchase orders (POs) of delivered medicines, contract agreements, shipment documents and delivery invoices within the study period (July, 1/ 2017 to June, 30/ 2018) were used for assessment of contract management performance.

Employees who were not available at the time of data collection and employees who did not manage any contract activities were excluded in the study.

Unreadable, incomplete and undeclared documents and procurement documents produced jointly by EPSA and other stakeholders were not included. The reason for not including documents produced jointly by EPSA and stakeholders is that since it was assumed it does not show the real performance of the agency. Medical supplies, medical equipment, and laboratory chemicals and reagents were not considered as the study was limited to medicines. Procurements done from domestic manufacturers and managed by branches were excluded since records are not kept at central EPSA and the management of domestic medicines is also affected by health facilities besides to EPSA's branches.

4.5 Sample Size Determination

The target populations of this study were both the employees and procurement documents of Ethiopian Pharmaceuticals Supply Agency.

4.5.1 For Quantitative Data

To calculate sample size of procurement documents (n) with 5% sampling error (e), 95% confidence interval (±1.96), proportion (p) = 50% and total documents included (N) is

$$n = \frac{N}{1 + N(e)^2}$$ (Yamane, 1967).

Here: $n = 263/ [1 + 263 (0.05)^2]$, $n = 158.67 \approx \underline{159}$

Therefore, of documents that fulfilled the inclusion criteria (N=263), 159 procurement documents were taken and observed.

4.5.2 For Qualitative Data

Purposively six individuals who fulfill the inclusion criteria were selected from 24 employees to participate in interview to address objective two and complementing quantitative data.

4.6 Sampling Techniques

Since the procurement documents used in the study are standardized, simple random sampling method was used to pick 159 declared procurement documents i.e. POs with contract agreements, shipment documents and delivery invoices. After sorting the purchase orders (POs) chronologically using time of issuing dates, lottery method was used to select 159 POs from the total 263 POs with contract agreements, shipment documents and delivery invoices in study period.

Purposive sampling method was used to interview contract management directorate's employees. The technique used to select employees for interview was by getting one key staff from the directorate, then gone to the next informant step by step to get the required number of samples.

4.7 Data Collection Instruments, Methods and Procedures

Data for this study were obtained from primary and secondary data sources. Primary data were obtained by interviewing interviewees including contract management senior professionals to explore factors associated with performances of pharmaceuticals contracts management.
Secondary sources were declared purchase orders (POs) of delivered medicines with contract agreements, shipment documents and delivery invoices to assess suppliers' compliance as per the agreed terms and conditions in the contracts.

For the document review, purchase orders (POs) were first taken out from electronic and manual archives. Then, checked whether they meet the inclusion criteria or not. Those, delivery invoices and contract agreements which fulfilled the inclusion criteria were taken out from the archived file based on POs. Following this, the extent of compliance among POs, contract agreements and delivery invoices were checked. Data were collected using the data abstraction format that was developed by investigator, and modified by advisors and the finding of pretest (annex. I).
After the data abstraction, employees were interviewed using an interview guiding questions that incorporated only open ended questions developed by investigator, and modified by advisors and the finding of pretest (annex. II).

For the interview, first, the employees and appropriate free office for interview were chosen within the agency, then, the objective of interview was explained for them. Following this, their

consents were asked and obtained verbally. Then, the interview was conducted with Amharic language for six days in May-2019, and audiotaped and noted manually. Interviewing was ended when the similar responses came from informants that were saturations of data collection. The data were organized for analysis.

4.8 Data Quality Assurance

To ensure validity and consistency of data collection instruments, multiple researchers for quantitative data, and presenting the finding to the respondents for qualitative data after pretesting were done. After these procedures, correction and adjustments were made accordingly:

Pretest was done to ensure that the questions were clearly articulated and that the response options were relevant, comprehensive, and mutually exclusive as well as not just in their own estimation, but from the point of view of the respondents as well.

Pretesting of data abstraction format was also done by taking five declared documents of 2016/2017 (2009 EBY) by random checking of purchase orders, delivery invoices, contract agreements, shipment documents for coherence availability of information. Based on the findings, data abstraction format was adjusted by including variables examples types of currency, funding sources, shipping documents completeness and custom issues processing and declaration, and by excluding the unnecessary variables examples storage conditions, shelf life, delivery places and responsible body that communicate delivery status of products.

Pretesting the interview guiding questions was done by interviewing the previous procurement management directorate's staffs of the agency who are now tender management directorate's staffs by reorganization of the agency directorates by business process reengineering in 2018; contract management directorate's staffs (one partner and one senior officer) in order to enrich guiding questions to make consistent as well as valid for data collection process of the study.

Both the quantitative and quantitative data were collected by principal investigator (PI) and two trained data collectors under close supervision of PI to maintain the validity and consistency of data, and to solve data collection problems onsite.

After data collection from documents and interviewees, data organization was done to make ready for analysis.

4.9 Operational Definition of Terms

Contract agreement is the approval of the contract by buyer and supplier delegates with their signature to bind buyers and supplier in order to fulfill the requirements based on terms and conditions agreed.

Contract lead time is the time between contract signing and product arrival notification by the agency warehouses.

Contract management is the process of managing contract creation, execution, and analysis to maximize operational and financial performance at EPSA.

Contract management performance is the level of achievement of the terms and conditions of contracts in contract execution.

Delivery invoices are financial documents that are used for receiving medicines from suppliers.

Domestic medicines are medicines produced within the country and supplied to the agency.

Foreign medicines are medicines that are not produced in Ethiopia, but supplied to the EPSA.

Medicines means substance or mixture of substances used in human treatments in the form of injectable preparations, tablets, capsules, mineral adjustment fluids, ointments, creams, syrups, powder of suspension or powder for injections. Thus, in this study pharmaceuticals mean medicines.

Methods of payment are tools like letter of credit that are used to facilitate financial transactions during buying and selling processes.

Purchase orders are procurement documents that are issued and signed after approval of procurement tender awarding to suppliers; it is the source document for contract management.

Sources of medicines are manufacturer's or supplier's countries that the agency procures medicines.

Stakeholders are partners that support operations processed by the agency

Supplier lead time is the time differences between methods of payment opening and product arrival notification by the agency warehouses**.**

4.10 Data Processing, Analysis and Presentations

4.10.1 For Quantitative Data

After completion of quantitative data collection: coding (example; length of time from contract agreement to methods of payment opening coded as CAPO, length of time from methods of payment opening to product delivery coded as POPD, etc), editing (example: the unit differences of the one line item was changed to similar unit, the quantity change due to change of unit was edited and summed, dating calendar differences were changed into Gregorian Calendar, etc), data cleaning and entry were done by Microsoft excel and exported to SPSS software, version 20.0 for processing and analysis. Descriptive statistics like frequency, percentage and mean were used. Frequencies and percentages were analyzed based on values of procured medicines.

Supplier's fill rate was calculated based on the compliance level of ordered quantity for procurement, the formula described by the agency to assess fill rate was used. The formula is:

$$\text{Percentage of delivered item} = \frac{\text{Received Quantity}}{\text{Quantity Ordered}} * 100\% \quad \text{(PSA, 2019)}$$

The observed results were descriptively presented and finally, the results were displayed using graphs and tables.

4.10.2 For Qualitative Data

The audiotaped and manually recorded qualitative data were translated into English, transcribed and analyzed. The main themes were identified and categorized based on operational integration of the organization. Factors affecting contract management performance was the main theme. It had two main features that were success and hindering factors. The success factors were broken-down into internal and external influences, but hindering factors were broken-down into delayed contract management practices, technology factors, and monitoring and evaluation practices. The main and sub- themes were identified and organized by the consultation of advisors. The responses raised from the interviews were categorized under selected points based on the interview guiding questions and summarized manually. The results were presented in narratives to elucidate success and hindering factors for contract performances and supporting the quantitative results.

4.11 Ethical Considerations

Ethical clearance was obtained from Ethics Review Committee of School of Pharmacy, Addis Ababa University, to conduct the research with the number ph/ceutics/81/11/2018 and date 18 /11/ 20119 (annex. V).

After describing the objectives, benefits, anonymity and risk of the study to the agency and employees, permission was sought from EPSA management to conduct the study. Participants were also assured that their name will not be stated, data will be kept confidential and anonymous. Then, verbal informed consents were obtained.

For documents, the confidentiality was assured by avoiding photocopying, taking out, transferring of the documents and information to third party, replacing the original documents, overwriting on the documents, and changing any letters of the documents.

Data collection was conducted by trained data collectors under the supervision of the principal investigator. This was done by making the agency's employees off duty in working days and weekends that were compensated based on the government of Ethiopia per diem rate.

5. Results

5.1 Quantitative Data Analysis

5.1.1 Sourcing Profile of EPSA

From July 1, 2017 to June 30, 2018 G.C, 263 purchase orders worth of 79,512,100.23 USD were declared by EPSA. Of these, 159 (60.5%) purchase orders with a value of 57,048,490.23 USD (71.7%) were included to assess contract management performance.

Out of 159 declared purchase orders, 156 (98.1%) had complete data (delivery invoices, contract agreements and shipment documents), but 3 (1.9%) declared purchase orders had no contract agreements and considering to be foul.

Table 2: Summarizes the sourcing practice at EPSA

Variables	Value in USD	%
Sources		
Domestic	13,678,662.88	24.0
Foreign	43,315,765.78	76.0
Total	56,994,428.66	100.0
Methods of Procurement		
ICB	34,098,354.84	59.8
Restricted tender	22,781,229.24	40.0
Direct tender	114,844.58	0.2
Total	56,994,428.66	100.0
Source of Funding		
RDF	41,305,509.37	72.5
GF	13,048,176.09	22.9
SDG	2,425,397.70	4.2
Other sources	215,345.50	0.4
Total	56,994,428.66	100.0

Source: Data collected, 2019

As indicated in the above table (table 2), of the total value of medicines procured (56.9 million USD), 43.3 million USD (76%) were procured from foreign sources, but 13.6 million USD (24%) were procured from domestic sources.

ICB (59.8%) was the main method of procurement, but restricted tender (40%) and direct tender (0.2%) were the other methods of procurement that the agency used to obtain medicines from international or domestic suppliers.

Of the total value (changed in to USD based on exchange rate of tender evaluations) of medicines procured by EPSA, 41.3 million USD (72.4%) was expended by RDF, 13 million USD (22.9%) was expended by GF, 2.4 million USD (4.2%) was expended by SDG and 0.2 million USD (0.4%) was expended by others sources of funding.

5.1.2 Sources of Medicines by Manufacturers' Origin

EPSA procured medicines from 51 manufacturers: by average 11.7 million USD, minimum 0.1 million USD and maximum 9.3 million USD were expended to obtain medicines per manufacturer.

In line items: by average 9 items, minimum 1 item and maximum 40 items were procured per manufacturer by EPSA.

As shown in the table (table 3) below, from manufacturers, Ethiopian (24.00%) and Indian (51.08%) manufacturers had highest market shares. But, Bangladesh (0.03%) and British (0.07%) manufacturers had least market shares. From the continents, Asian (64.64%) manufacturers had highest market shares and African (24.00%) manufacturers had the second highest market shares, European (9.96%) and North American (1.40%) manufacturers had the least market shares

Table 3: Origins and market shares of manufacturers at EPSA

Continent of Manufacturers	Origin of Manufacturers	Values (USD)	Market share (%)
Africa	Ethiopia	13,678,662.88	24.00
Sub Total		***13,678,662.88***	***24.00***
Asia	India	29,115,228.05	51.08
	Malaysia	1,068,064.77	1.87
	Pakistan	663,425.40	1.16
	United Arab Emirates	2,872,521.67	5.04
	Bangladesh	11,536.17	0.03
	China	3,109,945.17	5.46
Sub Total		***6,840,721.23***	***64.64***
Europe	Finland	1,435,784.33	2.52
	France	323,679.63	0.57
	Germany	219,309.00	0.38
	Portugal	59,946.52	0.11
	Republic of Cyprus	2,333,372.54	4.09
	Switzerland	501,757.48	0.88
	Austria	551,927.93	0.97
	British	38,064.95	0.07
	Denmark	213,091.28	0.37
Sub Total		***5,676,933.66***	***9.96***
North America	Canada	798,110.89	1.40
Sub Total		***798,110.89***	***1.40***
Grand Total		**56,994,428.66**	**100.00**

Source: Data collected, 2019

As shown in the figure (figure 2) below, out of total medicines procured from foreign manufacturers, more than 55% of the total values of medicines were supplied by five companies.

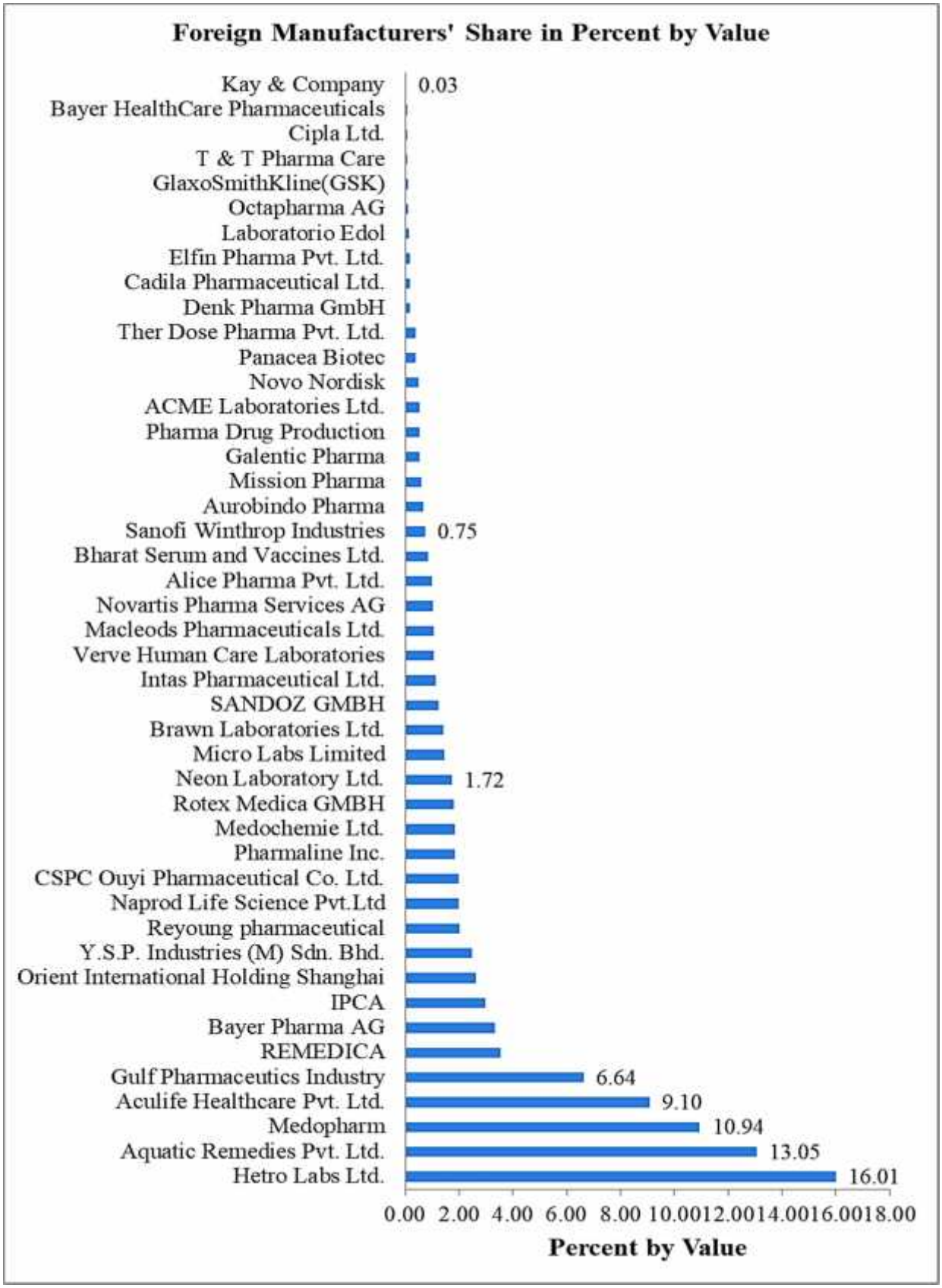

Figure 2: Foreign manufacturers' shares in value (Source: Data collected, 2019)

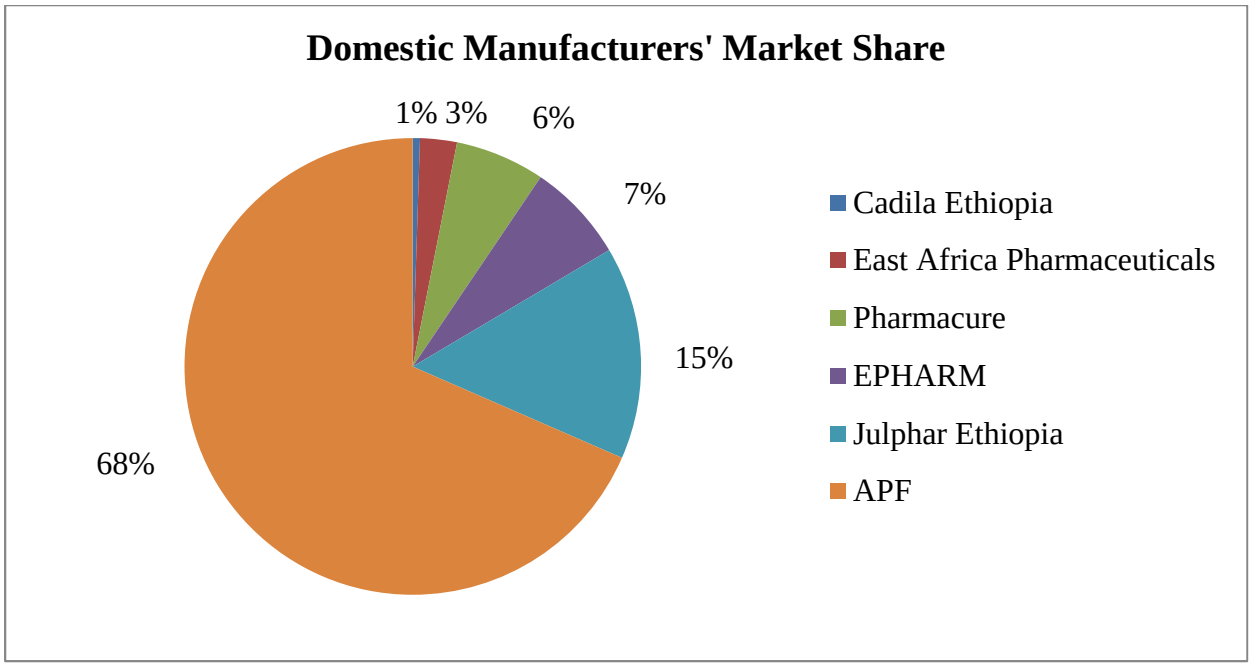

Figure 3: Supplying shares of domestic manufacturers (Source: Data collected, 2019)

From domestic manufacturers, more than half were supplied by APF (68%). Julphar Ethiopia, EPHARM, Pharmacure, East Africa Pharmaceuticals and Cadila Ethiopia had also a market share of 15%, 7%, 6% 3% and 1% respectively.

5.1.3 Methods of Payment and INCOTERMs Management

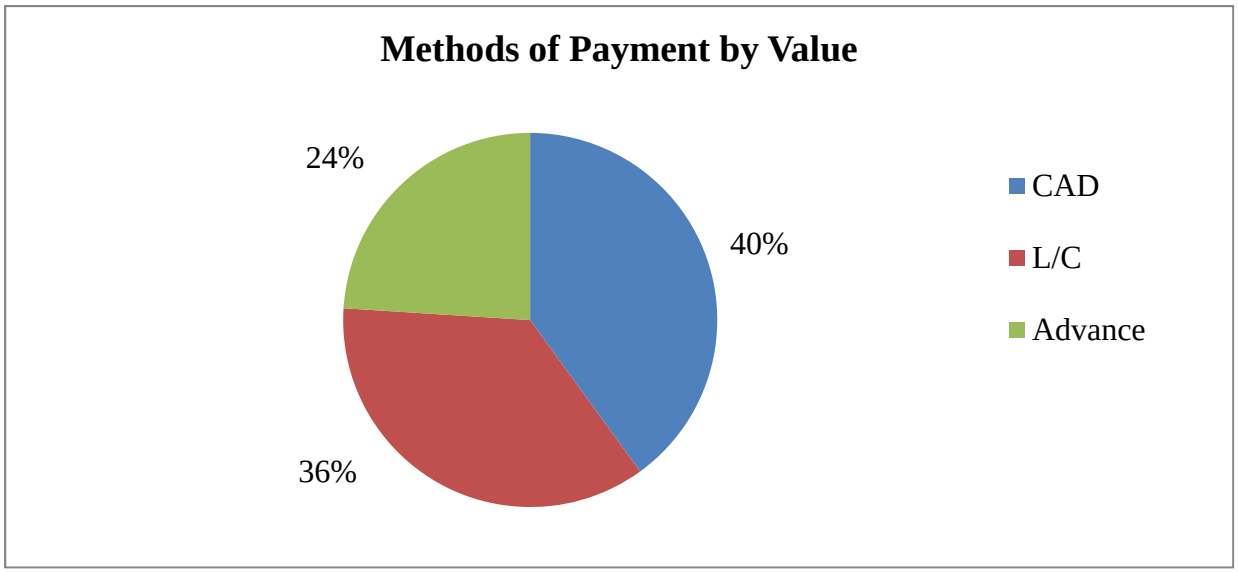

Figure 4: Frequently used methods of payment (Source: Data collected, 2019)

Also figure (figure 4) showed, CAD (40%) and L/C (36%) were the main methods of payment settlement used by the agency for foreign manufacturers, and advance payments (24%) were also used for domestic manufacturers.

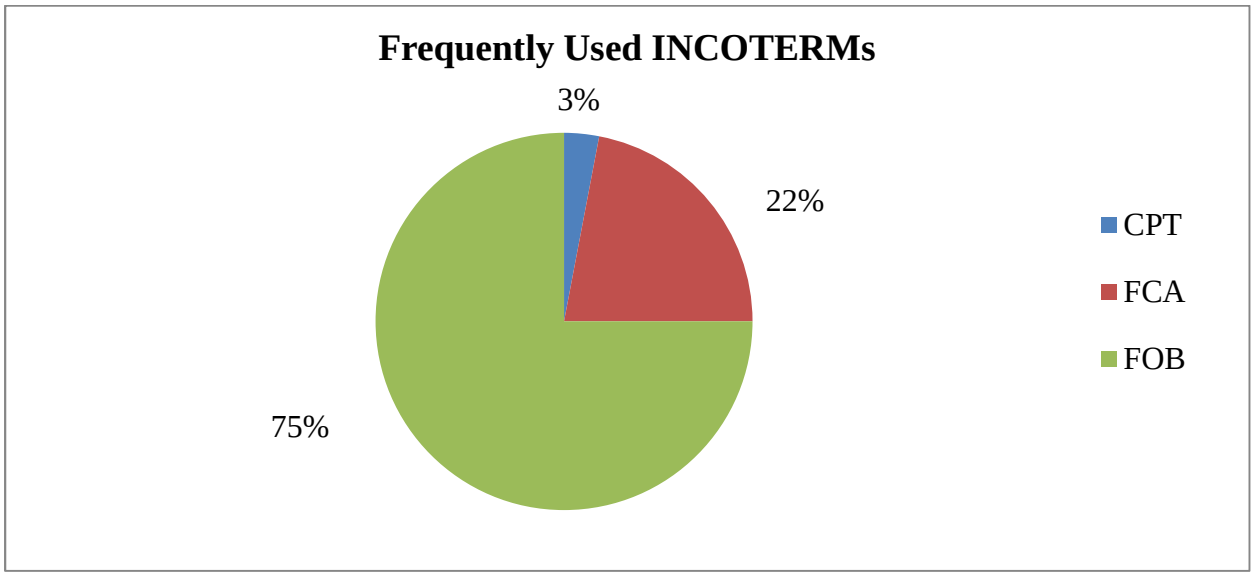

Figure 5: Frequently used INCOTERMs by value (Source: Data collected, 2019)

As shown in the figure above (figure 5), FOB (75%) was the major out of the total frequently used INCOTERMs by value, FCA (22%) and CPT (3%) were also frequently used by the agency.

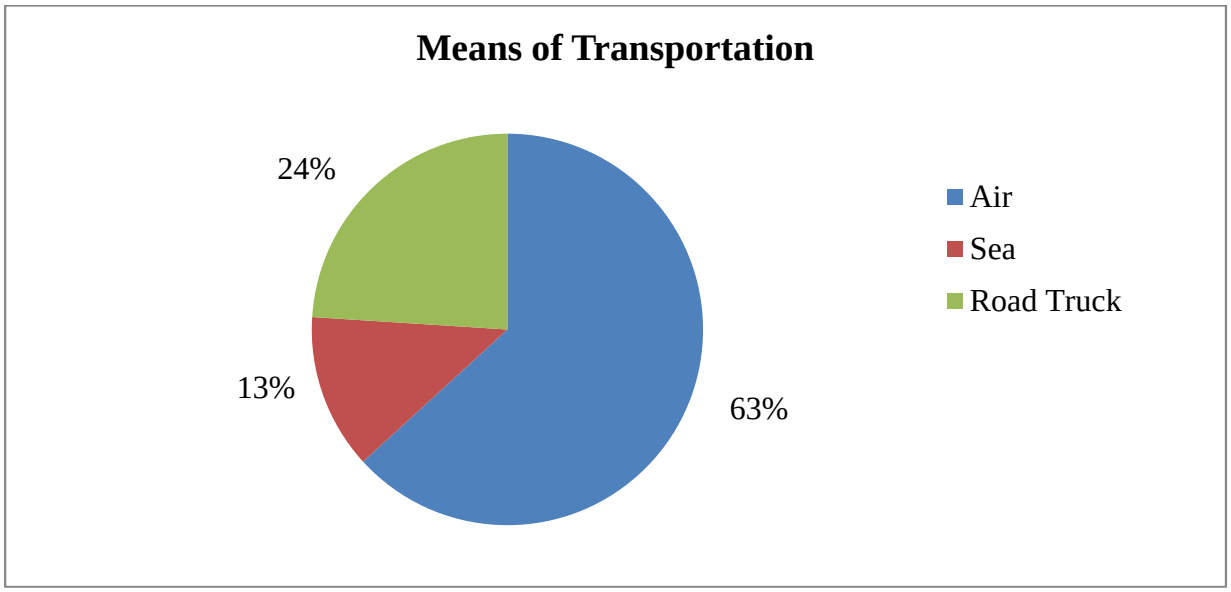

Figure 6: Percent of means of transportation by value in USD (Source: Data collected, 2019)

Air (63%) was the major means of transportations to ship medicines in crossing Ethiopian border followed by road truck (24%) and sea (13%) transportations used by the agency.

As shown in the figure (figure 7) below, out of the total value of (USD) medicines procured from foreign sources, 83% of transportation means and 96% of the INCOTERMs were unchanged from the contract commitments, but 17% of means of transportation and 4% of the INCOTERMs were changed from contract agreements. The changes of transportation were from sea to air ways rather no change of air and road truck transportation means. The change of INCOTERMs was from FOB to FCA and from FCA to FOB due to change of mode of transportation but CPT was not changed yet.

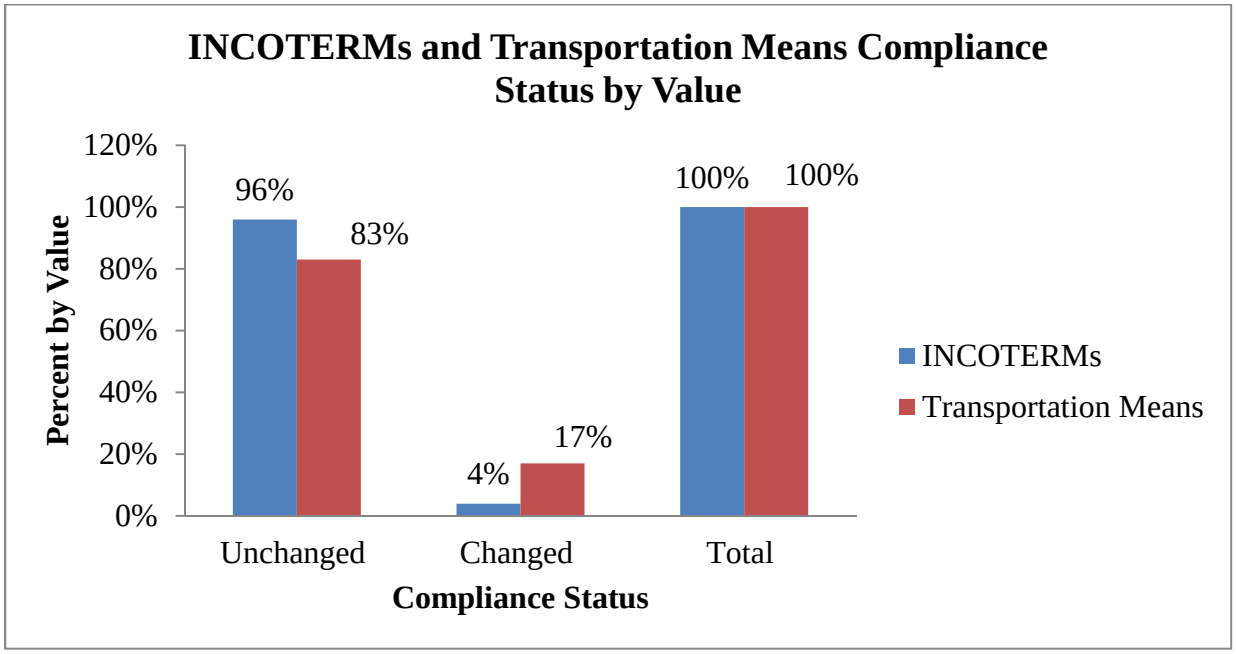

Figure 7: Means of transportation and INCOTERMs compliance status by value in USD (Source: Data collected, 2019)

5.1.4 Suppliers' Compliance Status

5.1.4.1 Fill Rate Analysis

As indicated in the table (table 4) below, of total 56.9 million USD values of medicines procured; 6.6 million USD (12.0%) were delivered with extensions, but 50.3 million USD (88.0%) were delivered without extensions.

Of the total 43.3 million USD values of medicines obtained from foreign manufacturers, 6.7 million USD (15.0%) were delivered with extensions, but 36.6 million USD (85.0%) were delivered without extensions of the methods of payment.

From the total extended methods of payment, 78% was L/C and 22 % was CAD. The cost of extensions was covered by EPSA during extensions, but reimbursed by the suppliers when the payment of delivered items installment. There were no practices of extension requests by the EPSA after method of payment opening and communicating to suppliers.

Table 4: Delivery status of medicines by value in USD

Sources	Lot of Shipment		Has no Extension	Has Extension	Total
Foreign	One	Value (USD)	19,798,885.73	4,858,997.16	24,657,882.89
		%	**80**	**20**	**100**
	Two	Value (USD)	9,004,016.61	1,824,924.83	10,828,941.44
		%	**83**	**17**	**100**
	Three	Value (USD)	7,828,941.45	-	7,828,941.45
		%	100	-	100
Sub total		Value (USD)	36,631,843.79	6,683,921.99	43,315,765.78
		%	**85**	**15**	**100**
Domestic	One	Value (USD)	13,678,662.88	-	13,678,662.88
		%	**100**	**-**	**100**
Total		Value (USD)	50,310,506.67	6,683,921.99	56,994,428.66
		%	**88**	**12**	**100**

Source: Data collected, 2019

The percentage of fill rate was calculated for each supplier based on the orders received from EPSA and declared within study period. Fill rates compliance statuses of suppliers were categorized based on the agency key performance indicator target as shown in the table 5 below.

From the total number (442) of medicines declared, 432(97.60%) had fill rate in the 95-100% range, 4(0.90%) had fill rate in the 85-94% range, 2(0.50%) had fill rate in 75-84% range and 4(1.00%) had fill rate in 50-64% range.

But, out of total value of **(**56.9 million) medicines procured**,** about 56.7 million USD (99.59%) had fill rate in the 95-100% range. The rest 0.2 million USD (0.41%) had fill rates out of 95-100% ranges.

Table 5: Percentage of fill rate for procured medicines by value and quantities

Fill Rate Ranges in %	Fill Rate by Quantity		Fill Rate by Value (USD)	
	Items	%	Values	%
95-100%	432	97.60	56,757,927.44	99.59
85-94%	4	0.90	128,569.78	0.23
75-84%	2	0.50	99,726.44	0.17
65-74%	-	-	-	-
50-64%	4	1.00	8,205.00	0.01
Total	442	100.00	56,994,428.66	100.00

Source: Data collected, 2019

As shown in the figure (figure 8) below, out of medicines from foreign sources: 89.97% were fully delivered by items and 86.36% by value in USD, but 10.03% were partially delivered by items and 13.64% by value in USD. Out of medicines from domestic sources: 98.92% were fully delivered by items and 99.97% by value in USD, but 1.08% were partially delivered by items and 0.03% by value in USD.

Out of the total medicines delivered: 91.86% were fully delivered by items and 89.62% by value in USD, but 8.14% were partially delivered by items and 10.38% by value in USD.

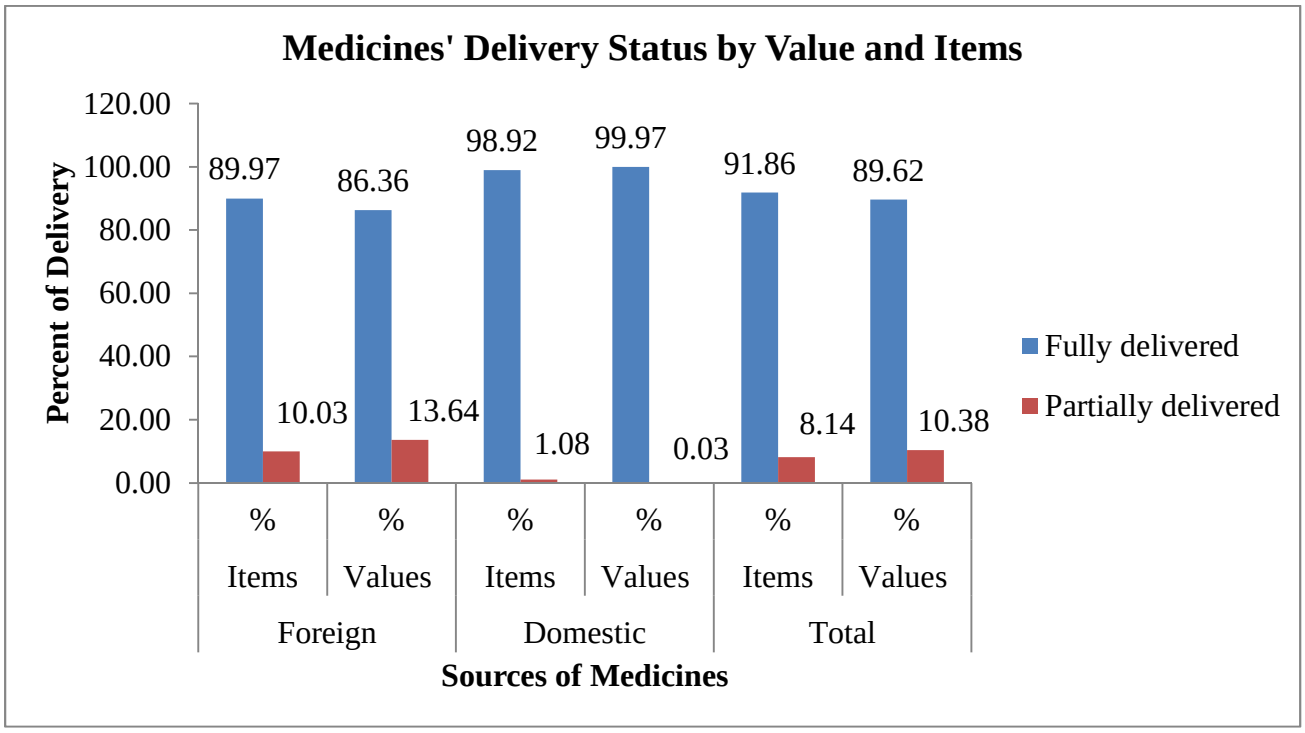

Figure 8: Delivery status of medicines by items and value in USD (Source: Data collected, 2019)

5.1.4.2 Lead Time Analysis

Table 6: Lengths of time to perform contract management activities

Variables		Contract Agreement to Methods of Payment Opening	Methods of Payment Opening to Medicines Delivery	Contract Agreement to Medicines Delivery
Foreign	Min days	5	12	17
	Max days	236	136	372
	Mean days	103	98	201
Domestic	Min days	0	6	6
	Max days	21	237	258
	Mean days	16	186	202
Total	Min days	5	12	17
	Max days	236	136	372
	Mean days	134	107	241

Note: max = maximum and min= minimum

Source: Data collected, 2019

Min, max and mean lengths of times required to open methods of payment for foreign medicines were 5; 236 and 103 days respectively.

Min, max and mean lengths of times required to open methods of payment for domestic medicines were 0; 21 and 16 days for respectively.

Min, max and mean lengths of times required to open methods of payment of medicines procurement were 5; 236 and 134 days for respectively.

For medicines procured from foreign manufacturers: Min, max and mean lengths of times required to deliver medicines were 12; 136 and 98 days respectively after opening of methods of payments. And, for medicines procured from domestic manufacturers: Min, max and mean lengths of times required to deliver medicines were 6; 237 and 186 days respectively after opening of payment methods.

But, for medicines procured by the agency: Min, max and mean lengths of times required to deliver medicines were 12; 136 and 107 days respectively after opening of methods of payments.

For medicines obtained from foreign manufacturers: Min, max and mean lengths of times required to deliver medicines were 17; 372 and 201 days respectively after contract signing. And, for medicines obtained from domestic manufacturers: Min, max and mean lengths of times required to deliver medicines were 6; 258 and 202 days respectively after contract signing. But, for medicines obtained by the agency: Min, max and mean lengths of times required to deliver medicines were 17; 372 and 241 days respectively after contract signing.

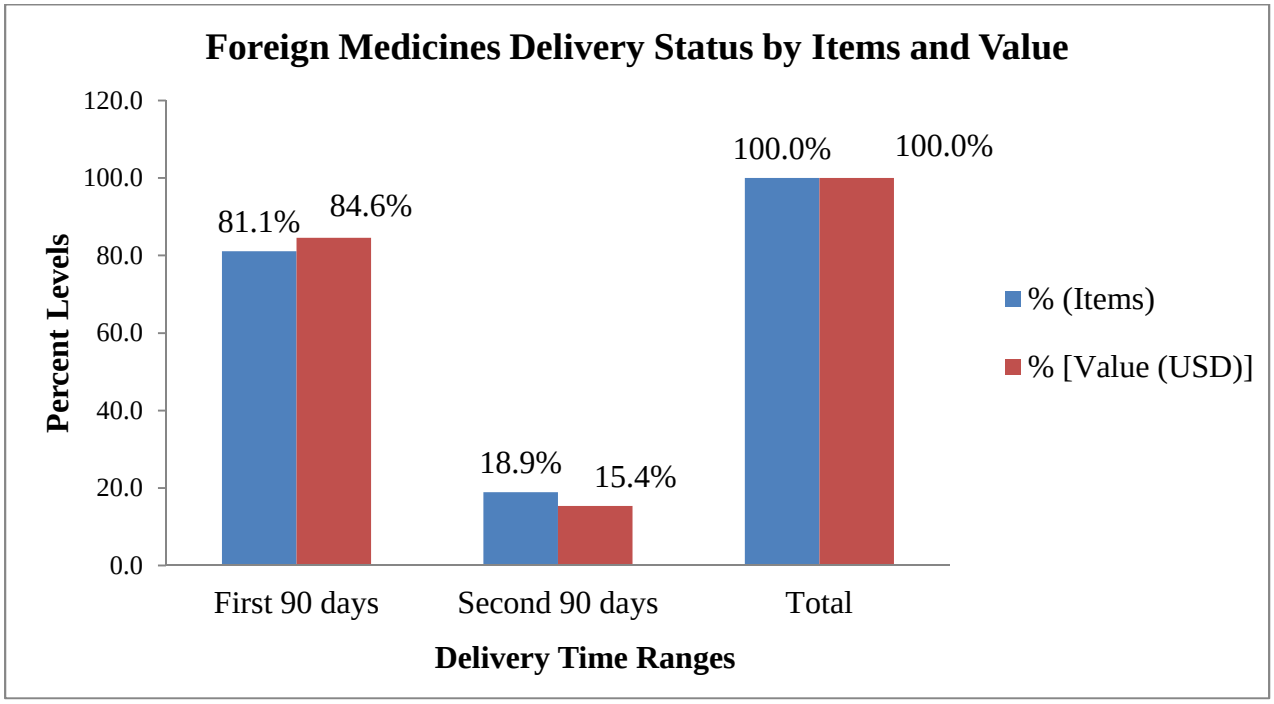

Figure 9: Delivery time ranges of foreign sourced medicines (Source: Data collected, 2019)

As shown in the above figure (figure 9), of total medicines procured from foreign manufacturers, 81.1% of the items were delivered in the first 90 days and 18.9% of the items were delivered in the second 90 days. Of total value (USD) of medicines procured from foreign manufacturers, 84.6% value of medicines was delivered in the first 90 days and 15.4% value of medicines was delivered in the second 90 days.

As indicated in the figure (figure 10) below, of total medicines procured from domestic manufacturers, 25.8% of the items were delivered in the first 30 days, 16.1% of the items were delivered in the second 30 days and 58.1% of the items were delivered after the third 30 days. Of total value (USD) of medicines procured from domestic manufacturers, 33.0% value of

medicines was delivered in the first 30 days, 24.0% value of medicines was delivered in the second 30 days and 43.0% value of medicines was delivered after the third 30 days.

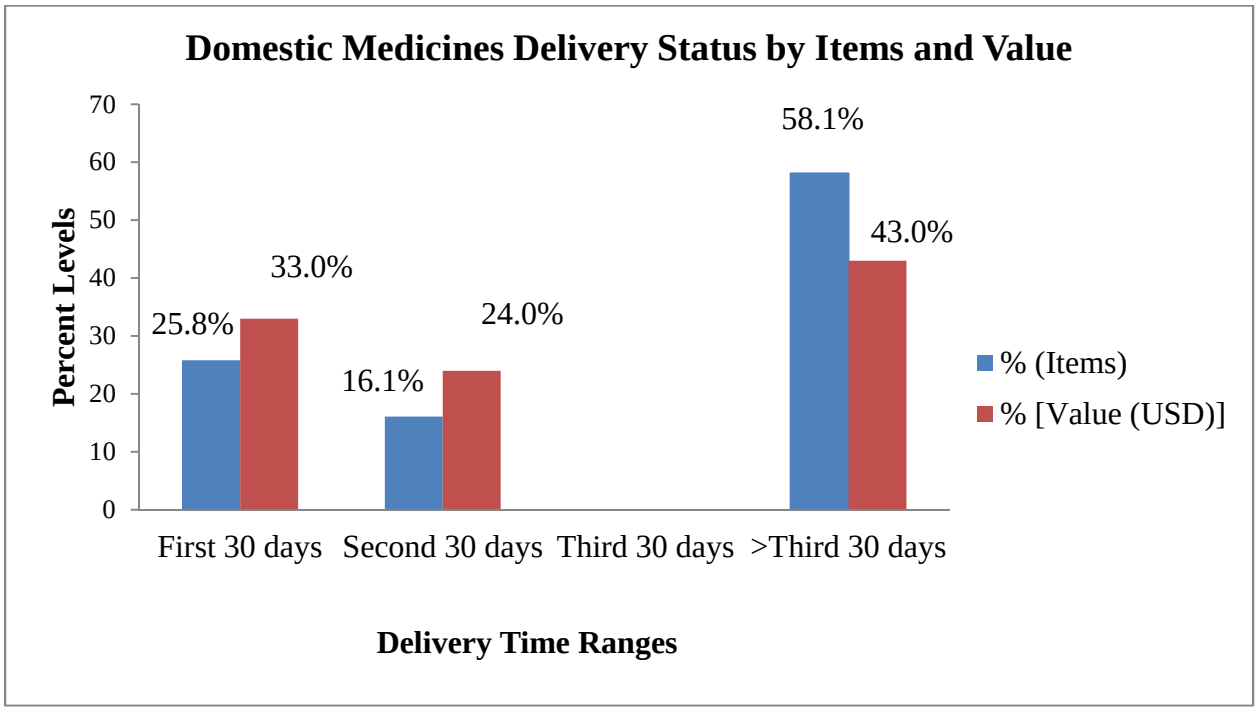

Figure 10: Delivery time ranges of domestic sourced medicines (Source: Data collected, 2019)

5.2 Qualitative Data Analysis

Interview was conducted with six informants. All were first degree holders with work experiences ranging from 3 to 11 years in the agency. The gender mix was two females and four males that were all pharmacist and above 28 years old.

5.2.1 Perceived Factors Affecting Contract Performances

The agency perceived that there were strong and weak contract management performances. Reduction of transportation and port clearance time, reduction of lead time, healthy disputes management and participatory contract activities planning were strong contract management performances; but lethargy contract administration practices, costly performance management, lack of competency and lack of focused contract management based on the values and risks of medicines were weak contract management performances perceived by the agency.

As informants perceived, there were weak and strong contract management performances at EPSA. Weak and strong performances of contract were due to hindering and success factors for contract management performance at EPSA.

The internal causes of the agency strong performances were implementation of PPA guideline, restructuring of contract management internal processes, initiation of monitoring and evaluation, commitments of employees and initiation of framework contract agreement.

Selecting and working with relevant stakeholders, non-governmental organizations support and reduction of disputes with suppliers were cited as reasons for strong contract management capabilities.

A 37 years old senior employee who had 11 years' experience in the agency stated, "*Improved understanding of the agency's mission by other stakeholders especially by banks, insurance companies, Ethiopian Airlines, manufacturers, suppliers' agents and other customers) reduces the time of communication for shipment and port clearance facilitation, reduces the cost of turnaround for hard currency permission and reduces the misunderstanding between the manufacturers and the agency to meet their commitments; enhanced commitment of staffs for their responsibilities to execute contracts by working friendly with manufacturers, banks, insurances and Ethiopian Airlines collaboratively to reduce disputes and delayed products deliveries."*

The main factors perceived to weak performance were delay, technology and monitoring and evaluation contract management practices at EPSA.

Higher officials' feedback, permission of hard currencies, POs approval by FMHACA and communication to stakeholders were the significant delays besides to shortage of hard currencies that contribute to weak performance.

Poor automation and integration contract activities, lack of competency, poor expenditure estimation, poor motivation and promotion trends and scattered stakeholders settings were cited as reasons of weak performance management capabilities due to poor utilization of technology.

Monitoring and evaluation practice of contract achievement was not based on the value and risk levels of medicines procured. For medicines with smallest and highest procurement values as well as risks levels, equal devotions were given in monitoring and evaluation during contract execution.

As three employees who had above 6 years' experiences in the agency stated, *"weak monitoring and evaluation practices based on risks and value levels of products; delayed actions by higher officials based on the monitoring reports even though it is not strong practice; turnover of skilled manpower; poor motivation and staff promotion trends, and poor integration with other functional units especially with warehousing and inventory management and legal services directorates; poor adherence of suppliers to compute based on their commitments; disputes with suppliers, and lack of consistent update and communication of contract information are factors that make contract performance being poor. This makes the agency not to be innovative to solve contract management problems like delay in products delivery time, poor quality products delivery from suppliers and not to satisfy the growing demand of essential medicines."*

6. Discussions

The findings of qualitative data were used to comprehend quantitative data findings and used to discuss as well as elaborate the quantitative data findings reporting.

From international manufacturers, Ethiopian (24.00%) and Indian (51.08%) manufacturers had highest market shares. And, from the continents, Asian (64.64%) manufacturers had highest market shares and African (24.00%) manufacturers had the second highest market shares. This implies: there were high market penetration and market sharing powers by Indian and Ethiopian companies to make business in pharmaceutical market of Ethiopia.

From foreign manufacturers that supplied medicines to EPSA, more than 55% market share were by only five companies. Among them, the highest share of procurement was from Hetro Labs Ltd (16.01%). The reasons of highest share for Hetro Labs Ltd might be due to the agency procured high line items and values of HIV/AIDS commodities from Hetro Labs Ltd as it was one of few international HIV/AIDS commodities manufacturers.

In this study, regarding the extent of manufacturers' market share, 24% of the medicines were supplied by the domestic manufacturers. It was lower than the baseline (25%) of five years health sector transformation plan and still very far from the target (50%) after three years (2017/18) (FMOH, 2015). The domestic market share of medicines was also far to the target (50%) established for national strategy and plan of action for pharmaceutical manufacturing development in Ethiopia (FMOH and MOI, 2015). This implies high import of medicines than manufacturing of medicines domestically.

From domestic manufacturers: APF (68%) and Julphar Ethiopia (15%) had greatest shares. Julphar Ethiopia performance was smaller, but APF had higher than domestic performance (60%) reported in 2017/2018 by the agency (PFSA, 2018). The highest share for APF might be due to the high number of line items supplied and good performer in supplying medicines.

Of methods of payment: CAD (40%) and L/C (36%) were the main form of payment settlement used by the agency for foreign manufacturers, and advance payments (24%) were also used for domestic manufacturers. It might be due to CAD and L/C have less risks for buyer, but advance payment has high risk for buyer to use in trade. As this finding showed, the agency made its procurement by averting risk and in line with World Bank recommendation (World Bank, 2017).

Of the total values of medicines obtained from foreign manufacturers, 85.0% were delivered without extensions of L/C and CAD. The finding was less than the commitment of contract agreement to deliver 100% of the quantity or value for each item. It was also less than USAID delivery project recommendation to deliver 100% of the quantity or value of agreed medicines during contract approval (USAID, 2013). These high extensions (15%) practices might be due to lack of strong monitoring and evaluation practices, and no penalties to costs imposed by methods of payment extensions and time value of money rather than costs coverage for extensions process. The costs of methods of payment extensions (≤ 2% of the undelivered items value) were paid to banks by extensions applicants to process methods of payment extensions only. Practically, EPSA covered for any methods of payment extensions' costs whoever the applicants, even though reimbursed by the suppliers during delivered items payment installments if the applications were initiated from suppliers.

Among the INCOTERMs: FOB (75%) was the most frequently used, but FCA (22%) and CPT (3%) were also used by the agency. Of the INCOTERMs used, CPT was not changed from agreement, but there were changes from FOB to FCA and from FCA to FOB during contract execution. This might be due to mode of transportation changes after signing of contract agreement. The highest utilization of FOB might be due to the agency used FOB plus air in multimodal for sources of medicines that are accessible by Ethiopian airlines to reduce any costs related to transportation (EIDM, 1992). But, it was against the set of International Chambers of Commerce rules as FOB is recommended to land and sea (unimodal) transportation (ICC, 2010).

In this study: the suppliers' fill rates were 432 (97.60%) that had a fill rate within 95-100% range and the rest 10 (2.4%) had a fill rate less than 95%. And, out of total values of medicines procured**,** 99.59% had fill rate in the 95-100% range, and the rest (0.41%) had a fill rate less than 95%. This was higher than the study finding (91.3%) presented in 2015 (Haymero, 2015) and the finding (72%) of the study done in 2015 at Uganda (Arthur et al, 2015), but it was less than the commitment of contract agreement to deliver 100% of the quantity or values for each item and USAID delivery project recommendation to deliver 100% (USAID, 2013).

The suppliers' fill rate was within excellent category when compared with the agency performance indicator (95-100% = 'excellent') (PSA, 2019). This implies: there was high follow up of medicines delivery and high commitment of suppliers to fill the ordered medicines as

payments were processed based on the delivered quantities of medicines from the ordered quantities of medicines.

In this study, 91.86% of line items and 89.62% of value (USD) were fully delivered, but 8.14% of line items and 10.38% of value (USD) were partially delivered that had less performance than contract commitments (100%) and USAID recommendation (100%) (USAID, 2013). This might be due to lack of strong monitoring and evaluation practices or cancelation of smaller quantities of items by EPSA as there had no significant benefits compared with costs of processing those smaller quantities.

This study concludes that, the minimum, maximum and average foreign suppliers' lead times (from methods of payment opening to methods of payment expiry date) were 12; 136 and 98 days respectively. The average foreign suppliers' lead time (98 days) was the same to half of average procurement lead times (186 days) (PSA, 2018). It was close to the average procurement lead times (120 days) of health sector transformation plan target even though the target includes all the procurement processing time and supplier's lead time (2017/18)(FMOH, 2015). It was more than one L/C periods (90 days) that showed contract execution was not performed according to commitment agreed in the contract.

The minimum, maximum and average domestic suppliers' lead times were 6; 237 and 186 days respectively. The average domestic suppliers' lead time (186 days) was very far from management sciences for health recommendation (30 days) (MSH, 2012). This implies: there were weak follow-up of contract execution for domestic suppliers; weak penalty for weak performers or the method of payment could impose risk for buyer as suppliers already took 30% of total payments in advance without delivering any quantities.

For medicines obtained from foreign manufacturers: Minimum, maximum and average lengths of times required to deliver medicines were 17; 372 and 201 days respectively after contract signing. Average contract lead time (201 days) was far from management sciences for health recommendation range (<150 days) (MSH, 2012). This implies: there were delayed permission and shortage of hard currencies, methods of payment extension, weak monitoring and evaluation practices, reserved actions of higher officials or competency gaps of contract managers.

Among medicines procured from foreign sources, of total value (USD) of medicines procured from foreign manufacturers, 84.6% value of medicines was delivered in the first 90 days and

15.4% value of medicines was delivered in the second 90 days which was less performance as 100% of the agreed order should be in the first 90 days (PPA, 2011). It might be due to shortage of hard currencies and extension of methods of payment; lack of competency to monitor and evaluate contract executions by classifying medicines based on value and vitality; or poor obedience of the suppliers to deliver products.

Among medicines procured from domestic sources, of total value (USD) of medicines procured from domestic manufacturers, 33.0% value of medicines was delivered in the first 30 days, 24.0% value of medicines was delivered in the second 30 days and 43.0% value of medicines was delivered after the third 30 days which was less performance as 100% of the agreed order should be in the first 30 days (PPA, 2011). This implies: availability of foreign currencies was the challenge to procure ingredient for production and supplying to the agency; lack of strong follow-up to recognize and penalize for poor performers and method of payment might impose risk not to obey delivery schedule as suppliers obtained 30% of total payment without supplying they promised in contract agreement (MoFED, 2010).

The perceived causes of the agency strong performances were use of PPA guideline, restructuring of contract management internal processes, initiating of monitoring and evaluation, commitments of employees and beginning of framework contract agreement.

Selecting and working with relevant stakeholders, NGOs support and reduction of disputes with suppliers were also factors of strong contract management performance. But, main factors perceived to weak performance were delayed contract management activities, weak technology utilization, and weak monitoring and evaluation practices at EPSA.

7. Conclusions

Five suppliers were covered more than fifty percent of foreign procurement of the agency. This indicates the agency needs to work with selected suppliers.

FOB was used in multimodal transportation against International Chambers of Commerce recommendation to get advantage in reduction of transportation costs. The agency might increase cost of doing business globally if it continues in the same way by violating international commercial rules.

There was a practice of L/C and CAD extensions which led to delayed delivery of medicines by suppliers. EPSA may incur costs if L/C and CAD extensions will not be avoided.

There were good suppliers' compliances to fill rates, but protracted in case of suppliers' lead time performance. Particularly, fill rate and lead time of foreign suppliers were better than domestic suppliers. Delivery schedule and quantity compliance of domestic manufacturers were very poor. This indicates the agency should be systematic to accomplish contracts in accordance to contract agreement.

The perceived causes of the agency strong performances were the implementation of PPA guideline, restructuring of contract management internal processes, introduction of monitoring and evaluation, commitments of employees and beginning of framework contract agreement. Selecting relevant stakeholders and working in collaboration, NGOs support and reduction of disputes with suppliers were other perceived factors of strong contract management performance.

The main factors perceived to weak performance were delay in contract management activities, poor utilization of technology, and weak monitoring and evaluation experiences based on the values and risks levels of medicines procured. The agency should strengthen the strong by reducing the weak factors affecting contract management performances to improve contract achievements in accordance to contract commitments.

8. Recommendations

Achieving strong contract accomplishments requires a lot of devotions and readiness to face challenges. However, with collaborative efforts from all stakeholders and availability of the required capabilities, a number of measures can be undertaken which can lead to the realization of vigorous contract endeavors.

The agency should strengthen the automation and integration of contract management activities within the internal processes and other relevant stakeholders with strong higher officials controlling to make contract management activities not be bothersome. It should automate and integrate contract activities from contract approval to contract closing by selecting key contract functions and stakeholders.

EPSA should focus on selected foreign and domestic suppliers that can perform as per the contract commitments, and exercises performance based recognition as well as demotion based on strong monitoring and evaluation practices. It should manage contract achievements by giving special devotion for lead time, fill rate and related factors management to execute in accordance to contract commitments.

EPSA should implement performance improvement tools like Plan-Do-Check-Act (PDCA) in order to make contract management achievements to be strong and consistent by reducing non-value adding practices. The agency should establish a system to evaluate contract performances and learn from its weakness and strength in order to improve supplier’s lead time and fill rate. PDCA works by defining the problem to be addressed, collect relevant data, and ascertain the problem's root cause; developing and implementing a solution; checking the results through before-and-after data comparison, then take corrective action based on the agency capabilities.

The agency should focus on competency mapping and capacitating staffs by duty based training and development in order to improve the performances of contract management and reduce unnecessary efforts. Competency gaps of the agency to excel contract management performance should be addressed by considering ways of identifying competency gaps and addressing those gaps to manage contract performances in accordance to contract commitments and competency requirements.

9. Limitations and Suggestions for Future Research Directions

This study didn't measure contract management performances from the cost perspective; it did not consider the effect of buyer's compliance to terms and conditions of contract performances, and it did not consider contract management performances with procurement methods. This study did not indicate transportations and custom processing impacts on contract management performance. It did not show the association of success and deterring factors with contract management performance by doing analytical study.

It is recommended that another study be conducted by including all pharmaceuticals obtained from national and internationals suppliers. The same study can be conducted at the agency by including the effects of buyer compliance on terms and conditions to contract performances. The same study can be conducted in the same setting based on procurement methods, and by considering transportations and custom processing impacts.

It is advisable to identify the main factors affecting contract management performances by doing analytical study at EPSA.

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Annexes:

Annex I: Data Abstraction Form for Quantitative Data

S.No	Variables	Data Collected
1	Method of Procurement	
2	Tender Number	
3	PO Number	
4	PO Issued Date	
5	Item Description	
6	Unit	
7	Unit Price (in winner currency)	
8	Unit Price (in USD)	
9	Manufacturer	
10	Manufacturer's Origin	
11	Supplier	
12	Supplier's Origin	
13	Source of Items (Domestic or Foreign)	
14	Lot of shipment	
15	INCOTERMs Planned	
16	INCOTERMs Used	
17	Means of Transportation Planned	
18	Means of Transportation Used	
19	Transportation Agents to Crossing Ethiopian Boarder	
20	Custom Issues Processing and Declaration	
21	Methods of Payment	
22	Contract Agreement Date (Year-Month-Day)	
23	Methods of Payment Opening Date (Year-Month-Day)	
24	Methods of Payment Expiry Date (Year-Month-Day)	
25	Methods of Payment Extension Status (Y = for extended, N = Not extended)	
26	Methods of Payment Extension Date (Year-Month-Day)	
27	Shipping Document Completeness (Yes = Complete, N = Incomplete)	
28	Means of Communication	
29	Type of Currency Used	
30	Funding Sources (Account Category for Procurement)	
31	Specific Activity Category	
32	Ordered Quantity	
33	Delivered Quantity	
34	Total Value of Ordered Medicines (in winner currency)	
35	Total value of Delivered Medicines (in winner currency)	
36	Total value of ordered Medicines (in USD)	
37	Total value of Delivered Medicines (in USD)	
38	Delivery Date of medicines (Year-Month-Day)	

Annex II: Interview Guides of Data Collection from Informants

1. What is contract management performance mean?
2. How does the directorate evaluate and monitor to manage the contracts?
3. How does the directorate conduct contract administration?
4. What are the factors of strong performance of contracts accomplishments?
5. What are the factors of weak performance of contracts accomplishments?

Annex III: Documents Recorded and Maintained in Contract Administration

• Signed quotation copy	• FMHACA letter
• Offer analysis copy	• Undertaking letter
• Signed contract agreement	• Copy FMHACA release
• Purchase order copy	• Copy Insurance certificate
• Fresh Performa invoice	• Copy bank permit
• Copy performance bond	• Freight Request
• Letter to NBE	• Approved Freight payment request
• Insurance application	• Storage Request
• Marine cargo insurance	• Approved storage payment request
• Insurance debit advise(original)	• Transfer voucher
• L/C application	• Letter for tax assessment
• L/C opening swift copy/CAD marked P/O	• Freight settlement
• Original bank permit	• Storage settlement
• Notification to supplier on CAD/L/C	• Custom assessment
• Shipment notice	• Approved custom payment request
• Certificate of analysis	• Budget letter (for program items)
• Certificate of origin	• Signed budget letter
• Packing list	• Custom release (settlement)
• Commercial invoice	• GRNF
• Air way bill /bill of lading	• Declaration

Annex IV: Sample Purchase Order (PO) Used by Agency

የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
የመድኃኒት ፈንድና አቅርቦት ኤጀንሲ
PHARMACEUTICALS FUND AND SUPPLY AGENCY

Purchase Order

To: ERYIGIT END,MAK VE TIBBI
Turkey

Ref: RDF-REGULAR

Date 9/7/2015 4:56:55 PM
PO No 002214

RDF Regular

Item No	Description of the Product	Unit	Manufacturer	Country	Quantity	Unit Price	Total Price
	Sterilizer - Steam, 300L. - ERS 5512	Each	ERYIGIT END MAK VE TIBBI	Turkey	25.0000	0.00000	0.000000000

Total Euro 0.00

N.B
1.Strictly deliver goods to Ethiopian Shipping / Air Lines & freight is payable at destination

2.The following copy documents should be Faxed immediately with in three days to PFSA when consignment is on lading board.
A. Chamberized Certificate of Origin(Two Original)
B. Chamberized Commercial invoice (Three Original)
C. Certificate of analysis (Three Original)
D. Bill of ladings / Air waybill (Three Original)
E. Packing List (Three Origina)
All charges born due to improper documentation will be transferred to supplier based on the legal receipts.

3. The proforma invoice should be consisting of items international code/ i.e Harmonized Coding system with six digit numbers./

4. Submit a performance security (10%) of the awarded amount, which shall be returned only after the total execution of the contract. The performance security shall be in the form of acceptable locally certified Bank check or Bank guarantee, Please signe contractual agreement within 15 days.

Note:Please refer additional terms & conditions of the contract at the back of first page.

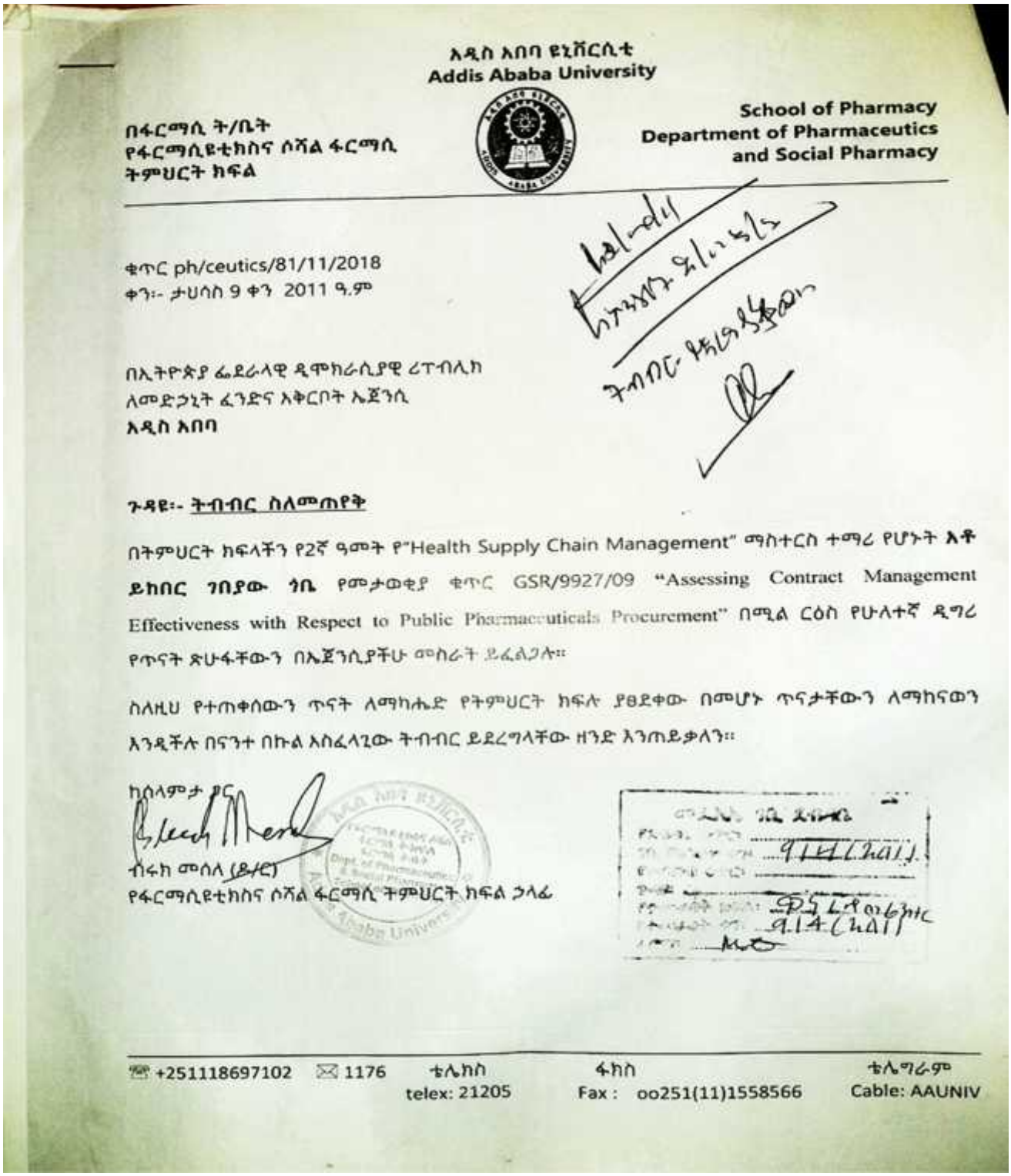
Not Original

Shipping Instruction **Delivery Date** **PO By** Kebede Tadesse
IncoTerm FOB **Term Of Payment** Letter of credit (L/C)

	Prepared By	Checked By	Verified By	Approved By
Name:				
Signature:				

1/1

Annex V: Letter of Ethical Clearance



አዲስ አበባ ዩኒቨርሲቲ
Addis Ababa University

በፋርማሲ ት/ቤት
የፋርማሲዩቲክስና ሶሻል ፋርማሲ
ትምህርት ክፍል

School of Pharmacy
Department of Pharmaceutics
and Social Pharmacy

ቁጥር ph/ceutics/81/11/2018
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በኢትዮጵያ ፌደራላዊ ዲሞክራሲያዊ ሪፐብሊክ
ለመድኃኒት ፈንድና አቅርቦት ኤጀንሲ
አዲስ አበባ

ጉዳዩ፡- ትብብር ስለመጠየቅ

በትምህርት ክፍላችን የ2ኛ ዓመት የ"Health Supply Chain Management" ማስተርስ ተማሪ የሆኑት **አቶ ይከበር ገበያው ጎቤ** የመታወቂያ ቁጥር GSR/9927/09 "Assessing Contract Management Effectiveness with Respect to Public Pharmaceuticals Procurement" በሚል ርዕስ የሁለተኛ ዲግሪ የጥናት ጽሁፋቸውን በኤጀንሲያችሁ መስራት ይፈልጋሉ።

ስለዚህ የተጠቀሰውን ጥናት ለማካሔድ የትምህርት ክፍሉ ያፀደቀው በመሆኑ ጥናታቸውን ለማከናወን እንዲችሉ በናንተ በኩል አስፈላጊው ትብብር ይደረግላቸው ዘንድ እንጠይቃለን።

ከሰላምታ ጋር
ብሩክ መሰለ (ዶ/ር)
የፋርማሲዩቲክስና ሶሻል ፋርማሲ ትምህርት ክፍል ኃላፊ

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