ADDIS ABABA UNIVERSITY

COLLEGE OF LAW AND GOVERNANCE

CENTRE FOR HUMAN RIGHTS

DEVELOPMENT AND COMPETENCY OF FORENSIC EXAMINATION IN THE PROTECTION OF THE RIGHTS OF THE ACCUSED IN THE CRIMINAL JUSTICE OF ETHIOPIA: PROSPECTS AND CHALLENGES (THE CASE OF HOMICIDE IN ADDIS ABABA)

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A Thesis Submitted to Addis Ababa University, School of Graduate Studies in Partial Fulfillment of the Requirement of the Degree of Masters in Human Rights

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Declaration

I, Assefa Mulugeta Assfaw, hereby declare that this thesis entitled: “Development and Competency of Forensic Examination in the Protection of the Accused Rights in the Criminal Justice of Ethiopia: Prospects and Challenges (the case of Homicide in Addis Ababa)” for Master Degree is researched, compiled and drafted by myself and is indeed my own work. All materials used in this thesis have been appropriately acknowledged. I confidently declare that this thesis has not been submitted to any other University or Institutions to award any academic degree.

Assefa Mulugeta

Signature_____

Date_____

Acknowledgment

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Acronyms

ACHPR	African Charter on Human and Peoples Rights
AFIS	Automated Fingerprint Identification System
BPR	Business Processing Reengineering
CJS	Criminal Justice system
CODIS	Combined DNA Index System
DNA	Deoxyribonulic Acid
FDRE	Federal Democratic Republic of Ethiopia
EFPC	Ethiopian Federal Police Commission
EFPFID	Ethiopian Federal Police Forensic Investigation Directorate
IBIS	Integrated Ballistic Identification System
ICCPR	International Covenant on Civil and Political Rights
LAB	Laboratory
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNODC	United Nations Office on Drugs and Crime
UNECE	United Nations Economic Commission for Europe

Abstract

The use of forensic science has become a central part of proving or disproving the charge against the accused beyond reasonable doubt. The progress of forensic science has created a wholly new basis of evidentiary value referred to as 'forensic examination'. In the light of accused rights protection, the purpose of this study is to account on finding of prospects and challenges into development and competency of forensic examination in the criminal justice system of Ethiopia. The study made use of qualitative research method based on literature review, interview, dead court cases, and personal observation to analyze the process of forensic examination and its relevance on the rights of the accused during investigation and prosecution of homicide crime. And also to explore the major issues that arises about the forensic examination. The analysis of this study revealed that the existing forensic examination is poor so far and also it is difficult that depend upon such evidence to protect the rights of the accused and to prove justice of homicide crime beyond reasonable doubt. This shortcoming of forensic examination mainly depend upon lack of specific legal procedure of forensic examination, poor laboratory facility and advanced equipment, shortage of high level skilled forensic experts, and lack of accreditation standards of laboratory. This study provides evidence of look forward to identifying the prospects and challenges of forensic examination regarding accused rights protection in the case of homicide crime and it assist and give guidance to the responsible agency to fill the gap.

Key words: Forensic Examination, Accused Rights, Criminal Justice, Homicide Crime

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CHAPTER ONE: INTRODUCTION

1.1 Background of the Research

The demand for forensic science to investigate and prosecute those who committed homicide crimes is increasing in the contemporary criminal justice system to ensure peace and justice in the society (Larry J. Siegel & John L. Worrall, 2010, pp. 195-197). By virtue of its lethality, there is no doubt that homicide is a violation of the right to life and it is an act where unlawful death purposefully is inflicted on a person by another person (UNODC-UNECE Manual on Victimization Surveys, 2010). The consequence of homicide crime is not only the initial loss of human life, but also devastating the victims' families, neighborhoods and communities in which the murders occurred and can create a climate of fear and insecurity (Bree Cook, Fiona David & Anna Grant, 1999, pp. 14-39). In the contemporary society, since homicide crimes are considered as crimes against the interests of the State and public; the State has the responsibility for the investigation of the offense, the prosecution of the suspect, the adjudication process and enforcement of the sentencing decision (Karmen, 2010, pp. 70-106).

Although it is the duty of the State to prosecute homicide offenders; the process of the criminal trial requires justification to avoid a miscarriage of justice (MacFarlane, pp. 2-4). For that reason, in criminal proceedings the two fundamental values that ought to be respected are proving the charges against the accused beyond a reasonable doubt, and that the burden of proof against the accused lies on the State (Dato' Param Cumaraswamy & Manfred Nowak, 2009). In addition, the criminal justice system (CJS) is also expected to address three main different interests. These are the duty of the State in fighting against

crime and in the maintenance of internal security in accordance with national laws, the rights of the victims, and the rights of the accused (Dato' Param Cumaraswamy, & Manfred Nowak, 2009). Accordingly, at least the following two main issues are most essential to convict a guilty person. First, the evidence must prove the defendant's absolute guilty or guilt beyond the question at all. Secondly, the evidence must be clear, convincing and more unquestionably (Palmiotto, 1994).

Forensic science examination is the cornerstone of the criminal justice system in proving the defendant's guilt or innocence. Forensic science is the application of principles of science and technology that enables the courts to determine the guilt of the accused beyond question in the criminal matters (Schroeder, 1958). The result of scientific analysis or the proper forensic examination of evidence presented to the courts has three main benefits for the legal system. First, it provides crime detail that is how, where and when a crime occurred including the weapons used. Second, it identifies the offenders and victims, based on collecting evidence from crime scenes or suspect. Third, it confirms or rejects the eyewitness testimonies since sometimes eyewitness testimonies are unreliable (Charles R. Swanson, Neil C. Chamelin & Leonard Territo, 1997).

Since the application of principles of forensic science can reveal the scenario that has taken place at the crime scene, the CJS is constantly looking towards forensic examination to prove defendant's guilt through analysis of physical evidences found at the scene of the crime or on the suspect(Saferstein, 2007, pp. 27-28).Physical evidences or clues found at homicide scenes or on suspect included DNA evidence (such as blood, saliva, or semen), fingerprint, latent prints, firearms, ballistics, drugs, clothing, and others trace evidence (Tom McEwen, & Wendy Regoeczi, 2015).

More considerably, forensic laboratories are expected to utilize proper collection, documentation and examination of physical evidences in the detection of crime (Saferstein, 2007). According to United Nations Office on Drugs and Crime (UNODC) manual on Laboratory and Scientific Section, the proper capabilities and facilities of forensic laboratories can provide accurate, objective and timely information to the criminal justice (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 8).

In Ethiopia, there are two forensic examination centers with regard to homicide crime. The Ethiopian Federal Police Forensic Investigation Directorate (EFPFID) is the main center that has the responsibility of examining physical evidences and providing scientific support for criminal justice at federal and regional levels. These examinations of the physical evidences of homicide crime include fingerprint identification, firearm examination, and biochemical analysis. Additionally, the Menelik II Referral Hospital is the second center examines dead bodies for identification of causes of death as requested by police. This center is the only one that providing these medicos- legal services for the entire nation (Assessment on the problems of forensic pathology and forensic Psychiatry, 2014).

As a general remark, the use of proper forensic examination is increased in the process of investigation and prosecution of homicide criminals and is anticipated as a tool to protect the rights of the accused in the modern criminal justice system.

1.2 Statement of the Problem

Within the criminal justice system, poor service of forensic examination is a serious problem in the protection of the rights of the accused and in investigation and prosecution of criminal act. This is because poor forensic examination of physical evidence is often not led to making arresting the right person and determining guilt or innocence beyond reasonable doubt. This research is in part a reflection of the reality as the Ethiopian Federal Police Commission (EFPC) which stated in its annual report that forensic examination is not playing a pivotal role in the effective discovery, documentation and judicial prosecution of crime (Police Crime Annual Report, 2003). The National Implementation Plan on Human Rights also reflected that there wouldn't a lot of useful forensic evidences of homicide crimes due to poor service of forensic examination (National Implementations Plan on Human Rights, 2012).

In other hand, the successful investigation and prosecution of homicide crimes require, in most cases, the proper collection, preservation and analysis of physical evidence. The proper forensic examination rests largely upon the specific skills and capabilities of forensic personnel and the facilities of forensic laboratories in order to serve the criminal justice system within speed and accuracy. It is the most necessary that forensic personnel have an immense understanding of forensic science and specific skills to collect, preserve and analyze physical clues because the mishandling of physical evidence can lead to injustice of accused person. Additionally, forensic laboratories must design with advanced equipment and obtain accreditation standard from the responsible agency to ensure the probative value of forensic evidence in the criminal justice system (Global Study on Homicide, 2011).

Nevertheless, there is no study conducted that explores the development and competency of forensic examination in the protection of the rights of the accused in Ethiopia to the best of the criminal justice system and researcher's knowledge. Thus, it is necessary to study the prospects and challenges of forensic examination in the case of homicide. At the outset, it makes clear the relevance and impact of forensic examination in the protection of the rights of the accused in the criminal justice system of Ethiopia. In addition, it also assists and gives guidance to the responsible agency to fill the gap. Therefore, considering forensic examination as indispensable elements of evidentiary value tied with investigation and prosecution of crime necessity to protect the rights of accused makes this study relevant.

1.3 Research Questions

1. How did forensic science in the context of homicide crimes develop and evolved in Ethiopia?
2. What is the relevance of forensic examination to protect the rights of the accused in Ethiopia?
3. What does the process of forensic examination entail in the cases of homicide in Ethiopia?
4. What are the major issues that arise about the competence of forensic examination in the criminal justice of Ethiopia?

1.4 Objectives of the Research

1.4.1 General Objective of the Research

The general objective of this study is to assess the prospects and challenges of forensic examination in the criminal justice of Ethiopia regarding accused rights protection in the case of homicide crime.

1.4.2 Specific Objectives of the Research

The specific objectives of this study are to:-

- Explore the development of forensic science in the context of homicide crimes and how it evolved in Ethiopia;
- Explore the relevance of forensic examination on the accused rights protection in the prosecution of homicide case in the criminal justice of Ethiopia;
- Evaluate the processes of forensic examination in the case of homicide in the criminal justice of Ethiopia;
- Explore the major issues that arise about the competence of forensic examination in the criminal justice of Ethiopia;

1.5 Significance of the Research

This is a study that seeks to inform and add an understanding on development and competency of forensic examination in the protection of the rights of persons accused of homicide in the criminal justice system of Ethiopia. Based on the findings of this study, possible major issues are identified and discussed and relevant recommendations are suggested. The finding of this study may provide reliable information for experts, academics, policy makers, law makers, practitioners. Particularly, it could be used to

inform the Federal and Addis Ababa Police Commission, Ministry of Justice, and other concerned bodies to trigger further assessments on the field with the view to revisit the service and improve it accordingly. Additionally, the study may help researchers, particularly; those who need; to study further and in-depth about the scientific approach of forensic examination for human rights protection in criminal justice.

1.6 Scope of the Research

The scope of this study is limited to five institutions in Addis Ababa. The five institutions selected with reasons as discussed below.

- FDRE Federal High Court: is very important because it is the court that has a power to adjudicate the homicide cases in the city.
- EFPFID: is purposely selected because it examines homicide evidence, including fingerprints, blood stains, firearms, tool-marks and other trace evidence.
- Addis Ababa Police Homicide Investigation Division: is selected because it is the only homicide investigation center in the city.
- Addis Ababa Prosecution Center: is the place that holds units of legal attorney for homicide cases.
- The Menelik II Referral Hospital is selected because it is the only center, which makes the postmortem examination in the city as well as for the Nation.

1.7 Limitation of the Research

Due to lack of sufficient time and resource, information could not be solicited from all parties that may have been pertinent to the issue, particularly the State higher officials who have responsibility to advance the forensic examination, and accused persons who have

suffered injustice and unlawful imprisonment due to limitations of forensic examination. To fill this gap, the researcher relied on four actual dead court cases from the years 2005 - 2015.

1.8 Research Method

In this study, qualitative research method was utilized. According to Creswell, qualitative research method is a multi-method in focus, involving an interpretive, naturalistic approach to its subject matter (Creswell, 2014). This method is selected because it helped to collect a variety of empirical data that concern the forensic examination regarding the rights of the accused in the case of homicide in Addis Ababa. An empirical data is the production of information about the subject matter under investigation based on the personal experience of the participants in order to provide the basis for further research (Sarantakos, 1998). Similarly, this study was undertaken to explore prospect and challenges of forensic examination service that may provide reliable information for experts, academics, policy makers, law makers, practitioners and other concerned bodies in the criminal justice system of the country. Moreover, such study may create a fertile ground by providing reliable information to undertake ample decision and further study on the identified issues.

1.8.1 Target Population

The target populations have been all twenty seven informants: three judges of the Federal High Court from homicide trial, four prosecutors and six investigators in Addis Ababa Police Commission those who handle homicide cases, twelve forensic examiners of homicide evidences from Postmortem Center and Forensic Laboratory, and as well as two Lawyers those who handle the homicide case in Addis Ababa.

1.8.2 Sampling Techniques

In this research, the non-probable sampling technique was utilized to collect primary data and homicide cases. Specifically, purposive sampling or judgment selection or subjective sampling was utilized in this study to select key informants from targeted population. In the purposive sampling method, the skills and capabilities of the researcher to find appropriate individuals to contribute to the achievement of research objectives play an important role on the outcome of studies using this sampling technique (Purposive Sampling). The purposive sampling is selected in this study due to the necessity to discuss with persons who have a connection, responsibility and knowledge of the subject matter, and as well as to achieve the intended purpose of analyzing homicide cases within minimum possible resources and time.

Accordingly, the researcher purposefully selected twelve key informants: two Judges, two Prosecutors, two Investigators, four Forensic Examiners, and two Lawyers. The key informants' years of experience ranged from two to twenty five years; and as general, they had qualifications in the legal field and in policing. The ages of the informants ranged between thirty and fourthly four.

1.8.3 Data Collection Method

This research is mainly relied on primary and secondary data. Accordingly, literature review, analyzing of homicide cases, interview, and personal observation methods were utilized in this study which discussed as follows.

1.8.3.1 Literature Review

Regarding written literature, it was difficult for the researcher to find literature directly related to the topic of this study in Ethiopia. Therefore, the researcher broke the topic into concepts that mainly address the development of forensic science; the processes of forensic examination in the case of homicide, the relevance of forensic examination on the rights of the accused, and the issues that arise about the of forensic examination. The researcher collected information related to matters on each classified concepts from writing documents such as books, police reports, police manuals, research abstracts and journals. Making this classification helped him to identify some of the previous widespread books and research abstracts which provide a similar view of forensic science are reviewed in each of the detailed chapters within this study.

1.8.3.2 Key Informants Interview

The interview is employed to explore the understanding, experience, and practices regarding the forensic examination process in homicide cases and the issues that arise about the competency of forensic examination. Moreover, to achieve the objectives set in this research, the researcher conducted face-to–face, in-depth interviews with 12 well-experienced key informants using an open-ended question.

1.8.3.3 Case Analysis

In this study, the analysis of homicides cases was a valuable means to reveal the process and role of forensic examination in the protection of the rights the accused in the investigation and prosecution of homicide crime. Purposefully, four relevant homicide cases to the objectives of this study are analyzed that cover the period from 2005 to 2015.

Here, the researcher purposefully relied on the dead cases to prevent unnecessary risk with regard to confidentiality.

1.8.3.4 Personal Observation

Apart from these techniques, the researcher also used his personal experience in the field of crime and forensic investigation, in the evaluation and interpretation of the data gathered. The researcher has seven years of experience in the area of the crime and forensic investigation working at the Ethiopian Federal Police Commission. This helped him greatly to identify and obtain relevant information on the topic. In addition, the researcher has graduated with a B.Sc. Degree in Applied Chemistry, and a Post Diploma in Police Science. Certainly, this also assisted him to link the existing practice of forensic examination with the rights of accused.

1.8.4 Data Analysis

The qualitative method of research requires an accurate description of the collected raw data that is obtained from sources of data to test the findings in relation to the basic research questions. In this study, the data analysis is systematically structured, organized, and analyzed in qualitative approach was as follows. The researcher started by coding raw data collected through literature review, interviews, case study and personal observation. The data was organized and then categorized according to the research questions. Common themes were identified in order to establish a direct and systematic approach of data analysis.

1.9 Ethical Consideration

The researcher took the necessary ethical consideration while contacting key informants for the purpose of the study. They were being treated with due respect and dignity while informed that the interview is kept confidential and used only for research purpose. The researcher also informed informants their right of withdrawing from interview at any time if they feel uncomfortable and to skip any questions that they do want to answer.

1.10 Organization of the study

The paper contains five chapters. The first chapter is an introductory part of the study includes the background, statement of the problem, research objectives and questions, significance, scope and limitation of the research, the research methods and ethical Considerations. Chapter two is the discussion of literature that focused on the development of forensic science: historical milestones of forensic science and the development of modern forensic laboratory and automated databases. It also highlights the history and development of forensic science in Ethiopia.

The third chapter also presents the conceptual foundations and forensic examination for the protection of the rights of the accused based on literature review. Regarding conceptual foundations in the protection of the rights of the accused; it highlights about the concepts of the presumption of innocence, the burden of proof, the rule of law, and evidential value. Concerning forensic examination; it discussed the processing of the scene of homicide, chain of custody, analysis of physical evidences, and providing expert testimony for trial. This chapter finalized discussing the requirements of skill, equipment and facility of the lab, and accreditation standards for forensic examination. The fourth chapter is the data presentation and analysis based on interview, cases and personal

observation. The fifth chapter is the conclusion of the research, and recommendations for implementation of the findings.

CHAPTER TWO: DEVELOPMENT OF FORENSIC SCIENCE

This chapter discusses literatures that focused on the historical milestones of forensic science and the development of forensic laboratory and automated databases. It also highlights the history and development of forensic science in Ethiopia.

2.1 Historical Milestones of Forensic Science

Forensic science is a multidisciplinary subject that draws from biology, chemistry, and medicine, physics, computer science, geology, and psychology. In the broad definition, forensic science is the application of principles of science and technology in forensic investigation to enable the courts to determine the guilt of the accused in both criminal and civil Laws (Tayde, pp. 208-222). The word ‘forensic’ derived from Latin ‘forensis’, meaning ‘before the forum’ that is an alternative expression concern for ‘public’. For the reason that in ancient Rome, the Senate met in the forum that a public meeting where any social and political including, crime issues were discussed and debated. The "Eureka" legend of Archimedes (287-212 BC) can be measured an ancient justification of the practice of forensic science. Archimedes determined whether some silver had been substituted by the dishonest goldsmith of a ritual crown which had been made for King Hiero II by measuring its displacement and weight (Tayde, pp. 209-210).

In the current expression, the word ‘forensic’ represents ‘forensic science’, which is related to ‘legal’ or ‘courts’ (Tayde, p. 209). The growth of logical values of forensic science has a solid foundation, from ancient and throughout the middle ages to current period (Houck, 2009, p. 11).In order to fully appreciate and understand how the principles of forensic science developed and became scientific evidence in criminal

justice systems, it is important to discuss the historical evolution of personal and firearm identification, and postmortem examination.

2.1.1 Personal Identification

In personal identification of criminals, there are three major scientific systems. Anthropometry was the first scientific system, but a short lived one. Fingerprint identification (dactylography) is the second scientific system and remains in use today throughout the world. The third, Deoxyribonulic Acid (DNA) typing is a contemporary development(Charles R. Swanson, Neil C. Chamelin, & Leonard Territo, 2003, p. 12).

2.1.1.1 Anthropometry

Anthropometry was developed by a French criminologist Alphonse Bertillon in 1879 who is considered as the father of criminal identification. This first method of criminal identification, Anthropometry "was based on the fact that every human being differs from every other one in the exact measurements of their body, and that the sum of these measurements yields a characteristic formula for each individual"(Charles R. Swanson, Neil C. Chamelin, & Leonard Territo, 2003, p. 12). This was the most significant discovery and became a very popular system of criminal identification throughout Europe and the United States prisons until 1903 when it was replaced by fingerprint identification (Max M. Houck, & Jay A. Siegel, 2010, p. 9).

2.1.1.2 Dactylography (Fingerprint Identification)

Although fingerprint identification was used as a system of criminal identification for the first time in England 1900, fingerprints have had legal and scientific history for centuries. In the first century, the Roman lawyer Quintilianus successfully defended a child against

the charge of murdering his father by introducing a bloody fingerprint in the murder trial (Charles R. Swanson, Neil C. Chamelin, & Leonard Territo, 2003, p. 12). In the 7th century, fingerprints were used to sign contracts in China, as well as in the 14th century on official documents in Persia and in the 17th century in England (Norah Rudin and Keith Inman, 2002).

In a scientific context, several scholars argue that the scientific crime-detection methods have been promoted through the fictional character known as 'Sherlock Holmes', written by Sir Arthur Conan Doyle and published in 1887. He was also the first person who practiced the newly emerging principles of serology (bloodstains and other bodily fluids such as saliva, urine, and semen), fingerprinting, firearms identification and document examination (Saferstein, 2007, p. 5).

In 1892, the conclusive study of fingerprints was made and the book of '*Finger Prints*' published by Francis Galton. Throughout his study, he proved the uniqueness of fingerprints supported by statistical data and drew detailed descriptions of many principles of identification. In his detailed description, fingerprints were classified into three pattern types-loops, arches, and whorls (Saferstein, 2007, p. 7). Five years later, another classification system of fingerprints was published by an Englishman, Sir Edward Richard Henry. In the early 20th century, Henry's fingerprint classification system was the first systematic and official use of fingerprints for personal identification in Europe and North America (Henrich, 2012, p. 8). Because in 1903, the fingerprint was used to identify two twins at Fort Leaven worth prison who could not be differentiated through body measurements or even photographs (Henrich, 2012, pp. 8-9).

To find out whether two fingerprints are a positive match, it was proved that fingerprinting has three fundamental principles by Edmond Locard in 1920 (Henrich, 2012, p. 9). The first principle, a fingerprint is an individual characteristic; no two fingers have yet been found to possess identical ridge characteristics. The second principle states that a fingerprint remains unchanged during an individual's lifetime, except when an injury reaches deeply enough into the skin. According to the third principle, fingerprints have general ridge patterns that permit them to be systematically classified (Saferstein, 2007, pp. 642-647). Because of these fundamental principles, during and after World War I, fingerprinting had become the main method of identifying criminals throughout the world (Saferstein, 2007, pp. 428-430).

2.1.1.3 Bloodstain pattern and DNA typing

Bloodstain pattern and DNA identification are considered asthe greatest developments in forensic science. At the beginning of the 20th century, greater understandings of the human body and other aspects biology led the way for improved identification and classifications of blood samples. The different blood groups (A, B, AB, and O) were discovered by Dr. Karl Landsteiner in 1901. By 1915, through further research by Leone Lattes, the first procedure and technique (antibody test) was developed for the identification of an individual in a criminal investigation by determining the blood types of a dried bloodstain based on typing of ABO blood groups (Saferstein, 2007, p. 7).

After the structure and functions of DNA were discovered and published by James Watson's and Francis Crick's 1953, While Sir Alec Jeffries developed the first DNA profiling test to identify individuals in 1984, which set the ground for the birth of forensic DNA technology. In the late the 1980s, Kary Mullis discovered the polymerase chain

reaction (PCR) that is the way our bodies reproduce DNA; and following this discovery, DNA evidence was used in the courtroom for the first time to convict Tommy Lee Andrews of a string of sexual assaults in Florida(Max M. Houck, Jay A. Siegel, 2010, p. 10). Due to the serious challenge of admissibility of DNA evidence at the end of the 1980s, guidelines of certification, accreditation, standardizations, and quality control required for both the general forensic community as well as DNA laboratories. Then after, in 1992, the first recommendations on the evaluation of Forensic DNA Evidence were published by the National Research Council Committee of USA. As a result, the U.S courts began fully admitting DNA evidence for the first time in the same year (Henrich, 2012, p. 23).

In current forensic science examinations, bloodstain pattern and DNA analysis have modernized the capability of the criminal justice system to prosecute homicide and other crimes and enable justice system to free the innocent. It is used to define the characteristics of unidentified human remains, link a suspect or victim to the scene of a crime, and distinguish an unknown offender. Bloodstain patterns often tell a story of what took place at the scene of a crime. Hence it can aid an investigator in deciding what stains are the most probative to collect for DNA typing (Barry A. J. Fisher and David R. Fisher , 2012, p. 193). Furthermore, forensic analysis issues well-understood mechanisms in the form, grouping, and distribution of bloodstains that can support the investigation in rebuilding what is committed at the scene of a crime. It is also used to determine the movement and direction of persons, the sequence of events, the area of origin of a pattern, the number of impacts during an incident, the object used to create a specific pattern; and in determining whom the blood belongs. These determinations can be used to

verify or reject the statement made by a victim, suspect, or witness (Barry A. J. Fisher and David R. Fisher, 2012).

2.1.2 Firearms Identification

Firearms identification determines whether an evidence bullet was fired from a suspect weapon. It may also include comparison of fire cartridge cases, firearm function tests, serial number restorations, and distance determinations. The development of firearms identification mostly related with the growth of technology in the 20thcentury (Heard, 2008, pp. 145-167). In 1900, an article by Dr. A.L. Hall appeared in the Buffalo Medical Journal that gives the impression about early cases of bullet identification that a bullet fired through different makes and types of weapon, of the same caliber, were impressed with searching marks of varying type. Following this impression, in 1902, the first court case involving firearms evidence took place in the US in which a specific gun was proven to be the murder weapon by Oliver Wendell Holmes. In this case a magnifying glass was used to match the bullet from the victim with a test bullet (Heard, 2008).

In 1913, Professor Balthazard published the most significant article on firearms identification. In his article, he noted that the firing pin, breechblock, extractor, and ejector all leave marks on cartridges and that these vary among different types of weapons (Heard, 2008, p. 146). In 1925, Goddard wrote an article known as "Forensic Ballistics" which describes the advanced techniques of the comparison microscope regarding firearm examination to determine whether a suspect's gun has fired a bullet for the U.S. Army (Max M. Houck, & Jay A. Siegel , 2010, p. 10). After seeing Goddard's illustrations of advanced techniques, the famous English gun maker, Mr. Robert

Churchill manufactured a comparison microscope for himself in 1927(Max M. Houck, Jay A. Siegel , 2010).

2.1.3 Postmortem Examination

Postmortem examination is a forensic pathology that detects, describes, and interprets how a person came to be deceased to determine the cause and manner of death. Postmortem examination is performed to satisfy the law in special circumstances involved in mechanical trauma, either with criminal connotations as in homicide by shooting, stabbing, or punching or in civil matters such as road, rail, and air accidents and suicide (Carter, 2006, p. 195).

The history of postmortem examination or forensic pathology is closely linked to the development of legal systems and court procedures. In ancient Egypt, King Ptolemy I Soter (367-282 BC) supported the field of pathologic anatomy as well as establishing the great university and library in Alexandria (Choo, 2012, pp. 15-21). A physician Galen of Pergamum (129-201AD) performed anatomic dissections on animals and produced a written work about the human body during the Roman Empire. His teaching influenced most Roman physicians and continued into the late middle ages; and then the first law that authorized human dissection was established during the rule of Emperor Frederick II in 1231(Choo, 2012, p. 16).

Starting from the sixteen century, in Europe, experts in medical field, in the army and academics in universities begun to discover different evidences to examine the cause of death and this laid the foundation of modern pathology by studying changes which

occurred in the structure of the body as the result of disease (Max M. Houck, & Jay A. Siegel, 2010, p. 8).

In 1840, in France, Mathieu Orfila who is considered as the father of forensic toxicology published the first scientific treatise on the detection of poisons and their effects on animals. He also gave essential scientific testimony in a trial of suspected cases of arsenic poisoning in Paris. This first scientific technique of investigation and testimony of Orfila is fundamental marks in formulating the modern standardized forensic science (Max M. Houck and Jay A.Siegel, 2010).

In the middle of the 19th century, the importance of the microscope in pathological research was realized and the method of doing autopsies developed by a German pathologist Rudolf Virchow, who is referred to as the "Father of Pathology". Furthermore, in 1915 effective medical examiner system (forensic pathology) was created in New York City. The system also became more and more a sub-specialty and was authorized to investigate deaths resulting from criminal violence, casualties, or suicide in 1959(Choo, 2012, p. 19).

Currently, post mortem examination is universally utilized to determine whether the death is homicidal, suicidal, accidental, or natural. More importantly, the report of postmortem examination contains all of the detailed findings, including description of all injuries, abnormalities of normal organs, and disease and ancillary investigation, and cause of death (Wright, 1992, pp. 103-116).

2.2 Development of the Forensic Laboratory and Automated Databases

The forensic lab is also one of the most important milestones of forensic science and its contribution to the modern criminal justice system. In 1910, the Institute of Criminalistics established at the University of Lyons by Edmond Locard. This institute immediately became the international center for the study and research in forensic science. Then after World War I, Locard's successes served as an impetus for the formation of police laboratories in Vienna, Berlin, Sweden, Finland, and Holland (Saferstein, 2007, p. 6). By the late 1920s, the advanced techniques of firearm examination were endorsed to determine whether a suspect's gun has fired a bullet using the comparison microscope in the U.S. Army (Max M. Houck, & Jay A. Siegel, 2010, p. 10).

In 1932, the Federal Bureau of Investigation (FBI) organized the most ambitious national laboratory; which is now the world's largest forensic laboratory, and its activities, structure and arrangement have been recognized as a model for forensic laboratories established in the United States and other countries. In 1935, national system of regional laboratories under the direction of the government's Home Office was developed by Great Britain (Saferstein, 2007, pp. 9-10).In the improvement of forensic lab, the well-known forensic national databases include those for fingerprints, DNA, and bullets and cartridge casings introduced which are the most important tools to the modern criminal justice system (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 98).

2.2.1 Automated Fingerprint Identification System (AFIS)

The US Federal Bureau of Investigation (FBI) established a program that contained a national computerized fingerprint database known as Automated Fingerprint

Identification System (IAFIS) for the purposes of comparison and identification in 1999.This computerized database was developed for paperless submission and storage of fingerprints as well as for faster search and communication. This method also helps the police to share fingerprints collected from crime scenes, suspects, and victims throughout the nation with a matter of minutes (Henrich, 2012, p. 9). AFIS is used to scan live fingerprint, fingerprints found at a crime scene, and automatically find and record the patterns, ridges, and ridge characteristics of fingerprints. These data are then compared by computer with information in the database to produce a shortlist of candidates in order of likeness. After a computer search has been completed, the crime scene fingerprint is compared manually by trained fingerprint specialists to identify if a match actually exists(Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 99).

2.2.2 National Combined DNA Index System (CODIS)

By the end of the 20th century, the National Integrated DNA Index System (NIDIS) was formed which allowed for interstate cooperation in linking and solving crimes. Just as with modern fingerprint identification, modern DNA identification has become a partially computerized analysis. The current fully computerized federal database in use is known as the Combined DNA Index System (CODIS) (Henrich, 2012, p. 25).

CODIS: is the national computerized genetic profile, used for forensic DNA analysis. This National DNA Database was mainly created from two indexes: the forensic and offender indexes. The forensic index contains DNA profiles from unsolved crime-scene evidence, whereas the offender index contains the profiles of convicted or arrested individuals. The law enforcement agencies search the offender index against DNA

profiles recovered from biological evidence found at unsolved crime scenes. Based on a match, this approach has proven to be tremendously successful in identifying perpetrators because most crimes involving biological evidence are committed by repeat offenders (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 99).

2.2.3 Integrated Ballistic Identification System (IBIS)

In the 1990s, the FBI developed a computer based comparison procedures for the matching of strain on digitized images of the fired cartridge cases and bullets with the system known as 'Drug-fire'. Around the same time, the Bureau of Alcohol, Tobacco, and Firearms (ATF) had also developed its own automated ballistics identification system known as IBIS. Because these systems were not compatible with each other, and specialized hardware and software were needed for each one; the FBI and ATF decided to phase out Drug-fire and to standardize National Integrated Ballistic Identification Network (NIBIN) on the IBIS platform (Heard, 2008, pp. 145-167).

At the present time, IBIS is a centralized database used for comparison of markings left on all bullets, shell casings and cartridge casings. Firearms evidence from shooting scenes and test-fires of guns found at a scene, especially bullet and cartridge casings ejected from auto loading weapons, is scanned and entered into the database. If the same weapon was used in a previous crime the computer software will flag the evidence from the previous case so that the actual evidence item can be retrieved and compared manually with the newly entered evidence item (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 99).

2.3 The History and Development of Forensic Science in Ethiopia

In 1913, during the reign of Emperor Menelik II, the modern police force known as "yeketema Zebegna" or the City's Guard was founded for the first time; but the formal justice system as well as modern criminal investigation system hasn't taken shape. The application of forensic science was also introduced and developed in Ethiopia after a strong police force was established in 1942 by proclamation (Mekonnen, 2013, p. 2).

2.3.1 The Haile Selassie Regime

In 1942, fingerprint identification was started for the first time and was used for recording of an accused fingerprint on an identification card (Need Assessment on the Biochemical Investigation Division, 2014, pp. 8-9). The program of forensic science study was started by the ABADINA Police College (now Ethiopian Police University College) in 1946. The program of forensic science study given at the ABADINA Police College incorporated the examination of fingerprint, firearm, trace, and documents (Philipos Petros & Samuel Mitikie, 2009, p. 209).

Starting from the 1950s the United States, West Germany, and Israel began training a number of Ethiopian police officers in forensic science and they also offered different materials to build up the sector. In 1957, the first national police forensic laboratory was established under criminal investigation department and it took up fingerprint examination and document and photographic services (Need Assessment on the Biochemical Investigation Division, 2014, p. 8). In the early 1960s, with the support of West Germany, the national police forensic laboratory was organized with advanced equipment and an additional forensic laboratory established in Harar and Asmara.

Additionally, forensic laboratories were restructured under the criminal investigation department in 1969 with six laboratories, which were namely fingerprint, document, firearms and traces, arson, biochemical and photography (Assessment on the Problems of Forensic Pathology and Forensic Psychiatry, 2014, p. 8).

2.3.2 The Derge Regime (1974-1990)

During the Derge regime, different technical and material assistances provided during the Imperial time by western countries for improvement of forensic science in Ethiopia were disconnected due to ideological differences. However, in different interval in the period between 1974 and 1989, a number of forensic personnel took basic training of forensic science in East Germany, England and Sudan (Assessment on the Problems of Forensic Pathology and Forensic Psychiatry, 2014, p. 9). Additionally, written documents confirm that the postmortem (autopsy) examination center was established in the Menelik II Referral Hospital in 1977; still it is the only institution in the entire country where the examination of dead bodies for the identification of causes of death is conducted when requested by the police(Besrate Tena (ብስራተጤና) Especial Publication, 2015, p. 184).

2.3.3 Post 1991

After 1991, a lot has been done to advance the service of forensic examination both in term of manpower and equipment. Some necessary equipment of forensic science has been bought with more than 100 million Birr by the government for EFPFD (Assessment on the Problems of Forensic Pathology and Forensic Psychiatry, 2014, p. 8). Within the adoption of Business Processing Reengineering (BPR), the EFPFD was reorganized with nine divisions in Addis Ababa. These divisions are namely fingerprint, biochemical,

firearms, traces, arson, document, explosive, cybercrime and photography. Beside this, the Crime and Forensic Investigation Institute is established under the Ethiopian Police University College mainly to provide forensic science training for investigators and to conduct research (Business Processing Reengineering (BPR), 2010). Additionally, the National Automated Fingerprint Identification System (AFIS) has been established to computerize the fingerprints of criminals that were recorded manually. Now, the new AFIS has started operating in four regional states, namely Amhara, Oromia, Tigray, and Southern Nations, Nationalities and peoples (Need Assessment on the Biochemical Investigation Division, 2014, p. 9).

This chapter is finalized as follow. The development of forensic science has a solid foundation, from ancient and throughout the middle ages to the current day. It was not used commonly in the world to identify the offender since all community had own unlike system for identifying the violator and determining the means of punishment to be imposed. With the rapid growth of technology, the use of forensic science increased in the investigation and prosecution of criminal act to identify the guilt and innocence within the contemporary community guided by the rules and regulations of governing. The historical evolution of personal and firearm identification and autopsy examination are a milestone that forensic science developed and became scientific evidence in criminal justice systems, particularly in the case of homicide crime. In practice, 'forensic science' refers to the use of science and technology to investigate events and prove the case beyond reasonable doubt to avoid miscarriages of justice to the accused.

CHAPTER THREE: CONCEPTUAL FOUNDATIONSAND FORENSIC EXAMINATION FORTHE PROTECTION OF THE RIGHTS OF THE ACCUSED

This chapter also discusses literatures of conceptual foundations and forensic examination process in the protection of the rights of the accused person. It also discusses issues related to competency of forensic examination. Before discussing these issues, it is helpful to review the literatures for general understanding of homicide crime and criminal justice system.

3.1 Conceptual Foundations for the Protection of the Rights of the Accused

In this study, discussing the concept of the rule of law, the presumption of innocence, the burden of proof, and evidential value is pillar to understanding how the rights of the accused are protected so far. And also it provides the initial required concepts to support and contextualize the important aspects of forensic examination in the criminal justice system to protect accused person.

3.1.1The Rule of Law

The rule of law is a cornerstone that the prosecution bears the burden of proof in relation to every issue arising in the course of a criminal trial. With common view, the rule of law can be understood as a system that acts to protect the rights of citizens from arbitrary and offensive activities by endorsing unquestionable liberties and making order and predictability concerning how a country functions (Helen Yu and Alison Guernsey). According to Rachel Kleinfeld, the rule of law is defined in terms of five goals: making the State abide by the law, assuring equality before the law, providing law and order, providing fair justice, and protecting human rights (Cole L. C., 2011, p. 2).

The rule of law is the heart of criminal investigation and prosecution process since it deals with the notion of "proof beyond a reasonable doubt"(Cole, 2011, p. 7). The “beyond reasonable doubt” is very important for giving a verdict of guilty in the criminal justice procedure. A common proverb states that “it is better to have ten guilty people go free than to have one innocent person erroneously convicted” (Yayala, 2013, pp. 88-102). The legal term, proof beyond reasonable doubt indicates the fundamental principle that if there is any doubt in the minds at all then the accused is entitled and must be found not guilty(Helen Yu and Alison Guernsey). It also defined by Denning J. as follows:-

> *“Proof beyond reasonable doubt does not mean proof beyond the shadow of a doubt. The law would fail to protect the community if it admitted fanciful possibilities to deflect the course of justice. If the evidence is so strong against a man as to leave only a remote possibility in his favor, which can be dismissed with the sentence "of course it is possible, but not in the least probably," the case is proved beyond reasonable doubt, but nothing short of that will suffice”*(Fundamental Principles and Concepts of Criminal law, p. 7).

The rule of law also dictates what investigators and prosecutors can and cannot do while performing their duties. The law also set principles of evidence to convict the true offender. These principles of evidence are included, the evidence must prove the defendant absolute guilty or guilty beyond question at all; and, significantly, the evidence must also clear, convincing and more unquestionably (Palmiotto, 1994).

3.1.2 Presumption of Innocence

The concept of presumption of innocence is fundamental and the cornerstone of the criminal justice system. It is an essential safeguard of an accused person that he is presumed innocent until proved guilty (Assefa, 2012). Presumption of innocence is recognized in international human rights instruments as well as in national legal codes and the constitution:-

Article 11 of the Universal Declaration of Human Rights (UDHR) states that "Everyone charged with a penal offense has the right to be presumed innocent until proven guilty according to law in a public trial at which he has had all the guarantees necessary for his defense"(UDHR, 1948). The International Covenant on Civil and Political Rights (ICCPR), Article 14 (2) state: "Everyone charged with a criminal offense shall have the right to be presumed innocent until proved guilty according to law" (ICCPR, 1966). Likewise, the African Charter on Human and Peoples' Rights (ACHPR), Article 7 (1) (b), states: "the right to be presumed innocent until proved guilty by a competent court or tribunal" (ACHPR ("Banjul Charter"), 1981).

Pertaining to Ethiopia, the FDRE constitution, article 20 (3), also stipulated as "during the proceedings accused persons have the right to be presumed innocent until proved guilty according to law and not to be compelled to testify against themselves" (FDRE Constitution, 1995). The criminal procedure code of Ethiopia, article 141 and 142 also guarantees that the accused person to be presumed innocent until proven guilty by the prosecution (Criminal Procedure Code of Ethiopia Proclamation No. 1, 1961).

These provisions of the presumption of innocence allow for the implication that the accused person is presumed to be innocent unless the prosecution has proved the defendant is guilt within beyond a reasonable doubt. This is because the world's trends of democratization encouraged human rights issues and, are being a burning and sensitive issue. As a result, all people must find that the public prosecution has responsibility for the burden of proving the defendant is guilty beyond a reasonable doubt (Shealy, 2013).

3.1.3 Burden of Proof

One of the consequences of the rule of law and presumption of innocence set free the accused person from the burden of proof and placing on the State to prove the guilt of the accused in the criminal cases. As a result, when the accused person can create a strong defense that he was not present during the alleged offense was committed; not the responsibility of the accused to prove his defense (Paul B. Weston, Kenneth M. Wells, & Marlene E. Hertoghe, 1995, p. 5). According to Black's law dictionary:-

> *"The burden of proof may require a party to raise a reasonable doubt concerning the existence of the fact by a preponderance of evidence or clear and convincing proof or by proof beyond reasonable doubt. In all criminal cases the elements a crime must be proved by the government beyond reasonable doubt"* (Garner, 2004).

In the criminal proceedings in Ethiopia, the burden of proof is dependent upon the prosecution to prove the elements of the crime elements and his charge. According to article 20(3) of the FDRE constitution, burden of proof imposes on the public prosecutor implicitly by providing a presumption of innocence for the accused (FDRE Constitution , 1995). Article 136 (2) of the criminal procedure code of Ethiopia also stipulates that "the

public prosecutor shall then call his witnesses and experts, if any. The witnesses and experts shall be sworn or affirmed before they give their testimony" (Criminal Procedure Code of Ethiopia Proclamation No. 1, 1961).

Therefore, every step in the criminal justice process must be taken with care and prove the case beyond question at all to ensure justice. It is also clear that the burden of the State to use accurate and objective information or evidence to prove the crime cases beyond a reasonable doubt (Kremens, 2011).

3.1.4 Evidentiary Value

Evidence is any statement or material object from which reasonable conclusions can be drawn. It is a broad category embracing anything perceptible to the five senses, in a criminal trial concerns the intent, motive, means, and opportunity to commit a crime (Paul B. Weston, Kenneth M. Wells, & Marlene E. Hertoghe, 1995, pp. 1-2). In general, there are two principal sources of evidence, namely people (testimonial evidence) and objects (physical evidence), and both sources play a vital role in the criminal investigation and prosecution process (Gardner, 2005).

Testimonial evidence: consists of information gleaned from witnesses, victims and suspects through interviewing and interrogation that point to an individual as the perpetrator of a crime (Gardner, 2005). After a homicide crime is committed, the assigned investigator officer takes a written statement from the most important persons who are complainant, and other witnesses. The complainant and witness can provide valuable information and can help the criminal justice to establish the facts of the case to prosecute suspects. Routinely, the value of testimonial evidence is overestimated during

crime investigations, and in many cases the witness testimony will be the only evidence before the court (Van Rooyen, 2001).

Physical evidences: are objects or substances found at the crime scene, on the victim, and on the suspect that are associated with the crime and may be linked to the perpetrator. The physical evidence found at the scene of crime is often the cornerstone for successful criminal investigations and prosecution process (Lee, H.C., Palmbach, T., & Miller, M.T. C, 2001). The physical evidence or clues found at a crime scene or on suspect includes DNA evidence (such as blood, saliva, or semen), fingerprint, latent prints, firearms, ballistics, drugs, clothing, and others trace evidence (Tom McEwen, Wendy Regoeczi, 2015). If these physical evidences are properly collected and along with relevant samples are submitted for forensic laboratory, the opinion given by the scientists will be acceptable by the courts and the defense without dispute since they have to be strong enough to bring the guilt of the accused beyond reasonable doubt (Tom McEwen, Wendy Regoeczi, 2015). This is because the finding of forensic lab can provide details or reveal that how, where and when a crime occurred, including the weapons used; identify the offenders and victims of crime; and prove or disprove the eyewitness testimony since sometimes eyewitness testimonies unreliable (Lyman, 1999, pp. 41-42).

The present Ethiopian evidentiary value mainly depends on the evidentiary rules which are found throughout substantive, procedural and other proclamations (Kahsay Debesu, & Andualem Eshetu, 2008, pp. 23-25). However, the Draft Criminal Procedural Code lay down specific provisions with regard to testimonial evidence and physical evidence. Particularly, articles 125 to 131 of the draft code are specific provisions to ensure the value of forensic evidence (FDRE Draft Criminal Procedural Code, 2013).

3.1.5 Criminal Justice System and the Forensic Examination

Criminal justice system (CJS) is the combination of law enforcement agencies, the court system and the correctional system that has the legal power to fight against social harm by arresting and punishing those who violate the law and deterring those who may be anticipating future unlawful activity (Siegel L. J., 2010). Pre 19th century, when the rules of the society violated; all members were responsible for identifying the violator and determining the means of sanctions to be imposed. Serious crimes usually led to consider that torture, banishment or death as corporal punishment. Minor crimes led to a similar corporal punishment or giving property to the offended family as atonement of the transgression (Kiely, Forensic Evidence: Science and the Criminal Law, 2001, pp. 14-22). Hence, it was uncommon in the community to harm the perpetrator to prevent future violations and identify the offender.

With the impact of industrial revolutions and rapid growth of technology, State's demand for the improvement of the criminal justice system increased since the State lawfully has a mandate to seek the truth, to find justice for both victims and defendants before trial, and to keep the consistency of the rule of law (Siegel L. J., 2006). It has international and national recognition that the State has the responsibility that ensuring the existence of a CJS for investigation, and prosecution homicide criminals and for the protection of the rights of the accused evidently (UNODC Global Study on Homicide, 2013, p. 91). To achieve this, State focuses on the prevention of crime and if a crime is committed, investigation and prosecution undertakes to maintain justice. In the process of criminal justice to identify the criminal, the tactical and technical investigation is applied. The tactical investigation deals with complaints, interrogates, suspects and witnesses to reach

to a conclusion. In the technical investigation (forensic examination), physical evidences are located, collected, preserved, examined and interpreted to prove the words of the suspect /witness, whether a crime is committed or not or to identify the criminal (Zemichael, 2014).

The forensic examination is the scientific application that directed to the recognition, identification, individualization, and evaluation of physical evidence; it can reveal many seemingly unsolved blind crimes (Lyman, 1999). Identification is the first and most important process in the categorization of physical evidence since it answers the forensic investigation question: ‘‘what is it?” (Barry A. J. Fisher and David R. Fisher, 2012, pp. 106-108). The identification of victim, origin and human act categories are the most well-known with regard to homicide crime. *Victim Identification* is one of the identification of the dead victim, particularly using fingerprints and DNA profiling(Fisher, 2000).*Origin identification* is the other main identification process to determine whether the disputed sample and the standard have a common origin through analysis of physical evidences of homicide (Barry A. J. Fisher and David R. Fisher , 2012). The *Identification of human acts* is also the identification process that refers to the modus operandi that means, the method used by the suspect to commit the crime (Van Rooyen, 2001).

Individualization is a process goes through different identifications and comparisons to answering the questions: ‘‘which one is it?’’ or ‘‘whose is it?’’ at least depends on two items, whether the item is alive or non-living; it does this by concluding a common source. In this process, forensic experts will continue with their analysis to determine if a particular sample is unique, even among other members of the same class (Van Rooyen, 2001).

Therefore, CJS frequently uses forensic examination that helps to identify crime, gather evidence, and individualize the incidence and to prove the defendant absolute guilty or innocent beyond question at all (Tayde, 2015, p. 208). When the physical evidences have been carefully collected and properly examined, then entire forensic evidence assists the overall criminal justice. Important aspects of such forensic techniques have accurate and objective information that reveals the occasions at a crime scene (Saferstein, 2007, pp. 27-28). The forensic science evidence will go as a tool to avoid miscarriages of justice to the accused through answering the questions of court by professional forensic expert's testimony (Max M. Houck, & Jay A. Siegel, 2010, p. 28). As a result, peace and justice will ensure in the society by convicting the criminal and free the innocence within beyond reasonable doubt, and so that the citizens can enjoy the fruits of activities and their rights and freedom (Lyman, 1999, pp. 41-42)

3.2 Homicide Crime and the Forensic Examination Process

As discussed above, forensic examination makes use of scientific evidence for identifying the involvement of perpetrator or alleged criminal in the act of the committed crime through comparison with the evidence and facts collected from the scene of crime. Hence, this sub-section presents the overall understanding of homicide crime and the forensic examination process in terms of processing homicide scene, chain of custody, analysis of physical evidences, and expert testimony in court through review of literatures.

3.2.1 Homicide Crime

The term 'homicide' and 'murder' are used interchangeably to denote the act of a crime which involves the killing of a human being. Murder is a part of the broad category of

homicide; is defined as the killing of a human being by another human being and is divided into two broad classifications, namely non-criminals homicides and criminal homicides. Non-criminals homicides are an act of homicides that may be justifiable or excusable. The justifiable homicide is the necessary killing of another person in the performance of legal duty or the exercise of a legal right when the killer was not at fault. Whereas the person who commits excusable homicide is to some degree at fault, the degree of fault is not enough to constitute a criminal homicide, which results from accident and self-defense when the killer is totally without fault (Charles R. Swanson, Neil C. Chamelin, & Leonard Territo, 2003, p. 274). Criminal homicide is typically categorized into three types, which are first degree murder, second degree murder, and manslaughter and it is treated and punished as a crime (Brookman, 2010, p. 217).

According to the criminal code of Ethiopia, articles 239, 240 and 241, homicide crime is mainly classified into three levels based on the intention and means of crime namely aggravate, ordinary, and extenuated. Aggravated homicide is a crime against life that is committed intentionally with such premeditation, motive, weapon or means, in other aggravating circumstances. Ordinary homicide is also a crime against life that is committed intentionally, but without aggravating circumstances. Extenuated homicide is committed intentionally within the limits of legitimate defense (The Criminal Code of the Federal Democratic Republic of Ethiopia , 2004).

As to what the causes of homicide crime are or what promotes it, the United Nations Office on Drugs and Crime (UNODC) indicated that homicide crimes depend on many reasons and that are multiple driving forces. It also stipulated that “the causes of homicide crimes can be identified on the basis of elements such as premeditation,

motivation, context, instrumentality and perpetrator-victim relationship, which all play roles of varying magnitudes in different forms of homicide crimes"(Global Study on Homicide, 2013, p. 39). There are four most well know categories of homicide crime causes, namely criminal-enterprise, the personal cause, the sexual homicide, and the group cause (Charles R. Swanson, Neil C. Chamelin, & Leonard Territo, 2003, p. 275)

3.2.2 Processing the Scene of Homicide

The scene of homicide is the actual place where a killing has happened and it is protected by the first law enforcement officers that arrives at the scene. After a safe and effective protection of the crime scene made by the first arriving officers, the crime scene technicians have the responsibility of documenting it through photographing, videotaping, and sketches and mapping. Then after, the collection of physical evidence can start (M.Gardner, 2005). Most physical evidences or clues found at homicide scene or on a suspect are fragile (most easily lost) and they need special consideration in the collection and transportation process (Tom McEwen, Wendy Regoeczi , 2015). These include: fingerprints, blood and body fluid (such saliva, or semen), firearms and tool marks, and others trace evidence.

Fingerprints can be divided into plastic fingerprint, latent fingerprint, and visible fingerprint and its place at the homicide scene or on the suspect (Tom McEwen, Wendy Regoeczi, 2015). A plastic fingerprint is found on materials such as fresh paint, glue, tape, plastic explosives, putty that has not hardened, candle wax, sealing wax, fats, flour, soap, thick and sticky oily films, grease, pitch, tar, resin, and clay. A Latent fingerprint is a print often found on objects with smooth surfaces and on paper, visible only after

properly examined developed. A visible fingerprint is a print that occurs when fingers are contaminated with other substances like pigments, ink, soot flour, face powder, oils, safe insulation, or blood (Barry A. J. Fisher & David R. Fisher, 2012). In the collection process of fingerprints, all non-movable items should be processed at the scene of the homicide crime using appropriate, such as tools gray powder, black powder, or black magnetic powder. All small movable items must be packaged in paper bags or envelopes and sent to a forensic laboratory for examination (Barry A. J. Fisher and David R. Fisher , 2012).

Blood and body fluids (semen and saliva) can found in the form of liquid or dried that may have a connection to the offense or the people involved in homicide crime. These substances must be subjected to biochemical analysis to determine identity and possible origin since it can be matched back to an individual with a high degree of probability (Philipos Petros & Samuel Mitikie, 2009, p. 224). Dried blood and body fluid stains must be collected in the manner that if the item can be transported, it package in a paper bag or envelope and send it to the forensic laboratory. Whereas the item cannot be transported, it can be used either fingerprint tape to lift stains like a fingerprint, or fix the stain on a paper packet and package it in a paper envelope; or absorb the stain onto moisturized threads with distilled water (Philipos Petros & Samuel Mitikie, 2009, p. 225).Wet with blood and body fluid stains must be collected in the manner that if the item can be transported, it package in a paper bag or plastic bag but the transportation time must no more than two hours. If the item cannot be transported, absorb the stain onto cleaned cotton sheeting and bring it to a secure place and allow it to thoroughly air dry (Philipos Petros & Samuel Mitikie, 2009).

Firearms **(**bullets and casings) found at the scene of homicide crime that can be undeniably matched back to a gun in the ownership of a suspect and it can be examined in the forensic laboratory, sometimes tell an investigator what make and model of weapons may have expended the casing or bullet(Philipos Petros & Samuel Mitikie, 2009, pp. 225-226). Casings and/or bullets found at the scene of the homicide crime should be packaged separately and placed in paper envelopes or small cardboards pillboxes before submission to the forensic laboratory (Philipos Petros &Samuel Mitikie, 2009, p. 226).

3.2.3 Chain of Custody

All forensic examination process expected to have chain of custody for the documentation of collecting and analyzed item step-by-step that is to be introduced into evidence. The size of the chain of custody is depending on the volume of casework, and it must have a secured area (unit) for receiving collecting items and for storing analyzed the evidence. Starting from the homicide scene, the item will be tagged with identifying information include the time and place the item was found or taken, the person making the tag, and any other relevant information about the circumstances(Max M. Houck, & Jay A. Siegel, 2010). When a police officer or a crime scene investigator submitted the item to the lab, the custodian or the unit office should complete a form that defines the evidence and the types of examinations demanded. Then the custodian must give a unique laboratory number of the examination case, and each item must be labeled with this unique number. This chain of custody must continue in the returning of the evidence from the time it was analyzed to at the time it is presented in court since it used as a control mechanism (Max M. Houck, & Jay A. Siegel, 2010).

3.2.4 Analysis of the Physical Evidence

Analysis of physical evidence is the process of examining and evaluating the items found at the scene of homicide in order to link the evidence to the scene and suspect (Keith Inman, & Norah Rudin, 2001).The forensic experts start the examination of physical evidences from formulating and explicating the scientific hypothesis in order to test their analyses. To formulate a useful scientific hypothesis, the experts must consider the idea of the crime scene situations because the result of analysis based on that information (Keith Inman, & Norah Rudin, 2001). The experts may consider using special analysis tools and standard procedures in the examination or analysis of the physical evidence in order to produce the true result. Once analysis made, the experts must provide interpretation of the evidence and make a conclusion in a written report to provide an understanding of the evidence separately from an argumentative atmosphere (Keith Inman, & Norah Rudin, 2001). Unquestionably, the analysis of physical evidence must provide an acceptable and convincing result (beyond reasonable doubt) to convict the criminal and to free the innocent (Keith Inman, & Norah Rudin, 2001).

3.2.5 Providing Expert Testimony to Trial

Providing testimony to trial is the final duty of forensic experts that involves explaining the findings of evidence analysis to a judge in a court of law because the result may ultimately be an element in determining a guilt or innocence an accused person. Providing an expert's testimony is considered as a professional testimony that will assist the court in determining the truth of the cases (Saferstein, 2007). The expert's manner and ability to explain the finding facts clearly, briefly, and logically to a judge or jury is

the more considerable issue; and also the forensic expert should only be an activist of truth rather than a supporter of one party (Saferstein, 2007).

3.3 Requirements of Forensic Examination

The forensic examination requires three minimum components: skillful forensic expertise, equipment and facility of forensic lab, and accreditation standards (Max M. Houck, & Jay A. Siegel, 2010, p. 11). These issues are discussed in this section as follow.

3.3.1 Requirement of Forensic Experts Skill

Forensic experts are mainly who performing scientific analysis of evidence and offering expert testimony in criminal and civil proceedings. The forensic experts have also responsibilities such as providing training in evidence collection and preservation, doing research, or performing other studies such as validation procedures for new methods (Keith Inman & Norah Rudin, 2000, p. 306).

Similarly, professional, scientific staffs related to the scene of the crime and laboratory environment are the most essential element that as stated by the United Nations Office on Drugs and Crime (UNODC) that:-

> *"Skills required to recognize/detect physical evidence; to preserve physical evidence; to document physical evidence and record all aspects of the collection process; to recover, package, transport, and store physical evidence; to evaluate scientific findings in the context of the case; to communicate scientific findings; for work at the crime scene; and for work in the laboratory (good laboratory practices) are the required skills"*(Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2001, pp. 5-13).

Fundamentally, forensic personnel should have a comprehensive knowledge and skills in the general science and in the specific methods for the forensic examination process. This is because the skill of evidence collection and examining physical evidence often depends on the extent of forensic personnel education, training and working experience. For this reason, a designed education and training program are more critical to recruit, forensic personnel, including for recruiting persons since it may enable that the forensic personnel to get an awareness of how analysis is done, and how each action can affect the total forensic investigation(Keith Inman & Norah Rudin, 2001, pp. 307-308).

3.3.2 Equipment and Facilities of Forensic Laboratory

In many countries, the majority of forensic laboratories provide various forensic examinations to law enforcement departments, evidence requested by an accused person under a court order and including evidence for private citizens. Moreover, a forensic laboratory is a scientific organization with a dedicated mission of aiding the process of criminal justice (Max M. Houck, & Jay A. Siegel, 2010, pp. 10-11). Although different States have different models of jurisdiction, it is mandatory that the police officers, detectives, crime investigators, and prosecutors have to access the laboratory services of scientific evidence easily (Saferstein, 2007, p. 11).

The forensic equipment should be fulfilled properly in forensic lab for examination of physical evidences. Particularly unique features in an analytical setting for homicide case, such as pathology, toxicology, bloodstain pattern and DNA analysis, firearm examination, latent fingerprint analysis services should be facilitated (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, pp. 32-38).

As discussed in chapter two above, national databases for fingerprints, DNA, and bullets and cartridge casings are also the most required tools for homicide cases. Because they allow the comparison of data and information from forensic casework with a large set of categorized data and information from previous cases or reference data, to assist in identifying materials in casework, to establish links with other cases and to assist in recognizing patterns (Staff Skill Requirements and Equipment Recommendations for Forensic Science Laboratories, 2011, p. 98).

3.3.3 Accreditation Standard

Arguably, the process forensic science laboratories historically have started without accreditation in police agency. However, in the 1960s the worldwide movements to accredit forensic science laboratories have had some success due to considering its impact on the trial. Particularly, the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD-LAB) was the largest accreditation program which provides accreditation services for forensic laboratories worldwide. The ASCLD-LAB stated that "the laboratory must meet the minimum criteria or standards of management, operations, personnel, procedures, equipment, physical plant, health and safety procedures and security"(Keith Inman & Norah Rudin, 2001, pp. 309-310).

The accreditation program is currently in the process of establishing compliance with the International Organization for Standards (ISO). This accreditation program is focused on the competency of the forensic laboratory included evidence handling, validation and institution of proper scientific protocols, education and training, and proficiency testing programs. As a principle, the ISO stated that "someday soon forensic science laboratory

accreditation will become mandatory and every laboratory will become accredited"(Max M. Houck, & Jay A. Siegel, 2010).

In general, this chapter reveals that the demand of forensic science is a highly increased field in criminal justice to proving and disproving the guilt of the accused beyond reasonable doubt. Forensic science is a scientific application to prove the truth with the help of objective clues with the primary purpose of supporting a criminal justice to the crime. Forensic examination sums recognition and inquiries of physical evidence in order to identify factual information on allegation circumstances and associations. The main objectives and processes of forensic examination include: recognition of the crime scene, identification and gathering of physical evidence, individualization of the crime, and presentation of analyzing evidence to the court of law for justice.

Forensic lab should be exclusively responsible for proper collection and scientific examination of physical evidence. While undertaking the task of forensic examination, the forensic lab is expected to abide by certain requirements. These include: skillful forensic expertise, equipment and facility of forensic lab, and accreditation standards. The forensic examination is an important science in human rights protection and for its indispensable contribution through its supporting of maintaining justice in the society. It is therefore important for the CJS to use forensic science evidence as a tool to avoid miscarriages of justice to the accused person through answering the questions of the court by the professional expert's testimony. Therefore, the important aspect of forensic science is inevitable to the CJS avoiding miscarriage of justice and result in well protection of accused rights. The rights include the right of an innocent person not to be convicted, and the right to be presumed innocent.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

This chapter presents an empirical analysis of data collected in relation to the forensic examination: process, its role in the protection of the rights the accused and major issues of is competency that arises in the criminal justice of Ethiopia. The study applies qualitative analysis of data produced mainly from in-depth interviews, cases and observations. Four cases analyzed in this study are reported in detail in Annex B. The following table shows the twelve participants of the research and methods of data collection employed to obtain the intended data.

S.N	Participant category	Number	Method of data collection
1	Forensic Examiners	4	Interviewees
2	Investigators police officer	2	Interviewees
3	Prosecutors	2	Interviewees
4	Judges	2	Interviewees
5	Defenses Attorney	2	Interviewees

4.1The Objectives of Forensic Examination

To understand the level of understanding of the interviewed all informants, they were asked to describe the objectives of forensic examination and about its relevance towards protecting the rights of the accused. Consistently, all of the respondents replied

that the objective of forensic examination is to gather and examine the physical evidence, individualize the result with crime act and present it before court. They also provided their answers regarding the relevance of forensic examination towards protecting the rights of the accused. Accordingly, the patterns of their responses show that almost all of them have understood such the relevance of forensic examination as proofing whether the crime is committed by the accused in court and prosecution.

Analysis of the patterns of this study shows that the objectives of forensic examination is finding the truth which enables one to identify the innocent from criminals based on the evidence collected through the crime investigation process. Similarly, the literature also revealed that forensic examination is the process of identification of crime and individualization of an illegal act to manifest the truth in a systematic way. Therefore, concerning the purpose of forensic examination, it is a process to reveal truth of crime to protect accused from wrong convection and bring criminals to court to make them liable for their acts prohibited by law and by doing so its ultimate goal is to guarantee peace and order in society.

4.2 Practice of Forensic Examinations and its Relevance in the Protection of the Accused

From the literature study, latent fingerprint analysis, DNA analysis (i.e. blood, semen, and hair analysis), firearm examination and autopsy examination are the most well know forensic analysis within the investigation and prosecution of homicide cases. To identify the type forensic examinations that are used in the homicide case investigation and prosecution and its relevance in the protection of the rights of the accused, the respondent's response and the two cases report are analyzed below. Among the

respondents of this study, the two judges, two prosecutors, two investigators and two defense attorney objected on the grounds that blood and latent fingerprint analysis has a very limited role in the investigation and prosecution of homicide cases. This is because result of blood analysis only an indicator of whether the blood is for human or not, rather than definitive proofthat someone is a criminal or a victim. With regard to latent fingerprint analysis, no probative value resulted from the analysis or comparisons made between physical evidences obtained from the crime scene against the suspects and victims. Comparatively, however, all respondents agreed thatautopsyand firearm examinations are playing a pivotal role in the investigation and prosecution of homicide cases. The following two cases can prove what the respondents reflected.

The Case summary No.1 in Annex B has been outlined that investigation was made following the dead body of a victim (NAME) on the date of 4/11/2007, in Addis Ababa City Kebele 10/18, within the vicinity of KADISKO inside Abel Hotel, room No. 2. In connection with the court Case File No. 50592, four suspects appeared and pleaded not guilty. Witness, seven in number, appeared and testified that three days before the death on 29/09/2007 they saw that the four suspects had been hitting him on his head, back and hand with a rock and left the place after injuring him. A hotel employee (NAME) confessed that the deceased had been receiving medical treatment for the injury. On the date of 4/11/2007, the deceased told her he was feeling cold and she brought charcoal fire into his bedroom, within Abel Hotel. When she checked his situation in the middle of the night, at 11:30PM, she saw the deceased falling with white foamy suspension splattered around his mouth. Whereas the autopsy result shows that the victim died of Carbon Monoxide (CO) suffocation; and that his death has nothing to do with the attack he

sustained. In spite of confirmation based on the seven witness accounts that the defendants had indeed physically attacked the deceased; the court terminated the case on two grounds. First, one witness confessed that the deceased returned to his hotel after receiving medical treatment. Second, the autopsy result confirmed that the charcoal fire led him to death due to CO poisoning and victim's death had nothing to do with the physical attack he sustained at that time.

The Case summary No. 2 in Annex B, the narrative in the homicide case file states that the investigation had been made to solve the mystery behind the body of the late (NAME) found/recovered from a place, particularly called Ethiopian Commercial Bank, located within the Bole Sub City, Kebele 16/18, on the date of 2/04/2008, at 9:35 pm. The court terminated the case, based on witnesses' testimony and forensic examination results. Witness, three in number (NAME) testified that the deceased had been holding the gun in his hand, having engraved number 44770 on it, putting his finger on the trigger. The autopsy result on the deceased's body shows the cause of his death being severe gunshot injury on the skill and brain. Furthermore, the result of firearm examination on cartridge recovered from the crime scene shows that it came out of the gun in the deceased's hand at the time of death.

Therefore, conserning the practice of forensic examination and its relevance with the protection of the rights of the accused, the autopsy and firearm analysis are the well known that used in the investigation and prosecution homicide crime so far. And also as what the respondents reflected and the above two cases indicate that they support the court to prove the the criminals will be convicted and innocence will be free beyond reasonable doubt. As a result, accused of a homicide act must enjoy his rights such as the

right to presume innocence, the right to silence and prohibition against coerced confessions.

4.3 The Process of the Forensic Examination

4.3.1 The Practice of the Evidence Collection at Homicide Scene

In relation to the practice of evidence collection at the scene of homicide, it is learned that police first protect the scene of a homicide. Then, based on this, evidence collection-technicians will start to collect items and finally, when they prove that the physical evidences have been documented, it transported to a forensic lab for further examination. Among the respondents of this study, four forensic examiners, two investigators and two prosecutors were asked to discuss the practice of physical evidence collection at a homicide scene. From the response provided by the four forensic examiners, two informants pointed out that due lack of appropriate equipment; it is difficult that the physical evidence collection process to follow a scientific standard. The other two informants also pointed out that the present evidence collection-technicians have the general police knowledge rather than having specific skill in collecting and preserving physical evidence. Additionally, according to the two investigators, two prosecutors and researcher observation, the process of collection and preservation of physical evidences is very poor because evidence collection-technicians are often focused on visible and movable items rather than collecting invisible and non-movable items using advanced equipment. It has been also established from the respondents that the majority of society does not have a good understanding of physical evidences so far and also technicians do not have the high level of technical expertise needed to collect physical evidences at the scene of crime. As a result, some items are removed out of the scene and contaminated.

The Case summary No. 3 in Annex B, also shows that it is difficult to collect the invisible items with naked-eye, particularly latent fingerprint and wet blood at the scene homicide. The case connected with the committed homicide on the date of 10/11/2007 approximately at 8:00 PM, in the Addis Ababa, Bolle Sub city, Kebelle 17/19, at a special place called *Sefera* vicinity following the physical attack on the slain deceased (NAME)under Court File No. 114735. In this case, the one of two defendants is accused of perjury committing offense. This is because the defendant had been given wrongfully entering false testimony to the police under C/F/Number 36/2000 and to the court under File Number 65177 on the date of 13/10/2009that he saw when the innocent suspect committed the crime. Thereby his testimony caused that the innocent suspected person (NAME) wrongfully convicted with life time imprisonment. The autopsy result on deceased (NAME) proved, that the deceased passed away due to the assault by stick on his skull. The broken stick had also found at the crime scene and it used as physical evidences by prosecutor.

Although there were eyewitnesses, in this case finger latent fingerprint analysis shouldn't have taken as center stage because it was the stick found at the crime scene that carried prosecutors beyond motive, means and opportunity to the point where they could say they had direct physical proof that he was the killer. However, latent fingerprint couldn't collect from broken stick or other clues at the scene or on the suspect and so trial made that the innocent person suffered due to false testimony. This error of justice directly linked poor service of forensic examination that may depend upon lack of skilled evidence collection technicians and shortage of required equipment that constitutes improper fingerprint analysis and which is the second-greatest contributor to injustice of

accused. Therefore, concerning the process of forensic examination, if it is not a good physical evidence collection, the result of lab examination will be poor and as the case confirmed that the criminals may be free from punishment and innocent be convicted. Such forensic evidence couldn't protect the rights of the accused during crime investigations and prosecution.

4.3.2 The Status of the Chain of Custody

Among the respondents of this study, three forensic examiners and two investigators were asked to describe the status of the chain of custody in handling of physical evidences. The three forensic examiners pointed out that details of the procedures used to handle the physical evidence, for instance, the equipment used and the person performing the procedure must be documented. The two investigators said that a list of all media that were protected and the exact information that was collected must also be documented and handled. From the researcher's experience, the forensic investigation directorate had not established the custodian's office until this data (information) was composed.

Despite the actual status of chain of custody, the literature revealed that it is the most important mechanism used to control physical evidences from the time it was documented to at the time it is presented in court. Therefore, concerning the actual process of forensic examination, it would be standard if the details should be documented and handled in the chain of custody as including "date, time and place where the evidence was collected"; "the manner in which the physical evidence was transferred to subsequent custodians"; "security conditions relating to the handling or storage of the physical evidence"; and "how the analysis was performed". It is clear that if the chain of custody

wouldn't maintain that handling or preserving the forensic evidence properly is more difficult, and such evidence will be loss its probative value in the criminal justice system.

4.3.3 The Practice of Expert Testimony to Court

All the respondents of this study were asked to explain the practice of expert testimony to court and they described as follows. The forensic evidence can be presented as evidence in court to assist the prosecution in the interpretation of the data. The expert testimony is presented in court only when the court required more professional expression and asked to interpret the analysis.

In relation to the practice of expert testimony during trial, it is learned from literature that once the analysis is made, the experts must provide interpretation of the evidence. Then, too often, forensic analysts will make a conclusion in a written report to provide an understanding of the evidence and finally, they should give professional testimony about forensic techniques that have been practiced. An expert's testimony is considered as a professional testimony that will assist the court in determining the truth of the cases.

However, concerning the process of forensic examination, the actual practice of the expert's testimony is inconsistent with the fact that revealed by literature. This is may be due to reduced weight that the criminal justice system gives to probative value of forensic testimony. It is clear that if it is not proper forensic expertise testimony, the court may be misinterpreting the forensic technique that has been made by forensic examiners. As a result, the criminal justice permits that the investigation and prosecution of crime to depend upon oral testimony rather than scientific testimony so far. And also the accused

person couldn't get probative value from forensic professional testimony to protect his respected rights.

4.4 Issues that arises about the competency of Forensic Examination

4.4.1 Specific Legal Procedure of Forensic Examination

In relation to the specific legal procedure during forensic examinations, it is learned that the CJS first set an appropriate procedure that conforms to scientific standards to recognize the compulsory of forensic examination. Then, based on this, forensic personnel can to collect, preserve and analysis of physical evidence, and finally, present the finding in court. All the respondents of this study were asked to explain the legislation on compulsory of forensic examination and they replied in a dissimilar.

The four forensic examiners suggested that it would be better if legal procedure is considered to deal specifically with forensic examination evidences from the time it crime scene was processed to the time it is presented in court because the existing manual too generic and this makes the forensic personnel's work difficult. The eight respondents (i.e. two Judges, two prosecutors, two investigators and two attorney defenses) mentioned that the Criminal Procedure Code, article 34 is the only legislation for the compulsory of forensic evidences as stated that if it is necessary, a physical examination of the accused should be made.

It is established in this study that due to lack of a separate and codified law of evidence by the legal system of Ethiopia; regarding the specific legal procedure of forensic examination is likely to have a negative impact on the collection, preservation, analysis and presentation of forensic evidence to the courts. This is because forensic examination

requires specific legal procedure and scientific standard starting from the time crime scene to court to meet its admissibility and probative value. Unless and otherwise, the forensic examination may follow improper procedure, its result will be incredible in the criminal justice system and so it couldn't protect the rights of the accused.

4.4.2 Knowledge and Skill of Forensic Examiners

Regarding to the competency forensic examination, it is learned that the proper physical evidence analysis and its interpretation depended on the knowledge and skill forensic examiners. To understand the level of knowledge and skill of forensic examiners pertaining to the overall process of forensic examination, the four forensic examiner respondents were asked to indicate the required skill so far and also to explain the availability of education and training opportunities. Their response is summarized as follows. All four forensic examiners suggested that the forensic experts must have a greater interest and analytical skill before they are allowed to perform forensic analysis and testify in criminal trials. It was also established through this research that forensic personnel have not been adequately trained and do not have the high level of technical expertise needed to collect, preserve and analyze physical evidences. Specifically, one forensic examiner expressed that most forensic personnel do not have knowledge of the tools that can be used for analysis and interpret information. With regard to the education and training opportunities, they mentioned that there is no a standardized academic curriculum of forensic science rather than a short training at the Police University College and from different foreign countries. From experience, the researcher has also observed that the forensic personnel have recruited from different undergraduate fields

such as biology, chemistry, computer science and others hard science because education and training program with forensic science is very limited.

There is doubt that the forensic science examiners must be well-trained to use the best scientific techniques available at the time to deliver objective, solid information regardless of whether the science favors the defendant, supports the prosecution or is inconclusive. However, if the forensic examiners are inadequate, they make mistakes that could result from lack of training, poor support or insufficient resources to meet an ever-growing demand. These shortcomings don't reflect the entire competency of forensic examination that provides scientific evidence to prove whether the accused is committed a crime or not. This certainly has a potentially negative impact on the rights of the accused because the result of any forensic examination of physical evidence is unquestionably as strong as the analysts performing the work.

4.4.3 The Facility of Forensic Laboratory

In relation to the facility of forensic lab, it is learned that the suitable equipment first should be fulfilled properly in forensic lab for examination of physical evidences. Among the respondent of this study, the eight respondents (i.e. four forensic examiners, two investigators and two prosecutors) were asked to indicate the existing equipment so far and also to explain the facility of the laboratory. The four forensic examiners and two investigators responded that forensic laboratories often are poorly equipped and inadequately facility design. According to the six informant's responses and researchers' observation, only firearm identification is done within advanced equipment. Rather the analysis and interpretation of forensic examinations are done manually due to lack necessary advanced equipment, in which the following case is the best example.

The Case summary No. 4 in Annex B, is a narrative under Court File No. 103540 stated that on the date of 24/06/2008, at an unspecified time, during the night, horrific carnage secretly took place in Addis Ababa, Yeka Sub City, Kebele 20/20, within the vicinity of a place particularly called Kara Lemem Amba, using a hatchet as a weapon. The assault left three individuals (NAME) dead and one survivor (NAME) injured. The hatchet causing them fatal harm on their head, shoulder, neck and jaw and the carnage committed has the hallmark of cruel, disgraceful and calamitous act.

However, the defendant's identity had not identified through witness testimonies made by 11 local dealers on the investigation case file and before the Bench for two years. This is because the crime committed secretly in the middle of the night. The defendant's father who sustained severe injury regained consciousness with high level medical treatment, after two years, testified in court that he had been seeing the defendant (NAME) standing in front of him at the specified date and time of the crime committed. However, he also stated that he had no idea as to what the defendant was holding in his hand. Then after, the court taking into account the testimony of the defendant's surviving father (NAME), and proving the defendant's guilt in brutally murdering, decided unanimously against the convicted culprit sentencing him to serve life imprisonment.

Regarding the result of forensic examination, the autopsy examination of the three slain individuals (NAME), the result only shows that the cause of their death is attributable to severe head skull shoulder, neck and jaw sustained from hatchet assault. Although the blood on the hatchet found at the scene, the blood analysis result also shows that only the blood on the hatchet was the blood of a human being rather than identifying acriminal or

a victim. This is because there is no DNA analysis so far and also there is more shortage of equipment in place to accurate analysis of latent fingerprint.

Analysis pattern of this study shows that the forensic lab does not facilitate with modern technology so far and also forensic personnel do not make use of the analysis software tools rather they are working manually. Therefore, concerning the competency of forensic examination, it could not prove the secret homicide case beyond reasonable doubt and it may affect that the justice will be ineffective as the above case discussed. Accordingly, if forensic lab couldn't advance, it is difficult to the criminal justice system to ensuring justice beyond reasonable doubt and to provide that the accused of a criminal act will enjoy such the right to presume innocence, the right to silence and prohibition against coerced confessions.

4.4.4 Accreditation Standards

In relation to the accreditation standards of the forensic lab, it is learned that at minimum level the criteria or standards of management, operations, personnel, procedures, and equipment first considered. Among the respondent of this study, the four forensic examiners were asked to clarify the accreditation standards of forensic lab. Then the four forensic examiners described that since the existing forensic lab is too traditional, it is difficult to come across the accreditation standard.

Although there have been positive improvement of forensic examination, analysis of the patterns of this study shows that the existing forensic lab lacked scientifically acceptable standards for implementing forensic examination. This shortcoming of forensic lab certainly has a potentially negative impact on the credibility of forensic examination in

criminal justice. As a result, courts will be enforced to depend upon personal testimony, but sometimes they give false testimony that may make injustice of accused as the case discussed in Annex B.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Human Rights are inherent rights to all human being and individuals are all equally entitled these rights regardless any distinction ground and discriminations. Respecting and protecting the rights to life is critical for individuals with human dignity. The State has a responsibility to bring to justice persons accountable for homicide crimes. Simultaneously State should protect the rights of the accused person of homicide crime. Accordingly, when the criminal justice system is carrying out its function of ensuring justice, the persecutors should prove beyond reasonable doubt that the accused is guilty of a crime. As a result, persons accused of a criminal act must enjoy his rights such as the right to presume innocence, the right to silence and prohibition against coerced confessions, except the restrictions that are imposed by law. These rights are recognized under numbers of national, regional and international human rights instruments.

In addition, the contemporary criminal justice system frequently uses the result of forensic examination to identify crime, gather evidence, and individualize the incidence and to prove the defendant absolute guilty or innocent beyond question at all. Since the forensic technique is accurately and objectively reveals the occasions at a crime scene, forensic evidence is used as a tool to avoid miscarriages of justice to the accused person. Furthermore, proper forensic examination can provide scientific evidence to the criminal justice to ensure justice in the society by convicting the criminal and free the innocent.

This study is devoted to exploring the development and competence of forensic examination in the protection of the rights of the accused in the criminal justice of

Ethiopia. It is specifically aimed at identifying the prospect and challenges of forensic examination based on a homicide case in Addis Ababa. To reach the findings, the study made use of qualitative research methods, collecting from both primary and secondary sources of data. Based on this source, the study has come up with the analysis of data.

The data analysis or findings of this study revealed that the existing forensic examination is poor so far and also it is difficult that depend upon forensic evidence to prove the homicide case beyond reasonable doubt. This shortcoming of forensic examination depends upon the following four central problems as found out by this study. The lack of a specific legal procedure of forensic examination is one of the main shortcomings in place to conform to scientific standards in the forensic examination. The shortage of required equipment and poor forensic lab facility, particularly lack of DNA analysis and shortage of equipment is a main problem in place to proper collection and analysis of physical evidence so far. And also there are no educations and training programs in State level to ensure continuous improvement of forensic personnel qualifications in the collection, handling and presentation of forensic evidence to courts. Lack of accreditation of forensic examination also adds as a major issue to the problem because forensic evidence may not meet the requirements for admissibility.

Additionally, the findings of this study revealed that there is no custodian office in encounters with the problem in receiving of the collected evidence and storing analyzed evidence confidentially. In the absence of custodian office, it makes more difficult that handling or preserving the forensic evidence properly, such evidence will be regarded by the criminal justice as incredible. The lack of enough understanding of physical

evidences by the majority of society in place to support law enforcement in the protection of physical evidence at the crime scene also considers as adding to the problem.

All revealed problems in this study surely have a possible negative impact on the credibility of forensic examination in criminal justice system. As a result, it may also permit that the legal system focuses on eyewitness which may affect the rights of the accused since the eyewitness is not always reliable.

5.2 Recommendations

The following recommendations are based on the findings of the study with the intention to improve the forensic examination in the process of criminal justice:

1. Enhance Specific Legal Procedure of Forensic Examination

It is recommended that the specific legal procedure or standard for forensic examination process be enhanced by the Ethiopian Federal Police Commission through improved technical investigation manual to ensuring the collection, analysis and preservation of forensic evidence. Additionally, the Ministry of Justice should be enforced the concerned body to ratify and implement the Criminal Procedural Draft Code because the article from 125 to 131 of the draft code listed specific provisions for forensic examination.

2. Enhance the Equipment and Facility of Forensic Laboratory

It is recommended that the required equipment be fulfilled and DNA analysis be introduced by the State to ensure the identification of crime and individualization of the illegal act beyond a reasonable doubt at the trail, particularly in the case of homicide. It is also recommended that chain of custody be established by Ethiopian Federal Police

Forensic Investigation Directorate for the proper collection, analysis and preservation of physical evidences.

3. Ensure the Qualification of Forensic Personnel

It is recommended that the required qualification of forensic personnel for the accomplishment of their functions be ensured through improved methods of recruitment standard and professional training and through the provision of all necessary means for the proper performance of their role in forensic examination as well as protecting injustice of accused. Additionally, the Ethiopian Federal Police Commission should be devoted to ensuring the forensic personnel proficiency through practical experience of other countries and through short and long term training on the relevance of forensic evidence to justice and protection of the rights of the accused.

4. Develop academic Curriculum and Training Program of Forensic Science

It is recommended that academic curriculum and training programs of forensic science for continuous improvement be developed by the Institution of higher education for forensic personnel in the collection, analysis, and presentation of forensic evidence; because technology is continuing to develop and is becoming increasingly complex. The programs should also aim to master for both the judiciary and law enforcements on the specific technical details of cases dealing with forensic science. Ethiopian Police University College is supposed to strongly take more action in this regard.

5. Create Awareness about the Value of Forensic Evidence among the General Public

It is recommended that awareness about the value of forensic evidence in the criminal justice process and its role in the protection of the rights of the accused be created among the public. Awareness creation is crucial among public, at least for preventing from damage and contamination of physical evidence at the crime scene. Here, Media can be taken as one tool to create awareness of value of forensic evidence. A '*CSI: Crime Scene Investigation'* program which is transmitted on different satellite channel can be taken as a good example and recommended that Media of Ethiopia be also encouraged to actively initiate such programs. Ethiopian Human Rights Commission and other stakeholder are supposed to actively participate in this regard.

6. Ensure Accreditation of Forensic Examination

It is recommended that the Ethiopian Federal Police Commission be ensured the accreditation of forensic examination from responsible agency to ensure the credibility of forensic evidence in the criminal justice system. Ministry of Justice and other stakeholder are supposed to actively participate in this regard.

7. Conduct Further Research

Last but not least, it is recommended that further research be conducted on the relevance of forensic examination in the protection of the right of the accused in the criminal justice system. In this regard, the Ethiopian Police University College predominantly should be conducted further research to advance the forensic examination with rapid growth of science and technology.

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ANNEX A: Interview Questions Guide for Key Informants

Name (optional)..... Sex..... Age..... Current Position.....

Field of study..... Level of education.....

Years of service in current position..... Total service in years.....

Interview Schedule for Forensic Examiners

1. What are the objectives of a forensic examination in the criminal justice system?
2. How the physical evidences are collecting and preserving at homicide scene?
3. How the chain of custody is maintained in handling physical evidences?
4. How the forensic evidence and expert testimony is presented in court?
5. Which legislation can be relied on for compulsory of forensic examination?
6. Who has the mandate to conduct forensic examinations and what skills should he has?
7. What kinds of education or training opportunities are available for forensic personnel?
8. How do you explain the facility and equipment (including software) of forensic lab?
9. How do you explain the accreditation standard of forensic lab?
10. What are the major problems with a forensic examination in the case of homicide? What solutions you suggest for future?

Interview Schedule for Homicide Investigators and Prosecutors

1. What are the objectives of a forensic examination in the criminal justice system?

2. What types of forensic evidence are used in the investigation and prosecution of homicide cases?
3. How the physical evidences are collecting and preserving at homicide scene?
4. How the forensic evidence and expert testimony is presented in court?
5. What are the role and impact of forensic examination in the protection of the rights of the accused in the trial of homicide cases?
6. Which legislation can be relied on for compulsory of forensic examination?
7. How do you evaluate the facility and equipment (including software) of forensic lab?
8. What are the major problems with a forensic examination in the case of homicide? What solutions you suggest for future?

Interview Schedule for Homicide Judges and Lawyers

1. What are the objectives of a forensic examination in the criminal justice system?
2. What types of forensic evidence are used in the trial of homicide cases?
3. How the forensic evidences and expert testimony is presented in court?
4. Which legislation can be relied on for compulsory of forensic examination?
5. How does the forensic evidence affect the justice system to implement/interpret the law effectively?
6. What are the role and impact of forensic examination in the protection of the rights of the accused in the trial of homicide cases?
7. What are the challenges faced with a forensic examination in the trial of homicide cases? What solutions you suggest for future

ANNEX B: Summary of Court Cases

Case Summary No. I

In connection with the Court Case File No. 50592, it has been outlined that investigation was made following the dead body of a victim (NAME) on the date of 4/11/2007, around 11:30 pm in Addis Ababa, Kebele 10/18, within the vicinity of KADISKO inside Abel Hotel, room No. 2. In this case four suspects appeared and pleaded not guilty. Personal witness's testimony and documentary evidences to substantiate the case are outlined as follows.

Personal Testimonies:

1. Witness, seven in number, appeared and confessed that they were boozing draught beer 3-days before the death on 29/10/2007, around at 11:00PM; and that suddenly brawl broke out. The deceased (owner of the Pub-Cum-Pension) took them outside the house, where they had been drinking, to calm them down. They also testified hitting him on his head, back and hand with a rock and left the place after injuring him.
2. A hotel employee (NAME) confessed that the deceased had been receiving medical treatment for the injury he sustained out of the attack. On the date of 4/11/2007, the deceased told her he was feeling cold while in the Bedroom No. 2, inside Abel Hotel. She brought him into his room charcoal fire and left in her bedroom. When she went to his room to check his situation in the middle of the night, at 11:30PM, she saw the deceased falling with white foamy suspension splattered around his mouth and that the police took away the body.

Documentary Evidence:

1. Autopsy results shows that the victim died of Carbon Monoxide (CO) suffocation; and that his death has nothing to do with the attack he sustained.

Judgment:

In spite of confirmation based on witness accounts that the defendants had indeed physically attacked the deceased; another witness confessed that the deceased returned to his hotel after receiving medical treatment and went to one of the bedrooms as he felt cold at the time. Apparently, she brought in charcoal fire into the deceased's bedroom which led him to death due to Carbon Monoxide poisoning as confirmed by the autopsy result. The court terminated the case on grounds that the victim's death had nothing to do with the physical attack he sustained at that time.

Case Summary No. II

The narrative with the police investigation homicide case file No. 543/07 states that, the investigation had been made to solve the mystery behind the body of the late (NAME) found/recovered from a place, particularly called Ethiopian Commercial Bank, located within the Bole Sub City, Kebele 16/18, on the date of 2/04/2008, at 9:35 pm. Personal witnesses testimonies and documentary evidences used to justify the case as follows.

Personal Testimony:

1. The deceased's father (NAME) testified that he was sleeping in his own home at the place, date and time specified herein; and went out of his home in response to the telephone call he received from a friend, thereby saw his dead son's lifeless body lying on the surface at the main gate. He also confessed in court that he believed his late son took his own life with the pistol having engraved number 44770 on it.
2. The security guard (NAME) stated to court that he saw the deceased's body lights on the surface near his dad's residence gate while he (the guard) was walking home from work. Upon verification he made using torch light, he learned that the deceased is the son of the 1st witness. Thereby, unclenched the pistol from the deceased's right hand.
3. A friend of the deceased's father (NAME) testified in court that at the place, date and time stated herein he heard gun shots and phoned the deceased's father to confirm if everything was ok and to check where the gun shot come from. Then, his brother comes to the witness and told him what happened after he hanged up

the phone. Immediately he went out and called the police after seeing for himself the victim's dead body lying on the surface.

Documentary Evidence:

1. Autopsy results on the deceased's body show the cause of his death being severe gunshot injury on the skill and brain.
2. Cartridge recovered from the scene shows that it came out of the gun in the deceased's hand at the time of death.

Judgment:

Based on witness testimonies that the deceased had been holding the gun in his hand, putting his finger on the trigger, substantiated by forensic examination on cartridge recovered from the scene, providing the bullet had indeed been fired out by the deceased's handgun and that the victim died of severe injury to his skill and brain from gun-shot, the court terminated the case citing there would be no suspect.

Case Summary No. III

In connection with the homicide committed on the date of 10/11/2007 approximately at 8:00 PM, in Addis Ababa, Bole Sub city, Kebele 17/19, at special place called *SEFERA* vicinity following the physical attack on the slain deceased (NAME). In this case, two suspects have been charged under File No. 114735 by the courtin the case wherein another person (NAME) wrongfully convicted.

The 1st defendant is thereby convicted of a felony (perpetrated homicide) against the FDRE Criminal Code of 1996, article 539 (1, a**),** perpetrating to slay the victim in revenge of the conflict they had one specifically unknown dateduring the year 2007/8 (G.C). In the casenarrative, it is stated that the defendant intercepted the deceased while walking to his home on 10/11/2007, at 8:30 PM in the night and caused him fatal harm using a walking-stick repeatedly hitting hard the deceased hard on his skull and face.

The 2nd defendant is accused of perjury committing offence against the FDRE Criminal Code of 1996, article 453 (2), wrongfully entering false testimony as if he had witnessed when the innocent suspect committing the crime case wherein the 1st defendant is charged as the assailant committing in accordance with the testimony given to the police under C/F/Number 36/2000 and to the court under File Number 65177 in the court's session of 13/10/2009appearing before the Bench; thereby caused the innocent suspect to be served with life time imprisonment. Documentary evidences and personal witnesses are hereby submitted as follows:

Personal Witnesses:

1. According to wife of the slain, on the specified place, date and time she stated hearing shouts and saw her dying husband lying on the ground. And asked him as to who did that horrible thing against him; the deceased told her on his last gasp that the 1st defendant did it against him. Even though the widow had been aware of the fact that the innocent suspect had wrongly been convicted; her brothers had been attending the court proceedings owing to the fact that she is just an illiterate. Thereby she had been denied of the opportunity to proclaim that her late husband had been murdered by the current 1st defendant.
2. The innocent suspect who had been sentenced to serve life imprisonment (NAME) expressed that he and the 2nd defendant had been friends; and that the 2nd defendant testified falsely against him while it is well known that the deceased had been slain by the 1st defendant. Thereby, he had been convicted to serve life time imprisonment on grounds of the false testimony.
3. A witness by the name of (NAME) testified that he had been boozing *Tej(Local Hard Liquor)* together with the deceased and the1st defendant that night and expressed hearing when the parities exchange dire ultimatums as the other party will never make it home. Then after the witness went home following the departure by the assailant and the deceased; and heard the next day the deceased's dead body and that Police removed the remains of the deceased's dead body. The witness expressed to the police that, in the next day partially broken walking stick belonging to the 1stdefendant (culprit) at the crime scene, having its top end broken and that he confessed partially recovered stick belongs to the 1st defendant.

Documentary Evidence:

1. The forensic results based on the autopsy on (NAME) dead body proved, that the deceased passed away due to the assault on his skull;
2. False testimony by the 2nd defendant based on the C/F/P/Number 30 on the date of 11/11/2007 as if the innocent victim killed the deceased;
3. Court life imprisonment decree, under File Number 65177/03 passed against the innocent victim (NAME).

Judgment:

1. In consideration of the fact that the 1st defendant murdered the deceased and staid fugitive rendering the innocent victim be accused of homicide and that the culprit remained at large, thereby unable to be brought to justice; a unanimous court decision had been entered sentencing the culprit to serve 18 years rigorous imprisonment as of the date he has been detained by police.
2. In consideration of perjury committed by the 2nd defendant entering false testimony to protect the culprit (NAME) for unknown reasons; a unanimous court decision had been entered sentencing the defendant to 16 years and 6 months rigorous incarceration for obstructing justice as of the date detained by the police on 22/09/2011.

Case Summary No. IV

According to a narrative under Court File No. 103540 filed to institute criminal charges against a suspect, it has been stated that on the date of 24/06/2008, at an unspecified time, during the night, horrific carnage took place in Addis Ababa,Yeka Sub City, Kebele 20/20, within the vicinity of a place particularly called Kara Lemlem Amba, using a hatchet as a weapon. The assault left three individuals (NAME) dead and one survivor (NAME) injured.

The defendant (NAME) is charged with offenses /assault committed against the provision outlined under the Criminal Code of 1996, article 539 (1, a) and 27 (1). With all of the following four counts with a pre-meditated disposition to kill victims at the specified date, time and place in a manner having all the hallmarks of cruel, disgraceful and riskiness:

1. Fatally attached his own mother (NAME) with a hatchet repeatedly on the lower-left side of the of the skull and jaw, on the left-side of the deceased's trunk, front and skull on the left-side; causing her to die due to severe skull injury;
2. Fatally attacked his own nephew, on his brother's side, a ten year old child (NAME) with a hatched repeated on the lower-left side of the skull and jaw, on the left-side of the trunk, front and left side of the neck, the right-side shoulder and on the right hand elbow; causing him to die due to severe neck injury
3. Fatally attack one female relative (NAME) in the house to visit at the time; with a hatchet repeatedly assaulting her in the middle of the left, lateral and lower part of her

skull, right side jaw, right shoulder and her left hand; casing her to die due to severe skull injury.

4. Severely attached his own father (NAME), now a survivor after high level medical treatment he received, with a hatchet repeatedly assaulting the victim on his neck, skill and shoulder; causing him to sustain injuries on his throat, skill and shoulder.

Personal eye witnesses and supplementary documents are presented, during the court hearing on the case by the Criminal Bench, as follows:

Personal Testimony:

1. In spite of witness testimonies made by 11 local dealers on the homicide investigation case file and before the Bench; till the defendant's father who sustained severe injury regained consciousness after two year's appearance to give his testimony the defendant's identity had not identified.
2. The defendant's father testified that at the specified date and time of the crime he heard the deceased child (NAME) yelling against the defendant, pleading him not to kill his mom and dad. The father testified he woke up while the defendant's slain mother had been frantically fighting for her life on the floor to see the defendant standing in front of him. He explained, seeing the defendant standing in front of him and stated that he had no idea as to what the defendant was holding in his hand. He testified that he knows nothing about what happened afterward that night following the confrontation between him and the defendant till the time he regarded consciousness thanks to the medical treatment he received.

Documentary Evidence:

1. According to the autopsy results on the defendant's slain mother (NAME), it shows that the cause of her death is attributable to severe head skull injury sustained from hatchet assault;
2. According to the autopsy results on the slain child (NAME*),* it shows that the child died because of severe hatchet injury on his neck;
3. According to the autopsy results on the slain relative (NAME), who was spending the night on a visit in the house, it shows that her death resulted from severe hatchet injury on her head skull;
4. According to the medical results of the defendant's surviving father (NAME), it shows that the victim suffered severe injuries to his throat, head skull and right shoulder.
5. The forensic examination result proved that there human blood on the hatchet.

Judgment:

The court, taking into perspective the testimony by the defendant's surviving father (NAME) thanks to high level medical treatment, proving the defendant's guilt in brutally murdering the victims with a hatchet causing them fatal harm on their head, shoulder, neck and jaw; the carnage committed has the hallmark of cruel, disgraceful and calamitous act; decided unanimously against the convicted culprit sentencing him to serve life imprisonment as the date of his capture on 10/08/2012.