The Situation of DNA Analysis in the Police Regional Office – Cordillera

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Abstract:
The objectives of this study were to look into the situation of DNA analysis in the country in terms of its application in solving and preventing crimes and to identify the problems encountered and best practices of PNP DNA Laboratory Division. After knowing the situation, problems encountered, and best practices the researcher proposed an action plan in order to try and contribute to the effectiveness and efficiency of the division.

This study used qualitative-case study approach through thematic analysis. Two (2) participants were chosen as participants from PNP- Regional Forensic Unit COR. The study utilized the interview as the data gathering tool. The interview was done through face-to-face meeting. The main themes that came about in this study about the problems they encountered are: backlogs of cases; lack of reagent for testing; insufficient equipment and facilities in DNA laboratories; and unfamiliar recognition/evaluation and collection of field investigators to DNA evidence. The main themes that came about in this study about their best practices are: case prioritization; peer tutoring and supervision; diligent care for the equipment; and open communication to the stakeholders.

Based on the findings of the study, the researcher arrived at the following conclusions: 1. The DNA Analysis in PNP-Regional Forensic Unit-Cordillera cannot facilitate the testing and analysis of DNA specimen submitted as evidence due to lack of equipment. 2. Due to the increasing demands for scientific-based investigation using DNA profiles the need for additional DNA analysts and supplemental reagents increases. Because of the surge of demands, problems in the supply of reagents used for testing and analysis of DNA is prevalent. This insufficient supply of reagents leads to burdensome piling of cases. 3. The case prioritization is because of the overzealous evidence collection during the conduct of crime scene processing, in which giving priority to the processing of specimens of DNA reference standards for cases that are expected to have a definitive result may reduce the wastage of reagents and resources which will greatly contribute to the purpose for which DNA testing is intended.

Keywords: DNA testing, reagents, crime scene processing, technological advancements.

Introduction

Background of the Study

DNA or deoxyribonucleic acid molecules contain the information all living cells in the human body need to function. Apart from identical twins, each person’s DNA is unique (“DNA”, n.d.). The use of DNA technology was first started when Alec Jeffreys, a genetics professor at the University of Leicester had discovered that patterns in some regions of a person’s DNA could be used to distinguish one
He first laid his discovery on DNA pattern recognition technique to work in paternity and immigration cases (Arnaud, 2017).

However, because of the discovery of Jeffreys it paved the way in using DNA in criminal investigation. DNA was first used in the investigation of the rape and murder of two British schoolgirls in November 1986. The story was:

“During the initial investigations, semen samples that were isolated from the victims’ bodies were compared with the initial suspect’s DNA. The samples did not match, thus excluding the suspect as the perpetrator of the crime. In an attempt to locate the offender, police investigators requested all males in the prescribed area, aged 17 to 34 years old, to voluntarily submit blood samples. Investigators processed over 4000 reference samples for comparison with the DNA pattern of the semen samples. Eventually, the DNA profile from the semen samples matched that of a man named Colin Pitchfork. Pitchfork later confessed to the crime and was subsequently convicted for the rape and murder of the two girls.”

The success of DNA fingerprinting in resolving this rape and murder case initiated the use of forensic DNA technology by other law enforcement agencies (“The DNA Manual”, n.d.).

DNA is a powerful tool for law enforcement investigations because each person’s DNA is different from that of every other individual (except for identical twins). DNA can be extracted from many sources, such as hair, bone, teeth, saliva, and blood. DNA samples can be collected at crime scenes, from people who might have been present when the crime occurred, and from crime victims. The information obtained from these samples is then compared with other DNA profiles to both eliminate and identify suspects in a criminal investigation (“The Use of DNA”, 2022).

Because of the promising work of DNA in criminal investigation, in the 1980s, states began enacting laws that required the collection of DNA samples from offenders convicted of certain sexual offenses and other violent crimes. The samples were then analyzed and their profiles entered into state databases to identify suspects in criminal investigations (Hanson, 2022).

In the late 1980s, the FBI Laboratory convened a working group of federal, state, and local forensic scientists to establish guidelines for the use of forensic DNA analysis in laboratories. The working group proposed guidelines that are the basis for the current national Quality Assurance Standards (QAS) and urged the creation of a national DNA database. In 1994, Congress authorized the FBI to establish and oversee the National DNA Index System (NDIS) (“The Use of DNA”, 2022).

The National DNA Index System or NDIS is considered one part of CODIS, the national level, containing the DNA profiles contributed by federal, state, and local participating forensic laboratories. CODIS is the acronym for the Combined DNA Index System and is the generic term used to describe the FBI’s program of support for criminal justice DNA databases as well as the software used to run these databases (“How We Can Help You”, n.d.).

According to Butler (2015), since its introduction in the mid-1980s, forensic DNA testing has played an important role in the criminal justice community through aiding conviction of the guilty and exoneration of the innocent.

Forensic DNA analysis has proven extraordinarily powerful not only in proving guilt but also in exonerating the innocent.

Between 1989 and May 2011, at least 271 people who had been convicted of serious crimes in the United States – almost all rapes and murders – and sentenced to long terms of imprisonment or even death have been exonerated by post-conviction DNA testing. Those cases almost certainly reflect only a small percentage of all wrongly convicted individuals, but they have powerfully demonstrated the fallibility of the criminal justice system, pointing the way toward
reforms to minimize the risks of error in criminal cases (Findley, 2013).

Forensic DNA analysis is an extremely powerful investigative technique that has become, in many ways, the standard by which other forensic sciences are measured (Wells & Linville, 2013).

According to Wickenheiser (2013), the speed of forensic DNA analysis is now able to assist criminal investigations within the first 1–2 weeks when the most investigative resources are consumed. The lack of accurate forecasting of demand for DNA analysis has created a vicious cycle of DNA backlogs in crime laboratories.

Without accurate forecast, as more lab capacity is slowly added, the increase in output is overtaken by new demand. As a result, DNA cases spend the majority of time waiting behind other cases rather than undergoing analysis (Wickenheiser, 2013).

One study from the U.S. Government Accountability Office published in 2019 found that the number of backlogged requests for crime scene DNA analysis jumped by 85% between 2011 and 2017, an increase from 91,000 to nearly 169,000.

According to the United States Department of Justice Archives (2017), the state and local backlog problem has two components: (1) “casework sample backlogs,” which consist of DNA samples obtained from crime scenes, victims, and suspects in criminal cases, and (2) “convicted offender backlogs,” which consist of DNA samples obtained from convicted offenders who are incarcerated or under supervision. The nature of the DNA backlog is complex and changing, and measuring the precise number of unanalyzed DNA samples is difficult (United States Department of Justice Archives, 2017).

In March 2015, prosecutors temporarily stopped sending evidence to what was then a state-of-the-art city forensics lab in Washington, DC, not because of DNA sample backlogs but over concerns technicians had bungled cases and misstated the likelihood DNA had been left at a crime scene (Davies & Alexander, 2015).

Another scenario happened in the crime lab of Austin, Texas where for the entire crime laboratory of city of Austin, Texas, was shut down amid concern its technicians weren't following proper procedure. Both events amounted to earthquakes in the criminal-justice world: Crime labs are responsible for handling nearly every piece of physical evidence. They need to be accurate (Iannelli, 2016).

Evidently, it reiterated in the study of Hashom, et al. (2019) that accuracy and validity of forensic DNA profiling depend on the exercise of care at all stages of analysis in the laboratory.

The key to ensure accuracy and reliability of forensic DNA identification, and improve fairness, is standardization of forensic DNA identification (Yuan, 2018).

DNA technology is becoming more and more sensitive, but this is a double-edged sword. On one hand, usable DNA evidence is more likely to be detected than ever before. On the other hand, contamination DNA and DNA that arrived by secondary transfer is now more likely to be detected, confusing investigations. If legal and judicial personnel aren’t fully trained in how to interpret forensic and DNA evidence, it can result in false leads and miscarriages of justice (Elster, 2017).

Strongly agreed by the study of Kloosterman, Sjerps, & Quak (2014) entitled “Error rates in forensic DNA analysis: Definition, numbers, impact, and communication” stated that the most common causes of failures related to the laboratory process were contamination and human error. According to the study, most human errors could be corrected, whereas gross contamination in crime samples often resulted in irreversible consequences. Hence, this type of contamination is identified as the most significant source of error.

Considering the situation further, it became apparent that one of the newest disciplines, DNA, had faced serious challenges and scrutiny. The DNA analysis also reached the Philippines, that on 16 May 1996, the Memorandum of Agreement (MOA) was signed between the University of the Philippines and the Presidential
Anti-Crime Commission (PACC), represented by then Vice-President Joseph E. Estrada. Both institutions agreed towards the establishment of the DNA Analysis Laboratory at the Natural Sciences Research Institute, University of the Philippines Diliman. The construction of the DNA Analysis Laboratory, NSRI-UPD and installation of equipment was completed in December 1997 (Natural Sciences Research Institute, n.d.).

The Supreme Court (SC) said People v. Vallejo was the “first real breakthrough” and a step forward from March 8, 2001 when the justices “opened the possibility of admitting DNA as evidence of parentage, as enunciated in Tijing v. Court of Appeals [G.R. No. 125901, 8 March 2001, 354 SCRA 17].”

In 2001, the court knew that the University of the Philippines Natural Science Research Institute (UP-NSRI) DNA Analysis Laboratory had developed the capability to conduct DNA typing using short tandem repeat (STR) analysis.

The learning curve of the SC on genetics was about to rise. They also knew enough in 2001 that DNA analysis “is based on the fact that the DNA of a child/person has two (2) copies, one copy from the mother and the other from the father. The DNA from the mother, the alleged father and child are analyzed to establish parentage” (Scitech, 2015).

On May 9, 2002, the high court admitted in evidence DNA samples from the bloodstained clothes of rape and murder victims in the case of People v. Vallejo [G.R. No. 144656, 9 May 2002, 382 SCRA 192]. People v. Vallejo was also a leap from 1997 in Pe Lim v. Court of Appeals (336 Phil. 741, 270 SCRA 1) when the high court’s “faith in DNA testing, however, was not quite so steadfast” and the magistrates “cautioned against the use of DNA because DNA, being a relatively new science, (had) not as yet been accorded official recognition by our courts.” In 1997, paternity cases still had to be resolved using “conventional evidence as the relevant incriminating acts, verbal and written, by the putative father.”

The strength of DNA evidence to resolve crimes is well established in the US, Germany, Australia, New Zealand, Japan, the UK and other countries. However, the routine use of DNA evidence in criminal cases has yet to be adopted in the Philippines (De Ungria, 2003).

The development of DNA testing and forensic science overseas has provided us a remarkable opportunity to improve our criminal justice system.

Further, the availability of forensic DNA technology in the Philippines necessitates the amendment of current rules of evidence to incorporate scientific advances which enables the judiciary to better appreciate the value of physical evidence in criminal courts (De Ungria, 2003).

Then on October 2, 2007 the Supreme Court approved its “Rule on DNA Evidence” which defined terms, set procedures for the conduct of DNA testing, and established guidelines on how DNA evidence shall be preserved, assessed for probative value, and applied to cases (“IPPN”, 2015).

The Philippines currently has three government institutions that house laboratories conducting DNA tests in aid of criminal investigations. These are the Philippine National Police (PNP), with its crime laboratories in its national headquarters and regional offices in Cebu City and Davao City, the National Bureau of Investigation (NBI), and the University of the Philippines through the DNA Analysis Laboratory (UP-DAL). The majority of criminal cases are handled by the PNP and NBI laboratories (Rodriguez, Laude, & De Ungria, 2021).

The three (3) DNA laboratories operate independently and are under the control and supervision of the institutions to which they are attached (De Ungria & Jose, 2012).

Among the three (3) mentioned laboratories that process forensic DNA, the DNA laboratory of the PNP will only be the focus of this study for the reason of time and resources limitation.

The Philippine National Police (PNP) DNA Analysis Division of the PNP Crime Laboratory
started its operation in June of 2001. This is with the emergence of DNA analysis being used and developed as a forensic tool in the international scientific community and the importance of such analysis in casework as evidence in a court of law (PNP DNA, n.d.).

The first DNA case ever received by the laboratory was in September of 2001. A total of 14 cases received during that year, all of which were criminal cases in nature and mostly within Metro Manila. In the succeeding years, the cases received by the laboratory have increased significantly with cases coming from the entire archipelago (PNP DNA, n.d.).

In view to widen its horizon, the laboratory acquired the Combined DNA Index System (CODIS) software donated by the Federal Bureau of Investigation (FBI) of the United States of America. With CODIS, DNA profiles are compared electronically for possible linkage of crime to crimes and offender/s to serial crimes. CODIS will be of importance especially to cases that are of national and international concern (PNP DNA, n.d.).

The acquisition of the Combined DNA Index System (CODIS) in 2013, the Forensic Group was able to build a DNA profile database currently used for routine casework analysis. In 2015, 5,694 DNA profiles from forensic stains, victims, suspects, and unidentified human remains are registered into PNP DNA Database (DIDM, 2015-05).

With its capabilities, the laboratory has been instrumental and likewise been significantly involved in the use of deoxyribonucleic acid, or DNA, in the investigation and resolution of various criminal and civil cases in the country (PNP DNA, n.d.).

In line with the recent events, it is through DNA that the identities of international terrorists Zulkifli bin Abdul Hir Marwan and Abdul Basit Usman were confirmed (DIDM, 2015-05).

Due to the invaluable contribution of DNA technology in the identification of a person especially the identity of criminals, the Philippine National Police-Directorate for Investigation and Detective Management (DIDM) released Investigative Directive (ID) No. 2015-05. ID No. 2015-05 institutionalizing the collection, analysis, and registration of DNA profiles of arrested individuals during booking and persons under custody into the PNP DNA Database that is consistent with existing Philippine laws (DIDM, 2015-05).

Increasing the PNP DNA Database content will maximize its potential in providing accurate mode of identification of wanted criminals through the use of DNA technology. It thus helps achieve higher crime solution efficiency (DIDM, 2015-05).

Currently, the PNP has three (3) DNA laboratories. One is at the National Headquarters of the PNP Forensic Group in Camp Crame, Quezon City; the Mega laboratory in Visayas which is situated in Cebu City and another is in Davao City, Mindanao which were built last 2019 and 2020 respectively.

According to Police Brigadier General Steve Ludan, previous director of the PNP Forensic Group, the new facilities will help expedite now the DNA testing in Cebu and Davao and its nearby regions (Sunstar, 2020).

Since its introduction in the mid-1980s, forensic DNA testing has played an important role in the criminal justice community through aiding conviction of the guilty and exoneration of the innocent (Butler, 2015).

DNA analysis provides the most powerful tool for human identification and has been in the Philippines for more than two decades. Unfortunately, DNA testing has not been used routinely. The failure to properly collect, store and analyze biological samples had prolonged the suffering of a victim and her family. Moreover, other crimes could have been prevented had the real perpetrator been identified and incarcerated (Rodriguez, Laude, & De Ungria, 2021).

In the study of De Ungria and Jose (2018), entitled “Forensic Science in Challenging Environment: The Philippine Experience”, it stated in the study that one of the challenges of Filipino Forensic DNA scientist is the apparent lack of recognition of and support for the vital
role of forensic DNA in criminal investigation and DVI.

This can be seen, among other things, by the fact that Congress has not made the passing of a forensic DNA bill a priority; that hundreds of sexual assault investigation kits collected from abused women and children remain untested; and that the government has not released sufficient funds for laboratories to analyze samples from mass disasters such as Tropical Storm Washi, also known as Sendong, in 2011, Typhoon Pablo in 2012, and Super Typhoon Haiyan or Yolanda in 2013 (De Ungria and Jose, 2018).

The legislature must also contribute its part in making use of forensic DNA technology for the country. Although the Rule exists to guide courts, the absence of DNA legislation to require law enforcement agencies, and medical professionals when examining victims of crime, to collect and preserve biological samples, is a significant factor in the under-utilization of this technology (De Ungria, 2012).

Even in cases where DNA testing is pursued, the country’s geography and climate pose challenges such as the logistics of transport from remote provinces to forensic DNA laboratories in urban centers and the prevailing warm and humid conditions which accelerate the degradation of samples (Rodriguez, Laude, & De Ungria, 2021).

In the study of Sales, et.al. (2019), it shows in the result that exposure to an outside environment had a significant effect on DNA yield and amplifiability for both extraction procedures. Storage of cigarette butt samples in laboratories with controlled temperature ranging from 22oC to 25oC and with reduced humidity slows but does not completely stop DNA degradation. This is particularly important in the Philippines where delays in the collection and submission of evidence to DNA laboratories result in the prolonged outdoor exposure of samples, including cigarette butt samples, in locations that are subject to warm and humid conditions.

Another challenge that forensic DNA scientists face in the Philippines according to the study of De Ungria (2018) is the mishandling of crime scene samples that result in over reliance on eyewitness testimonies. More than 96% of criminal cases prosecuted in Philippine courts rely solely on testimonial evidence to support the charge against an accused at trial.

In a similar study of Hashom et al., (2019), it is also mentioned in the study that improper handling of biological specimens and misinterpretation of analytical data is one of the major challenges in DNA profiling. It was emphasized that mishandling of biological evidence may result in contamination and DNA sample deterioration. In extreme cases, the integrity of the evidence may even be questioned due to labeling issues.

It is important to appreciate that a DNA test, even with the best technology available, is only as good as the sample collected. Thus, working closely with crime scene investigators is essential in gathering quality evidence (Butler, 2015). Thus, police officers, especially those from crime scene units, should receive proper training on biological sample collection and preservation (Hashom, et al., 2019).

As cited by Pascual (2016), “Another important aspect, where the Philippines falls short in forensic science, is the lack of trained personnel”, that was according to Dr. Raquel del Rosario-Fortun, professor at the University of the Philippines-College of Medicine, chairman of the Department of Pathology and known as the first medical pathologist in the Philippines. As she shared her expertise in forensic science at the third Forensic Science Symposium held at the Seameo Innotech in Diliman, Quezon City, on May 16, 2016.

In the study conducted by Benter (2021), one of the participants of the study stated that of the challenges encountered by the PNP Forensic Unit personnel in Bulacan in achieving the mission of the organization was the lack of skilled professionals and personnel which can lead to backlog of cases.

In the same study, lack of advanced technology equipment and office facility were the identified challenges encountered by the PNP Forensic
Unit personnel in Bulacan in achieving the mission of the organization.

In the 2021 Annual Accomplishment report of the PNP Forensic Group, there are pending requests for ballistics and DNA examinations which based on the report were attributed to inadequate number of examiners as some Police Non-Commissioned examiners joined the Lateral entry program and went for at least a year of mandatory training. There was also an increase of 7.30% or 60,843 total number of requests received as compared in the year 2020 with 833,897.

The increasing application of forensic DNA analysis in the criminal justice system has led to considerable public debate. Discussions on either its use for identifying criminal offenders or legal questions about the proper scope of DNA evidence collection. Currently missing from these debates is a clear picture of the situation of forensic DNA analysis in the country.

This led the researcher to look into the situation of a real-life laboratory-DNA Analysis laboratory. This is not probably the CSI that we watch on television which aims at capitalizing on the public’s fascination with contemporary forensic science. These laboratories have real stories to tell that are not being portrayed on television.

In general, this study aims to determine the current situation of DNA Analysis Branch of the PNP-Forensic Group. The situation being described in the study will refer to the information about infrastructures and facilities, staffing and expertise, technological advancements, and collaboration and networking.

In addition, using qualitative method, through the themes that will be generated later, the study will identify the major issues and challenges and its impact to the effectiveness and efficiency of the unit as an aid in delivering justice and in solving crimes. By investigating the situation, one can fully grasp the factors contributing to the problem or problems that impact the outcome of the unit or organization.

In exploring the situation, it will depict the work environment for what it does well, where it needs improvement, and where the likeliest avenues of growth are.

This study focuses on the situation of DNA Analysis Unit in Police Regional Office-Cordillera particularly on its infrastructures and facilities, staffing and expertise, technological advancements, and collaboration and networking. It will also cover the problems encountered by the DNA analyst at Regional Forensic Unit Cordillera and their best practices in coping with the problems they encounter.

This study will not cover the extent of seriousness of the problems encountered by the DNA analysts and the data collection will be conducted by the DNA analysts of Regional Forensic Unit-Cordillera.

In the end, the researcher hopes to provide policy makers with a clearer picture as to the situation of using DNA technology in the fight against criminality in the Philippines; as well as the Philippine National Police may use the result of this study as basis for planning for proper utilization of DNA in terms of crime prevention and solving crimes. In the academe, this study hopes to provide a realistic picture of the problems encountered by the DNA analysts and the data collection will be conducted by the DNA analysts of Regional Forensic Unit-Cordillera.

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practitioners that may be used as reference by the policy making bodies for the improvement and maximizing the potential of DNA-Analysis in crime prevention and detection.

**Theoretical and Conceptual Framework**

The following are the theories used in the study.

**Organization Theory**

It is a large and multidisciplinary body of scholarly work that focuses on understanding organizations. Organization theory is focused on understanding how organizations work, why they come to be structured in particular ways, and why some organizations are more successful than others (Foster, 2016).

Researchers have addressed those questions by employing a variety of units of analysis. One strand of research examines individual organizations—looking, for example, at how internal structure or organizational culture affects performance. Another strand focuses on relationships between organizations, examining interactions either between a small number of organizations or within a specific “field” of mutually interdependent organizations (Foster, 2016).

That view allows one to understand, for example, how powerful organizations shape others within a field and how organizations come to rely on one another. Other research looks at entire populations of organizations, using statistical tools to see how a population changes over time as some organizations flourish and others die (Foster, 2016).

Organization theory focuses on understanding organizations in the hopes of improving such organization. In this study, organization theory is used as a basis in order to understand the DNA Unit of the PNP in hopes of improving its service and results in general.

Under this theory, variables in the study like workloads and processes and procedures entails to mean the number agencies/organization the DNA laboratory cater, DNA cases received and analyze, and backlogged and process and procedures refers to the policy/ies in the DNA laboratory in terms of DNA case submissions, priority for testing, reporting of DNA results, DNA database, samples taken per case/submission, and sample disposition, and training the name and duration of training undergone by the staff of DNA laboratory, respectively.

**Contingency Organizational Theory**

This seeks to emphasize the multivariate nature of an organization. Further, it tries to understand how an organization operates under varying conditions in specific circumstances. Also, the theory directs its views towards recommending organizational designs and managerial actions which are most appropriate for specific situations.

The theory suggests that apt organizational design depends on environmental variables like size, technology, people, and others (Modern Organization Theory—Contingency Theory, n.d.).

The contingency theory investigates different variables that affect an organization such as manpower and equipment. This is the basis for the questions on facilities, staffing, and the practices of DNA units in the PNP. Under this theory, variables in the study like staffing, storage and equipment and supplies entails to mean the number of people working in the DNA-related positions (e.g. administrative manager, CODIS manager, support staff, technical leader, DNA examiner/analyst, technician, and laboratory support).

**Resource Dependence Theory**

Pfeffer and Salancik (1978) devised the resource dependence theory to explain how organizations behavior is affected by the external resources they possess. Resource dependence theory focuses on external resources' impact on an organization.

This study applies this theory on the question of the annual budget of the crime laboratory and the "use of private laboratories". Under this theory, variables in the study like budget and use of private laboratories entails to mean amount allotted to the DNA laboratory in yearly basis
and the use of private Laboratories means outsourcing or contracting private laboratories for DNA testing, respectively.

**Methodology**

**Research Design**

This study used a qualitative-case study approach to explore the situation of DNA analysis in the country specifically on the DNA laboratories of the Philippine National. According to Crowe, et al. (2011), case study is a research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context.

Case studies can be used to explain, describe, or explore events or phenomena in the everyday contexts in which they occur. These can help to understand and explain causal links and pathways resulting from a new policy initiative or service development (Yin, 2009).

The case study approach can offer additional insights into what gaps exist in its delivery or why one implementation strategy might be chosen over another (Pearson, 2010).

**Population and Locale of the Study**

The participants of the study were the DNA analysts of the Philippine National Police-Regional Forensic Unit (RFU)-Cordillera (COR). There are two (2) DNA practitioners in RFU-COR that were included in this study. Purposive sampling is used in this study. According to Palinkas, et al. (2016), purposive sampling involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest. The DNA Analysts of the PNP-Forensic Group were chosen because they are the few who can answer regarding the situation of DNA analysis in their organization in relation to the issues and challenges they encounter as well as their best practices or strategies to overcome such issues and challenges.

The following table presents the inclusion and exclusion criteria for the selection of participants:
Table 2. Inclusion and Exclusion Criteria

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<th>Inclusion Criteria</th>
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<tr>
<td>1. He or she must be a member of Philippine National Police assigned in Forensic Group.</td>
<td>1. Those who are unwilling to participate in the study.</td>
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<tr>
<td>2. He or She underwent training for DNA analyst.</td>
<td>2. Those who refuse to sign the informed consent form.</td>
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<tr>
<td>3. He or she handled at least one (1) case either criminal or civil case.</td>
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Data Gathering Tool

The main instrument used in this study was an interview guide. An interview guide is a list of topics, themes, or areas to be covered in a semi-structured interview (Lewis-Beck, Bryman, & Liao, 2004).

According to Doyle (2019), a semi-structured interview is a meeting in which the interviewer does not strictly follow a formalized list of questions. They will ask more open-ended questions, allowing for a discussion with the interviewee rather than a straightforward question and answer format.

The instrument was divided into three parts, namely: the introduction, the questions, and the remarks. The introduction consists of the formalities such as greetings, introduction of the researcher, the paper and its purpose, and the explanation of the general rules and reminders. The questions consist of the things to be asked to the participant to answer the problems of this research study. The ending remarks consist of the review and finalization of the data gathered and the showing of appreciation by the researcher towards the participants.

The items in the instrument were constructed after much data gathering from other research studies and related literature. The items were delivered and generally answered verbally. However, participants who opted to answer the questions part in written form will be allowed by the researcher.

Data Gathering Procedure

First, letter requests signed by the researcher’s adviser and the Dean of the College of Criminal Justice Education to conduct either face to face, online, phone interview or floating of questionnaires were submitted to the Head Office of the Regional Forensic Unit identified to have DNA analyst. Upon approval, the researcher and the participants then set date and time for the conduct of interviews. After such scheduling, the collection of data commenced as the actual interview to the participants started. The researcher ended the data gathering when all the questions in the interview guide questions were answered and expressed gratitude to the participants.

The raw data gathered were coded and analyzed for discussion and presentation. Afterwhich, the results were analyzed and interpreted.

Treatment of Data

Thematic coding and analysis were used in this study. According to Mountain (2019), citing Gibbs (2007), thematic coding is a form of qualitative analysis which involves recording or identifying passages of text or images that are linked by a common theme or idea allowing you to index the text into categories and therefore establish a framework of thematic ideas about it.

Thematic analysis is a data reduction and analysis strategy by which qualitative data are segmented, categorized, summarized, and reconstructed in a way that captures the important concepts within the data set.

Data gathered in the study were coded and analyzed to fit the qualitative aspect of the study.

Ethical Consideration

With the involvement of human participation in this study, it is but proper to discuss and answer the ethical issues that may arise. According to Research Ethics Training Curriculum for Community Representatives (2004), there are three (3) universally accepted principles of research ethics and they are: respect for persons, beneficence, and justice. From these three fundamental principles, however, stem a lot more ethical considerations for research studies and they are: anonymity (Research Methodology), citing Bryman & Bell (2017), privacy and confidentiality (Smith, 2003), (Chase, 2019); voluntary participation (Chase),
right to withdraw & review (Standards for Ethical Research Practice, 2018), (Principles of research ethics, n.d.) and informed consent (Smith, Morrow & Ross, 2015); minimization of the risk of harm (Chase), avoidance of deceptive practices (Principles of research ethics) and the declaration of possible conflicts of interest (Research Methodology, citing Bryman & Bell); the scientific value and merit of the study (Smith, Morrow & Ross) and the focus on relevant components of the study only (Ethical Consideration, n.d.); and the fair or equitable selection of participants (Smith, Morrow & Ross). All of these will be answered in this section.

As to the privacy and confidentiality of data, only the researcher had an access to the raw data. Not even the adviser and panel members were allowed to access to the data without written consent from the participants. These raw data will be locked away for two (2) years and will be disposed thereafter. No raw data or confidential information will be passed to outside organization during the conduct of the study. The results, however, will be provided to PNP - Forensic Group for possible drafting of policies and programs which is the hope and outcome of this research.

Before the actual interview, the study and its objectives were discussed honestly with the participants. An informed consent form was given and explained to the participants. When the participants voluntarily participate, they affixed their signatures therein without the need to right their names.

At any time before, during, or after the interview, the participants were given the option to withdraw and refuse to participate.

After the interview, the data and findings were rechecked by the participants for accuracy and reliability of the results. No financial token or anything was given to the participants, but appreciation was communicated.

The results of this study will be disseminated to the participants as well as to the Office of the Regional Forensic Unit-Cor for possible reference in planning and policy making.

Results and Discussion

The Situation of the DNA Analysis Branch of the PNP-Forensic Group in Cordillera

This part shows the situation of DNA Analysis Branch of PNP-Forensic Group in Cordillera in terms of infrastructure and facilities, staffing and expertise, technological advancements, and collaboration and networking. By knowing the situation, solutions may be formulated and recommended to address the factors contributing to the problem or problems that impact the outcome of the unit or organization.

Infrastructures and Facilities

The following themes reflect the situation of DNA Analysis Branch of PNP-Forensic Group in Cordillera in terms of infrastructure and facilities.

Absence of DNA Facilities in Regional Forensic Unit-Cor. This study shows that in terms of DNA, facilities in regional forensic units are not available.

Participant 2: “Technically, sa Cordillera, wala tayong existing infrastructure para sa DNA. No available facilities focus for DNA (Technically, in Cordillera, we do not have existing infrastructure for DNA. No available facilities focus on DNA).”

Participant 1: “Tinatravel natin sa NHQ ang mga cases, kasi wala tayong gamit diyan (We travel the samples to National Headquarters because, we do not have equipment in Cordillera).”

In the above statements, the participants stated that there is no existing infrastructure and facilities for DNA testing in Regional Forensic Unit-Cor. It can be noted that the analysts in the regional units do not have facilities to process DNA samples for testing.

Participant 1: “Meron lang tayong tatlong DNA laboratory dito sa Pilipinas, bale doon sa Cebu, sa Davao, tapos dito sa Manila, doon sa National Headquarters sa Crame (We have three (3) DNA laboratories in the Philippines, one in Cebu, Davao, and Manila at the National Headquarters).”

In the above narrative, one can infer that in the Philippines, specifically in PNP-Forensic Group,
there are three (3) laboratories: one is located at
the National Headquarters of the PNP Forensic
Group in Camp Crame, Quezon City, the Mega
laboratory in Visayas which is situated in Cebu
City and another is in Davao City, Mindanao.

This means that DNA samples subject for
examination from Regional Forensic Unit will be
transported to the National Headquarters at
Camp Crame for examination due to the absence
of DNA facilities in the Regional Forensic-Unit
Cor. This implies a centralized mode of
examination of DNA.

Participant 1: “Lahat ng cases namin and examination
bale sa NHQ namin siya gingawa. Doon namin
pinaprocess doon namin ineexamine (All cases
involving DNA analysis are done in NHQ. We
process and examine the samples there).

In the above argument, the analysts in the
regional units need to travel from the region to
the national headquarters to examine the DNA
samples brought in their office. This shows that
all cases involving DNA in the provinces of
Luzon are tested in the DNA laboratory of
PNP-Forensic Group at national headquarters.

Having a centralized model of testing posits
possible problems. According to Parasuram
(2022) having a centralized model poses two
major problems: one, it is too flooded with
demands and two, it slows down significantly
when demand for testing spikes.

In the same article, it presented the benefits of a
decentralized laboratory. By building a lab
network infrastructure across the United States,
our decentralized model ensures each client’s
test specimens are received and processed in a
super-timely manner. This eliminates the need
for potentially days-long specimen transport and
the risks that come with it like spillage, cross-
contamination, etc.

Staffing and Expertise

The following themes reflect the situation of
DNA Analysis Branch of PNP-Forensic Group
in Cordillera in terms of staffing and expertise.

Sufficient DNA Practitioners in Regional
Forensic Unit-Cor. This study displays the
sufficiency of DNA practitioners in Regional
Forensic Unit-Cor. When asked about the
number of DNA analysts in the entire
Philippines and if the number is sufficient,
participant 1 mentioned:

“Dati kasi parang less than 20 lang sila, kaya
natambak tambak ung cases natin. Ngayon, nasa less
than 50 nationwide. Dito sa Cordillera, dalawa lang
kami. Less than 50 DNA analyst nationwide. Tapos
nadistribute yun sa Cebu tapos sa Davao (Before,
DNA analysts were less than 20 only. Now, they
are 50 in number nationwide and they are
distributed in Cebu and Davao. But here in the
Cordilleras, we are only two (2)).”

In addition, participant 2 answered, “Kaya naman,
sufficient (It is enough. The number is sufficient).”
The statement shows that there is an increased
number of DNA practitioners in the DNA
Division of PNP-Forensic Group. According to
the participants, the number of DNA
practitioners in RFU-Cor is sufficient since the
loads of casework involving DNA in the
Cordilleras can be managed by 2 DNA
practitioners.

The increase in the number of personnel will
employ effectiveness and efficiency in the line of
their work. The success of any organization lies
slowly on its personnel and management
concepts (Engetou, 2017).

Insufficient Certified DNA Analysts in the
Philippines. This study displays insufficiency of
certified DNA analysts in the country. In the
precedent statement, even though the
participants had answered that the staffing is
sufficient, the number of certified DNA analysts
are still outnumbered.

When asked about their expertise, participant 1
answered:

“Bago pa kasi maging dna analyst, kailangan pang mag-
assisting ng 50 cases. Yun ung ginagawa namin ngayon,
though kami yang nagprocess nung mga cases pero
pangalan ng ibang tao, pangalan tga nung analyst, under
their supervision, kami ung nagexamine nung mga cases
nila pero hindi pa namin pangalan, kasi yun ung isang
requirement nila (Before we will be certified as
DNA analysts, we need to assist on fifty (50)
cases. That is what we are doing right now.
Though we are processing and examining cases
now, it is not under our name it is still named under the certified DNA analyst who also supervises us. That is one of their requirements before we will be certified.)”

Based on the narratives of the participants, to be a DNA analyst, they need to undergo training. Participant 2 mentioned, “Sa training, sa PNP FG, para maging DNA analyst ka meron silang Basic Forensic DNA Analyst Course, 6 months yun (In PNP-Forensic Group, you need to undergo the training Basic Forensic DNA Analyst Course for six (6) months to become a DNA Analyst).”

After the series of lectures and hands-on training, part of their requirement is, they need to assist fifty (50) cases before they will become certified DNA analyst wherein their names are on the paper bearing the result of DNA analysis. This implies that the training to become DNA analysts require high degree of qualification. The DNA technicians as the participants called themselves are being exposed to several cases to obtain experiences and enhance their expertise by handling actual cases before they get certified.

This is supported by experiential learning theory which states that experience is the main driving force in learning. It capitalizes on the participants’ experiences for acquisition of knowledge as it involves setting goals, thinking, planning, experimentation, reflection, observation, and review. By engaging in these activities, learners construct meaning in a way unique to themselves, incorporating the cognitive, emotional, and physical aspects of learning (Varas, 2023).

Technological Advancements

The theme reflects the situation of DNA Analysis Branch of PNP-Forensic Group in Cordillera in terms of staffing and expertise. Competitive Technology and Equipment. This study shows that the DNA Division of PNP-Forensic Group has advance technology where they can process and examine.

When the participants were asked about the technological advancements in the DNA Division, they mentioned:

Participant 1: “Competitive naman tayo pagdating sa mga equipment. Kasi mahal ng machine nagkaroon pa tayo ng Davao at Cebu (We are competitive in terms of equipment. Because despite of the expensiveness of the equipment we are able to put up Davao and Cebu DNA laboratories).”

The above statement clearly indicates that the DNA Division of PNP-Forensic Group is trying to keep up with the advancement of technology in the field of DNA analysis to deliver justice with the aid of DNA analysis.

However, due to expensive equipment and technology used in DNA analysis, it is not available in the regional units of Forensic group like in the Cordillera Unit, that is the reason why the DNA practitioners are not conducting DNA testing in the regional unit; hence, they need to travel the samples to the nearest DNA Laboratory of Forensic Group, in this case in Camp Crame, Quezon City.

The demand for forensic technology has increased over time. In addition, public interest in forensics has grown, thanks to the popularity of crime-themed television series such as CSI, Making a Murderer, Hannibal, and Law and Order. Nonetheless, they don’t adequately portray the science. Regardless of what people think is or isn’t achievable on television, technological advancements assist law enforcement worldwide in solving crimes and closing the books on cold cases (The Importance of Forensic Science Technologies, 2021).

Collaboration and Networking

The theme reflects the situation of DNA Analysis Branch of PNP-Forensic Group in Cordillera in terms of staffing and expertise.

Independent. This study shows that the DNA Division is an independent entity. When asked, if they have collaboration with other agencies, participant 1 answered: ‘Independent kasi tayo (We are independent).”

There are four (4) independent DNA laboratories operating in the Philippines, namely: The DNA Analysis Laboratory at the Natural Sciences Research Institute of the University of the Philippines, Diliman (UP-NSRI); The National Bureau of Investigation, Taft Avenue.
(NBI); The Philippine National Police Headquarters at Camp Crame (PNP); and St. Luke’s Medical Center (The DNA Manual, n.d.). According to the participant, independent in a sense that all cases that the Philippine National Police handles especially involving DNA it will be processed and examined independently in the DNA laboratory of PNP-Forensic Group.

It is against the policy of the Philippine National Police (PNP) to process the testing of DNA samples especially in criminal cases, as they regarded it as confidential (Participant 2, 2023). They do no tap private entity or hospitals to do such examination. It is supported by an article of Australian Law Reform Commission (2010) that, access to independent testing and expert advice regarding prosecution evidence goes to the fairness of the trial; lack of access to these services could result in a miscarriage of justice.

**Challenges Encountered by the DNA Technicians in Cordillera**

This part presents the challenges encountered by the DNA analysts in Cordillera. These problems emerge from the themes which were taken from the answers of the participants which were gathered through semi-structured interview.

Backlogs. This study shows that one of the problems that is encountered by the DNA technicians in FRU-Cor is the backlog of cases. When asked about the problems they encountered, participant 1 answered, “Andaming backlog. (We have many backlogs).”

This clearly shows that the Philippines is also experiencing the backlogs in terms of examining DNA cases just like other countries that are using DNA analysis in solving criminal and civil disputes.

The reasons of cause mentioned by the participants in terms of the backlogs are the insufficient supply of reagents and the demand for DNA testing.

This is supported by one study from the U.S. Government Accountability Office published in 2019 that found the number of backlogged requests for crime scene DNA analysis jumped by 85% between 2011 and 2017, an increase from 91,000 to nearly 169,000.

Participant 1 mentioned, “Doon sa NHQ ngayon nga eh anong ano pa lang ngayon, July pa lang yung last number nila doon 2000 na, kaya nakareceive na sila doon ng 2000 cases dito sa buong Luzon (In NHQ, they already received 2000 cases in the entire Luzon and it is still July).”

In the study of Wickenheiser (2013), the lack of accurate forecasting of demand for DNA analysis has created a vicious cycle of DNA backlogs in crime laboratories.

Without this accurate forecast, as more lab capacity is slowly added, the increase in output is overtaken by new demand. As a result, DNA cases spend the majority of time waiting behind other cases rather than undergoing analysis.

Inadequate supply of reagents used for DNA testing. This study found that reagents for testing DNA samples are insufficient. When asked to the participants, how important these reagents are, the participants answered, “Ito yung ginagamit to extract DNA sa samples (Reagents, these are used to extract DNA from samples).”

It can be seen in the above statement how important a reagent is for the DNA technical assistant and analysts. The availability of this reagent is a key to prevent the samples from not being examined and having a tendency of just being kept in the storage.

No reagents, no reliable tests (Heil, 2020). Problems with reagents, equipment, controls, or technique usually led to failed tests (no results) or to ambiguous test results (The Evaluation of Forensic DNA Evidence).

This is supported with the narratives of the participants below.

Participant 2: “Kapag naubusan ng reagents matetengga ung case, magbibintay ka na ng delivery ng reagents (If there is unavailability of reagents, the test will be put on hold and will be put in queue while waiting for the delivery of reagents).”

Participant 1: “Kasi andaming kaso tapos ung reagents, mahal talaga. Kailangan talagang magpondo ng malaki ng maraming reagents. Hindi kayang stockan dahil ang mahal ng reagents (There were many cases and the
Reagents are expensive. We need large fund to sustain many reagents. It is difficult to have stocks of reagents due to its expensiveness.”

Surprisingly the result of lack of reagent highlighted this study. In contrast with the Needs Assessment of Forensic Laboratories and Medical Examiner/Coroner Offices (Needs Assessment) done by the National Institute of Justice, recruitment and retention of qualified staff is a first-order challenge for forensic laboratories.

It was emphasized by the participants that there are enough DNA Technical Assistant and analysts but there is scarcity of reagents.

Insufficient facilities and equipment in DNA laboratories. This study presents that there is still insufficiency of facilities and equipment in DNA laboratories.

Participant 1: “Kulang yung analyzer, iisa lang yung laboratory natin sa buong Luzon. Yung facilities natin bindi siya enough for the whole country, medyo kulang siya (The analyzer is insufficient. We only have one DNA laboratory in the entire Luzon, that is insufficient).”

Participant 2: “Sa facilities, well equipped naman sila. Sa rami ng cases kasi yung gamit, nagkukulang tlya. Kapag sabay sabay na magpaprocess, kailangan maghintay (In terms of facilities, we are well equipped. However, due to the demands and piling of cases the equipment becomes insufficient. If we will do the testing simultaneously, we need to fall in line and wait for our turn).”

These statements clearly shows that even though it was mentioned in the precedent statement that we have competitive technology and facilities, it is still insufficient as per the demand and needs of the whole country.

In the study of Benter (2021), lack of advanced technology equipment and office facility were the identified challenges encountered by the PNP Forensic Unit personnel in Bulacan in achieving the mission of the organization.

Supported by the study of Rodriguez, et al. (2021), the benefits of forensic DNA technology are not maximized in the country due to the inadequate resources and infrastructure allocated for the conduct of DNA tests.

The facilities and equipment for DNA analysis is only available in the three (3) DNA laboratories of PNP-Forensic Group located in the National Headquarter, Cebu City, and Davao City.

There are no DNA facilities and equipment in the Regional Forensic Units. In addition, the absence of facilities and equipment in the Regional Forensic Unit posits additional challenges to the DNA Technical Assistants and Analyst.

When asked about the situation having no equipment in the regional units to the participants, the following are their statements.

Participant 1: “Tinatravel travel pa kasi doon sa Crame kasi wala taong facilities dito sa Cordillera na dapat mas maganda kung meron nnn para maging independent din tayo. Tapos kapag pumipunta tayo doon, kailangan din kasi nating pumila pa, para maexamine natin yung cases natin dito, kaya medyo tumagal talaga (We do not have facilities here in Cordillera, we need to travel the specimens to Camp Crame. In which, it is more convenient if we have facilities here and we can test here. Then, when we go to the National headquarters, we still need to wait before we can do the testing that leads to longer period of processing).”

In the above narratives of the participant, it clearly shows that if only they have facilities and equipment in the regional units, they can save time and effort and will deliver the results right away without delay. The exposure on the outside environment when traveling, the samples will have a significant effect on the DNA samples.

In the study of Sales, et al. (2019), it shows in the result that exposure to an outside environment had a significant effect on DNA yield and amplifiability for both extraction procedures.

Even in cases where DNA testing is pursued, the country’s geography and climate pose challenges such as the logistics of transport from remote provinces to forensic DNA laboratories in urban centers and the prevailing warm and humid conditions which accelerate the degradation of samples (Rodriguez, Laude, & De Ungria, 2021).
Unfamiliarized recognition/evaluation and collection of field investigators to DNA evidence. This study pictures the problem of DNA analysts and DNA technical assistants in terms of recognizing/evaluating and collecting DNA evidence that leads to inefficient and ineffective analysis.

When asked, how these problems affect their efficiency in examining DNA samples, the participants answered:

Participant 1: “Tapos meron din kasi nagsasubmit ng questioned lang. Kapag kulang ng isa, kulang ng reference sa suspect, priority 2 ganoon (They only submit questioned specimen. If the samples are not complete, we consider it as priority 2).”

Participant 2: “Yung sa request kapag may lackings, kapag sinaihinan sila, nakakompoly naman nila (In the request, if there are lackings, when they are told about what is lacking, they comply).”

These statements of the participants show that there is a problem in terms of the completeness and proper DNA evidence recognition/evaluation of samples being submitted for examination.

This phenomenon presents insufficient knowledge on proper DNA evidence recognition/evaluation and collection of DNA specimens to be submitted for testing.

It is important to appreciate that a DNA test, even with the best technology available, is only as good as the sample collected. Thus, working closely with crime scene investigators is essential in gathering quality evidence (Butler, 2015).

Thus, police officers, especially those from crime scene units, should receive proper training on biological sample collection and preservation (Hashom, et.al, 2019).

Promising Practices of DNA Analysts in Addressing Encountered Problems

This part reveals the promising practices of DNA analysts in addressing the problems they encounter. These practices help the DNA analysts in moving forward with their tasks despite of adversities they face.

Case Prioritization

This study shows that one of the practices of DNA analysts in overcoming their problems in terms of insufficient reagents is prioritizing cases they receive.

When asked, how they classify cases according to priority, the participants answered:

Participant 1: “Pagkacomplete, galing sa suspect, galing sa victim, tapos may question tayo. Kapag ganun, priority 1 na iyon, kailangan ng iprocess iyon. Kapag kulang ng isa, kulang ng reference sa suspect, priority 2 ganoon. Kaya kailangan tyla isosort natin kasi nga nagkukulang tayo sa reagent tyla (If complete, we have samples from the suspect, victim, and questioned specimen, that is considered as priority 1, we need to process it right away. If there is lacking of specimen either from the suspect, that is priority 2. That is why we need to sort the cases to be tested, because there is insufficiency of reagents).”

Participant 2: “For example may case pa 2022 pa tayo na case, na pinaprocess. Kung yung recent case ay rape, hindi pwedeng unahain ung 2022. Kasi meron tayong priority sa pag examine, 1st, 2nd, 3rd. Standard nanman yun (For example, we have a case way back 2022 that needs to be processed, if we have a recent case that is sensational, for example rape, we need to prioritize it because we have case priorities. 1st, 2nd, 3rd that is standard).”

In the above narrative, it describes that those sensational cases like rape becomes priority over the other case that was committed a year or years back as an effect of the insufficiency of reagents used in DNA examination.

It is supported by the study of Zedlewski & Murphy (2006) that murders and sexual assault receive top priority for DNA analysis.

To maximize the reagents available on hand, priority system is being done to pave way on the most needed or urgent sample that needs to be examined.

Successful interpretation of DNA is influenced by the value of crime scene evidence and the availability of suitable references samples (Sahar, et.al, 2019).
Peer Tutoring and Supervision

This study shows that even after the training of soon to be certified DNA analysts they received advice, assistance, and tutoring from their supervisor and even from their peers and colleagues. This is to ensure that the result that they will be releasing is not subject to doubt.

In the statement of the participants, they mentioned that:

Participant 1: “For example may mga tanong kami or hindi naiintindihan, tinatry naman nilang iexplain, para mainwasa din na magkamali. Kasi nakasalalay doon yung sa suspect or victim (For example, we have questions, or something that we do not understand, they tried to explain it to us to avoid mistakes).”

It can be understood in the narrative of the participant that they made sure that the result that will be released must be correct and free from any error and they do it through consultation from supervisor and colleagues.

It is also strongly emphasized in the statement that they look after the welfare of their clients (suspect and victim) by letting others to step in and check the entire process of their work from examination to interpretation.

An error in forensic DNA analysis can lead to wrong decisions by investigative or legal authorities with far reaching consequences, such as conviction of innocent suspects, exoneration of guilty suspects, or failure to identify offenders (Kloosterman, 2014).

It is reiterated in the study of Hashom, et al. (2019), that accuracy and validity of forensic DNA profiling depend on the exercise of care at all stages of analysis in the laboratory.

Diligent Care for the Equipment

This study shows that looking after and handling the equipment with care will go a long way especially in a third world country like the Philippines wherein there are limited facilities and equipment.

It can be inferred in the statements of the participants that they need to take good care of the equipment they use to prevent future problems like delay in the examination that later leads to backlog.

Participant 1: “Tapos doon sa laboratory dalawa lang yung DNA analyzer, kaya kailangan talagang ingatan. Kapag may nasira doon labag malalang madesearch yung mga cases natin (In the laboratory, we have two DNA analyzers. We need to take good care of the equipment because if there will be malfunction of equipment it will delay the examination of casework).”

Participant 2: “Sa equipment, very sensitive sila sa init, kaya hindi pinapatay yung aircon (The equipment is very sensitive, that is why we are not switching off the air-condition).”

It is supported in the Fiscal Year (FY) 2021 DNA Capacity Enhancement and Backlog Reduction (CEBR) Program where the York County Sheriff’s Office requests funding to improve the quality and timeliness of forensic science services provided by the Forensic Biology Laboratory as well as decrease the backlog of cases. One of the focuses of the requests for funds is funds that will be used to pay for service contracts for equipment that is used to conduct DNA analysis. These service contracts will ensure that is maintained and that assistance is readily available should an issue arise, which will decrease the amount of time that DNA analysis is unable to occur due to equipment malfunctions (Purchase of Equipment, Software, and Service Contracts to Reduce DNA Backlog in York County, SC, 2021).

Communication

This study shows that effective communication to the clients and stakeholders can eliminate unnecessary interruptions that can strain laboratory’s resources and delay testing.

The participants mentioned that:

Participant 2: “Yung sa court, pinapakisapangan yung judge. Nagtatanong din naman yung judge kung ano ba yung nasa manual. Yung sa request kapag may lackings, kapag sinabihan sila, nakokomply nnm nila (In court, we plead to the judge. They are asking what is written in the manual).”
While DNA examiners are expected to keep up with advances in technology, it is just as important to educate and inform the stakeholders who make decisions about evidence submission and requested examinations.

According to Butler (2015) better communication across stakeholders in the criminal justice system is a primary need in order to maximize the value of DNA testing efforts.

Participant 2: “Sa Court, hindi naman siya major problem. Siyempre hindi natin masabi sa kanila na walang reagent. Minsan kasi may mga prosecutors na demanding gusto agad agad anjan (In court, it is not a major problem. We cannot divulge that we do not have the reagents. And there are times that, we, prosecutors are demanding).”

This shows that there is a need for the stakeholders like the local police, prosecutors, and judges of the policies and procedure in conducting DNA examination.

Because of significant turnover within stakeholder agencies, their personnel need continual training regarding DNA laboratory acceptance and prioritization policies, procedures, and capabilities.

Open and continuous communication between the forensic DNA laboratory and stakeholders in a manner that preserves productivity (National Institute of Justice, n.d.).

In summary, there is insufficiency of equipment and facilities in the DNA Analysis of PNP-Regional Forensic Unit Cordillera that make their work as DNA analyst/DNA Technical Assistant more challenging. In addition to their most encountered problem in terms of insufficiency of reagents used for testing due to the demands for DNA analysis. Due to these reasons, case prioritization is one of their best practices the participants implement to minimize the problem of insufficiency of reagents.

Conclusions

Based on the findings of the study, the researcher arrived at the following conclusions:

1. The DNA Analysis in PNP-Regional Forensic Unit-Cordillera cannot facilitate the testing and analysis of DNA specimen submitted as evidence due to lack of equipment. This instance leads to traveling the specimen and be examined in the DNA laboratory of PNP-Forensic Group in which it may be prone to contamination and degradation. Independency on the process of testing and analysis of DNA evidence especially for criminal cases is being observed in the PNP-Forensic Group. This policy tends to make the testing and analysis of DNA evidence centralized that may lead to abundance of cases to be examined.

2. Due to the increasing demands for scientific-based investigation using DNA profiles the need for additional DNA analysts and supplemental reagents increases. Because of the surge of demands, problems in the supply of reagents used for testing and analysis of DNA is prevalent. This insufficient supply of reagents leads to burdensome piling of cases.

3. The case prioritization is because of the overzealous evidence collection during the conduct of crime scene processing, in which giving priority to the processing of specimens of DNA reference standards for cases that are expected to have a definitive result may reduce the wastage of reagents and resources which will greatly contribute to the purpose for which DNA testing is intended.

Recommendations

Based on the conclusions arrived in this study, the researcher gives the following recommendations:

1. The PNP-Forensic Group may establish additional facilities for DNA laboratories and have extensive certification for DNA analysts. For example, opening of certification trainings for private forensic scientists or criminologists and collaborating with private entities to handle DNA specimen subject for examination.

2. To avoid or minimalize the insufficiency of reagents for testing which in turn cause backlog of cases, it is suggested that in the annual
budget request by the finance and budget officer of PNP-Forensic Group, said reagents may be included in the request. This can be also suggested in terms of facilities and equipment. They can be proposed in a budget hearing. It may also be possible to have documented evidence submission guidelines, including a detailed list of submission requirements that is clearly communicated to submitting agencies. A clear acceptance policy that is accessible and comprehensible to all stakeholders.

3. The Directorate for Investigation and Detective Management may consolidate the best practices in a manual to be used by everyone in the organization for standardization. Sustain the practice of case prioritization. The DNA laboratory may have a written, clearly defined case prioritization policy that laboratory staff can consistently apply. If applicable, the laboratory may also designate and train personnel who are responsible for prioritizing cases.

References


