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Title page

THE ADMISSIBILITY OF SCIENTIFIC EVIDENCE IN CRIMINAL PROCEEDINGS UNDER ETHIOPIAN LAW AND ITS APPLICATION IN BENCH-SHEKO ZONE

Thesis

Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Laws (LLM) in Human Rights and Criminal Justice at the School of Law, Bahir Dar University.

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Thesis approval page

The thesis titled *"The Admissibility of Scientific Evidence in Criminal Proceedings under Ethiopian Law and Its Application in Bench-Sheko Zone"* by Mr. Minda Girma Yirga is approved for the degree of Master of Laws (LLM).

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Declaration

I, the undersigned, declare that the thesis comprises my own work. In compliance with widely accepted practices, I have duly acknowledged and referenced all materials used in this work. I understand that non-adherence to the principles of academic honesty and integrity, misrepresentation/fabrication of any idea/ data/ fact/ source will constitute sufficient ground for disciplinary action by the University and can also evoke criminal sanction from the State and civil action from the sources which have not been properly cited or acknowledged.

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Abstract

Despite scientific evidence is relatively new that comprises various forms of scientific result proffered to assist judges in determination of scientific or technical facts to the ingredients of a complex crime, regulation of its admissibility and how to handle scientific evidence in courtroom remain problematic. Accordingly, this study examines legal and practical issues associated with the admissibility of scientific criminal evidence in Ethiopia and its application in Bench- Sheko Zone. In exploring the admissibility of scientific criminal evidence, the researcher has used qualitative research approach based on constructive research paradigm; primarily and secondary sources of data are employed as research methods to address multiple issues involved in the study. For admissibility of scientific evidence in criminal trials, there are criteria to be considered. But, some rules of criminal evidence in Ethiopia are against the criteria for admissibility of such evidence. This study argues that, the term scientific evidence does not exist in Ethiopian laws and reference to other terms like expert, expert witness; indirect knowledge, indirect evidence, medical testimony or body samples should be consulted for some understanding of scientific evidence and its admissibility. In the practices of Bench- Sheko Zone, there are a growing tendency of admitting such evidence in criminal proceedings without assessing its relevancy, materiality, competency, reliability, and credibility. Not only judges but also other practitioners are not familiar with purpose, nature, forms and admissibility grounds of scientific evidence. Thus, this thesis recommended Ethiopia should take some lessons from advanced jurisprudence to tackle both legal and practical problems. The practices of the court which are contrary to scattered rules of evidence should be reconsidered. Some scattered rules of evidence contrary to the human rights part of the Constitution should be amended. Finally, it recommended that adequate training should be given for all legal practitioners and supportive staffs to understand the scattered rules of scientific criminal evidence and to act accordingly.

Key Words: Scientific Criminal Evidence, Preconditions of Admissibility, Forensic Expert, Criminal Proceedings, Bench- Sheko Zone

"It is often said, with good cause, that the goal of a trial and the goal of science are . . . at odds. . . . As a general rule, courts don't do science very well"[emphasis in original].

Edward Humes

CHAPTER ONE:

INTRODUCTION

1.1. Background to the Study

Scientific evidence, confession and oral testimony are commonly proffering in criminal trials as major types of evidence to ascertain essential ingredients of a crime to which the accused is charged. However, scientific evidence is relatively recent and novel with technological advancement.[1] It is important to prove or disprove scientific and technical facts. Scientific and technical facts are those matters requiring special knowledge or expertise. Hence, scientific and technical facts can be proved or disproved only through expert opinion evidence. Accordingly, scientific evidence is admissible in relation to criminal issues requiring special knowledge, techniques or expertise to which trial courts are unfamiliar.[2] Otherwise, it will be unnecessary and becomes inadmissible.[3]

Scientific evidence does not have a uniform name rather it is alternatively understood as forensic evidence, forensic science evidence, expert opinion evidence or expert evidence. Due to this reason, different scholars define the term scientific evidence differently. Yet, scholars failed to agree with respect to the definition of scientific evidence.[4] For instance, Terrence F. Kiely pointed out that scientific evidence is an opinion of facts or information produced before courts of law; that could be captured by a range of forensic sciences.[5] But,

[1]William G. Eckert, *Introduction to Forensic Sciences*, 2nd ed., Elsevier, New York, 1997, p.78 [Here in after, William G.].
[2]Raymond Emson, *Evidence*, 2nd ed., Palgrave Macmillan, New York, 2004, p.355 [Here in after, Raymond Emson].
[3]Adrian Keane Paul McKeown, *The Modern Law of Evidenc*e,9th ed., Oxford University Press, Oxford, 2012, pp.525-556 [Here in after, Adrian Keane].
[4]For instance, as mentioned and discussed herein below, Terence's definition is quite different from the definition provided by Donald Shelton.
[5]Terrenece F. Kiely, *Forensic Evidence: Science and the Criminal Law*,2nd ed., CRC Press, New York,2001,p.26 [Here in after, Terrence F. Kiely 2001] ; Terrenee F. Kiely, *Forensic Evidence: Science and the Criminal Law*, 2nd ed., CRC Press, New York,2006, p.50 [Here in after, Terrence F. Kiely 2006].

Shelton perceived it as "observation and opinion of trained person" that is produced to assist the judge or jury in interpreting factual issues or drawing of conclusion thereof.[6]

Terence's definition conforms with the typical nature of scientific evidence because it has been emphasizing on the area of forensic science that involves some aspects of scientific methods, techniques, and procedures to be used in investigation, prosecution and adjudication of cases in which science and law tends to convergence.[7] Terrence's definition failed to include some forms of scientific evidence such as handwriting comparison, ballistics and fingerprint evidences. Once turns to Shelton's definition, the wordings "opinions of trained person" denoted with competency and qualification of forensic expert testimonies.[8]

Furthermore, in complex circumstances, the court considers scientific opinion as evidence for reaching at conclusion 'about individualization' or 'about classification'.[9] Therefore, from the above definitions, one can discern that courts may admit scientific opinion evidence where it is relevant for determination of the disputed question of scientific and/ or technical facts. Be that as it may, it is noticed in advance that scientific evidence is subject to different classifications depending on the nature of facts and physical matters tracing from the scene of crimes. It includes but not limited to, DNA analysis, fingerprints, fibers analysis, document comparison, hair analysis, tool marks, ballistics, explosion, arson evidence, and other trace evidences.[10]

In western contemporary world, scientific evidences play an indispensable role for effective and efficient administration of criminal justice system.[11] To this effect, they have matured

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[6]Donald E.Shelton, *Criminal Adjudication: The Challenges of Forensic Science Evidence in the Early 21st Century* , PhD Dissertation , 2010, University of Nevada,Ren, [Unpublished, available at online]p.1.[Here in after, Donald Shelton 2010].

[7]Richard Saferstein, *Forensic Science : From the Crime Scene to the Crime Lab*, 2nd ed., , Pearson Education, Inc, New Jersey, 2009, p.10 [Here in after, Richard Saferstein 2009]; and Haack Susan, *Evidence Matters: Science, Proof, and Truth in the* Law, 2nd ed., Cambridge University Press, Cambriage, 2014, p.79 [here in after, Haack Susan].

[8]Raymond Emson, p.353-55. For further and detail understanding of about expert opinion evidence, *See* Adrian Keane, pp.525-556.

[9]National Research Council, Strengthening Forensic Science in the United States: A Path Forward, 2009, at< http://www.nap.edu/catalog/12589.html>(Last Accessed on 11 December, 2011).

[10]It should be noted that crime scene investigation is playing a central role for each specific types of forensic evidence to have evidentiary relevancy and admissibility. Identification, matching or comparison of material facts at crime scene could be the usual methods in examining of scientifically collected evidence. For detail understandings of how the identification of specific physical items or material facts found at crime scene could be used as a forensic evidence to establish the crime committed and its connection with individual suspect, *See* Terrence F. Kiely 2001, p.79-461 and for looking the standards for admissibility of various types of forensic evidence in criminal cases from the perspective of *Daubert thresholds*, *See* Donald, E.Shelton 2010, p.54-147.

[11]Brent E. Turvey and Craig M. Cooley, *Actual Innocence, Forensic Evidence, and the Law*, 1st ed.,Amsterdam Academic press, New York, 2014, p.4 [Here in after, Brent E. Turvey and Craig M].

jurisprudences on the area.[12] In the Ethiopian context, it is problematic whether or not there are sufficient legal frameworks that regulate the admissibility of scientific evidence.

The Federal Democratic Republic of Ethiopia Constitution contemplates that any evidence should be inadmissible where it is collected through coercion.[13] Here, one can claim that should this stipulation only apply to forced confession or extends to exclude other types of evidence including scientific evidence obtained by coercion, illegal ways or improper methods. This is because, the first sentence of the same sub provision articulates that any arrested person is not obliged to confess evidence which could be utilized in evidence against him while the second sentence of the same sub article indicates that any evidence obtained by coercion is inadmissible.

In Ethiopia, there is lack of literature that specifically deals with the requirements for admission of a range of scientific evidences before judicial organs. However, Behaylu has conducted a study on the topic titled "*Forensic Science Evidence under Ethiopian Criminal Justice System the Case of Homicide in Addis Ababa*".[14] He found out that shortage of materials and experts are fundamental puzzles in crime of homicide investigation process[15], but do not held a robust position on admissibility issues in laws and legal issues involving in trial process.[16] His work pays much attention on the institutional roles of forensic science services and its historical development. By the same token, the commentary on "Standards in Admitting Expert Evidence in Ethiopia: Some Practical Discrepancies" has been done by Abreha[17], but did not adequately address both the legal grounds and application of expert evidence in criminal proceedings.

The same is true to Simeneh and Chernet who have unpublished article on "When the Expert Turns into a Witch: Use of Expert Opinion Evidence in the Ethiopian Justice System" with the objective of analysing subject matters that requires appointment of experts.[18] They found

[12]Jefferson Ingram, *Criminal Evidence*, 10th ed., W.H Anderson press, Dayton University, 2009, p.323 [Here in after, Jefferson Ingram].
[13]The Constitution of the Federal Democratic Republic of Ethiopia, 1995, *Fed.Neg.Gaz*. Proc.No.1, 1st year, No.1, Art.19 (5) [Here in after, Constitution].
[14] Behaylu Girma, *Forensic Science Evidence under Ethiopian Criminal Justice System the Case of Homicide in Addis Ababa City*, LL.M Thesis, Bahir Dar University, Law Faculty, 2014, [Unpublished, on file with the author],
[15]*Id*, P.58.
[16] *Id,P*.53-56
[17] Abreha Mesele, 'Standards in Admitting Expert Evidence in Ethiopia: Some Practical Discrepancies', *Mizan Law Review*, 2017, Vol. 11, No.1, P.239-247.
[18]Simeneh and Chernet, 'When the Expert Turns into a Witch: Use of Expert Opinion Evidence in the Ethiopian Justice System' available at <www.acadmia.edu>(Last Accessed on 23 December 2011).

out that the application of expert opinion evidence is significantly poor in Federal High and Supreme Courts of Ethiopia though there are some expertise personnel around there. However, they did not adequately address the preconditions for admissibility of various forms of scientific evidence.

Therefore, I was wondering if the existing studies could just examine the admissibility of scientific evidence under Ethiopian Laws. I was also wondering if they could just address the implication of scientific evidence on the criminal justice system. Alongside, the new study examine and analysis the scattered rules of criminal evidence which can be gathered from relevant provisions of the criminal code[19], criminal procedure code[20], anti- terrorism proclamation.[21], other special laws, and binding interpretations of Federal Supreme Court Cassation Division[22]. Unlike the existing studies, this study also examines anti- Terrorism proclamation, Prevention, Suppression of Trafficking in Person and Smuggling of Migrants Proclamation, Ethiopian Federal Police Commission Establishment Proclamation in relation to admissibility of scientific criminal evidence.

The researcher believed that the admissibility of scientific evidence in Bench -Sheko Zone[23] is a grey area that is relevant to scrutinize the implementation of criminal evidence law of Ethiopia thereby to identify the thorny problems and recommend a possible solution thereof.[24] This is due to preliminary investigation that indicates some judges said that scientific evidence is adduced and considered as documentary form of evidence and almost but not all are admissible in criminal trials. There is also information that sometimes this type of evidence has been considered as direct conclusive evidence; the court did not require

[19]Criminal Code of the Federal Democratic Republic of Ethiopia, 2004, *Fed.Neg.Gaz*. Proc. No. 414,9th year , No.23, art.51,54,554,448, 116(3),131(2),123(a), 129,131,(2),150, 177(1),410,453,455(2),742, and 612 [Here in after Proc. No. 414/2004].

[20]Criminal Procedure Code of Ethiopia,1961, *Neg,Gaz.*,Proc.No.185 ,32nd Year,No.137, Articles 34 ,136(2)and 137(1), 94(2(j),142(2),124(1), 179(1), 144((2) [Here in after, Criminal Procedure Code].

[21]Ant- Terrorism Proclamation, 2009, *Fed.Neg.Gaz*. Proc.No.652, 15th year, No.57, [Here in after, Proc. No. 652 /2 009], art.21 and art.23 (2).

[22]*SNNP Public Prosecutor v Alemayehu Asfaw*, Federal Supreme Court Cassation Division,2007 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 17፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤2007 ፤ ገጽ 191-194, [Here in after, *Public Prosecutor v Alemayehu Asfaw] Mohammed Kemal* v *Kemissie*, Federal Supreme Court Cassation Division,2007 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 17፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤2007 ፤ ገጽ, 318-320 [Here in after, *Mohammed Kemal* v Kemissie].

[23]It should be noted at early morning that Bench- Sheko Zone refers to Bench- Bench Area High Court and its branches, and Mizan- Aman City Administration First Instance Court. Bench Sheko Zone is located in the western part of Ethiopia in particular region of Southern Nation Nationalities and Peoples.

[24]Here, it should be noted in advance that this Writer has used the expression criminal evidence law of Ethiopia for purpose of consistency throughout this paper and to take in account sparked rules of criminal evidence here and there in different legislation since, Ethiopia does not have a comprehensive rules of evidence.

experts to appear before the court.[25] Hence, such issues urge the researcher to assess the practices of admissibility of scientific evidence in Bench-Sheko Zone. Therefore, this study will mainly focus on themes revolving around the legal standards and the practical evaluation and value of scientific criminal evidence in Bench -Sheko Zone.

1.2. Statement of the Problem

In this contemporary world, criminals are committing crimes in complex and sophisticated circumstances. As a result, it is hard to identify the perpetrator without using of scientific evidence.[26] Even some times, it is impossible to know as to the occurrence of a certain crime and how it has been committed unless the courts need to consider scientific evidences. The reality in relation to crime committed in complex and sophisticated situations is a driving force that requires the production and application of scientific evidence in order to prove controversial issues in criminal trials.

It is believed that scientific evidence is both a source and remedy of judicial error and miscarriage of justice.[27] Against its backdrops, it is perceived to be very vital to reduce judicial errors and miscarriage of justice provided that where admissibility preconditions of scientific evidence are sufficiently and clearly prescribed by law and properly applied before courts of law.

Above all, what requires a great concern is how to administer the criminal justice system in efficient and effective way in one hand and ensure the observance of human right norms on the other. This is due to the fact that scientific evidence has direct or indirect effect on the criminal justice system by helping a trial judge to exonerate innocent person from conviction and to pass conviction against criminal guilt person.[28]

The jurisprudence of USA is a model for admissibility of scientific evidence that influences many courts to use *Daubert* standards to assess the reliability and admissibility scientific

[25]Interview with Zerihun Kanfash, Defense Attorney in Bench-Sheko Zone, *on the practices of court regarding scientific evidence*, September 8, 2011.
[26]Shelton 2010, p.1.
[27]Beatrice Schiffer, *The Relationship between Forensic Science and Judicial Error:A Study Covering Error Sources, Bias, and Remedies***,** PhD Thesis, , University of Lausanne, Faculty of Law and Criminal Justice, 2009,[Unpublished ,available at online]P.56-75,79[Here in after, Beatrice Schiffer] ; Brent E. Turvey and Craig M., p.125.
[28]See, Brent E. Turvey and Craig M, P.4. They noted on the principal object of criminal justice is 'to convict the guilty and free the innocent'.

evidence in relation to facts in issue(s) or relevant facts to the fact in disputes.[29] In disregard of these standards, there is still high possibility of admitting prosecution scientific evidence in criminal cases that actually constitutes judicial errors. Nevertheless, in Ethiopian context, there is an underlying question whether or not we have sufficient legal grounds or advanced jurisprudence which deal with even the existence of the term "forensic" or "scientific" evidence and conditions for admissibility of such evidence.[30]

It is argued that any evidence including scientific evidence must meet some requirements to be admissible in criminal proceedings. However, what preconditions should be met before scientific evidence to be admissible in criminal proceedings, is a debatable issue in the field of the study.[31] For example, the 2004 Criminal Code of Ethiopia simply puts that the court has a duty to appoint expert and obtain opinion of scientific findings to determine criminal irresponsibility when it comes with a suspicion where an "accused show signs of deranged mind or epilepsy"[32]…. As per this law, the court is only obliged to require the production of scientific evidence with respect to a matter of criminal responsibility but nothing is stated concerning other criminal matters. It is also equivocal that the proprietary of nature of the English version of the same article in the same code which requires the expert to testify the "*present conditions"*[33] of an accused (emphasis added). Furthermore, the criminal code of Ethiopia does not tell us what preconditions should be fulfilled to admit scientific evidence even in deciding one's criminal responsibility. Accordingly, to the minimum, the scattered rules of criminal evidence in Ethiopia shall carefully be examined in order to point out solutions across the board of problems. Be that as it may, central issues or problems are identified as follows:-

[29]*Daubert v. Merrell Dow Pharmaceuticals, Inc*.,US Supreme Court, 1993, Criminal Case, File No. 509/ 579, *at* <https://ww w.law.u fl.edu/pdf/faculty/little/topic8.pdf> (Last Accessed on 12 December, 2011) [Here in After, *Daubert v. Merrell Dow Pharmaceuticals]*. The criminal courts of different countries still follow *Daubert* thresholds as a guiding principle for admission or exclusion of scientific evidence. For instance, See 'Admissibility of Expert Evidence', *23 Mental & Physical Disability L. Rep*, 1999, Vol.6 No.66, 466-470, at p.467.

[30]The researcher has a huge doubt regarding the existence of the term forensic or scientific evidence in exiting scattered legislations of Ethiopia.

[31]The problem is more exacerbated due to the fact that Ethiopia does not have sufficient experiences in relation to the subject matter at hand.

[32]Proc.No.414/2004, Art.51 (1).

[33]*Id*, Art.51 (2), second sentence.

Firstly, in Ethiopia legal framework, there are only limited provisions not more than three or four in number that dwell about relevancy test of criminal evidences.[34] Typically, as can be inferred from art.137 (1) of criminal procedure code of Ethiopia, it is possible to adduce evidence that can either directly or indirectly be relevant to prove or disprove the fact(s) in issue in criminal cases.[35]At this juncture, the issue that has to be raised is, whether or not the wordings "indirect knowledge" under article 37(1) of the criminal procedure code could include scientific evidence so as to assess the relevancy test of the latter. The researcher argues that relevancy test is not the only sufficient requirement for admissibility of any scientific evidence in any criminal proceeding. Therefore, additional requirements should be duly considered through a deep scrutiny of scattered legislations in Ethiopia.

Secondly, the Federal Supreme Court Cassation Division has established strong criteria for admissibility of circumstantial evidence in the case of *Feyisa Mamo v Federal Prosecutor*.[36] The decision of Federal Supreme Court Cassation Division has a binding effect on lower courts both at federal and regional levels in future similar cases since it is regarded as a law.[37] Nonetheless, the thorny issue is, can these stringent requirements of circumstantial evidence equivalently be applicable for the purposes of deciding the admissibility of various forms of scientific evidence or otherwise. Also the question whether the lower court in the study area practically follows the jurisprudence of Cassation is not so far clear. That is why; nothing is yet disclosed as to what has been used in the study area to determine the status and admissibility of scientific evidence in Bench-Sheko Zonal criminal court proceedings.

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[34]Ant- Terrorism Proclamation, 2009, *Fed.Neg.Gaz*. Proc.No.652, 15th year, No.57,Art.16 [Here in after, Proc. No. 652/2009]; The Revised Proclamation to Provide for Special Procedure and Rules of Evidence on Anti-Corruption, 2005, *Fed.Neg.Gaz.*, , Proc. No.434, 11th year, No.19,art.38 (3).

[35]Criminal Procedure Code of Ethiopia, 1961, *Neg, Gaz.*, Proc.No.185, 32nd Year, No.137, Article 37[Here in after, Criminal Procedure Code].

[36]*Feyisa Mamo v Federal Prosecutor*, Federal Supreme Court Cassation Division, 2008 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 19፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤2008 ፤ ገጽ, 250-257. [Here in after, *Feyisa Mamo v Federal Prosecutor]*. The Bench states:

የአከባቢ ሁኔታ ማስረጃ ወንጀሉን የፈጸመው ተከሳሽ መሆኑንና ከተከሳሽ ውጭ ሌላ ሰው ወንጀሉን ሊፈጽመው አይችልም በሚል መደምደሚያ ላይ ለማድረስ በቂና አሳማኝ በሆነ ሁኔታ የሚያስርዳ ሆኖ ሲገኝ የአስረጅነት ብቃት ያለው ማስረጃ ተደርጎ እንደሚወሰድ የማስረጃ ብቃት መስፈርትና የማስረጃ አመዛዘን መርሆች ያሳያሉ። የአከባቢ ሁኔታ አንድን የተፈጸመ ወንጀል ለማስረዳት የአሰረጅነት ብቃት ያለው ማስረጃ የሚሆነው ወንጀሉ ከመፈጸሙ በፊት ወንጀሉ ከተፈጸመ በኃላ ስላለው ሁኔታ የተረጋገጡት ፍሬ ነገሮች (የአከባቢ ሁኔታዎች) ተከሳሽ ወንጀሉን ፈጽሞታል ከሚል እርግጠኛ መደምደሚያ ለመድረስ የሚያስችል ይዘትና ባህሪ ያላቸው ሲሆን፣ የአከባቢ ሁኔታ ማስረጃዎቹ ተያያዥነት ያላቸውና ክፍተት የሌለባቸው ሲሆኑ፤ የአከባቢ ሁኔታ ማስረጃዎቹ የተከሳሹ ጥፋተኝነት ወንጀል መምራት የሚያረጋግጡ አንጅ በተቃራኒው ተከሳሹ ንጸህ ነው ወንጀሉን አልፈጸመም ወደሚለው ሎጅካል መደምደሚያ የማይወሰደ ሲሆኑና የቀረቡት የአከባቢ ሁኔታ ማስረጃዎች በማናቸውም የሞራልና የህሊና መመዘኛ ወንጀሉ በተከሳሹ ሳይሆን በሌላ ሰው የመፈጸም እድልና አግጣሚ የሌለ መሆኑን በበቂ ሁኔታ ለማስረዳት የሚችሉ ሆነው ሲገኙ እንደሆነ ተቀባይነት ያላቸው የማስረጃ ህግ መርሆች ያሳያሉ።

[37]Federal Courts Proclamation Re-amendment Proclamation, 2005, *Fed, Neg.Gaz.* Proc.No.454,11th Year,No.4 2, art.2(4).

Thirdly, the probative value of proffered scientific evidence to be considered as conclusive or corroborative is another area of contention.[38] Moreover, in Ethiopia, there is no clear standing with regard to the status of scientific evidence as conclusiveness or corroborative evidence to establish the guilty mind thereby it is hard to know its implication in the criminal justice system and fair trials. Fourthly, there is no clarity in relation to admission of scientific evidence obtained by secretive and/ or deceptive methods of investigation.[39] The possible danger that may arise from such secretive and deceptive forensic investigation methods requires in-depth qualitative inquiry.

Fifthly, Courts are legally required to admit scientific evidence obtained by coercion and improper methods in terrorism cases.[40] In this scenario, it is open to discussion that could the court have a power to reject scientific evidence obtained by whatever means in crimes of terrorism.

Finally, notwithstanding of the above legal controversies, the understanding of judges about the nature, relevancy and admissibility of proffered scientific evidence in criminal matters is not yet clear and studied as well. Some judges in preliminary investigation said that scientific evidence is considered as documentary form of evidence and almost seems admissible in criminal trials. There is also information that sometimes this type of evidence has been considered as direct evidence. Due to the aforementioned facts, it is hard to know that what standards and procedures the court would use in deciding admissibility issues of scientific evidence unless someone conduct an exploratory study. To ascertain the fact that whether a court may consider it as documentary form of evidence or independent means of proof attracts the interest of the researcher in conducting a study in this grey area. Juxtaposed to this, it has not been studied that the potential implications of scientific evidence on the fundamental human rights and criminal justice system.

To put it differently, it is vital to see the role of courts in ensuring effective administration of criminal justice in Bench-Sheko Zone in particular and the observance of constitutional

[38]Sayed Sikandar, 'Forensic Evidence: A Comparative Analysis of the General Position in Common Law and Sharī'ah', *Islamic Studies,* 2007,Vol. 46, No. 2, pp. 199-216 at, p.206[Hereinafter, Sayed Sikandar] and Gary Edmond and Joëlle Vuille, 'Use of Forensic Science Evidence In Australia, Switzerland,and The United States: Transcending the Adversarial Non Adversarial Dichotomy', *Jurimetrics* ,2014, Vol. 54, No. 3 pp. 221-276,p.231[Here in after, Gary Edmond and Joëlle Vuille].

[39]Prevention, Suppression of Trafficking in Person and Smuggling of Migrants, 2015, *Fed.Neg*. Gaz. Proc.No.909, 2lst Year, No.67, Art.18 (1) [Here in after, Proc.No.909/2015.

[40]Ant-, Proc.No. 652/2009, Art.21 and art.23 (2).

values in general. In doing so, the researcher will investigate the implementation of scientific evidence in Bench-Sheko Zone.

1.3. Objectives of the Study

1.3.1. General Objective

The general objective of this study is to explore legal and practical issues associated with the admissibility of proffered scientific criminal evidence in Bench-Sheko Zone.

1.3.2. Specific Objectives

To accomplish the above central objective, this study intended:

- To examines the legal framework on the admissibility perquisites of scientific criminal evidence in Ethiopia,
- To assesses the practice of Court in admitting scientific criminal evidence,
- To examine the probative value of scientific evidence in criminal proceedings, and
- To unearth the implications of admitting scientific evidence on the criminal justice system and fundamental rights.

1.4. Research Questions

1.4.1. Central Research Question

In order to realize the general objective of the study, the researcher sought to frame one central question that is: How Ethiopian laws govern the admissibility of scientific evidence and the court in the study area admits scientific evidence in criminal proceedings?

1.4.2. Specific Research Questions

To address the above general research question, the researcher framed four research questions as follows:-

1. How do Ethiopian laws regulate scientific criminal evidence?
2. What are the preconditions for admissibility of scientific criminal evidence?
3. How the Court in the study area does assess scientific evidence in criminal proceedings?
4. What are the possible implications of admitting scientific evidence on the criminal justice system and fundamental rights?

1.5. Significance of the Study

This research will have some contributions and beneficiaries in relation to admissibility of scientific evidence and its practical implementation. First, it will increase the legal knowledge pertaining to the admissibility of scientific evidence in criminal trials by addressing admissibility pre- requisites of such evidence. The admissibility of scientific evidence in criminal trials was not adequately addressed so far. Therefore, it will deepen our understanding about the nature, forms of scientific evidence and its admissibility standards from participants' perspectives.

Second, this study may serve as bridge for potential researchers interested in the subject matter of the area by giving some clue about the existing problems and controversial issues associated with the nature, meaning, forms and admissibility requirements of scientific opinion evidence within the legislations of Ethiopia from participants' standpoints. Third, it can help the law makers of Ethiopia to enact a criminal evidence law by analyzing relevant principles, rules, and procedures of admissible scientific evidence. For the legislature, it will serve as a tool for amendment of scattered rules of criminal evidence by identifying loopholes, ambiguities, and vagueness in scattered rules of criminal evidence.

Besides, the study can have significant part of verifying doubtful and vague clauses within different provisions of criminal evidence law of Ethiopia. Accordingly, it can help to establish a uniform interpretation of law regarding the admission of scientific evidence which in turn facilitates the judicial tasks to operate in efficient and effective manner. The study notices judges how they admit scientific evidence in any case by suggesting admissibility requirements with clear and sufficient justification.

In nutshell, it will provide adequate information about the issues revolving around scientific evidence. And, assist the trial judges of Bench-Sheko Zone by identifying its major problems and recommending solution thereof. Therefore, the researcher is hopeful that the aforementioned beneficiaries will fortify having strong legal knowledge; always insist towards the effective utilization of scientific evidence so that they will fight for efficient administration of criminal justice system in light of the fundamental values of the Constitution.

1.6. Research Design

Research design is a blueprint of a research that gives hints on how a study is to be conducted.[41] It involves the overall structures of scientific and systematic research. Hence, it is broader than research methods and approaches.

1.6.1. Research Approach

The selected approach indicates research method that has to be used for collecting and analyzing of data. In exploring the admissibility of scientific evidence and its practical application in criminal proceedings, the researcher has employed qualitative approach based on constructive philosophical paradigm, in which reality is mentally constructed and subjectively understood[42]. Once selecting constructive paradigm as research framework, it supposes qualitative approach.[43] Compared to other kind of research paradigms, it is more preferable for deeper analyses of concepts in legislations, interpretation of legal rules, principles, and cases.[44] Thus, it goes with the nature of doctrinal research.

Further, the reality that how the law addresses the issues of scientific evidence is best suited to subjectively be constructed. It does not invite quantitative approach by which generalization of the study to be made within the view of post positivism paradigm.[45] In similar vein, all of the research questions pose consistency with the up-and-coming methodology to achieve the central objective of the same study. These research questions do not suggest cause and effect relationship or measurable variables rather the how and what questions are designed to investigate the issues with depth meaning, explanation and interpretation.

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[41]C.R. Kothari, *Research Methodology, Methods and Techniques* 2nd ed., New Age International (P) , New Delhi, 2004, p.32[Here in after, Kothari]

[42]Guba and Lincoln, *Competing Paradigms in Qualitative Research Handbook of Qualitative Research*, ed., Thousand Oaks, CA: Sage, 1994, pp. 110 and 111.

[43]Nguyen Cao, and Tran Thi Le he, 'Interconnection Between Interpretivist Paradigm and Qualitative Methods in Education' *American Journal of Educational Science*, 2015, Vol. 1, No. 2, , pp. 24-27, at p.25.

[44]Creswell, J.W, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches,* 4th ed., Sage Publication Inc, Thousand Oaks,2014,p.37[Hereinafter, Creswell].

[45]That is why; as Creswell noted the philosophy of post-positivism is more preferable to quantitative research than qualitative research since its essence primarily concerns with cause determines the effect and the objective reality can be found through empirical measurement. It should be bear in mind that the notion of paradigm is the notion philosophical world views, set of common beliefs and justifications that guide as framework for systematic and scientific inquiry.

1.6.2. Research Methods

1.6.2.1. Data Collection Techniques

The researcher used both primary and secondary techniques of data collection in order to address multiple issues involved in this doctrinal research journey. Interviews and cases analysis, and legal document analysis such as, Federal Democratic Republic of Ethiopia Constitution, Criminal Procedure Code of Ethiopia, Criminal Code of Ethiopia, and Anti-Terrorism Proclamation, Ethiopian Federal Police Commission Establishment Proclamation, Prevention, Suppression of Trafficking in Person and Smuggling of Migrants Proclamation, Criminal Justice Policy of Ethiopia, and the Draft Criminal Procedure Code were employed as primary data collection techniques while books, journal articles, internet access, and case laws in relation to scientific evidence were used a secondary data collection techniques. As Kothari noted research methodology is broader than research methods. In this regard, he states:

> When we talk of research methodology we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.[46]

Therefore, based on the research questions, objectives and problems; the researcher has utilized the following data collection tools. First, the researcher employs predominantly legal document analyze to address the question how the law of Ethiopia regulates the admissibility of scientific evidence in criminal proceedings. Second, the researcher has used and addressed relevant materials, such as, books, journal articles, and dissertations to fill gaps regarding standards for admissibility of scientific criminal evidence in Ethiopia. Accordingly, after identifying the loopholes in dispersed rules of criminal evidence in Ethiopia, it can suggest what criteria should be established.

Third, the researcher utilized mainly criminal case analysis and interviews as data collection instruments to assess the operational handling of scientific evidence in criminal trials. Thus, the researcher believed that it is better that the question on practical application could be answered by looking of dead cases and interviewing of relevant participants for better understanding of the judicial actions in relation to admission of such evidence. For the sake of flexibility, modification of interview question semi structured interview is preferable than

[46] Kothari, P.9.

structured and unstructured kinds of interviews. That is why; it is vital to know the understanding, perception, experiences, and views of participants in the subject matter of the study. Finally, all data collection tools that are mentioned before were selected as appropriate data collection instruments in order to unearth the impacts of scientific evidence in the criminal justice system and fair trial rights. Thus, use of multiple data collection methods is advisable for triangulation and deep understanding of the inquiry under the study.

Regarding subject of the study, judicial institutions of Bench-Sheko Zone and scattered rules of criminal evidence in Ethiopia had been consulted in the study because it enables to know the positive or negative interaction between the law in theory and the law in action concerning production and admission of scientific evidence.

Qualitative research uses non-random sampling technique for better exploration of the admissibility of scientific evidence from small samples, to check respondents' attitude and understanding of it. That is why; it is not intended to make generalization. Purposive type of non-random sampling is mainly used in qualitative research to address concepts and capture multiple views and perceptions.[47] In selecting research participants or respondents such as prosecutors, judges, attorney and advocates for interviews, the researcher preferred to use non- random sampling which is best suitable for qualitative research approach. Among non-random sampling, it would draw out of purposive because judges, prosecutors and advocates were believed to be more experienced than other groups in addressing the research questions about the practical implementation of scientific evidence and its implication on the criminal justice system and some fundamental values of the Constitution. Among target group, accessibility to criminal cases is a reason for selection of research participants. In qualitative research, it was not relevant to determine the sample size in advance.[48] Hence, judges, prosecutors and counsels were interviewed until saturation of data or criteria of redundancy.

1.6.3. Data Analysis and Interpretation Methods

Qualitative data analysis involves explaining, interpreting and understanding of raw data to have meaningful effect in multiple operational realities. In qualitative study, it is hard to establish a formula or rules for analyzing raw data. However, data analysis is essential to

[47]Christopher Sunday, Qualitative Research Analysis, available at (https://www.uwc.ac.za/Students/.../Qualitative%20data%20analysis.pdf Last Accessed on 13 December 2011) [hereinafter, Christopher].

[48] Nega Ewunete, (Assistant Professor), *Advanced Legal Research Methodology*, Lecture delivered at School of Law, Bahir Dar University, 21 December 2010 E.C.

make raw data be meaningful or improve the validity of research findings. In so doing, the researcher has used narrative and discourse types of qualitative data analysis. Through narrative analysis the researcher would sort out and reflect the interviewees' experiences, views and knowledges.[49] Discourse analysis is appropriate so as to get different insights and understandings from written materials and spoken interaction on the admissibility of scientific evidence depending on the existing circumstances or what they say and how they say it.[50]

The narrative data to have meanings or make sense, the researcher could constructed them in line with the research problems, questions and objectives; subject to integrity of data, balance, between reflexivity and subjectivity and clear communication and writing of results. Because, interpretation concerns the result of study in which the underlying value of data would be adequately explained. In doing so, the researcher would construct the value of data in reliable and credible method.

1.7. Scope of the Study

In the subject matter, the study limited itself in examining rules of criminal evidence of Ethiopia, in relation to, admission of scientific evidence. But, it did not cover admissibility conditions for all types of evidences in criminal proceedings under Ethiopian law because it is unmanageable. And, the problems in admitting other type of evidences are not perceived to be as much serious as scientific evidence due to the fact that the latter has high interplay with a range of forensic sciences. It is believed that the issues pertaining to admission of scientific evidence are more challenging with advancement of scientific methods and procedures in identifying, analyzing and interpretation the fact in issues in criminal cases. Moreover, the study did not adequately address the process of investigating and collecting scientific matters at the scene of crimes.

In geographical area of the study, the researcher wanted to study the practice of courts in Bench- Sheko Zone. In doing so, one the researcher considers in advance that necessary cooperation can be obtained from those who must be research participants. Second, due to shortage of resources including financial budget and time, it would be hard to assess the practices of all courts how they would consider scientific criminal evidence throughout the country as a whole. More specifically, the inquiry might not proceed to investigate practical

[49] *See* Christopher.
[50] *Ibid*

application of scientific evidences before Woreda Courts in Benchi -Sheko Zone since they are not allowed to exercise material jurisdiction over serious criminal matters which require the production of scientific expert testimony and preliminary investigation indicated that scientific evidence had hardly ever presented in woreda courts. This leads the researcher to say, there would be of little possibility of production of scientific evidence before these courts. Thus, it had better to investigate the issue how Bench-Sheko High Court an Mizan-Aman City Administration First Instance Court appraise the probative value of proffered scientific evidence in criminal trials.

In doing so, the thematic area of the study focused on relevant legislations of Ethiopia; *inter alia*, the Criminal Procedure Code, Criminal Code, the 1995 Constitution, and binding interpretations of Federal Supreme Court Cassation Division on the matter of scientific evidence.

1.8. Limitation of the Study

As the researcher anticipated in advance, some confrontations have occurred that would likely affect the quality of this study. Among other things, relevant websites for inquiry have been disrupting, vanishing or failed to provide sufficient services as usual. In similar vein, some pertinent books were removed from internet servers or data bases. It was hard to collect all relevant data due to non-cooperativeness of judicial institutions when the researcher wanted to copy dead cases in the subject matter area of the study. Besides, it was difficult to consider some relevant dead files because of illegibility problem.

1.9. Organizational Structure

This thesis has five chapters. The first chapter is devoted to proposal of the study. Chapter two briefly addresses the nature and types of scientific evidence. It would be classified into two sections. The first section is assigned to explain issues revolving around the nature of scientific evidence while section two endeavors to discuss various kinds of scientific evidence. Chapter three is designed to examine the legal basis to the admissibility of scientific evidence in criminal proceedings under Ethiopia law. Chapter four is devoted to assess the practice of court in Bench- Sheko Zone followed by conclusion and recommendation in the chapter five of the study.

1.10. Ethical Considerations

Throughout the research journey, the researcher respects and observes all ethical standards in conducting a research. Before interviewing the participants in research process, the researcher has sufficiently informed the aims and purpose of this study. The free will and consent of participants, such as, judges, public prosecutors, and counsels have secured by the researcher in advance. They will have absolute freedom and liberty in relation to responding or non-responding of interview questions. Besides, it is obvious that research journey requires special attention to keep oneself from plagiarism and some sort of cheating. To escape from such kind of unethical acts, the researcher would properly strive to apply citation rule developed by Bahir Dar University Law School.[51] This is because of, personal ideas is less of worthy unless it was supported by the works of prominent scholars in the subject matter of study. In doing so, the researcher has inevitably borrowed other ideas or views, but gave full credit for them.

[51] Hailegebriel and Kokebe, *A Guiding to Prepare a Research*, 1st ed., Bahir Dar University, School of Law, 2011.

CHAPTER TWO:

THE NATURE AND FORMS OF SCIENTIFIC EVIDENCE

INTRODUCTION

Scientific evidence has its own distinguished characteristics. These characteristics lay down a foundation for admission of scientific evidence in criminal trials. It has also various forms depending on the nature of facts and the items traced or extracted from the scene of crimes. Accordingly, this chapter includes two principal sections. The first section touches the basic nature or unique hallmarks of scientific evidence in criminal proceedings. The next section is devoted to discuss various forms of scientific evidence from admissibility perspective. It has multiples sub sections to create logical coherence in understanding of the relevancy and essence of each types of scientific criminal evidence.

2.1. The Nature of Scientific Evidence

Forensic concerns with the application of scientific results for legal disputes. Forensic science involves the utilization of various scientific knowledge, study and technology in matters of law.[52] It includes, among other things, forensic investigation at crime scene, forensic laboratory analysis and medical examination.[53] It is beyond the scope of this study to provide detailed descriptions on various forensic science disciplines. But, it is remarked that all forms of forensic science disciplines involve the need of forensic expert testimonies.

First, in its nature, scientific evidence mostly relies on the area of forensic sciences in which science is applied to solve legal disputes. As Haack Susan pointed out; in modern world, "the law cannot do without scientific testimony"[54]. It implies that scientific evidence plays a decisive role for effective implementation of the law particularly the criminal law through the help of forensic disciplines in investigation, prosecution, and adjudication process. More specifically, 'the presentation of scientific evidence in a court of law is a kind of shotgun

[52] Richard 2012, 2.
[53] Behaylu, P.21.
[54] Hack Susan, p.100.

marriage between the two disciplines'.[55]For better understanding of the interplay between law and science, Edward Humes opined:

*"It is often said, with good cause, that . . . the goal of a trial and the goal of science are . . . at odds. . . . As a general rule, courts do not do science very well"(*emphasis in original*).*[56] The expression "courts do not do science very well" implies that the necessity of expert testimony based on scientific methods and procedures for supporting judges in administration of the criminal justice system.

Usage of the phrase "at odds" reflects the divergence points between science and law. Among others, the nature, purpose, procedures and findings of science are different from the nature, objective, procedures and results in courts of law.[57] The purpose of law is to ensure justice; that of science is to make endless search for truth.[58] Even if science is going to integrate into legal problems, judges do not adequately understand the amplification of scientific and technical findings in adjudication of criminal cases.[59] If they failed to sufficiently understand scientific results, they would make judiciary mistake through incorrect application of forensic science in the field of law.

Second, scientific evidence is distinguished from documentary form of evidence in the language of fundamental principles of evidence law. The prosecution which supports the case with scientific evidence in the form of expert opinion is expected to bring forensic witnesses before criminal trials and make them accessible for cross examination. Because the results of their work may be a factor in determining a person's ultimate guilt or innocence; forensic scientists are required to testify about their methods and conclusions at a trial.[60] Obviously, the expert is expected to defend vigorously the techniques and conclusions of the analysis, but at the same time he or she must not be reluctant to explain impartially his or her findings that could minimize the significance of the analysis.[61] Thus, any criminal practice that allows the production of scientific findings in the form of written report may not go with the essence of scientific evidence.

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[55]National Research Council, *Reference Manual on Scientific Evidence*, 3rd ed., National Academies Press, Washington DC, 2011, P.53 [Hereinafter, National Research Council, 2011].
[56]Haack Susan, p.78.
[57]*Id*, p.79,83,90-94 and 97
[58]National Research Council, 2011, p.52.
[59]Davld L. Faigmanet and eta'el, *Modern Scientific Evidence: The Law and Science of Expert testimony*, ed., University of California Press, California, 2008, p. 591.
[60]Richard 2012, P. 22.
[61]*Id*, P.24.

In addition to this, sometimes people are confused with the distinction between scientific evidence and physical evidence. To clarify this confusion, it should be born in mind that, unlike scientific evidence, there is no laboratory analysis of scientific expert to interpret and explain scientific or technical findings in utilization of physical or tangible evidence.[62] In strict sense, physical evidence is not scientific evidence.

Third, scientific evidence has a hallmark of circumstantial or indirect evidence.[63] This indicates scientific or technical finding can prove or disprove the disputed question of facts by drawing of inference or implications. It is said that circumstantial evidence was not based on actual personal knowledge or observation of the fact in controversy.[64] Similarly, forensic science expert does not have direct knowledge regarding the facts in issue in criminal matters. To put it differently, he can identify and try to associate a particular suspect with the alleged crime through application of science in to the materials left behind the scene of crime.

Fourth, in relation to its nature, it is highly argumentative either to take as conclusive or corroborative evidence in court.[65] In one side, scientific criminal evidence is said to be objective and genuine in proving of controversial facts of the case. For this reason, it shall take precedence over oral, hearsay, documentary, and physical evidences. Thus, it seems plausible to contend that scientific testimony shall be deemed as conclusive to dispose criminal cases provided that it was fully satisfied the preconditions for admissibility.[66]

On the other hand, one may argue that the court can consider scientific evidence as supportive evidence since its reliability and credibility are doubtful. Abdurrahman argued that scientific evidence should not be a sole basis to pass conviction on the criminal defendant.[67] Because; first, there is no independent organ that involves in forensic investigation thereby it is exposed for misuse and abuse in so far as forensic science expert were appointed by and worked in government institutions.[68] Second, the advancement of science and technology in third world countries is in question. The third reason involves the quality and number of

[62]Joseph Peterson and eta'l, *Forensic Science and the Courts: The Use and Effect of Scientific Evidence in Criminal Case Processing*, Final Report, 1986, P.8.
[63]*See* Terrence F. Kiely (2001), p.7, Sayed Sikandar, p.206. Adrian, p.9.
[64]Walter P. Signorelli, *Criminal Law, Procedure and Evidence*, ed., 2011, New York, CRC Press, p.335.
[65] Sayed Sikandar, P.20; Gray Edmond and joelle, P.231.
[66] Sayed noted that many common law courts accepted some types of scientific evidence as conclusive like ballistics, fingerprint and evidence produced by forensic chemists.
[67]Interview with Abdurrahman Seid, Advocate and Consultant of Law both, in Federal and Southern Region Courts, *on the Admissibility and probative value of scientific evidence in criminal proceeding*, May 4, 2011.
[68]*Ibid*. It is quite true in Ethiopian context that there is no law or practice that requires independent supervision of forensic investigation.

forensic expert and laboratories is significantly poor in Ethiopian context too. Lastly, it is argued that the standard of proof beyond a reasonable doubt in criminal matters might not be met by a mere allegation of scientific evidence in court of law. Hence, it would entail miscarriage of justice if the criminal courts admitted scientific expert testimony as conclusive evidence to pass a decision on the cases. However, to reconcile the above two divergent views, it is convincing that scientific evidence neither always be taken as conclusive nor always requires corroborative evidence to establish the guilty mind rather it depends on the nature and conditions of particular case.[69]

2.2. Forms of Scientific Evidence

Coming to forms of scientific evidence, many subject matters may be extracted from the scene of crimes as forms of scientific evidence, *inter alia*, DNA evidence, fingerprints evidence, fibers analysis evidence, document comparison evidence, hair analysis evidence, bite marks evidence, paint chip evidence soil analysis evidence, glass fragments evidence, tool marks evidence, ballistics evidence, explosion evidence , arson evidence, blood spatter analysis evidence, and tire impressions evidence.[70] Concisely, they are indispensable to identify true perpetrator(s) who might have committed a serious crime; to establish when, how, and where a crime was committed in systematic, sophisticated and/or organized circumstances. Thus, the subsequent subsections of this chapter will provide highlights on different types of evidence.

2.2.1. Scientific DNA Evidence

DNA (deoxyribonucleic acid) is a large molecule that contains genetic material and chromosomes information of all living organisms.[71] DNA evidence is the results of chemical or physical tests that directly reveal differences in the structure of the DNA molecules found in organisms as diverse as bacteria, plants, and animals.[72] It is scientifically proven that two persons had never have the same DNA profiles save as identical twins.[73] There are three

[69]Gary Edmond and Joëlle Vuille, p.231. *See* also Sayed Sikandar, at p. 206.
[70]It should be noted that investigation crime scene is playing a central role for each specific types of scientific evidence to have evidentiary relevancy and admissibility. Identification, matching or comparison of material facts at crime scene could be the usual methods in examining of scientifically collected evidence. For detail understandings of how the identification of specific physical items or material facts found at crime scene could be used as a forensic evidence to establish the crime committed and its connection with individual suspect, *See* Terrence F. Kiely (2001), p.79-461 and for looking the standards for admissibility of various types of forensic evidence in criminal cases from the perspective of *Daubert thresholds*, *See* Donald, E.Shelton (2010), p.54-147.
[71]Richard 2012, p.387.
[72]National Research Council, 2011, 132.
[73] Jefferson Ingram, p.437.

methods which have solid scientific foundation and were accepted in scientific community to generate DNA profiles: mitochondrial DNA (found in bone, hair, and teeth); RFLP ("restriction fragment length polymorphism"), PCR ("polymerase chain reaction"), and STR ("short tandem repeats test").[74]

PCR refers to "a technique for replicating, or copying, a portion of a DNA strand outside a living cell".[75] For instance, RFLP can be used by serologist as a method of semen analysis to match blood stain sample in victim of sexual assault with the sperm cell of particular suspect; besides for homicide and paternity. PCR used to test saliva samples (cigarette butts, chewing gum, envelops) left at crime scene. It has been used to make hair root analysis as well. While, STR is defined as "a region of a DNA molecule that contains short segments of three to seven repeating base pairs"; important for identification.[76] It helps to exclude or include individuals as source of crime scene DNA.

Scientific findings generated through these methods and procedures can satisfy the criteria of credibility and reliability of scientific DNA evidence. Forensic DNA identification requires expert testimony that has competency to testify about laboratory findings, interpretation of such finding and explain about the underlying principles of biological molecules.

DNA Evidence is more precise, durable, genuine, reliable and admissible compared to other scientific evidence like fingerprinting, ballistics, and fiber and handwriting analysis.[77] Michael reflected his view on that scientific DNA evidence plays crucial role to achieve justice through prevention of crimes, incriminating of wrongdoer, exclusion of innocent suspects.[78] It has high probative value or probability, but not certainty to associate a suspect with particular crime for which he was charged provided that where it was carefully extracted from the scene of a crime in the absence of any contamination. In some circumstances, DNA evidence cannot be reliable where there is contamination in extracting, analyzing, and interpretation biological samples such as blood pattern/stain, seminal fluid, hair, saliva, chuff

[74]John S. Buckle ton and eta'l, *Forensic DNA Evidence Interpretation*, 2nd ed., CRC Press, Londen, 2016, p.3-35.
[75] Richard 2012, p.389.
[76] *Id*, P.390.
[77] For extended discussion, see Shelton 2010, P.54-68.
[78]Michael Briody, *the Effect of DNA Evidence on Criminal Justice Process*, PhD Dissertation, Griffith University, 2004,P.209-211[Unpublished, Available at online] [Here in after, Michael Briody].

or etc. The problems are that poor practice and false analysis of forensic scientists highly undermine the admissibility of such evidence.[79]

Yet , let alone that problems, in modern world, DNA profiles is an exemplary type of scientific evidence in exonerating wrongly accused or convicted persons; more relevant to search the actual truth and ensure justice.[80] To put it differently, it has a huge value to identify a particular suspect, help the prosecutor to establish the ingredient of crime, validate or impeach other evidence including oral testimony or to confirm confession by suspected person.

2.2.2. Scientific Fingerprint Evidence

Fingerprint is unique to each individual; permanent throughout human life.[81] So far, no two fingerprints have identical characteristics even between identical twins. Despite that, Shelton argued that there is no sound scientific foundation on the validity of fingerprint identification (dactyloscopy) as evidence.[82] If there is no similarity between individuals' fingerprints, the accused should independently be identified by analysis, comparison, evaluation and verification of his ridge characteristics casted from multiple surfaces.[83] Forensic investigators may collect print found at the scene of crime and takes print from a culprit in order to compare with ridges characteristics and minutiae. Scientific fingerprint evidence is an accepted form of identification where it was properly extracted from smooth or nonporous surface and preserved by flake powders.[84] The herbal drugs and DNA fingerprint techniques are also relevant tests for fingerprint identification.[85]

In a nutshell, fingerprints evidence is relevant and admissible when it logically tends to show that the accused is involved in commission of the crime based on the opinion of fingerprint expert who objectively alleged that the fingerprints of the accused matched with that of fingerprint found at crime scene.

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[79]Andrei Semikhodskii, Dealing *with DNA Evidence: A Legal Guide*,1st ed., Routledge-Cavendish, New York, 2007,P.145.
[80] Shelton 2010, P.185.
[81]Richard Saferstein, Criminalistics*: an Introduction to Forensic Science*, 9th ed., Pearson Education Inc, New Jersey, 2007 p.645ff [Here in after, Richard Saferstein 2007]. For descriptions of the history, principles, classification and detection techniques of fingerprints see chapter 14 of this book.
[82]Shelton, 'Twenty First Century, Forensic Science for Judges in Criminal Case: Where the Polybutadiene Butadiene Meets Bitumen', *Windener Law Journal*, 2009, Vol.18, No.19, p.309-396, at p. 333[Here in after, Shelton 2009].
[83]Richard 2012,184.
[84] Terrence 2005, P.348.
[85] Devi Datt Joshi, *Herbal Drugs and Fingerprints*, 1st ed., Springer India, India, 2012, p.13,45,133 and 135-41.

2.2.3. Scientific Blood Spatter, Hair and Fiber Evidence

Scientific blood spatter evidence is commonly produced to resolve homicide and assault cases.[86] It is reliable and admissible where the qualified forensic expert uses luminol test to establish whether the blood found at the scene of crime is human blood so as to establish the circumstance of a crime committed.[87]

Forensic hair analyst uses microscope to examine whether human hair recovered from crime scene tied with hair morphology of particular perpetrator. Microscopic method of hair comparison is subjective and exposed for significant error. So, it shall be verified by mitochondrial (mtDNA) to be admitted as reliable evidence.[88]

2.2.4. Scientific Ballistics and Tool Marks Evidence

It is now well established that a witness who qualify as an expert in the science of ballistics, may identify a gun from which a particular bullet was fired by comparing the markings on that bullet with those on a test bullet fired by the witness through the suspect gun.[89] Ballistics science evidence demonstrated to identify firearms, such as, rifles, handguns, and shotguns. It has class, subclass, and individual characteristics.[90] The bullet or cartridge is used to identify a particular firearm or weapon used in commission of crime.[91] Also, ammunition is important for identification of source and comparison of projectiles and firearms test firings, distance determinations, and operability of firearms.[92] For instance, ballistics expert can give opinion on the fact that shell fired at the scene of crime has similar marking with shotgun found in the possession of accused person.[93]

As ballistics, tool marks have class and individual characteristics. Tool marks evidence involves mainly in burglary case while ballistics test is quite relevant in homicide case. When a tool was used in commission of crime, its characteristics could impart on the surface of object struck by that tool. It comes in picture where there is a contact between hard and soft

[86] *Id*, p.390-395.
[87] *Id*,391 and 399.
[88] Shelton, 2009. 345 and 346.
[89] Brian J. Heard, *Handbook of Firearms and Ballistics: Examining and Interpreting Forensic Evidence*, 2nd ed., Wiley-Blackwell, West Sussex, 2008,292 ff. [Here in After, Brian J. Heard].
[90] For detailed description, See National Research Council, 2011, p.92-94.
[91] *Ibid*.
[92] *See* William, P.47.
[93] Richard 2012, p.213.

object.[94] The object bearing a tool mark needs to be examined in laboratory. The comparison microscope is used to compare crime-scene tool marks impression like impression of a shoe, tire or garment with test impressions made with the suspect tool.[95] Then such evidence will be admissible in criminal proceedings.

2.2.5. Soil, Glass and Paint Evidence

Soil, glass, and paint are trace evidences.[96] In the language of forensic science, soil refers to any disintegrated material on the surface, such as, mineral, glass, plants, animal matter, paint chips, rocks, asphalt, brick fragments and cinders.[97] Soil found on the suspect's clothing, shoe or automobile may associate such suspect with the scene of particular crime where it is carefully investigated, where its color and texture preserved in crime laboratory.[98] Thus, a forensic geologist may arrive at a conclusion that the suspected person tied with the particular location of crime scene through soil sample comparison.[99]

Glass fragments either laminated or tempered glass occurred in commission of a crime are important to associate a suspect with crime scene. The floatation method of density and immersion method of reflective index can serve as a base to compare broken glass at crime scene with samples taken from a suspect.[100] It has used to reconstruct vehicle crashes.[101]

Paint chips or smears evidence is most importantly relevant in burglary and hit and run cases. For instance, the forensic scientist may identify the model of automobile from a small paint chips remaining at the scene of crime.[102] Pyrolysis gas chromatography and infrared spectrophotometry are used to distinguish most paint binder formulations.[103] The expert uses stereoscopic microscope to compare the sample taken from suspect with sample left behind the scene of crime.[104] In short, the researcher perceives that the opinions of geologist in soil forensic analysis and mechanical engineers in paint chips comparison and glass fragments

[94]National Research Council, *Strengthening Forensic Science in the United States: A Path Forward*, National Academies Press, Washington D.C, 2009, available at <https://www.nap.edu>[Last Accessed on 18 May 2011].
[95] Richard 2006, p.710.
[96]For knowing the concept of trace evidence, use of paint and glass evidence, please read an interesting work by Brian Caddy, *Forensic Examination of Glass and Paint: Analysis and Interpretation* ed., ,Taylor and Francis, London, 2001.
[97]Richard 2012, 345; for the extensive discussion on soil evidence, one may read, Kenneth Pye, *Geological and Soil Evidence: Forensic Applications,* 1st ed., CRC Press, New York, 2007.
[98] Kenneth, P.60 and 148.
[99] Richard 2006, p.185.
[100] Richard 2012,367
[101] William, P.49.
[102] *Id*, P.63.
[103] *Ibid.*
[104] Richard 2012,p.366.

may be admissible where it is genuinely relevant to the cases in accordance with scientifically established principles or procedures.

2.2.6. Scientific Footwear and Tire Impression Evidence

Such impression evidence left behind a crime scene in to soft earth should be photographed or casted through digital camera.[105] The forensic shoe print examiner can identify the brand style of shoes that made mark impression on the scene of crime.[106] The foot print pattern of a shoe helps to estimate the height, weight and physical impairment of a suspect.[107] Tire impression evidence can be traced from a crime scene to link with the accused's vehicle.[108]

2.2.7. Scientific Fire, Arson and Explosion Evidence

Fire and explosive materials may be liquids, solid material, or burned debris for the identification of accelerants and explosive residues.[109] Scientific evidence of arson and explosion tries to identify the source of fire and enables the court to know the accelerants that used to cause arson or explosion.[110] They require deep and complex technical investigation since there is no solid scientific underpinning to determine the admissibility, more than this, it found at the scenes of safety risks.[111] Scientific arson evidence is quite relevant to know the origin of fire/ arson and the arsonist or ignitors. Fire expert witness may use gas chromatographic as reliable technique for detecting and considering flammable residues found at crime scene ash or soot debris.[112] It needs to be packed in airtight container to have evidential reliability.[113]

2.2.8. Scientific Document Comparison Evidence

It is not a new form of scientific evidence.[114] It comprises handwritten, type scripted, copied, printed or computer-generated materials that can be examined to prove crimes of fraud and forgery in relation to the questioned document and to determine the authentication of

[105] William J. Bodziak, *Tire and Tire Track Evidence: Recovery and Forensic Examination*,1st ed., CRC Press, New York,2008, p.52.
[106] Richard 2012, P.224.
[107] *Ibid.*
[108] *Ibid.*
[109] William,P.47.
[110] Shelton 2010, p.136.
[111] Richard 2006, p.473.
[112]José R. Almirall and Kenneth G. Furton, *Analysis and Interpretation of Fire Scene Evidence*,1st ed., CRC Press, Florida,2004,p.145.
[113] Richard 2012, P.420.
[114] Shelton 2010, p.93.

sources.[115] The document examiner has to collect sufficient number of unknown documents to determine whether such document matched with the document in issue.

In summary of this chapter, scientific evidences are mainly based on various forms of forensic sciences; characterized as circumstantial evidence; as independent of type of evidence subject to argumentation regarding to its probative value. There are different forms of scientific evidence generated by various forensic sciences examination in crime laboratories. It is beyond dispute about the relevancy of such evidences to prove or disprove scientific and/or technical facts in criminal cases provided that they are carefully, legitimately, and objectively collected, examined, preserved and presented. Thus, as can be dealt with the subsequent chapters, the admissibility of scientific evidence in law and practice is directly or indirectly influenced by the perception of persons towards the nature and various forms of scientific evidence. It implies understanding of the hallmarks and forms of scientific evidence lays a foundation for its admissibility.

[115] William, p.51.

CHAPTER THREE:

THE ADMISSIBILITY OF SCIENTIFIC CRIMINAL EVIDENCE UNDER ETHIOPIAN LAWS

INTRODUCTION

As a matter of principle, oral evidence might be presented and admitted in the form of oral presentation by anybody who can convey information (not opinion) to the court what he or she directly witnessed, sensed or perceived regarding the facts in issue. Nevertheless, oral evidence is sometimes irrelevant and unreliable because of different reasons specifically on relevant matters in issue that highly demand specialized knowledge which need to be explained by forensic science expert. In exceptional situations, however, the admissibility of scientific evidence is highly needed to prove or disprove scientific and technical facts to which the trial court would not understand without the help of qualified expert opinion. Likewise, it can be admissible even to check the reliability of confession of an accused person, the competency and capacity of oral testimony in some cases.[116]

Therefore, this chapter focuses on legal issues and standards that denoted with admissibility of scientific evidence through the exploration of landmark cases that lead to develop new rules of evidence which will effectively guide the court in coming to a decision on admissibility of tendered scientific evidence. To this end, section one provides some highlight on the admissibility of scientific criminal evidence in Ethiopia, the preconditions of admissibility can be explored in section two followed by the status of scientific criminal evidence in section three of this study.

3.1. The Admissibility of Scientific Criminal Evidence in Ethiopia

It has been accepted that the legitimacy of scientific evidence is subjected to the rules of evidence and cross examination. Courts are expected to evaluate the admissibility of scientific evidence, which means anything that can prove or disprove the alleged scientific, technical or specialized facts in criminal charge, in compliant with a well -established rules of evidence. The way in which they accomplish this function, however, may vary from

[116]Raymond Emson, 358;Adrian Kean, p.533

jurisdiction to jurisdiction due to the nature of legal standards and the criteria they adopted in evaluation of the weight of proffered scientific criminal evidence.

So far, Ethiopia does not have full-fledged legal rules and/or precedent that can determine how to accept scientific evidence in criminal proceedings. It is not true for countries which follow common law legal system.[117] Nonetheless, Ethiopia has scattered rules here and there which simply reveals the possibility of production of indirect evidence to prove or disprove essential elements of a crime for which the accused is charged. These scattered rules can be gathered from relevant provisions of criminal code[118], criminal procedure code[119], Anti-Terrorism proclamation[120], other special laws, and binding interpretations of Federal Supreme Court Cassation Division[121]. The study affirmed that the term "scientific evidence" does not exist in these scattered rules of criminal evidence.

Therefore, to minimize the legal loopholes, legal terms under scattered rules of criminal evidence like experts, expert witness, medical testimony, body samples, expert examination, expert evidence, forensic investigation, indirect evidence or indirect knowledge or any evidence should be construed in relation to admissibility of scientific criminal evidence.

3.2. The Preconditions for Admissibility of Scientific Criminal Evidence

Scientific evidence is admissible when it meets the preconditions of relevancy, materiality, competency, credibility, and reliability.[122] "Admissibility includes whether the evidence is relevant to and therefore has value for the legal debate (probative value), as well as a variety of other factors such as the status of the expert witness, the quality of the methodology and the underpinning science."[123] The subsequent subsection will examine the scattered rules of criminal evidence in Ethiopia. Here, the researcher shall scrutinize the issue of how these

[117]For instance, USA and Australian have comprehensive evidentiary rules of scientific evidence. It cannot be an overestimation to say the standards for admissibility of scientific evidence in most countries were vehemently influenced by the US jurisprudence.

[118]Proc. No. 414/2004 Articles 51,54,554,448, 116(3),131(2),123(a), 129,131,(2),150, 177(1),410,453,455(2),742, and 612.

[119]Criminal Procedure Code, Articles 34, 136(2) and 137(1), 94(2(j), 142(2), 124(1), 179(1), 144(2).

[120] Proc.No.652/2009,art.21 and art.23 (2).

[121] For instance, *See SNNP Public Prosecutor v Alemayehu Asfaw*; *Mohammed Kemal* v Kemissie.

[122]Jefferson Ingram, p.59. Jefferson has defined the term expert opinion evidence, relevant evidence and explained briefly exclusionary rules of relevant evidence. See this book from p.866, 192 and 199 respectively. He argued relevancy, materiality and competency are fundamental elements for admissibility of scientific evidence. This argument does not mean that scientific evidence which does not satisfy credibility and reliability thresholds is admissible.

[123]Craig Adam, *Forensic Evidence in Court: Evaluation and Scientific Opinion*, 1st ed., John Wiley & Sons, Ltd, London, 2016, p.4.

scattered rules of evidence of Ethiopia deal with the aforementioned admissibility requirements of scientific criminal evidence.

3.2.1. The Precondition of Evidential Relevancy

This does not only exist to determine the admissibility of scientific evidence. That is to say; it is a common precondition for all types of evidence to get acceptance in court. But, the relevancy threshold of scientific evidence is quite different from the rest of all, in so far as, it involves facts that are scientific, a part of specialized knowledge or technical skills.

3.2.1.1. The Concept of Relevancy

Relevancy connoted with the logical and material tendency or probability to prove the existence or otherwise of the disputed issue of the case in criminal proceedings.[124] The evidence in question is relevant when there is a logical connection of facts to prove an issue. Logical relevancy is a prima facie test of admissibility, along with legal relevancy, even if it is not a sufficient criterion. Scientific criminal evidence is relevant where there is no alteration or contamination on the quality and nature of materials found at the scene of crime.[125] If scientific evidence fits with the facts of the case, it will meet the standard of relevancy.[126] In this regard, neither the law of Ethiopia nor the practice of Bench- Sheko Zone takes a robust position on the relevancy test of scientific evidence.

To be admissible, scientific evidence must logically, legally, and indirectly be appropriate for the determination of the scientific or technical facts in issue otherwise it could be ruled as inadmissible on the reason of irrelevancy.

The US Federal Rule of Evidence (Rule 401) has defined "Relevant evidence", in general so as to include scientific evidence as evidence having any tendency to make the existence of any fact that is more probable or less probable than it would be in the absence of evidence. Except the draft criminal procedure code[127], in nowhere relevant evidence, however, has been defined within the laws of Ethiopia. At this juncture, it has been ascertained that the term "relevant evidence" enshrined under Anti- terrorism proclamation and the Revised Proclamation to Provide for Special Procedure and Rules of Evidence on Anti-Corruption of

[124] Judy Hails, p.59 and Jefferson Ingram, P.27.
[125] Bearce Schiffer, p.57.
[126] Brian J.Heard,P.301.
[127] See the Draft Criminal Procedure Code, art.221.

Ethiopia despite the fact that it has not been mentioned to show production of relevant scientific evidence for proving of the element constituting crimes of terrorism and corruption.[128]

The criminal procedure code of Ethiopia solely enshrined a provision that deal with relevancy test of criminal evidence.[129] As can be inferred from this code, relevant "indirect knowledge" must be reasonably and substantially prove fact(s) in issue or ingredients of an offence. Here, one cannot absolutely contend that the relevance test for scientific evidence is apparently embraced by the criminal procedure code of Ethiopia or somewhere in other legislation. To minimize the gaps and lacks of clarity in law, it is possible to argue that the term "indirect knowledge" should be construed in a manner that it includes scientific evidence since forensic science expert does not have direct or firsthand knowledge over the issues to be disposed. Further, the Cassation Court in its File No.75980 concludes that circumstantial evidence is being lawfully admissible in relation to what of its content *show and explains* the conditions of facts surrounding to an offence to be proved (emphasis added).[130]

Based on this decision, the researcher argued scientific evidence is relevant where it has logical and material tendency to establish all the circumstantial facts of a crime in charge. In another land mark case, *Feyisa Mamo v Federal Prosecutor*[131], the Court set out stringent criteria for admissibility of circumstantial evidence. As the Bench states:

> **የአከባቢ ሁኔታ ማስረጃ ወንጀሉን የፈጸመው ተከሳሽ መሆኑንና ከተከሳሽ ውጭ ሌላ ሰው ወንጀሉን ሊፈጽመው አይችልም በሚል መደምደሚያ ላይ ለማድረስ በቂና አሳማኝ በሆነ ሁኔታ የሚያስርዳ ሆኖ ሲገኝ የአስረጅነት ብቃት ያለው ማስረጃ ተደርጎ እንደሚወሰድ የማስረጃ ብቃት መስፈርትና የማስረጃ አመዛዘን መርሆች ያሳያሉ፡፡ የአከባቢ ሁኔታ አንድን የተፈጸመ ወንጀል ለማስረዳት የአሰረጅነት ብቃት ያለው ማስረጃ የሚሆነው ወንጀሉ ከመፈጸሙ በፊት ወንጀሉ ከተፈጸመ በኃላ ስላለው ሁኔታ የተረጋገጡት ፍሬ ነገሮች (የአከባቢ ሁኔታዎች) ተከሳሽ ወንጀሉን ፈጽሞታል ከሚል እርግጠኛ መደምደሚያ ለመድረስ የሚያስችል ይዘትና ባህሪ ያላቸው ሲሆን፣ የአከባቢ ሁኔታ ማስረጃዎቹ ተያያዥነት ያላቸውና ክፍተት የሌለባቸው ሲሆኑ፣ የአከባቢ ሁኔታ ማስረጃዎቹ የተከሳሹ ጥፋተኝነት ወንጀል መምራት የሚያረጋግጡ አንጅ በተቃራኒው ተከሳሹ ንጹህ ነው ወንጀሉን አልፈጸመም ወደሚለው ሎጅካል መደምደሚያ የማይወሰደ ሲሆኑና የቀረቡት የአከባቢ ሁኔታ ማስረጃዎች በማናቸውም የሞራልና የህሊና መመዘኛ ወንጀሉ በተከሳሹ ሳይሆን በሌላ ሰው የመፈጸም እድልና አግጣሚ የሌለ መሆኑን በበቂ ሁኔታ ለማስረዳት የሚችሉ ሆነው ሲገኙ እንደሆነ ተቀባይነት ያላቸው የማስረጃ ህግ መርሆች ያሳያሉ፡፡**

[128]Proc.No.652/2009, Art.16; Proc.No.434/2005, Art.38 (3).
[129] Criminal Procedure Code, Art.137 (1).
[130]*Simachew Lingereh v Sothern Region Branch of Custom Authority* , Federal Supreme Cassation Division Court, 2004 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 13፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤ 2004 ፤ ገጽ 332-336[Here in after, *Simachew Lingereh v Sothern Region Branch of Custom Authority]*.
[131] *See Feyisa Mamo v Federal Prosecutor*.

The standard and evaluation principles of evidence show that circumstantial evidence has a qualification to prove the facts in issue where it sufficiently and persuasively found to prove that the accused has committed the crime and it could not be committed by other person. After content and character of prospect-ant and retrospect-ant conditions have proved the facts in issues (circumstantial situations), circumstantial condition is presentable to prove once the crime committed which enable to reach at certain conclusion that the accused has committed the crime. Further, the recognized principles of evidence law show that in any moral and mental standard the proffered circumstantial evidences could prove in a sufficient manner that there is no opportunity and incident for the commission of the alleged crime by person other than the accused provided that where circumstantial evidences have inter-connection but not gaps; when they leads to prove the guiltiness of the accused but not lead to a logical conclusion that he is innocent he did not commit the crime.[132]

As can be understood from the decision of the Cassation Court, to draw a conclusive decision that the accused person has committed the alleged offence; circumstantial evidences must be sufficient and persuasive to prove the guiltiness, accordingly, we can say logically that another person has not been participated in the commission of the alleged offense. The study, therefore, argues that this precedent system should also truly apply to determine the relevancy and materiality questions of proffered scientific evidence in criminal trials since it is one of circumstantial evidences.

3.2.1.2. Exclusionary Rule of Relevant Scientific Evidence

As per article 226 of the draft procedure code of Ethiopia all relevant evidences are admissible unless otherwise provided under the Constitution, this draft or other laws. It is remembered that all relevant scientific evidences may not always necessarily be admissible. That means; there are circumstances in which relevant scientific evidence may be excluded. One basic situation is when the evidence is obtained in abuse of the accused's fundamental human rights. Another situation is where it would likely causes prejudicial effect, bias, confusion or delay of justice.[133]

In South Africa and England the courts have discretion to exclude illegally obtained evidence including privileged communication (even legitimately obtained); information obtained in

[132] Translated by the author.
[133] For better explanations on the justifications to exclude relevant evidence, see Jefferson Ingram, P.29-31.

breach of constitutional rights will not be admitted in evidence.[134] Fortunately, unlike the Constitution of Ethiopia, the South African Constitution is not open for argument since it envisages that evidence acquired in breach of any right in the 'Bill of Rights must be excluded if the admission of that evidence would render unfair trial or otherwise be detrimental to the administration of justice'. Besides, the African Commission on Human and Peoples' Rights has stated that: "[E]evidence obtained by illegal means constituting a serious violation of internationally protected human rights shall not be used as evidence against the accused or against any other person in any proceeding, except in the prosecution of the perpetrators of the heinous crimes".[135]

As described under the Constitution of 1987, any testimony obtained through violence or pressure shall have of no effect.[136] This shows, by no means, evidence obtained by pressure or violence is going to be admissible in court during Derg regime. It is thus one of the positive sides of the 1987 Constitution of Ethiopia.

Whereas, the current Constitution does not held a clear position regarding to inadmissibility of scientific evidence obtained in violation of individuals rights. Due to this constitutional loophole, the draft criminal procedure code under its article 227 does not speak about inadmissibility of evidence obtained in violation of basic human rights. The Constitution simply encapsulates any evidence obtained by coercion is inadmissible.[137] The first sentence of the same sub provision articulates that any arrested person is not obliged "to make confessions..." while the second sentence indicates that "any evidence obtained under coercion" is inadmissible. Nothing is stated about the exclusion of evidence obtained in violation of accused's constitutional rights other than the right to freedom from torture. Juxtaposed to this, it is claimed that should this stipulation only applies to forced confession or extends to exclude other types of evidence including scientific evidence obtained under coercion, illegal ways or improper methods. When one look at the drafting process, the intent of constitutional framers seems limited the application of exclusionary rule only against confession. As constitutional minute says no one is obliged to made confession; any

[134]As cited by Faurie, p.30. As per Section 35(5) of the Final South African Constitution, 'Evidence obtained in a manner that violates any right in the Bill of Rights must be excluded if the admission of that evidence would render the trial unfair or otherwise be detrimental to the administration of justice'.
[135]African Commission on Human and Peoples' Rights, Principles and Guidelines on the Right to a Fair Trial and Legal Assistance in Africa, 2003, at< https://www.hroh.org>(Last Accessed on 12 May,211).
[136]The Constitution of the People's Democratic Republic of Ethiopia, 1987, Proc. 1, *Negarit Gaz*., 14th ,No.1, Art.45(4).
[137]Constitution, Art.19 (6). Here, there is a discrepancy between the Amharic and English versions. The Amharic version says "evidence" while the English version contains the expression "any evidence".

statement obtained by threat, inducement or force is inadmissible.[138] It reveals that the constitutional drafter did not predict inadmissibility of other evidence including scientific evidence collected by illegitimate methods.

However, the researcher argued the Constitution ought not to be understood as it does limit the application of exclusionary rule only against forced confession which is accepted from the defendant. The expression "any evidence" has to be understood that relevant scientific evidence obtained by coercion must not be admissible. At a minimum, the term coercion should also be construed to encompass physical force, threat, psychological pressure, and inducement. Moreover, the researcher believes the Constitution imposes a duty and responsibility on all organs of the state to "ensure observance of the Constitution" in general, and "to respect and enforce" fundamental rights of individuals.[139] This is referred to say the police and public prosecutors are not allowed to violate any rights of individuals in the name of forensic investigation result. The judiciary also should not admit any scientific evidence obtained in breach of one or more rights listed in chapter three of the Constitution. Otherwise, the actions of collector of scientific evidence and the court are null and void.[140] Accordingly, the researcher argues that article 19(6) of the current Constitution must be read in tandem with articles 13(1), 9(2) and 9(1) of the same Constitution to exclude relevant scientific evidence collected in abuse of one or more human rights illustrated in chapter of the Constitution. To strength this argument, the Ethiopian Criminal Justice Policy recommends that: "በሕገ ወጥ መንገድ ወይም በሕግ ከሰፈረው ሥርዓት ውጭ በመሔድ የተገኙ ማስረጃዎች በፍርድ ቤት ተቀባይነት የማይኖራቸው ወይም ዋጋ የሌላቸው ስለመሆኑ አግባብ ባለው ሕግ ውስጥ በግልጽ መስፈር ይኖርበታል።"[141]That means; there is need of statue which primarily intended to establish the grounds for determination of admissibility in conformity with the supreme Constitution and fundamental rules of evidence.

Despite that, in Ethiopia, scientific evidence produced in terrorism proceedings seem automatically being admissible irrespective of its logical and significant relevancy to the disputed facts in charge of prosecution. The law provides authority for the police to use

[138]The Constitution Explanatory Note, (translated by the author), Available at, < https:/ www.abyssinialaw.com > (Last Accessed on 25 May, 2011).
[139] Constitution, Articles 9(2) and 13(1).
[140] *Ibid*, Article 9(1).
[141]*The Ethiopian Criminal Justice Policy*, Ministry of Justice, 2011, Sec.3.16.1[here in after, Ethiopian Criminal Justice Police].

"*necessary and reasonable force"*[142] (emphasis added) against terrorist suspect for obtaining forensic medical testimony evidence. In abuse of rights to remain silent[143] and privilege against self-incrimination, the law confers authority on police to order a suspect of terrorist act to give his physical items, *inter alia,* finger prints, DNA, hair, and saliva. In similar with the existing Anti-terrorist law, the draft criminal procedure under its article 94(3) allows the police to use force to extract samples from the accused like handwriting, finger prints, photographs or similar samples where the accused is not cooperative.

The ant-terrorist law also mandatorily requires such evidence to be admissible in court.[144] In other words, in line with article 23(2) of Anti-Terrorism Proclamation, indirect evidences including scientific evidence are admissible in prosecution of terrorism crimes. There is no discretionary room for the court to reject scientific evidence obtained by whatever means including torture or coercion.[145] Practically, scientific evidence introduced in terrorism cases, is not subject to examination by accused person; consequently, such restrictions encroach upon the fundamental right of defendant to examine evidence presented against him.[146]

At this point in time, it is crucial to claim that should a suspected person be forced for medical examination? In light of the Ethiopian anti-terrorist law, the answer is unequivocally yes he must give it whenever the police ask him as I unfold so far. It is not true, however, for the fifth amendment of USA Constitution which precludes scientific evidence acquired by force from being admissible as credible evidence in any criminal case. At this juncture, it is argued that evidence should not be collected from person's body against his will otherwise it will be hard to enforce freedom of brains and conscience which are elements of negative liberty or right to privacy under due process model of criminal justice.[147] The South African Court, similar with the US Constitution "held that there could be no doubt those blood tests entail an invasion of a person's privacy".[148] The court finally declared the unconstitutionality of criminal procedure act which allows collection of blood, body, hair, saliva samples from

[142]Proc. No.652/2009, Art. 21. Similarly, article 94(5) of the draft criminal procedure code directly allows the police to use proportional force to extract samples from the body of the accused.
[143]However, some argue collection of body samples does not violate right to remain silent. See Barbara Ann and Laura Liegh 'What of the Right to Silence: Still Supporting the Presumption of Innocence, Or a Growing Legal Fiction?' *Macquarie Law Journal*, 2001, Vol. No.1. Pp.63-92, at p.67.
[144]Proc. No.652/2009, Art.23 (2).
[145] This is because of the modal verb "shall" under the law indicates the mandatory or compulsory nature of the cited provision.
[146] Constitution, Article 20(4).
[147]National Research Council, 2011, P.792.
[148]Faurie, p.37.

accused person without his full and free assent.[149] But, reasonable use of contact scientific evidence may be justified in limited circumstances as a last resort to resolve heinous crimes and to exonerate a suspected person from conviction. Even some countries follow the experience that let punish the police and admit the evidence obtained either unconstitutionally or illegally. For the researcher, it is against the integrity of judiciary which should not be a party to illegal acts of police. An attempt to punish the police cannot be functional since police-policing is senseless and meaningless. In light of this view, Judy Hails and Jefferson advocated the doctrine of fruit of poison tree. They believe that evidence obtained by illegal means or unconstitutionally should be inadmissible.[150]

In other jurisdiction not only violation of human rights is a mandatory condition for exclusion of relevant evidence, but also scientific evidence based unsound scientific theory is inadmissible. For example, in *Frye V. United State*[151], the court of appeal reaffirmed that polygraph test could not able to prove the innocence of a suspect since scientific method and procedures employed in the investigation process were not accepted by relevant scientific community and thus become inadmissible. However, it is difficult to expect that the Ethiopian Courts may reject the proffered scientific evidence on the ground of scientific invalidity.

In a nutshell, Ethiopia should take a lesson from South Africa and US to undertake its international human rights obligation by ensuring fundamental rights of individual such as right to liberty, security of person, right to privacy, and freedom from torture in its criminal justice system.

3.2.2. The Precondition of Materiality

It should be born in mind that there is no significant difference between the thresholds of relevancy and materiality. The difference lies on relevant scientific evidence may not

[149] *Ibid.*
[150] Judy Hails, P.291; Jefferson Ingram,p.30 and 641ff.
[151] *Frye v. United States* , D.C Circuit, 1923 G.C, Criminal Case, File No.93/1013, *at* <https://www.law.ufl.edu/pdf/faculty/little/topic8.pdf>(Last Accessed on 12 May,2011). In rejecting the scientific validity of the lie detector (polygraph or systolic deception test), the court ruled that scientific examination was only admissible in evidence where the principle and procedure of such evidence has been recognized in the knowledge of relevant scientific community.

necessarily become material.[152] Materiality has higher value of persuasion than relevancy test. So, relevancy is a subset of materiality of facts in evidence.

Scientific evidence satisfies materiality test where it indicates the crime is near certainly committed by the accused when matching, comparison or identification made between samples from the accused with items extracted from the scene of crime. Black's Law Dictionary defines material evidence as "[e]evidence having some logical connection with the facts of consequence or the issues."[153] As one kind of evidence, scientific evidence needs to have significant connection with the ingredient of a crime. Scientific or technical findings can meet the threshold of materiality when it is ascertained that expert opinion has close interaction with the action of accused person which constitutes a conduct element of crime or can effectively associate this person with a particular crime. Scientific evidence which does prove a matter that is not at issue is immaterial. It is hard to get any scattered rule of criminal evidence that talks about the materiality precondition for admissibility of evidence in Ethiopia. There is also no express precedent system on materiality of scientific evidence unless an approach is made with the cases disposed in accordance with circumstantial evidences.[154]

3.2.3. The Precondition of Competency

Only forensic experts have a capacity to analyze, interpret, and testify scientific evidence on the basis of reliable facts or data derived from sound scientific theory. In such case, as "gatekeepers" of admission of scientific evidence courts are required to evaluate the qualification of expert offering opinion.[155] The court shall examine whether the experts has a qualified and specialized knowledge or skill on specific field to testify in his opinion about scientific facts or techniques which are relevant to facts related with elements of crime.[156] In

[152] Jefferson Ingram, p.196

[153] *Black's Law Dictionary*, 8th ed., 2004, *s.v, "material evidence".*

[154] In *Simachew Lingereh v Sothern Region Branch of Custom Authority*, to be admissible, circumstantial evidences must show and explain all conditions around a crime. In *Feyisa Mamo v Federal Prosecutor,* the court also pointed out that it impossible to arrive at a conclusion when the circumstantial evidences are not sufficient and persuasive. As perceived from these binding interpretations, the sufficiency and persuasiveness of evidence depends on its materiality for the matters at issue. Thus, it is not bad to argue that materiality of scientific evidence should be evaluated like other circumstantial evidences, but bear in mind the matter in issue is scientific.

[155] National Research Council, 2011, P. 901.

[156] Gray Edmond, 'The admissibility of Forensic Science and Medicine Evidence under the Uniform Evidence Law', *Criminal Law Journal,* 2014,Vol.38, No.136,p139-158, at P.139. Gary affirmed that under Australian rules of evidence, admissibility of scientific evidence depend on three conditions: the forensic expert must possess "specialized knowledge" within a recognized field of expertise; such knowledge must be acquired

such scenario, the court may say that he is qualified as forensic expert witness. If a medical doctor appears before the court to explain about the type of bullet used in commission of crime, the court should say he is incompetent to testify on ballistics issue. Similarly, the court should rule that serologist is not qualified as expert in the field of geology. Thus, scientific opinion is inadmissible where the expert had not had sufficient knowledge to give opinion on the facts of the case which rests outside his field of expertise.[157]

Awkwardly, the law of Ethiopian Federal Police Commission Establishment gives exclusive power of forensic investigation to the federal police commission by saying the commission has a power and duty to "provide expert witness [sic] to the court".[158] This indicates the Federal Police Commission is a competent body to give forensic opinion on matters involving sciences or other specialized field of expertise.[159] The researcher does not find that it is justified and acceptable legal stipulation. Rather, the law should give better concern merely on technical forensics investigation in assignment of power and obligation to the police officer. Since it is not believed that the Commission has the required qualification in helping of the court to dispose criminal cases that highly attract the application of various disciplines of forensic sciences such as DNA analysis, anthropology, medical examination, autopsy examination and etc.

Further, it should be kept in mind that, a qualified expert in science is not competent to offer opinion on the ultimate issues or legal issues[160] otherwise it wipe away the inherent function of trial court in adjudication of guilt or innocence[161]. In other words, the courts shall be bound only by scientific findings of forensic expert to arrive at final disposition of a criminal case.[162]

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through education, training or experience, and his opinion testimony must be entirely or significantly in light of such "knowledge" to provide court with understanding of the issue to be decided.

[157]Palmer Andrew, *Principles of Evidence*, 1st ed., Cavendish Publishing Limited, New South Wales, 1998, P.148.

[158] Ethiopian Federal Police Commission Establishment Proclamation, 2011, *Fed.Neg. Gaz.*, Proc.No.720, 28th Year, No.2, Art.6 (15) [Hereinafter, Proc. No.720/2011].

[159]Further, as per article 2(29) of the same law the commission has empowered to issue certificate of *competency* for a person who has a desire to involve in *forensic investigation service* (emphasis added). From this stipulation, one may discern that other person may involve in investigation process but not in providing of expertise opinion before court of law.

[160]Proc. No, 414/2004, Art.51 (3). Moreover it is widely accepted that forensic expert is allowed only to give opinion of facts based reliable scientific methods and procedures.

[161] Constitution, Art.79 (1).

[162] See as example Proc. No, 414/2004, Art.51 (3) and Art.54(3).

Despite that, there is no clearly applicable law in Ethiopia that requires the expert must be qualified in the area of his testimony.[163] The defendant has fundamental right to cross examine the forensic expert witness as to his relevant expertise.[164] Ethiopia has, nevertheless, a draft criminal procedure code that empowers the court to decide whether the witness has the necessary learning, knowledge, skill, or practical experience to enable him or her capable of giving opinion testimony.[165]

The 2004 criminal code simply regulates mandatory hearing of scientific opinion evidence in some case(s).[166] It states the court must require the production of scientific evidence where it observes the accused person suffer from "deranged mind or epilepsy, is deaf and dumb or is suffering from chro'1ic intoxication due to alcohol or due to drugs" so as to decide his criminal responsibility.[167] Its English version mistakenly requires the forensic psychiatrist to testify the "present conditions" of an accused which is not relevant for proving of ingredients of an offence for which he is charged.[168] This impliedly violates the fundamental principle of contemporaneity. As pointed out by Ashworth, the principle of contemporaneity dictates the material and mental element "must co-exist at the same time".[169] The *expose' des motifs* of the 2014 criminal code[170] that designates the true intention of the drafter, reveals the forensic psychiatrist examines only the condition of accused person at the time when crime was committed.[171] With slight difference, the Amharic version of the existing code also contemplates the forensic examiner should investigate the condition of accused person during the commission of an offence by taking in to account as well the condition of accused before

[163] However, the 1975 Federal Rules of Evidence of USA under its Rule 702 articulates a witness must be qualified as an expert by knowledge, skill, experience, training, or education to give his opinion on a scientific or technical matter, provided that the expert has used reliable scientific methods and principles that aid the court for administration of justice. It is an otherwise definition of forensic expert witness.

[164]Constitution, Art. 20(4). As per this stipulation, "Accused persons have the right to full access to any evidence presented against them, to examine witnesses testifying against them" including scientific evidence.

[165] The Draft Criminal Procedure, articles 353(3) and 365(2).

[166]Proc. No, 414/2004, Art.51 (1). For instance, in doubtful cases, it expressly requires the court has to appoint expert to obtain expert opinion to determine absolute or limited criminal irresponsibility, in particular, where accused show signs of deranged mind or epilepsy….. The term "in particular" indicates the lists are illustrative. In other doubtful cases, the court has discretion to call forensic expert within the meaning of art.454 and art.54 (2) of the criminal code.

[167]Proc. No.414/2004, Art.51 (1).

[168]*Ibid*, Art.52 (2, para 2).

[169]Andrew Ashworth and Jeremy Horder, *Principles of Criminal Law*,7th ed., Oxford University Press, Oxford, 2013, P.104.

[170].The *Expose' Des Motifs* of Revised Criminal Code Federal Democratic Republic of Ethiopia (Amharic: translated by the author), at, < https:/ www.abyssinialaw.com > (Last Accessed on 25 October.2011).

[171] In consideration of the enactment of new criminal procedure code, the *expos' des' motifs* said that the present condition of the accused person or his condition during trial process has to be determined by the criminal procedure code.

trial. Thus, it is plausible to conclude that priority shall be given for the Amharic version, in accordance with Federal Negarit Gazeta Establishment Proclamation.[172]

Neither the existing laws nor the practice of court would clearly define the term expert witness[173]. Hence, it is better to see the definition provided by Black law dictionary; defines an expert witness as a "witness qualified by knowledge, skill, experience, training, or education to provide a scientific, technical, or other specialized opinion about the evidence or a fact in issue".[174]

Scientific evidence is necessary not only to prove the issue of criminal responsibility, but also for other matters that require it to be tendered. The Federal Supreme Court Cassation Bench in its File No.97132 passed a binding decision that the court should demand presentation of scientific evidence in relation to matters requiring special or scientific knowledge.[175] This shows scientific evidence is needed not solely to issues in proving of criminal irresponsibility, but also it expound for any matter that invites forensic science expert opinion.

When all is said and done, the court should consider whether the forensic expert had really possessed scientific knowledge or technical skill beyond the knowledge of court to prove or disprove the material facts at issue in criminal case. The party adducing forensic evidence bears the responsibility to establish that the forensic expert has essential qualification to give his opinion on the issue to be determined.[176]

When one look how the court appoints an expert; the criminal code of Ethiopia merely says the court should appoint expert witness based on the rule of procedure in limited circumstances. Till nowadays, Ethiopia does not have ordinary rule of procedure for the appointment of experts. Even though, there is no ordinary rule of procedure that guide how to appoint an expert, it has to be noted that the court must assure and select only expert who has qualified skill on particular facts of scientific or technical inquiry. In addition to this, the

[172]Federal Negarit Gazeta Establishment Proclamation, 1995, 2004, *Fed.Neg.Gaz*. Proc. No. 3,1st Year, No.3, Art.2 (4).
[173]In the absence of definition the term expert witness has found in various scatted legislations.
[174]*Black's Law Dictionary*, 8th ed., 2004, *s.v, "*expert witness".
[175]*See Mohammed Kemal* v *Kemissie.* The court ruled that expert opinion is necessary to determine the originality of serial number of a pistol. Accordingly, this precedent decision shall be applicable for ballistics issues in accordance with Federal Courts Proclamation Re-amendment Proclamation, *Fed,Neg.Gaz*.,2005, Proc.No.454,11th Year,No.4 2,art.2(4).
[176] Most of the respondents held a position that a party who allege must prove it.

expert must not be deprived of his status to be an expert witness.[177] Similarly, parties appointed expert shall satisfy the said requirements in compliance with the relevant provision of the criminal code.

Be that as it may, the court on its own initiation or on the initiation either party may appoint scientific experts.[178] The court's authority to appoint forensic expert is not always discretionary in all circumstances.[179] For instances, when the fact in issue and the nature of proceeding necessitate expertise knowledge the court ought to demand the production of scientific evidence for hearing of forensic expert opinion. And, the court has constitutional duty to ensure an accused's right to present any kind of evidence including scientific evidence.[180] In criminal cases, in addition to the task of court, the investigating police officer is empowered to select a medical practitioner who can make physical examination including blood test.[181] It is not a proper stipulation for the reason that it opens a door for misuse and abuse of power by the police who is interested to assign partial medical examiner. What is worse is such examination is legally be made even against the consent of accused person, unlike in civil cases.

Unlike in another jurisdiction, it was not apparently promulgated in Ethiopia case whether the forensic expert shall be obliged to give expert testimony against his will in all criminal matters. It is deduced, however, from the relevant provision of criminal procedure code any witness has a duty to bring before court unless he will be arrested up on bench warrant issued by the court[182] and shall criminally be liable for omission to aid justice.[183] Along these lines, the law does not need the respect for forensic expert's consent and the expert cannot say he not interested to involve in forensic science examination.

[177]Proc.No.414/2004,art.123 (a).
[178]*Yessu PLC v. Dejene Bekele, et.al.,* Federal Supreme Court Cassation Division, 21 June 2011, File No 65930, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 12፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤2011 ፤ ገጽ, at 362 [Here in after, *Yessu PLC]*.
[179]*Yessu PLC*.
[180]Constitution, Art.20 (4) and see also Criminal Procedure Code, Arts 124(1), 136(2), 142(3).
[181]Criminal Procedure Code, Art.34.
[182] *Id*, art.125.
[183] Proc. No.414/2004, Art.448 (1).

3.2.4. The Precondition of Credibility

It includes objectivity, observational sensitivity and veracity.[184] This test of admissibility of scientific evidence is concerned with the accuracy and truthfulness of expert opinion on scientific facts relevant to prove controversial issues in criminal trials. Regarding objectivity element of credibility, the Cassation Bench in its file No.92141 held that expert must have given objective opinion on matters he called for as expertise.[185] In effect, he must act in neutral position during examination, analyzation, and interpretation of his findings; uninfluenced by the pressures of somebody or expediency of proceedings.

Whenever the court found out that there is a substantial conflict of interests, for the purpose of effective administration of criminal justice it should immediately reject the evidence given by the expert.[186] Article 67 of the draft criminal procedure code provides for exclusion of expert witness for reasons that affect his impartiality. Thus it is possible to say that the expert must be able to provide impartial, unbiased, objective evidence on the matters within his field of expertise.[187]Conversely, one may argue that expert's overriding duty is to the court and not the party calling him or her to testify. That is why a potential conflict of interest does not operate so as to automatically disqualify a witness from giving evidence.[188]

Another important issues relating to credibility is the opinion of scientific expert must be genuinely given. With respect to this, there is no clear legal stipulation so that evaluating the veracity of forensic evidence is at hands of judicial practice; perhaps, one may ponder confrontation as one means of assuring the accuracy of forensic analyst. But then again, it should be noted that the criminal law warned that the expert with expertise knowledge must

[184] David A. Schum, *the Evidential Foundations of Probabilistic Reasoning,*1st ed., Northwestern University Press, New York, 1994, p.99.

[185]*SNNR Public Prosecutor v Alemayehu Asfaw*, Federal Supreme Court Cassation Division, 2007 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 17፤ የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤ 2007 ፤ ገጽ 191-195. አንድ የትራፊክ ባለሙያ የሚሰጠው ሙያዊ አስተያየት የማስረጃ ዋጋ የማይሰጠው አስተያየቱ ተገቢውን የሙያ ደንብ ተከትሎ ያልተሰጠና ያልቀረበ፣ በጊዜውና በቦታው ከነበሩት የአይን ምስክሮች ቃል ጋር ተነፃፅሮ ሲታይ በመሠረታዊ ነጥቦች ላይ ልዩነት ያለበት መሆኑ ሲረጋገጥ እንጂ በጭፍጨፋ ነጥቦች ላይ ልዩነት ተከስቷል ተብሎ ሊሆን እንደማይገባ፣ የልዩ አዋቂዎች ምስክሮች ቃላቸውን ገለልተኛ ሆነው መስጠት እንዳለባቸውና ቃላቸው ያለ በቂ ምክንያት ልዩ አዋቂ ያልሆኑ ሰዎች በሚሰጡት የምስክሮች ቃል ውድቅ መሆን የሌለበት መሆኑን ተቀባይነት ያላቸው የማስረጃ ሕግ ደንቦች የሚያስገነዝቡ ስለመሆኑ የወ/መ/ሥ/ሥ/ሕ/ቁ 141፣142፣194 የወንጀል ሕግ ቁጥር 24፣59፣239(2)፣57፣543(2).

[186]Adrian Kean.p,535.

[187]Proc. No, 414/2004, Art.410 (1). He is criminally liable whenever he commits the act of corruption in relation to the matter in consideration.

[188]See the Draft Criminal Procedure Code of Ethiopia, article 69(2).

have interpret and testify or report facts accurately which are relevant to the issues to be decided by court of law.[189] If he fails to do so, he will incur criminal responsibility.[190]

Expert testimonial oath plays a vital role for assessing the credibility of scientific evidence. The law requests that expert witness to be presented in court and take an oath before he provides opinion on the subject matter of a case.[191] This has two thankful implications. Firstly, it enables the accused to effectively exercise his rights to confrontation and cross examination. Secondly, it reveals that, the distinguished feature of scientific evidence is not a documentary form of evidence. The only exception to this is where scientific evidence collected during preliminary inquiry before lower court.[192] In this case, no need of physical appearance of forensic expert who provides opinion on issues of crimes of homicide or aggravated robbery provided that the preliminary inquiry has been held in conformity with article 80(1or 2) of the criminal procedure code of Ethiopia. The practice is quite contrary to the law[193]as it can be reflected in another separate section.

3.2.5. The Precondition of Reliability

The application of forensic science to criminal justice system starts with crime-scene investigation. Physical evidence at crime scene must be collected, preserved and recorded in its original position to avoid destruction or alteration of evidence.[194] To this effect, the first investigating officer arriving at crime scene should take a responsibility to assure consistency between the result and the traced items.[195] Then, the foundation of scientific evidence lies with whether a qualified scientific expert has used an accurate instrument to establish a valid scientific test that proves the facts in issue or to sufficiently link the criminal suspect with a particular crime.[196]

Here the researcher essentially explores how the court can or should determine the evidentiary reliability of scientific evidence to be admitted in criminal proceedings. The court can rely on the proffered scientific evidence where applicable scientific methods, principles

[189]Proc. No.414/2004, Art.453 (1) and Art.457.
[190] *Ibid.*
[191]Criminal Procedure Code, Articles 136 (2), art.142 (2), 122(1, b), 124 (1) and 179(1).
[192] *Id*, Art.144 (2). In such a case, it may be produced as documentary evidence.
[193]Most of the interviewees wrongly perceived that scientific evidence is one forms of documentary evidence. By the same token, it was introduced as documentary evidence in all criminal proceedings of the study area.
[194] Richard 2012, p.34.
[195] *Ibid*
[196]Judy Hails, *Criminal Evidence*, 6th ed., Wadsworth Cengage Learning, Wadsworth, 2008,p.143 and 144[Here in after ,Judy Hails].

and procedures have duly been used by the scientific or technical expert to sufficiently prove the fact(s) in issue to be decided. Evidential reliability is based up on scientific validity in the criminal case which needs the production of scientific evidence.[197] Scientific witness must furnish criminal court with necessary scientific criteria for examining the accuracy of his finding that enables the court to pass independent judgement on the fact in issue. Nevertheless, it has been questionable that how the court could evaluate the reliability of scientific evidence where it did not know or apply scientific criteria regarding the validity and reliability of such an evidence.

In the case of *Daubert V. Merrill Dow Pharmaceuticals, Inc.*[198], the USA Supreme Court established relevancy and reliability criteria for ascertaining the validity of scientific evidence presented in courts of law. As the court noted, at least, validity test, generality test, peer review and publication, and errors of rate should be considered by trial court in assessing a reliability of scientific evidence. The criminal courts of different countries have still embraced *Daubert* thresholds as a guiding principle for admission or exclusion of scientific evidence.[199] The researcher said Ethiopia should take a lesson from the experience of USA.

In Ethiopia, there is no law regarding reliability test. There but attempt to draft a law by the parliament and established precedent by the Federal Supreme Court Cassation. Article 129 of the draft criminal code allows the court to take in to account the methods used in reaching experts opinion, such as validated laboratory techniques. Federal Supreme Court Cassation also has, in *Public Prosecutor v Alemayehu Assfaw* case, decided that the expert opinion evidence should not be made inadmissible unless it is based on invalid methods and protocols of the expertise.

However, the practice of lower courts in the study area departs from the binding interpretation of Cassation Bench; specifically the courts simply acknowledge scientific medical evidence from government hospitals short of considering its credibility and reliability. Meanwhile they ignored medical evidence from private hospitals for sole fact that

[197] National Research Council, 2011 p.72.
[198] *Daubert v. Merrell Dow Pharmaceuticals, Inc*.,US Supreme Court, 1993, Criminal Case, File No. 509/ 579, *at* <https://ww w.law.u fl.edu/pdf/faculty/little/topic8.pdf> (Last Accessed on 12 May, 2011).
[199] As cited in 'Admissibility of Expert Evidence, *23 Mental & Physical Disability L. Rep's* ,1999, Vol.6 No.66, 466-470,at p.467. For instance, in the case of *Rhode Island v.Quattrocchi;* Rhode Island state court concludes that expert testimony is admissible only when the state able to show that the theory of disputed facts has been sufficiently tested and obtained general acceptance in the scientific community that indicates its errors of rate is very low.

it is from private medical institutions.[200] Neither the law nor the practice of court requires the expert explanation about the methods of identification, comparison, and procedures used by him in analyzing and interpretation of relevant scientific or technical facts.

By the way, the researcher discerns there are huge legal loopholes in Ethiopia criminal justice system. The Federal Police Commission has a power and duty to "conduct forensic investigation and submits its findings".[201] The law does not clearly demand the commission to state the reasons that leads to an inference or conclusion. It failed to prescribe about the need to independent supervision, preservation and record of forensic findings. For that reason, it is doubtful whether the commission will conduct impartial investigation and provide expertise opinion to the criminal court. Absence of independent supervision will pose judicial errors.[202] At the end of the day, there is contamination of scientific evidence at crime scene investigation, misinterpretation of facts, and erroneous reports of findings.[203] This leads a judge to commit judicial error, in effect, miscarriage of justice will occur.[204]

The researcher believes that the commission may provide reliable evidence on the matters requiring technical knowledges or experiences like traffic accident, ballistics, handwriting comparison and fingerprints. But, it might be unreliable on the issues requiring scientific knowledge since it is uncertain whether police officers have knowledge in each specific field of science which involves in legal disputes. In a few words, it is hard to believe the police are qualified as scientific expert. Strictly speaking, it is thus not advisable to vest legal power with police regarding opinion of scientific evidence specifically on purely scientific matters like DNA analysis, medical science and autopsy.

Another complicated puzzle in relation to evidential reliability test is the use of deceptive or secretive methods or techniques of scientific investigation to establish crime of trafficking in human beings.[205] In accordance with the law, the police can infiltrate with the suspected offender to collect scientific evidences, in particular, DNA and fingerprint evidences. The draft criminal procedure code also allows special investigation techniques to be employed

[200] Interview with Abdurrahma Seid, Advocate and Consultant of Law in Southern Region and Federal Courts, *on the evaluation of credibility and reliability tests in admission of scientific evidence under Bench-Sheko Zonal Criminal Courts Proceedings,* April 3, 2011.
[201]Proc. No.720/2011,art.2(15).
[202] Beatrice Schiffer, P.56-75,79 and 100.
[203]Beatrice affirmed that forensic science is a source for judicial error unless there are great cautions made in collecting, preservation, recoding of forensic evidence and independent supervision.
[204]Brent E. Turvey and Craig M, P.6-67, You can read this book for elaborative understanding about typology, causes and effects of miscarriage of justice.
[205]Proc. No.909/2015, Art.18 (1).

with court authorization.[206] These ultimately breach right to fair trial and right to disclosure. In addition to the law, the criminal justice police deal with the decisive role of special investigation techniques and methods in relation with prevention of complex economic and corruption crimes and bringing of the wrongdoers before the law.[207] The policy does not say anything about procedural rule how special scientific techniques of investigation will be operated in practice. Thus, Toon Moonen noted that collection of DNA and fingerprint evidences without the consent of a suspected person shall constitute intrusion with fundamental right to privacy of individual.[208] The right to privacy may be limited in compelling circumstances.[209] Neither the law nor the policy deals with the compelling conditions and limits of bodily test examination and body scanning techniques of special investigation. Notably, it is totally left to the investigator of special crimes in our criminal justice system.[210] As a result, the reliability and credibility of scientific evidence obtained by such methods pose a threat to some fundamental values of fair trial and privacy right. To reduce the problem, there should be, at least, independent or judicial control; requires due care of preservation, recording, and specification of time limits for collection and documentation of scientific evidence.

3.3. The Burden and Degree of Proof for the Admissibility of Scientific Criminal Evidence

The practice is not clear regarding the burden of proof for admissibility of scientific evidence.[211] Some respondents said the one who introduce has an evidential and legal burden to prove the admissibility of scientific evidence by the standard of preponderance while other said there is no legal burden of proof because the court did not ask the prosecution to prove the admissibility of scientific evidence in relation to crime in its charge. In similar fashion, there is no rule or consensus on the burden of proof for scientific evidence to be admissible. For instance, Michael Bowers argues that the party tendering scientific evidence has a burden of proving whether the admissibility preconditions are satisfied with a standard of

[206] *See* the Draft Criminal Procedure Code, Art.104 and Art.105.
[207] Ethiopian Criminal Justice Policy, Sec.3.17.
[208]Toon Moonen, 'Special Investigation Techniques, Data Processing and Privacy Protection in the Jurisprudence of the European Court of Human Rights', *Pace Int'l L. Rev*. *Online Companion*, 2010, Vol.9. No.1, PP. 97-136, at P.124, 125,126 and 127.
[209]Constitution, Art. 26(3). Constitutionally speaking, there are 3 cumulative conditions which must be satisfied to put restriction on the right to privacy. I.e. Compelling situations, specific law and the purposes mentioned in the constitution must be considered in advance.
[210] Special crimes like Crime of trafficking in human beings and crime of money laundering
[211] As we shall see in chapter four of the study, the court does not require the prosecution to carry out its legal burden of proof in any criminal proceedings.

preponderance of evidence[212] while Professor Giannelli believes that the prosecutor has a duty to prove the validity of novel scientific technique beyond a reasonable doubt.[213] It is just to protect the defendant from wrongful conviction.

Likewise, Professor Giannelli, the researcher believes that based on the nature of scientific evidence the prosecution has a burden of establishing whether the admissibility pre-conditions are satisfied beyond the shadow of a reasonable doubt.[214] This is because of by no means; the proof of beyond reasonable doubt can be detached from presumption of innocence which is the constitutional right of an accused person.[215] Beyond a reasonable doubt reflects the idea that "facts proven must, by virtue of their probative [tending to prove] force, establish guilt".[216] The burden of proof of ultimate issues (the ingredients of an offense for which the accused is charged) by presenting evidence with the degree of beyond a standard of doubt always rest with the prosecution in criminal proceedings.[217] The prosecution cannot undertake its obligation of proving of elements of crime without proving the admissibility of evidence which is a basis to pass conviction against the accused. The prosecutor should prove the fulfillments of admissibility preconditions beyond a shadow of reasonable doubt in the case where scientific criminal evidence is a sole base (conclusive) to render conviction. Further, the defendant does not have sufficient knowledge on scientific evidence and its admissibility. Hence, it is better to impose duty on prosecution to prove or disprove the admissibility of scientific evidence.

One may argue presumption of innocence has to do with criminal liability, not for collateral issues like admissibility. Thus, burden will not be allocated based on the principle of presumption of innocence. For that seems, article 317 of the draft criminal procedure code articulates clear and convincing standard of proof is the required duty of prosecutor to prove the preconditions of a crime in its charge. But some argue that "proof of guilt by prosecution is procedural or evidential in nature".[218] Accordingly, the draft is said to be a threat to

[212] Michael Bowers, *Forensic Testimony Science, Law and Expert Evidence*, 1st ed., Elsevier Inc, San Diego, 2014.p.52 [Here in after, Michael Bowers].
[213] Fredric I. Lederer, 'Scientific Evidence - An Introduction', *William and Mary Law Review*, 1984, Vol.25, No.4, pp.517-523, at p.521.
[214]Because; the accused is entitled constitutionally and internationally to be presumed as innocence. Apart to this, prosecutor has a constitutional duty and responsibility to respect and ensure the fundamental rights of an accused person within the central message of art.13 (1) and 9(2) of the Constitution.
[215] C.Tapper. Cross and Tapper, *on Evidence*, 10th ed., Butterworths, London, 2004, p.148.
[216] Judy Hails, p.4
[217]Judy Hails, P.4 and Michael Bowers, P.52.
[218]Andrew Ashworth, 'Four Threats to Presumption of Innocence', *International Journal of Evidence and Proof*, 2006, Vol.10, No.241, 241-279, P.253.

presumption of innocence until proven guilty in accordance with the law. And, it is not important to reduce conviction of innocent persons.

Be the above as it may, the presumption of innocence is eroded in some criminal cases as mentioned under the criminal justice policy[219] and the relevant provisions of the 2004 criminal code of Ethiopia.[220] In this respect it can be deduced that the burden of persuasion bears on the accused to prove or disprove scientific or technical facts which are invoked in charge of one of the aforementioned criminal offenses. The constitutionality of the said policy and law are beyond a dispute since they are apparently against the fundamental right to be presumed as innocent person until proven guilty before regular court of law. In addition of the principle of presumption of innocence, in terms of resource and convenience, the burden of persuasion should be allocated to the government.

To sum up, the admissibility of scientific evidence is highly needed to prove or disprove scientific and technical facts to which the trial court would not understand to pass a decision on the issues without the help of qualified expert opinion. Likewise, it is admissible even to check the reliability of confession of an accused person, the competency and capacity of oral testimony in some cases. Scientific evidence is admissible upon the fulfillments of five basic preconditions of admissibility subject to the rule of exclusion. The scattered rules criminal evidence does not adequately regulate the preconditions of admissibility. Finally, it is noted that the next chapter primarily assess the practice of court in admitting or excluding of scientific evidence, along with implementation of the scattered rules of criminal evidence.

[219]The policy in its section 4.4 recommended exceptional cases by which the burden of proof to be shifted on the criminal defendant where the prosecutor only prove basic facts in a few grave crimes, *inter alia*,, crimes against the Constitution and constitutional order, acts of terrorism, crimes of corruption and organized crimes.
[220]Under its article 43(5), the criminal code expressly incorporates irrefutable presumption of guilt in press offence and tends to shift the burden of proof in relation with crimes committed in concert, utter and crimes of corruption.

CHAPTER FOUR:

THE APPLICATION OF SCIENTIFIC CRIMINAL EVIDENCE IN BENCH –SHEKO ZONE

INTRODUCTION

In the preceding chapter, the researcher has indicated the grounds that help to determine the admissibility of scientific evidence in criminal proceedings. Here, the researcher explores whether the preconditions of admissibility and scattered rules of scientific criminal evidence are practically considered. Thus, in assessing the practical admissibility of scientific criminal evidence, this section predominantly illuminates cases decided by Bench -Sheko Zone: Bench Area High Court and its Divisions and Mizan- Aman City Administration First Instance Court, interviews with judges of High Court and City Administration First Instance Court of this Zone, interviews with some public prosecutors and advocates. Accordingly, the study is going to focus on different forms of scientific evidence which are frequently presented before criminal proceedings of the study area.

4.1. The Admissibility of Scientific Autopsy Evidence

In any criminal case where there is a crime that needs the accomplishment of a given outcome; the matter of causation will come in picture. To prove such matter, the court may admit scientific evidence. Among different forms of scientific evidence, scientific autopsy evidence is frequently proffered to determine the cause of death in criminal matters in which the death of victim is one the elements of a crime in charge.

In *Public Prosecutor v Mohammed Dembelash and Tsegaye Assefa*[221], the defendants were prosecuted for aggravated robbery contrary to 32(a) and 671(2) of the criminal code. As stated in prosecution charge, the accused persons hit the victim's nape at once with big stone, and only circumstantial witnesses' evidence was attached with it to prove the alleged crime in issue. On initiation of the defendants' attorney, the trial court requests the Department of St. Paul's Hospital Forensic Medicine and Toxicology to send the result of victim's corpse examination.

[221] *Public Prosecutor v Mohammed Dembelash and Tsegaye Assefa* , Bench-Sheko Zone Bench Area High Court ,2011, Criminal Case, File No.18759[Unpublished].

Accordingly, St. Paul's Hospital Forensic Medicine and Toxicology Department has examined and reported the result of autopsy or post- mortem examination in Amharic and English versions to Bench-Sheko Zone Police Office. The medico-legal autopsy report states abrasion of 3cm x 1cm on left and right forehead had injured. The examiner puts his opinion on the report that death of victim is 48 hours prior to autopsy examination (but this is not presented on the Amharic version). It concluded the main cause of death is "head injury". Based on the proffered evidence, both accused persons were convicted of aggravated robbery and sentenced to 17 and 6 months rigorous imprisonment.

In this case, the expert did not appear before the trial court and his opinion/autopsy report was presented as documentary evidence. The court only considers what was stated in the report. The relevancy, reliability, and credibility of autopsy evidence are in question. One, in normal course of things whether hitting the victim's nape at once with stone would result death of human being was not raised and addressed. Second, the prosecution charge states nape of victim is injured while the autopsy report reveals the cause of death is "head injury". Thus, it is hardly ever to say the autopsy result is logically relevant and material to the facts in issue in trial of aggravated crime of robbery.

Third, the court did not examine the accuracy and truthfulness of expert opinion on scientific facts. Neither the judgment of court nor the autopsy report addresses the objectivity and genuinely criteria of admissibility. In light of this practice, Prosecutor Tesfaye viewed scientific evidence is deemed as credible and reliable for the sole fact that it is collected and reported by the government authority.[222] Fourth, neither the court in its judgement nor the proffered scientific evidence states the reasons or scientific methods and procedures used in examination to draw a conclusion on disputed criminal facts. In light of this practice, President Binyam speaks of the court only and only needs the final result.

Likewise, in *Public Prosecutor v Dereje Wolde case*[223], the accused was charged for crime of ordinary homicide in violation of article 540 of the criminal code. As mentioned in prosecution charge, the victim dies after two days medication for the injury inflicted by accused slap twice on his face, kicks in the stomach with leg, and dragged on the earth. The

[222]Interview with Tesfaye Shimeles, Public Prosecutor of Bench- Sheko Zone Justice Administration Attorney Department, *on the assessment of the credibility and reliability thresholds for admissibility of scientific evidence*, June 3, 2011.
[223]*Public Prosecutor v Dereje Wolde*, Bench Area High Court Bachuma Division Court, 2011, Criminal Case, File No.00185 [Unpublished].

charge also includes oral evidence and documentary evidence (hearsay and medical evidence). Based on initiation of the defendant, the court ordered the Department of St. Paul's Hospital Forensic Medicine and Toxicology to send the result of victim's corpse examination. St. Paul's Hospital Forensic Medicine and Toxicology Department provides medico-legal autopsy report. As indicated in the autopsy report, based on external and internal examination, the forensic expert observed that abrasion of…. injuries are presented on buttock and forehead; subarachnoid hemorrhage is presented on lobes and brain stem.

The forensic pathologist, Dr. Kiran Kumar (Professor) concluded that the cause of death is "bowel perforation as a result of blunt injury sustained to the abdomen". Finally, based on the proffered evidence and reason of the accused did not prove his innocence through defense evidence, the trial court passed conviction against the accused by virtue of article 149(2) of the criminal procedure code. He was thus sentenced to 3 years and 8 month rigorous imprisonment. In this case, the admissibility of proffered evidence is highly questionable. One, there is no logical connection between the examination and the final conclusion of the forensic expert. Because, the examination reveals, that the deceased has suffered by buttock and forehead injuries whereas the conclusion indicates, the cause of death is abdomen injury without articulating the scientific techniques or reference materials that lead him to draw this conclusive opinion. The researcher perceived that this mistake is caused by police investigation result since the expert was highly depended on it but not on scientific facts.[224] Thus, it is hard to believe that the forensic examiner has made independent examination, interpretation, and scientific findings. What should be is, the testimony should be made based on recognized scientific theory and the cogency of expert's proof must offset its detrimental consequence.[225]

Second, there is huge discrepancy between the Amharic and English version of the autopsy report. For instance, the English version said "[T]o [*H]ararge zone police"* (emphasis added) whereas the Amharic version said "to Southern Nations Nationalities and Peoples Regional Bench High Court" [Sic]. This implies the autopsy report is far from veracity. The

[224] This is inferred from the police investigation report itself. Advocate Abdurrahman insists that the forensic experts always mislead by the police report that does not prepared based on scientific investigation.

[225] Vicki Christian, 'Admissibility of Scientific Expert Testimony: Is Bad Science Making Law', *Northern Kentucky Law Review*, 1990, Vol.18, No. 21, P.21-40, p.23. Vicki noted that even before the emergence of *Daubert* thresholds, in case of *United States V. Amaral*, the court held a position to establish the criteria for scientific evidence to be admissible. Accordingly, it noted four preconditions should cumulatively be satisfied. That is to say, the witness must be a qualified expert; the witness testifies about the issue should not be within the full knowledge of non-expertise person; testimony should be made based on recognized scientific theory and the cogency of expert's proof must offset its detrimental consequence.

community may lose trust on the institution as well. Third, there is inconsistency between the medical evidence provided by Shebench Health Center and the autopsy result. The medical evidence shows that the deceased person's milk teeth were removed due to the accident. This fact, however, was not mentioned in post-mortem examination result. Surprisingly, the court also considered percussion as scientific medical testimony. Hence, the ruling of court is against the binding decision rendered by Federal Supreme Court.[226] Finally, in contradiction with the principles of innocence in criminal proceedings, the court held a position that the accused has failed to undertake his evidential and legal burden of proof to prove he was not committed the alleged crime. From outset, "the defendant has no obligation to present any evidence at all or to prove to you in any way that he is innocent".[227] In a word, the trial court admitted, in practice, the proffered scientific evidences devoid of evaluating the relevancy, material, credibility and reliability criteria of admissibility.

4.2. The Admissibility of Scientific Ballistics Evidence

Sometimes, the suspect may use weapon in commission of a certain crime in a place where no eye witness is presented. Where such situation happens, scientific ballistics evidence is necessarily relevant and material to identify the type of weapon used in doing of criminal act. The expert in the science of ballistics may identify a weapon from which a particular bullet was fired by comparing the markings on that bullet with on a sample test bullet fired by the witness through the suspect gun.

When we look the land mark case, in *Public Prosecutor v Hassen Awol and Abebe Berhe*[228], the defendants were prosecuted for ordinary homicide contrary to article 540 cum with article 32(1,a) of the criminal code. As pointed out in prosecution charge, the defendants commit ordinary homicide as principal criminal by carrying a weapon with intention and plan to kill a person. The charge contains circumstantial witnesses, documentary, and exhibit evidences.

The Bench Sheko Zone Justice Office investigation and Charge Sub-Department requests the Department of Federal Forensic Ballistics Investigation to determine whether the bullet left behind the scene of crime is fired from the shotgun found in the possession of the accused person. The ballistics investigation result describes the bullet in question and sample bullets

[226] *See Feyisa Mamo v Federal Prosecutor.*
[227] Judy Hails,P.5.
[228] *Public Prosecutor v Hassen Awol and Abebe Berhe*, Bench-Sheko Zone High Court Maji Division Court,2005, Criminal Case, File No.01958[Unpublished].

had carefully examined in federal ballistics examination laboratory through a devise that technically magnify the difference. The forensic experts could not found that they have similarity where the bullets lead, stria, and spin as travels through the barrel groove comparison made between the bullets in question and the sample bullets (translated by the author).

Thus, the ballistics experts concluded that the bullet found from the scene of crime is not said to be originated in or fired by the gunshot S.no.28119521. From this evidence, the court understands that there is no bullet fired from gunshot S.no.28119521. The Court believed that it is scientifically proven that the alleged gunshot was not used in commission of crime. Thus, the defendants were not found of criminal guilty and acquitted as per article 149(2) of the criminal procedure code because they rebutted both the prosecution charge and evidence.

The prosecutor, however, was not satisfied with the decision of trial court, and lodged an appeal to the Southern Region Supreme Court. The appellate court reversed the decision of lower court on the ground that the accused might have another weapon that was used in commission of the offense and convicted the first accused for 15 years rigorous imprisonment. The convicted person takes a petition to the Southern Region Supreme Court Cassation Division for reversal of the Supreme Court convection. But, the Cassation Division confirmed the decision of appellate court and modified the punishment to 12 years rigorous imprisonment. Still the case has not ended here. The advocate on the behalf of his client has brought a petition before the Federal Supreme Court Cassation Division to correct basic errors of law which are committed by the Regional Cassation Court. One of the grounds for his petition is the prosecutor does not prove the fact that the accused has another weapon or firearm, more than this; the ballistic result expressly proved a bullet in issue is not fired from the gunshot of applicant. However, it was impossible to know the decision of Federal Supreme Court Cassation Division Court since the case did not found within its volume.

4.3. The Admissibility of Scientific Medical Evidence

In many criminal proceedings, age, injuries or chastity becomes one of the material ingredients of a certain crime. In this regard, scientific medical evidence helps to prove material facts which are not within the knowledge of ordinary persons including the criminal court. So, a person who qualify as an expert in medical science may appear before court to testify on scientific facts.

In *Public Prosecutor v Daniel Kidane case*[229], the accused was charged for crimes of grave willful injury and violence against marriage partner with the intention to cause permanent injury to the physical health of his spouse. In this case, the prosecutor produced three eye witnesses, the injured victim's photography, and scientific medical evidence. Based on the request of the court, Gacheb Health Center has sent the report for police office. The report indicates that, because of accident, some parts of victim skin was burnt, but recovered through medication. The report does not indicate the name of examiner. It solely indicates the name, signatures of the Director of Gacheb Health Center. From this pending case, one can discern that medical science evidence has been treated as documentary form of evidence contrary to article 136(2) and article 142(2) of the criminal procedure. Further, the tendered medical science evidence does not have relevancy to basic facts in issue since it proved in advance the fact that the victim has recovered from her injury as opposed to "permanent physical injury" which is one part of the material elements of the alleged crime by virtue of article 555(a) of the criminal code. Therefore, there is misunderstanding of the correct result. This would likely entail miscarriage of justice through wrongful conviction. Attorney Zerihun observed that even though, the expert opinion does not exactly explains the fact in issue, it is commonly admissible as relevant scientific evidence.[230] Besides, the court does not check the competency of forensic expert any criminal case.[231]

In *Public Prosecutor v Henock Fetene*[232], the defendant was prosecuted for performing sexual intercourse with a girl when she was 15 years of age, contrary to article 626(1) of the criminal code. For this case, both oral testimonies and scientific evidence were presented to prove the essential element of the alleged crime. Under the caption of documentary evidence, two medical certificates: medical certificate of age and medical certificate of chastity were introduced by the prosecution in criminal bench. Medical certificate of age from G/tsaddik Shawo Hospial says based on physical and x-ray examination her age is estimated between years of 15-16. Another piece of evidence: victim and the defendant believed that she is 18 years of old while victim's father as court witness testified that his child age is 13. Further,

[229] *Public Prosecutor of Mizan and its Surrounding City Administration v Daniel Kidane*, M/S/C/A First Instance Court, 2011,Criminal Case, File No.16445 [Unpublished].

[230]Interview with Zerihun Kanfash, Defense Attorney, in Bench-Sheko Zone Courts, *on the relevancy test of scientific evidence in criminal bench proceedings,* April 10, 2011.

[231]Interview with Elias Tilahun, Judge of Mizan-Aman City Administration First Instance Court, *on the appointment and competency of forensic expert witness,* June 04,211. All respondents including Judge Elias told me that the court does not appoint a particular expert, rather it simply writes a report for the concerned institution.

[232]*Public Prosecutor of Mizan and its Surrounding City Administration v Henock Fetene*, M/S/C/A First Instance Court, 2011, Criminal Case, File No.16370 [Unpublished].

medical certificate of chastity from "Mizan University Teaching Hospital" certified that, based on physical examination, her virginity was lost before a long period of time, but there are symbols which show she made sexual intercourse with nigh time (translated by the author). The report also contains irrelevant things to the fact in issue: she is free from sexually transmitted diseases.

Despite there is inconsistence between evidences, the court understood the estimation of medical evidence as the evidence proved ("ያረጋገጠ ነው") the fact that she is 16 years of old. It upheld the defendant was found guilty of sexual outrages and punished with two years simple imprisonment, in accordance with medical certificate of age. The judge further reasoned out the accused does not offer sufficient evidence to prove his innocence or to disprove the prosecution charge and evidence. The accused does not have a legal duty to prove his innocence. Thus, the reasoning of the court is in violation of right to presumed as innocent.

Here, there are a lot of failures on the part of the court in admitting medical evidence. First, it failed to evaluate the objectivity, observational sensitivity and truthfulness of the medical expert opinion on estimation of age. Even the report does not say anything regarding the qualification of medical analyst and interpreter in examination of age. But, it is not an easy task for the court to address the question whether he has really possessed adequate knowledge to be capable of giving genuine opinion on the subject matter of the case.

Second, the court failed to examine the relevancy and materiality test of scientific medical evidence. This is because; absence of virginity does not have logically significant connection on the issue to prove whether the accused has performed sexual intercourse with 15 years of old victim. This issue, however, had scientifically proven through DNA evidence generated by sperm cell samples or hair analysis evidence generated by comparison of hair samples with public hair found at the scene of crime, if any. Third, court admitted contradictory evidences produced in criminal proceedings. This is incompatible with the binding interpretation of Cassation Division Court in the case of *Girma Tiku v Federal Ethics and Anti- Corruption Commission.*[233] The Cassation Court establish an argument that the prosecution can undertake its duty to prove the facts in issue only where it ascertained such

[233] *Girma Tiku v Federal Ethics and Anti- Corruption Commission,* Federal Supreme Court Cassation Division, 2004 E.C, in የፌደራል ጠቅላይ ፍርድቤት ሰበር ሰሚ ችሎት ዉሳኔዎች፤ ቅጽ 10፤የኢፌዲሪ ጠቅላይ ፍርድ ቤት፤ አዲስ አበባ፤ 2002 ፤ ገጽ. 211-218.

facts through reliable and relevant evidences having strong values which are not contradictory with each other, but corroborative. So, the prosecution evidence does not have acceptance because it contains contradictory material facts.

In *Public Prosecutor V Minassie Yisak* case, the accused was charged with two counts: crime of willful injury and damage to property of state for violation of articles 556(2(a)) and 685(1) of the criminal code respectively.[234] As articulated in the charge, the accused hits against the victim forehead with testa that actually causes crack of left upper eyebrow (translated by the author). Here, medical evidence proffered against the defendant to show the extent of injury suffered by the victim. Such evidence from Mizan-Teferi Health Center reported as it has been examined and found that the victim suffered an injury around his eyelash. The medical report concluded that after taking appropriate medication, the victim has recovered from his harm. The court found that the accused is held liable for his actions based on the evidence produced to prove the offence in charge. Accordingly, he was convicted of common willful injury and sentenced to 6 month simple imprisonment.

In the above cited case, the accused was wrongly convicted of crime of common willful injury. From the outset, the prosecution charge does not contain any statement regarding the issue whether the accused was "used poison, a lethal weapon, or any instrument capable of inflicting injuries" in commission of the crime.[235] According to article 556(2(a)) of the criminal code, utilization of an instrument is a fundamental element of crime of "common willful injury". Hence, the conviction of accused is clearly inconsistent with the law.

Further, the examiner was given a mere ordinary explanation or suggestion about the nature and the extent of injury since he does not state the instruments and scientific methods, principles and/or techniques used in examination of body injury. Rather, he simply explains in conformity with the police report. Even the examiner does not mention his status in the medical report. These facts lead us to conclude that the criminal court has admitted uncredible scientific evidence provided by incompetent expert in the form of report.

In light of the practice, President Binyam argued "there is no procedural law that requires the court to ascertain the reliability of scientific evidence; we directly believe the evidence come

[234]*Public Prosecutor of Mizan and its Surrounding City Administration v Minassie Yisak*, M/S/C/A First Instance Court, 2011, Criminal Case, File No.16338 [Unpublished].
[235]That is why; the accused person does not use any material other than his forehead for commission of the crime as can be inferred from the criminal charge itself.

from the government institution; moreover he says we cannot know the credibility of scientific evidence because we have no capacity to do so it" (translated by the author).[236] While Advocate Abdurrahman believed that the law provides the criteria for assurance of the reliability and credibility of scientific evidence regardless of its practical application.

In the case of *Public Prosecutor v Temesgen Ayinta and Mulugeta Ayinta*[237], both were charged for attempt to homicide for breach of article 540 cum article 27(1) of the criminal code of Ethiopia. The charge states, with complicity, the defendants stab the victim at his right back and abdomen with knife; snick one times at his head with pole. As indicated in the charge, the second defendant perforates ("አንጀቱን የዘረገፈ"....) one time's the victim's intestine by receiving a knife (ጩቤ) from the first's defendant. To associate the accused person with the offense in charge; oral, exhibit/ physical and medical evidences are attached with the prosecution charge.

Medical evidence from Mizan Teaching Hospital certified that the physical x-ray examination shows abrasion of 4cm x 2cm injured to head and 3cm x 4cm injured to chest and 3cm x1cm injured to the abdomen (translated by the author). Astonishingly, the report contains paradoxical statements. It says: "እንድሁም ሆዱ ላይ 3cm በ1 cm የሚሆን ሙሉ በሙሉ የአንጀት ሽፋን ተበስቶ የውስጥ ሰውነት ክፍል ኦፕሬሽን ተደርጎ እንዳልተጎዳ አረጋግጠናል።" (emphasis added). In another report, the same institution ascertained Dr. Eyasu has found out that the Temesgen Ayinta is following up in hospital due to epilepsy.

Regardless of the defenses, the defendants were convicted of attempt to homicide and punished individually with eleven years rigorous imprisonment, based on the proffered evidence and arguments advanced by the prosecution. The court passed a judgement of conviction on the ground that the accused failed to rebut the established charge with evidence.

The researcher observes some fundamental problems in the disposition of this case. It is argued that uncredible, irrelevant, immaterial and unreliable scientific medical evidence was admitted in this criminal trial. First, the medical evidence does not have a significant and material linkage with material facts established in prosecution charge. That is why; in charge

[236]Interview with Binayam Babu, President of Bench-Sheko Zone High Court, *on the affirmation of the reliability and credibility of scientific evidence in criminal court proceedings,* May 18, 2011.
[237]*Public Prosecutor v Temesgen Ayinta and Mulugeta Ayinta,* Bench-Sheko Zone Bench Area High Court, 2011, Criminal Case, File No.18973 [Unpublished].

of prosecution the actions of defendants cause injuries at the back, head and abdomen of the victim of crime whereas medical report as evidence indicates the injuries are sustained to the chest and abdomen. Second, the examiner failed to justify the reasons for his conclusion on the facts to be proven. It is unknown whether he is a qualified expert in the science of medicine, specifically in body examination. He further does not state any material, procedures or technique that he applies during physical examination. Therefore, it is highly arguable whether the proffered written report is credible to be admissible in evidence. Third, the court failed to consider paradoxical statement appeared in the report since the report was finally concluded that there is no harm on the bowel as it proves. This has an adverse effect on the criminal justice system in general and fair trial rights of the criminal defendant in particular.

Fourth, even though, the first defendant has adduced a medical evidence to prove his mental faculty is deranged due to epilepsy; the court had totally missed to evaluate the relevancy and probative value of the alleged evidence before to determine his criminal responsibility. This shows the action of the court is not in compliance with the mandatory provision of law which expressly requires the production of expert opinion evidence where there are equivocal cases in particular, "when the accused shows a signs… of epilepsy".[238]

In sum, the court failed to give an opportunity for the accused to exercise defense rights: the right to presumption of innocence, right to discovery of evidence, and right to cross examine against expert opinion evidence.

4.4. The Admissibility of Scientific Technical Evidence

There are facts in issue which cannot strictly fall under the ambit of science; but are beyond the knowledge of ordinary witnesses and judges. In other words, some material facts in criminal cases require technical knowledge, skill and /or experiences. So, any person as expertise in technical issues like traffic accident, ballistics, and handwriting comparison may appear and take an oath to testify before court of law. There are technical evidences, such as, arson investigation, fingerprints, ballistics , and hand writing comparison, nevertheless which did not, met *Daubert* thresholds "but still reliable & admissible" so long as they are not strictly speaking a subject matter of science.[239] That is why; *Daubert* elements of reliability test are limited to apply only on scientific matters. To reduce the shortcoming of *Daubert*

[238]Proc. No.410/2004, Art.51 (1).
[239]See Sayed Sikandar, p.205 and 206.

standards, US Supreme Court *in Kumho Tire Co., Ltd. v. Carmichael*[240] unanimously ruled that the probative value of scientific evidence included both *scientific* and *technical* evidences.

In the case of *Public Prosecutor of Bench-Sheko Zone v Yehualashet Atinafu*, the accused person was prosecuted of negligent homicide in accordance with article 543(3) of the criminal code and article 5 of road transport traffic regulation.[241] The charge explains the intoxicated driver; the accused enter in front of the deceased driver and crashed the latter that drives intact with his line. To prove basic facts of this case, medical and technical forms of scientific evidence are adduced by the prosecution. Medical evidence provided by Mizan Teaching Hospital certified that the corpse examination indicates the deceased person's forehead, knee, and eyelash have been injured.

Judge Enatinesh orders the Federal Police Traffic Examination Department to send written expert explanation via post that helps to identify whose action was the cause of car crashes. In another time for the same case, Judge Teshome orders The Federal Police Commission to send expert explanation via post after understanding of the copy of traffic accident plan and explanation proffered by prosecutor as documentary evidence. Neither the Department nor the commission was providing any response until final adjudication of the case. This implies the federal institution failed to undertake its responsibility to collaborate with judicial organ in administration of justice.

However, Chief Sagin Habitamu, one of the police officers in Bench -Sheko Zone submitted his written opinion that the *defendant was at fault and is guilty for loss of life and damage to property (*emphasis added). This reveals that the police officer gives opinion on ultimate issue / legal issue which is only vested with power and function of court even if the trial court was kept silent from any ruling on legal finding provided by the police officer.

Further, Advocate Abdurrahman Seid, on the behalf of his client, defended the opinion of traffic police does not prove the facts at issue. Since, the traffic accident and explanation did not follow its expertise rule; found to be defective. For this reason, the accused dully requested the trial court to give an order for the Chief Department of Bench-Sheko Zone

[240]*Kumho Tire Co., Ltd v. Carmichael*, US Supreme Court,199 G.C,Criminal Case, F.No.526/137 *at* <*https://ww w.law.u fl.edu/ pdf/ fac ulty /litt le/topic8.pdf*>(Last Accessed on May,2011).
[241]*Public Prosecutor of Bench-Sheko Zone v Yehualashet Atinafu*, Bench-Sheko Zone Bench Area High Court,2010, Criminal Case, File No. 18288[Unpublished].

Police to organize independent and qualified experts who can give *written expert opinion* in a manner of proving the facts in issue in detail. Consequently, the court accepted the request of accused regarding the production of other expert opinion evidence. Then, the police department sends two letters in different times. The first letter said we understood that the first traffic accident plan was intentionally prepared to create mistake of justice beyond being absolutely unrelated to truth and the scene of crime. The second letter written by same coordinator announced to the court that they cannot able to prepare the traffic accident plan because of different reasons.

Bear in mind, the court said as ascertained by the second letter, it found out that prosecution documentary evidence is filled with doubtful situations and the defendant defended himself through creation of doubt on the charge of prosecution. They positively discerned scientific evidence as one forms of circumstantial evidence. As a result, the accused was freely gone to his home. Nonetheless, in its judgment the court considered scientific technical evidence as documentary form of evidence and examined as corroborative evidence. In this case, the advocate also considers police technical evidence as written form of evidence. As it has been already illuminated in chapter three, scientific evidence is an independent means of proof like other evidence. It can never fall under the catalogue of documented evidence.

Moreover, the trial court admits technical evidence based on unjustified and irrelevant grounds. As stated before, it was mistakenly admitted ordinary opinion mentioned in the second letter as additional expert opinion evidence to disprove the traffic accident plan and explanation prepared in earlier time. In this case, the court was also ignored the issue of intoxication before it determines the issue of criminal responsibility.

4.5. The Admissibility of Scientific Document Comparison Evidence

As it has already been stated, it comprises handwritten, type scripted, copied, printed or computer-generated materials that are examined to prove crimes of fraud and forgery. It helps the court to decide authenticity of a document or its source. The document examiner may receive sufficient number of known documents to determine whether such document matched with the document in issue.

In *Public Prosecutor of Mizan and its Surrounding City Administration v Ermias Nigussie*[242], the suspected person was charged for intentional commission of material forgery offenses by putting his personal signature and preparing forged agency to obtain undue advantage for himself pursuant to article 375(b) of the criminal code. The charge states the accused has signed on 17 Cash Payment Vouchers in the name of Abebaw Zewudie who is the head of Nigate General Construction Work Union; prepared false agency on the behalf of Abebaw; signed on the bank account of the Union in the name of its members; thereby he obtains more than birr five million. In short, the accused was prosecuted for making and use of false documents.

Federal Forensic Investigation Directorate received 19 documents to be examined with 9 sample documents based on the request of Bench-Sheko Zone Main Police Office Center. As second part federal document examination laboratory report says, the aim of examination is to compare and to know whether sample documents stated in first part of report have similarity with that of documents to be examined in same first part of the report. The third part of the report illustrates the process and result of document examination. With the help of document examination devise that shows and magnify signatures in special way, each documents in question was examined with samples presented for comparison.

In accordance with the examination, the signatures to be examined have connection (similarity) with sample signatures by their creation of characteristics, usage of phrase movement and special customary symbols. Finally, the report concludes that the signed documents in question are signed by Ermias Nigussie. The prosecution alleged that the forensic examination ascertained the material fact that the accused has made false documents through his signatures. He also argued that the accused defense evidence does not prove the fact that he was not committed the crime in charge. Accordingly, the trial court summarizes its judgment as follows:-

As confirmed by the federal forensic investigation result, the documents in issue have been signed by the accused himself; (2) the defense evidence does not prove that he did not perform the alleged crime in charge; (3) the court thus passed conviction against the accused who cannot rebut the allegation of prosecution. For this case, document comparison evidence was conclusively admitted to pass conviction against the accused.

[242]*Public Prosecutor of Mizan and its Surrounding City Administration v Ermias Nigussie*, M/S/C/A First Instance Court, 2010, Criminal case, , File No.15299 [Unpublished].

Generally, the majority of produced scientific criminal evidences were admitted as direct evidence in court of law.[243] Most of court practitioners were still erred in treating of scientific evidence as documentary form of evidence. In practice, they are deemed as documentary evidences and almost but not all are admissible in criminal trials.[244] Moreover, two respondents perceived that scientific evidence is irrefutable and conclusively admitted in criminal court proceedings.[245] Some judges believed that scientific evidence is regarded as direct form of evidence. In fact, it is a part and parcel of indirect evidence.

4.6. The Status of Admissible Scientific Evidence in Criminal Proceedings

The degree of relevance does not generally affect the admissibility of the evidence, but high relevant the evidence is, the high weight the judge may attach up on it.[246] As a matter of principle, the determination of the probative force of scientific evidence is in the motion of trial judges whether to give high or less weight.[247] Thayer argued that the weight of evidence is not need to be regulated by the rules of evidence, but left to the experience and thought of trial courts.[248] This does not mean that court can arbitrarily measure the proffered scientific evidence; rather they have expected to take in account the qualification of forensic examiner, the relevancy and reliability of methods employed by him. Or, the court needs to have sound justifications before it considered scientific evidence as conclusive or corroborative.

In Ethiopia too, there is no hard and fast rule regarding the probative value of admissible scientific evidence. In *SNNPRS Prosecutor v Alemayhu Asfaw*, the Cassation Division of the

[243]Interview with Melaku Getahun, President of Mizan Aman City Administration First Instance Court, *on the admissibility of scientific evidence in criminal court proceedings*, May 6, 2011; interview with Yesuneh Mulugeta and Tessema Hibistu, Prosecutors of Mizan Aman City Administration First Instance Court, *the concept and nature of scientific evidence in the process of justice system*, May 7,2011*;* Interview with Tekile Beyene, Assistant Judge of Bench-Sheko Zone Bench Area High Court, *on the characteristics and admissibility of scientific evidence in criminal matters*, May 28, 2011; Interview with Tesfaye Shimels, Public Prosecutor of Bench-Sheko Zone Justice Administration Attorney Department, *on the nature and admissibility of scientific evidence in criminal proceedings* June 3,2011; and Interview with Alemayehu Mebratu, Advocate and Consultant at Law both in Sothern Region and Federal Courts, *on the features and admissibility of scientific criminal evidence*, May 24, 2011.

[244]Interview with Zurbabele Abebe and Abyiot Alemu, public prosecutors of Bench-Sheko Zone, *on the nature and admissibility of scientific evidence in criminal proceedings*, June 3, 2011. Prosecutor Zurbabele informed me that scientific evidence is one forms of documentary evidence and it is genuinely and always admissible in court than oral evidence in his prosecution experiences.

[245]Interview with Ashenafi Koye, Judge of Bench –Sheko Zone High Court, Bench Area High Court, *on the refutability and probative value of scientific evidence in criminal trials*, June 6,2011*;* Interview with Alemayehu ,Judge of Bench- Sheko Zone High Court, Bench Area High Court, *on the characteristics of scientific evidence in criminal proceedings*, June 3,2011. Judge Alemayehu said that it does not give an opportunity for the defendant to produce contrary evidence.

[246]Jonathan Doak,p.5

[247]Raymond Emson. 367, Adrian Kean. P,545

[248]Terence Anderson and eta'l, *Analysis of Evidence*, 1st ed., Cambridge University press, Cambridge, 2005, p.292.

Federal Supreme Court of Ethiopia held that where expert evidence is presented, courts are not obliged to accept it, rather they must evaluate it like any evidence and give the weight they think appropriate. It warned the lower court should not always see it as conclusive evidence. The court also rightly held that lower court need to provide sound reasons for their decision to give a better weight for non-expert evidence. Because of unfamiliarity with this land mark case, scientific evidence was conclusive in most criminal proceedings of the study area. As advocate Abdurrahman responds there is a huge problem on the part of the court that they always consider scientific evidence as conclusive or having of strong value in disposition of criminal matters.[249] Further, as one can understand from the above discussion and cases analysis, the prosecution was not required to prove the fact in issue by the standard of beyond a reasonable doubt. It was sufficient that the mere presence of scientific evidence in court relieves the prosecution from its obligation to prove material facts beyond a shadow reasonable doubt.

4.7. The Implication of Scientific Evidence on Criminal Justice System and Individual Rights

Scientific criminal evidence has its own positive and negative implications on the criminal justice system in general and fundamental human rights in particular. The criminal justice can work effectively when scientific evidence helps the court to pass conviction against the real culprit and acquittal of innocent persons. On the contrary, scientific evidence may be a source of judiciary errors and miscarriage of justice when it is improperly utilized in prosecution and adjudication of criminal matters. Thus, the following sub sections are designed to unearth the possible implications of admitting scientific criminal evidence in Bench-Sheko Zone.

4.7.1. The Implication of Scientific Evidence on Criminal Justice System

Above all, what requires a great concern is how to administer the criminal justice system in efficient and effective way in one hand and ensure the observance of human rights norms on the other. Scientific evidence has direct or indirect effect on criminal justice system by helping a trial judge to exonerate innocent person from conviction and to pass conviction against criminal guilt person.[250] Where this is so, the criminal justice system is regarded as a well -functioning system. Nonetheless, scientific evidence may become one of the sources for malfunction a criminal justice system. At this juncture, Beatrice Schiffer has identified

[249] See Abdurrahman.
[250] As Brent noted that the principal object of criminal justice is 'to convict the guilty and free the innocent'.

succinctly the basic sources of judicial errors which are truly important to examine the negative implication of scientific evidence on criminal justice system. Beatrice found out that, unrealistic expectation of practitioners, wrong interpretation or misunderstanding of the correct result, language problem in presentation of scientific evidence to the court, the risk of attaching undeserved weight to scientific evidence, subjectivity and dishonesty of expert opinion can be taken as reasons for a certain justice system to become unreliable.[251] He further concludes that forensic science is a source for judicial error unless there are great cautions made in collecting, preservation, recoding of forensic evidence and independent supervision.[252]

In practice of the study area, scientific evidence displayed negative implications on the administration of criminal justice. One, there is no independent investigation at the scene of crime to collect scientific material to be presented by the expert opinion. In all cases, the prosecution, police officer and forensic analyst work together to pursue the interest of state and not give care to the defendants' interest. For that reason, in reality, innocent person often prosecuted and convicted thereby miscarriage of justice happens.[253] The case of *Derege Woldie* is a best example that the forensic expert merely basis his opinion on the report of police investigation as opposed to scientific techniques and methods.[254]

Second, the laboratory analysis does not conform to the actual result. For instance, in the case of *Prosecutor v Defendants*[255], the medical autopsy analysis and the final findings are not consistent with each other. The same is true in *Public Prosecutor and Daniel Kidane* case.

Third, there is error of report writing. It was a visible problem in *Public Prosecutor v Dereje case.* There was language problem of presentation of scientific autopsy evidence in the case of *Public Prosecutor v Temesgen Ayinta and Mulugeta Ayinta.* In this case, the medical report lacks of clarity and contains inconsistent phrases in the same statement.

Fourth, the court did give undeserved value for scientific evidence without considering the nature and the circumstance of the case in adjudication. In *Public Prosecutor v Henock Fetene case,* the court unrealistically expected medical evidence as having strong value to prove the fact in issue.

[251] Beatrice Schiffer,P.1,43,63 and 66.
[252] *Id*,P.56-75, 79 and 100.
[253] Interview with Zurbabele Abebe, *on the implication of admitting scientific evidence on criminal justice system and individual rights,* June 03, 2011. In support of court practice, prosecutor Tesfaye thinks that priority should be given for enforcement of criminal law.
[254] See *Public Prosecutor v Dereje Wolde*
[255] See *Public Prosecutor v Mohammed Dembelash and Tsegaye Assefa.*

Generally, the study found out that there is contamination scientific evidence at crime scene investigation, misinterpretation of facts, and erroneous reports of findings. Therefore, this has already misled the judges to commit judicial error, in effect; miscarriage of justice has occurred.

4.7.2. The Implication of Scientific Criminal Evidence on Individual Rights

In abuse of rights of liberty, freedom from torture, to remain silent and privilege against self-incrimination, some laws clearly authorize the police to use force in collection of scientific evidence, *inter alia*, fingerprints and DNA evidences.[256] By the same taken, it violates the negative liberty of an individual. Scientific evidence is not practically subject to examination by accused person; consequently, such restrictions encroach upon the fundamental right of defendant to examine scientific evidence presented against him.[257] The law completely allows the federal police commission to "provide expert witness [sic] to the court".[258] It has implication on the right of accused to present any evidence including scientific opinion evidence. As well, it hard to suggest the police officer will disclose exculpatory scientific evidence to the defendant. Thus, it amounts to violation of fair trial and right to discovery of evidence. In investigation and collection of scientific evidence should, at least, be subject to independent or judicial control; requires due care of preservation and recording and specification of time limits for such preservation and recording. Apart from some violation of individual rights in the name of law, there are also practical abuses on fundamental rights of individual under the pretext of criminal justice administration. The practice of court totally denied the defendant the opportunity to cross examine the competency and the accuracy of forensic analysts because all scientific examination were presented and admitted as documentary evidence or report.[259] It amounts to a clear violation of fair trial rights of the defendants specifically right to hearing and defending themselves. Further, against the right to presumption of innocence the court passed conviction based on its reasoning that the defendant has failed to prove the fact that he does not commit the crime in charge.

To summarize this chapter, scientific criminal evidence is admissible upon the fulfillment of five basic preconditions even though the court of study area has failed to examine the

[256] Proc.No.909/2015; Proc.No.652/2009, art.21 and art.23 (2).
[257] See Constitution, Art.20 (4).
[258] Proc. No.720/2011,Art.6 (15).
[259]As it has already been assessed in different criminal cases. All five types of scientific evidence were presented in report form. The court also simply observes the formality of report; failed to require the appearance of forensic experts to explain their findings.

admissibility of five forms of scientific criminal evidence which are frequently presented in its criminal proceedings. The researcher found out that there is a growing tendency of admitting scientific evidence by courts without assessing its relevancy, materiality, reliability, and credibility in proving of relevant facts to the fact in issue.[260] In effect, such practice poses miscarriage of justice and violation of individual rights.

[260]Interview with Hawarawi Markos, Vice President of Bench-Sheko High Court, *on the standards for admissibility of scientific evidence and its practical credibility assessments in criminal proceedings*, April 6, 2011.

CHAPTER FIVE:

CONCLUSION AND RECOMMENDATION

5.1. CONCLUSION

Scientific evidence comprises variety of subject matters which are relevant to prove scientific or technical facts in criminal issues or to establish a crime and its perpetrator, *inter alia*, DNA , autopsy, medical examination, fingerprints, fibers, document comparison, hair, bite marks, paint chip, soil analysis , glass fragments , tool marks , ballistics ,explosion and arson accelerants , blood spatter, and tire impressions. The study affirmed that the term "scientific evidence" does not exist under scattered rules of criminal evidence of Ethiopia. Neither the laws nor precedents of Federal Supreme Court Cassation Division are sufficient to determine the admissibility of scientific criminal evidence. However, legal terms like 'experts', 'expert witness', 'medical testimony', 'body samples', 'expert examination', 'expert evidence', 'forensic investigation', 'indirect evidence' or 'indirect knowledge' or 'any evidence' under the scattered legislations of Ethiopia should be construed in relation to admissibility of scientific criminal evidence.

The admissibility of scientific evidence includes basic preconditions: relevancy, materiality, credibility, reliability, and competency of forensic expert. Scientific criminal evidence is logically relevant where there is no alteration or contamination on the quality and nature of materials found at the scene of crime. Relevant scientific evidence has a tendency to prove or disprove matters requiring special knowledge or expertise in dispute of criminal cases. In this regard, neither the law nor the practice of court takes a robust position on the relevancy test of scientific evidence. The study thus argued that the term relevant "indirect knowledge" under the criminal procedure code should be construed in a manner that it includes scientific evidence since forensic science expert does not have direct or firsthand knowledge over the issues to be disposed. Scientific evidence satisfies materiality test where it indicates the accused has near certainly committed the alleged crime based on scientific match, comparison or identification made between samples of the accused with items extracted or traced from the scene of crime. In this regard, there is no stipulation in any of the scattered legislations in Ethiopia.

The Constitution does not hold a clear position regarding to inadmissibility of relevant and material scientific evidence which is obtained in violation of individual rights. Due to this

constitutional gap, the ant-terrorist law of Ethiopia mandatorily requires scientific evidence obtained under force to be admissible in court even if it is against rights of individuals, such as, liberty, privacy, and freedom from torture.

Only forensic experts have a capacity to analyze, interpret, and testify scientific evidence on the basis of reliable facts or data derived from sound scientific theory. Save as expert opinion given during preliminary inquiry, experts must appear before the court for cross examination by the defendant, checking their qualifications by the court and explanation of scientific findings by themselves. In practice, these purposes were ignored at all. The court does not involve even in appointment of a particular expert. Indeed, Ethiopia does not have any ordinary rule of procedure for the appointment of qualified experts. It is open to misuse and abuse in medical examination for which the police has an ultimate authority to appoint any medical practitioner. The law considers the Federal Police Commission as a competent forensic expert to give forensic opinion on the overall scientific and technical matters. More badly than this, the law does not clearly demand the Federal Police Commission to state the reasons that leads to an inference or conclusion.

Neither any law nor the practice of court requires the expert explanation about the methods of identification, comparison, and procedures used by him in analyzing and interpretation of relevant scientific or technical facts. The practice of Bench- Sheko Zone shows that it is strictly against the essence of scientific criminal evidence and the rights of criminal defendants. Often, the expert provides opinion on legal issues against the inherent function of courts.

Scientific criminal evidence is credible where a neutral expert genuinely examines, interpret and explain his scientific or technical finding before court of law. If he gives false expert testimony, he will incur criminal responsibility as per the criminal code. In technical evidence, the binding interpretation of Federal Supreme Court Cassation Division requires the objectivity and impartiality of expert witness for admissibility of expert evidence. Conversely, judges of Bench –Sheko Zone took presumption of credibility for mere fact that the evidence is reported by the officials of government.

The reliability of scientific criminal evidence depends on independent collection, preservation and record of items found at the scene of crime. That means; the foundation of scientific evidence lies with its reliability to sufficiently link the criminal suspect with a

particular crime. The experts are expected to explain the scientific validity of methods, techniques and procedures they use to arrive at certain and reliable findings that help a judge to dispose complex cases. In Ethiopia, there is no law regarding reliability test. The federal police establishment law has failed to prescribe about the need to independent supervision, preservation and record of forensic findings. By the same token, the reliability and credibility of scientific evidence obtained by secretive and deceptive methods of forensic investigation is doubtful and poses a threat to some fundamental values of fair trial, right to privacy and right to discovery of evidence.

The Cassation court upheld a position on inadmissibility of expert opinion evidence generated by invalid methods and protocols. However, the high court in the study area departs from the binding interpretation of Cassation Bench; because it simply accepts scientific medical and autopsy evidence short of assessing its credibility and reliability. The court only considers what the format and final conclusion were stated in the report, despite this, it is beyond dispute that the necessity of expert testimony based on scientific methods and procedures for supporting judges in administration of the criminal justice system.

Generally, Ethiopian law does not provide preconditions for admissibility of scientific criminal evidence due to this reason the court failed to evaluate the admissibility and the probative value of such evidence whether it proves elements of a crime. The court directly and conclusively believes scientific evidence come from the government institution. In violation of the presumption of innocence, the court often held a position that the accused has failed to undertake his evidential and legal burden of proof to prove he does not commit the alleged crime. Thus, the court arbitrarily admitted, in practice, the proffered scientific evidences devoid of examining the relevancy, materiality, credibility and reliability criteria. In many cases, the admissibility of various forms of scientific evidence seems almost presumed. Besides, the study held a position that there is contamination scientific evidence at crime scene during police investigation, misinterpretation of facts, and erroneous reports of findings. This has already misled the judges to pass wrongful conviction, in effect; miscarriage of justice has occurred. The practices of admitting of scientific evidence in criminal proceedings are significantly poor. Forensic science experts and evidence are used routinely in the service of the criminal justice system. Hence, scientific evidence has an adverse effect on the criminal justice system unless it is properly regulated and utilized.

5.2. RECOMMENDATION

Based on the above findings and the subject matters specially analyzed in chapter three and four of this thesis, the researcher recommends that:

- ✓ The Federal Government of Ethiopia should establish vibrant legal authority to determine the admissibility of scientific evidence in criminal proceedings;
- ✓ The Federal Government of Ethiopia should enact detail rules of evidence that govern the definition, appointment of competent, and independent forensic expert witness;
- ✓ The Federal Government of Ethiopia should provide a minimum thresholds of evidentiary rules to assess the probative value of admissible scientific criminal evidence;
- ✓ The Constitution should be amended to include a provision of inadmissibility for scientific criminal evidence obtained in violation of fundamental human rights;
- ✓ Article 21 and article 23 of Anti-Terrorism Proclamation Number 652/2009 should be deleted or at least amended in compliance with internationally recognized fundamental human rights like absolute right to freedom from torture;
- ✓ Ethiopian Federal Police Commission Establishment Proclamation Number 720/2011 should be amended for the purpose of independent court supervision, preservation and record of forensic findings; moreover this proclamation should be amended in a manner that other independent and qualified forensic experts to give scientific opinion on the results of forensic investigation;
- ✓ Prevention, Suppression of Trafficking in Person and Smuggling of Migrants Proclamation Number 909/ 2015 should be amended to include the role of independent organ that supervise the reliability and credibility of scientific evidence obtained by secretive and deceptive methods of forensic investigation;
- ✓ A competent forensic expert must appear before court of law to testify on the matters requiring scientific knowledge, special skill or experience. If it is not possible, the report must state the competency of forensic expert in particular field, scientific methods and procedures used in laboratory analysis, clear scientific findings and conclusion;
- ✓ The police of Bench –Sheko Zone should take adequate training for independent and effective forensic investigation;

- ✓ Sufficient training should be given for Bench- Sheko Zone legal practitioners(Judges, Prosecutors and Lawyers) for creating awareness of the existing scattered rules of scientific criminal evidence ;
- ✓ Finally, courts in the study area should respect and ensure defense rights of an accused person, such as, right to presumption of innocence, right to cross examine the forensic expert, right to present scientific evidence and right to discovery of scientific evidence.

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