



Forensic Science: A unique interdisciplinary tool helping to combat crimes in Africa, a review

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Abstract

Forensic Science has helped solve several crimes in Africa. Embracing such a new development took quite some time. This study reviewed briefly, some of the improvements that forensic science has brought to the criminal justice systems in Ghana, Nigeria and South Africa. The review identified several challenges across the three countries that can be resolved by employing advanced analytical practices, enacting laws and policies, adequate regulatory systems, quality management systems and provision of funds. The study also revealed that forensic science could be a vital tool for sustainable development.

Keywords: Africa, Forensic Science, Sustainable development, Policies, Regulation.

Introduction

Forensic science is still an evolving interdisciplinary profession that applies science to the matters of law (1). It encompasses a myriad of disciplines ranging from the social, medical and natural sciences. The discovery of this invaluable field has been a vehicle driving the necessary investigative methods, adjudication, solution and curtailing of crimes worldwide (2).

This profession is aptly diversified. It is an embodiment of various disciplines hence called an interdisciplinary profession. Each specialty may be a complement to the other. This is actually done for corroboration and confirmatory purposes (3). An example is how a forensic pathologist is able to identify that the cause of death of a person is by poisoning. This is further confirmed by a forensic toxicologist or biochemist through quantitative or qualitative analysis on body fluids and organs using internationally accepted standards. This creates harmony in the criminal investigation process (4).

Despite forensic science improvements in developed countries, Africa, on the other hand, took quite some time to embrace this emerging science (5). It happened in the late 20th century in Africa. The field crept arduously into the African Criminal and Legal Justice Systems and is still in developmental stages. This discipline over some few decades has helped law enforcement agencies across the African continent to solve complicated crimes. However, evolving and emerging sophisticated crimes will require parallel sophisticated techniques and crime investigative approaches (6).

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The anticipation of fully embracing forensic science in Africa may be contrary to the necessary enabling environment, facilities, expertise and funds allocated for forensic science. This is evident in the yearly financial budget for Science in most African Countries (7).

This review seeks to highlight a few of the improvements that forensic science has brought into the criminal and legal justice systems in some African countries, such as Ghana, Nigeria and South Africa as well as its relevance for sustainable development. It will discuss some of their challenges and suggest some necessary recommendations and potential solutions for improvement.

Forensic science developments in some selected African countries

Ghana

The first Forensic Science Laboratory (FSL) in Ghana was established in 1948 under the Criminal Investigation Department (CID) of the Ghana Police Service (GPS) to serve as the main provider of forensic services in the country. Since then, it has undergone some positive transformations. The FSL has received a major uplift in Chemistry and Drug Analysis, Ballistic and Firearms, Document Examination, Photography, and DNA analysis (8).

The Ghanaian FSL provides scientific analysis to private and public institutions in Ghana by way of strengthening criminal investigations (9). This has helped in exonerating and incarcerating innocent and perpetrators of crimes, respectively (10). It is also interesting to note that advocacy in forensic education is gradually improving. Some government and public tertiary institutions have gained the necessary legalities and accreditations by the National Accreditation Board (NAB), to train and educate students in varying forensic science disciplines. Some institutions have also been funded to periodically provide capacity building and training to law enforcement agencies to help combat crimes (11).

Regardless of some initial contributions to the criminal justice system, challenges still persist. Inadequate forensic science legislation, governance framework, accreditation and regulation, quality assurance and forensic science research and development are some of the challenges facing forensic science advancements in Ghana. Resolving the policy issues identified by Amankwaa et al. (12) will guarantee a vigorous application of forensic science in delivering safe justice and enhancement of public security in Ghana.

Nigeria

It is interesting to note that forensic science, since its introduction in the Nigerian criminal justice system, has helped in investigating some criminal activities such as cybercrime, armed robbery, fraud, corruption and kidnapping (13). CNN, on September 18, 2019, reported the arrest of three suspects by the Nigeria Police Force linked with “serial killings” of women in Port Harcourt, Nigeria (14). The Police were able to link the several class and trace evidence on victims at various crime scenes.

In May 2019, the Economic and Financial Crime Commission (EFCC) and Federal Bureau of Investigation (FBI) joint operations in Nigeria recorded some successes against Nigerian fraudsters in wanton cases of cybercrimes in Nigeria and across its borders using digital forensics. Suspects in both Nigeria and America have been arrested and are assisting in the investigation. Significant amounts of money have been recovered from these operations. This was reported in a joint press conference by Nigeria’s anti-graft body with the FBI (15). Forensic science would help improve measures to solve crimes when it is given the necessary attention. This is because traditional detective methods alone may be less effective in to emerging crimes and providing safety for Nigeria (16).

Although cases of kidnapping and terrorism are prevalent in Nigeria, the Police have been able to rescue 17 kidnapped victims in Rivers State alone and 13 more kidnapped victims in Imo State using forensics (17). This evidence shows a progressive approach to tackling crimes to some extent. The Establishment of a National Police Forensic Unit lab and Lagos State DNA and Forensic Centre in Abuja and Lagos States, respectively, have been instrumental (18).

South Africa

In retrospect, each discipline of forensic science in South Africa has its distinct history, owing to the dominance posed by segregated authorities and Eurocentric African traditions. It was seen in the division and racialism in all aspects of the system. The new democratic South Africa had seen little progress in terms of forensic science developments, until the “DNA bill”, the Criminal Law (Forensic Procedure) Amendment Bill B09-2013 was introduced into Parliament on 8th May 2013 (19). Drastic changes were witnessed in forensic science as well as other spheres of society. There was, therefore, a necessity for high regulation of such professions by the Statuary Health Professions Council of South Africa (HPCA). The influx of illegal migrants and other foreigners in the country increased the crime rate and so there was a need for a steep reduction in crimes (20). These regulations gradually metamorphosed into robust legislation and policies backed by the constitution to counter crimes (21).

In the case of the *State vs Van der Vyver, 2007*, the accused was tried for the murder of his girlfriend in 2007, Judge Deon Van Zyl acquitted him, criticizing the police investigation. Much of the criminal trial focused on a fingerprint said to be found on a DVD cover in Lotz’s flat which police linked to Van der Vyver. Lotz rented the DVD around 3 pm on the day she was killed. After hearing from expert witnesses from both sides, forensic evidence from the defence showed that the fingerprint was lifted from a drinking glass and not from a DVD, this testimony exonerated Van der Vyver (22).

During 2013, about 314,613 cases were processed under the DNA unit in South Africa’s FSL, thus helping the criminal justice system. This was realized when the forensic Short Tandem Repeat (STR) typing was implemented (19).

Relevance of forensic science for sustainable development

The United Nations and its member states on 25th September 2015 adopted the 2030 agenda for sustainable developments with 17 Sustainable Development Goals (SDGs). This Agenda is intended as “a plan of action for the people that seeks to strengthen universal peace in larger freedom”. It is worthy to note that, United Nations Office on Drugs and Crime (UNODC) extensive works on drugs, crime, health, peace, justice and strong institutions are invaluable linked to multiple targets of the SDGs: 3, 5, 8, 10, 11, 16 and 17. This could help heighten forensic science practices, legislations and policies in most countries, thus making it a tool for sustainable development and peace (23).

Additionally, UNODC is to provide normative, analytical and operational assistance to its member states for strengthening the effectiveness, fairness and accountability of their criminal justice institutions to tackle crimes, corruption and terrorism. This is evident in some International Collaborative Exercises and development of forensic hubs organized by this noble body to help its member states standardize forensic practices and policies in order to understand the intricate nature of diverse crimes and also help curtail them (24). The accomplishment of the afore listed SDGs would revolve around good forensic science practices. All specialists who carry out activities specific to crime investigations and are participants in the

criminal proceedings also promote the goals proposed by the 2030 Agenda for Sustainable Development in their respective countries (25) .

Challenges of forensic science in Africa

Albeit the aforementioned improvements, most African countries are still faced with challenging problems with forensic science legislation and integration into the criminal justice system (26). The Ghana Police Service still has some crimes of public interest unsolved. There is a lot of difficulty in evidence collection and synchronization of evidence to the appropriate quarters of the law. One of Ghana's greatest unsolved murders was the serial killing of women that plagued Ghana from 1993 to 2000. It took the intervention of America's FBI to help solve the crime in 2001. The nine murders that he was convicted were probably those with the strongest witness corroboration. The then Director of FBI, Louis Freeh echoed that they had encountered a lack of competent investigation in Ghana (27).

The trial of the prime suspect in the death of the Member of Parliament (MP) for Abuakwa North, the late JB Danquah Adu has been delayed due to the questionable sanity and incoherence in testimony presented by the suspected murderer, Daniel Asiedu, as well as inability of the Ghana Police Service to examine the forensic evidence collected. Other unsolved murders include the death of Ahmed Suale, the investigative journalist of Tiger PI fame, Mrs Josephine Tandoh Asante, Marketing and Public Affairs Manager at the Tema Ports of Ghana Ports and Harbour Authority (28). The death of 5 police officers between the month of July and August 2019 is an indication of identifiable lapses present in the Ghana Police Service (29). The inadequate training of personnel in combating crimes using modern scientific tools of international standards is having a detrimental effect on both the police and citizens of the country.

Despite the numerous successes achieved by the Nigeria Police Force (NPF), it is needful that they continue to develop and diversify their modes of operations in policing to help combat crimes (30). Most of these crimes have been attributed to the socio-economic problems such as high level of unemployment, poverty, rural-urban migration and wide income disparities. The NPF recorded a total of 1,072,026 cases between 1996 and 2000. Among these, 462,528 representing 49.1% of the cases were prosecuted leaving 540,899 which constituted about 50.9 % under-investigated, undetected or unsolved (31). Incidences of crime and criminal behaviours from 1980 to 2006 has increased tremendously (32). Some of these forensic anomalies were attributed to the inadequate or lack of forensic technology and expertise in Nigeria (33).

To suffice, Olckers (34) evaluated these four cases in South Africa namely: State vs. Mlanga, 2013 (SvM), State vs. Rapagadie, 2010 (SvR), State vs. Ackerman, 2002 (SvA) and State vs. Parker, 2000 (SvP). This study concluded that there were challenges with the use of unvalidated methods of DNA evidence submitted to the court; SvP, TT P121, (where TT, P and L means Testimony Transcript, Page and Line respectively). Contradictory statements were also delivered under cross-examination even though the prosecution and expert witness were very emphatic on the use of Standard Operating Procedures in the SvA case. The scientific enquiries at a point in time during the above cases were sacrificed for the sake of convenience. These shortfalls really need to be addressed using the appropriate systems.

Conclusion

This article has shown the contribution of forensic science to the success of some criminal investigations in Ghana, Nigeria and South Africa, including high-profile cases. However, with some persistent challenges, this review suggests the need for investment in resources to improve forensic science practice and research. Further, an enabling environment by way of enacting laws and policies, adequate regulatory systems, total

quality management systems and provision of funds will help increase the potential of forensic science to assisting in criminal investigations. Best practice can also be learnt from other developed countries for improvement in forensic science techniques. The need to utilize forensic science to assist the criminal justice system with timely and efficient crime investigation must be highly advocated in political agenda, budgets, legislation and governance systems in Africa. The restructuring and strengthening of policing systems, discovery of forensic evidence, reliance on ethical testimony and admissibility of valid DNA evidence in our criminal justice system can champion sustainable development and peace in Africa.

Acknowledgement

The authors would like to acknowledge Ms Grace Pinkrah Cobbold for proofreading the manuscript and discussing with us her opinions.

Contribution

Emmanuel Kelvin Gaisie, Douglas Tetteh Ayitey and Nathan Amuquaye Antiaye helped with technical advice, literature review and manuscript editing. Albert Koomson conceived the topic and drafted the manuscript.

Conflicts of interest

The authors declare no conflict of interest.

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