

PIONEERING AFRICA'S FIRST FORENSIC SCIENCE REGULATOR IN ZAMBIA

Mr. Innocent Makasa - MPhil



ICRC



Importance of Forensic Science

- Forensic science has gained popularity in resolving crime, humanitarian catastrophes.
- Globally, there are daily reports of crimes solved by forensic evidence


 USA Today

[Cold case: How DNA from 1 cm of hair helped solve a 1982 ...](#)

Kelly Harkins Kincaid, chief executive of Astrea Forensics, said investigators called on the forensic services company to test the evidence.

2 days ago



 FOX5 Vegas

[Advanced DNA technology narrows down unsolved Las Vegas homicides](#)

Othram Labs has helped LVMPD detectives solve multiple decades-old ... The evidence was sent to Othram for forensic-grade genome sequencing...

3 hours ago



 Lethbridge News Now

[Advanced DNA offers hope to solve cold cases, but some ...](#)

Diane Séguin, head of biology and DNA for Quebec's forensics lab, said the province is beginning to apply genetic genealogy in a few "very high-...

2 hours ago



Importance of Forensic Science...

- The importance of forensic science to the criminal justice system cannot be over emphasized.

- Amit Shah: Forensic investigations to be compulsory in all offenses that attracted a punishment of \geq six years

Home / India / Forensic probe to be made mandatory for offences attracting 6 yrs or more in jail

Forensic probe to be made mandatory for offences attracting 6 yrs or more in jail

“The Narendra Modi government is... working towards making forensic investigation mandatory in all cases of offences punishable with imprisonment for more than 6 years,” Shah said.

By: [Express News Service](#) | New Delhi |
Updated: June 27, 2022 7:28:18 am



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18 mins ago

CBSE 12th Result 2022 LIVE Updates: CBSE Compartment exams to begin on August 23

34 mins ago

CBSE 10th Result 2022 LIVE Updates: Overall

Importance of Forensic Science...

- Forensic scholars and researchers have continued publications on the role of forensic science in the criminal justice system, and environmental and wildlife protection.

Any time

Since 2022

Since 2021

Since 2018

Custom range...

Sort by relevance

Sort by date

Any type

Review articles

include patents

include citations

Create alert

Microbial traces and their role in forensic science

M Speruda, A Piecuch, J Borzęcka... - Journal of Applied ..., 2022 - Wiley Online Library

... **Forensic** microbiology, also known as the ... of **science** that is still underused in **criminal investigations**. Some of the cases might be difficult to solve with commonly-used **forensic** methods, ...

☆ Save 🔄 Cite Cited by 2 Related articles All 5 versions

[HTML] Trends and perspectives in Nuclear Forensic Science

Z Varga, M Wallenius, M Krachler... - TrAC Trends in ..., 2022 - Elsevier

... Laser-based techniques, such as LIBS and LA-ICP-MS, do not require dissolution or alteration of the sample (which represents a piece of evidence in a **criminal investigation**). Moreover...

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Authentication and Admissibility of Forensic Evidence under Indian Criminal Justice Delivery System: An Analysis

BN Khan, S Bali - Unleashing the Art of Digital Forensics - taylorfrancis.com

... The police start with the **criminal investigation**, which ... **criminal investigation** is a continuous process and continues until trial and even beyond. During an **investigation**, **forensic scientists** ...

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[PDF] Role of DNA Profiling in Criminal Investigation Based Leading Case Laws

S Qureshi, R Prakash, SC Gupta - scholar.archive.org

... : **Forensic science** has a great contribution in **crime** prevention and **criminal** justice by fair **investigation**. ... need for the application of the **forensic science** in present indian justice system. ...

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Traceology, criminalistics, and forensic science

RR Ristenbatt III, J Hietpas... - ... of Forensic Sciences, 2022 - Wiley Online Library

... Not one of these persons will know the basic principles of **scientific crime investigation**. ...

... where they meet the task of expertise in crime investigation. Numerous events (Being present ...

Importance of Forensic Science...

- Possibilities of using forensic DNA analysis in policing environment crimes such as littering



Forensic Science International: Animals and Environments

Volume 2, December 2022, 100042




Commentary

Forensic science and environmental offences: Litter, DNA analysis and surveillance

Tersia Oosthuizen  , Loene M. Howes , Rob White 


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Importance of Forensic Science...

- We can go on and on describing the importance of forensic science in the modern world to the civil and criminal justice systems.
- There is another side to the story...

The Use of Forensic Evidence in Sexual Assault Investigations: Perceptions of Sex Crimes Investigators

Tasha A. Menaker, Bradley A. Campbell, William Wells

First Published April 18, 2016 | Research Article |
<https://doi.org/10.1177/1077801216641519>

[Article information](#) ▾

Abstract

Despite the potential value of DNA evidence in sexual assault prosecution, we have a limited understandi

SEXUAL ASSAULT CASES: EXPLORING THE IMPORTANCE OF NON-DNA FORENSIC EVIDENCE

BY HEATHER WALTKE, GERALD LAPORTE, DANIELLE WEISS, DAWN SCHWARTING, MINH NGUYEN,
AND FRANCES SCOTT
Investigating and prosecuting sexual assault crimes is much more complicated than simply performing DNA testing.



Science & Justice

Volume 61, Issue 2, March 2021, Pages 142-149



The importance of forensic evidence for decisions on criminal guilt

Shichun Ling ^{a,1}, Jacob Kaplan ^{b,1}, Colleen M. Berryessa ^c

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Science & Justice

Volume 60, Issue 3, May 2020, Pages 263-272



Public beliefs about the accuracy and importance of forensic evidence in the United States

Jacob Kaplan ¹, Shichun Ling ¹, Maria Cuellar

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Misapplication of Forensic Science

Misapplication of forensic science may be as result of;

- Unreliable or invalid forensic discipline
- Insufficient validation of a method
- Misleading testimony
- Human error/Mistake
- Misconduct

INNOCENCE
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Misapplication of Forensic Science

The Innocence Project works to restore freedom for the innocent, transform the systems responsible for their unjust incarceration, and advance the innocence movement. We do so in the following ways.

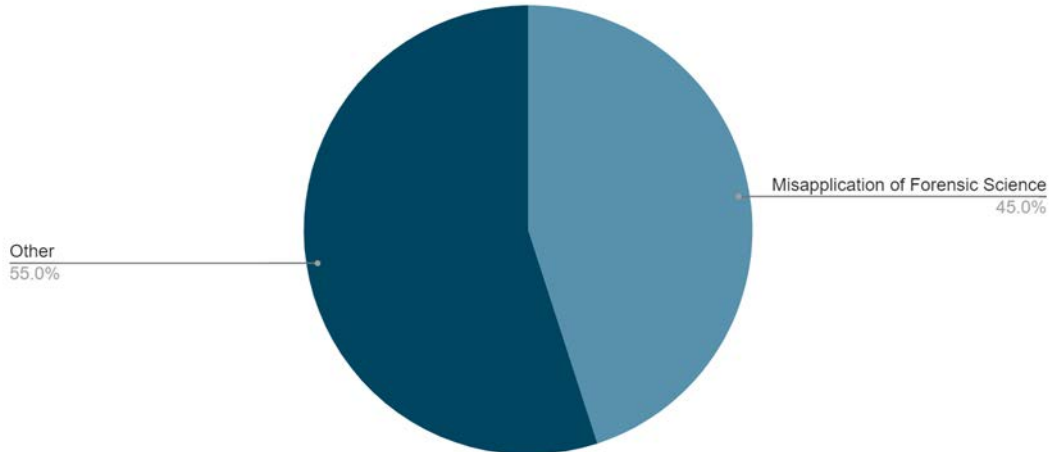


Misapplication of Forensic Science...

- 45% of the wrongful convictions were associated in part to “Misapplication of forensic science”

Misapplication of forensic science is the second most common contributing factor to wrongful convictions, found in nearly half (45%) of DNA exoneration cases.

Contributing factor to wrongful convictions





Misapplication of Forensic Science...

Misapplication of forensic science can be seen in a number of the reported cases.

These reported cases might be the tip of the iceberg.

<https://www.chemistryworld.com/news/6027/article> ⋮

[Massachusetts crime lab scandal explodes - Chemistry World](https://www.chemistryworld.com/news/6027/article)

Now the **scandal** has grown with the prosecution of another Massachusetts state **lab** chemist for tampering with evidence and stealing drugs seized as evidence.

<https://slate.com/news-and-politics/2021/05/massach...> ⋮

[The Massachusetts crime lab scandal is just the beginning.](https://slate.com/news-and-politics/2021/05/massach...)

11 May 2021 — It is the attempt to do **forensics** cheaply that leads to inadequately staffed and regulated crime **labs**, which inevitably implode with tragic ...

<https://law.duke.edu/news/garretts-autopsy-crime-la...> ⋮

[Garrett's Autopsy of a Crime Lab illuminates the flaws in ...](https://law.duke.edu/news/garretts-autopsy-crime-la...)

16 Aug 2021 — "Autopsy of a Crime **Lab**" analyzes how systemic failures in **forensics** compromise evidence and have called into question untold numbers of ...

<https://www.thebusseylawfirm.com/crime-blog/crim...> ⋮

[Crime Lab Scandals - Criminal Defense - The Bussey Law Firm](https://www.thebusseylawfirm.com/crime-blog/crim...)

13 Jul 2018 — From Alaska to Massachusetts, crime **labs**, **forensic** scientists, and prosecutors have been sanctioned for a variety of offenses and misdeeds ...

<https://theconversation.com/how-corruption-in-forens...> ⋮

.. .. .

Misapplication of Forensic Science...

- Missing evidential material from the Lab.
- Technician accused of stealing cocaine
- Unreliable testimony on microscopic hair comparison.
- Technician used wrong chemical for presumptive testing.



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K O M O R N L A W

HOME SERVICES LEGAL TEAM NEWS-BLOGS v

Crime Lab & Forensic Scandals

Federal

2012 – FBI testimony on microscopic hair comparison found to be unreliable, starting a review of more than 21,000 cases handled before 2000.

California

2014 – Crime lab analysts in San Jose were found to be using the wrong chemical to conduct preliminary methamphetamine tests on over 2,500 blood samples from those arrested on suspicion of being under the influence of a controlled substance. The samples were retested, and only seven of those tested showed a false positive because of the different chemical.

2013 – George Souliotes was convicted of setting a house fire that killed a woman and two children in 1997. His conviction was based on arson evidence that has since been discredited. The California Attorney General admitted that the arson evidence used in the case was faulty and that there is no scientific evidence that the fire was in fact arson. Souliotes remains in prison as prosecutors fight to delay his release.

2010 – The California Department of Justice found that quantities of methamphetamine brought in for testing at its Ripon crime lab had disappeared.

2010 – A San Francisco lab technician was accused of stealing cocaine from the city's crime lab. A few months later, the crime lab's drug section was shut down.



Misapplication of Forensic Science...

- Mixed up DNA test tubes, and destroyed evidence pertaining to the mixture
- Misidentified fingerprints
- Entered poor quality DNA sample into the enforcement database.

7/2009 – Faced with allegations that one of their technicians had mixed up DNA test tubes, the San Francisco crime lab manager denied any knowledge of the mix-up. An investigation by ASCLDL/LAB found that there was indeed a mix-up and all records pertaining to it had been destroyed. A month after the report was issued on the incident, ASCLDL/LAB reaccredited the SFPCDL for five years.

2008 – Analysts at the Los Angeles Police Department crime lab misidentified fingerprints in two burglary cases, leading to an analyst being fired, two supervisors being replaced and three other employees being suspended.

5/2006 – Mark Eastman, a technical reviewer at the Sacramento crime lab had entered a DNA sample that did not meet minimum standards into a law enforcement database and had not rechecked DNA results in other cases. It is standard practice to conduct and document technical reviews of all case files and reports. A technical reviewer is an employee that is either currently or previously a qualified analyst in the methodology being reviewed and performs a technical review of that methodology.



Calls for regulation of forensic science

- Calls for forensic regulation can be traced from 1991.
- In 2007, UK established their first forensic science regulator

[PDF] **Forensic science: The need for regulation**

RN Jonakait - Harv. JL & Tech., 1991 - HeinOnline

... **forensic science**. It is time to stop the miscarriages of justice "which result. **Forensic** ... the widespread, poor quality of work done in **forensic science** laboratories. Sections II and III ...

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[PDF] The UK **forensic science** regulator: a model for **forensic science regulation**

C McCartney, E Amoako - Ga. St. UL Rev., 2017 - HeinOnline

... This Article will detail the first ten years of the **Forensic Science Regulator**, outlining ... **forensic regulation** has proven only partially effective at minimizing the risks associated with **forensic** ...

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[PDF] Constitutional **regulation** of **forensic** evidence

BL Garrett - Wash. & Lee L. Rev., 2016 - HeinOnline

The Constitution increasingly regulates the use of **forensic** evidence in criminal cases. This is a remarkable shift. In decades past, the US Supreme Court declined to provide strong due ...

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What price a free market in **forensic science** services? The organization and **regulation** of science in the criminal process

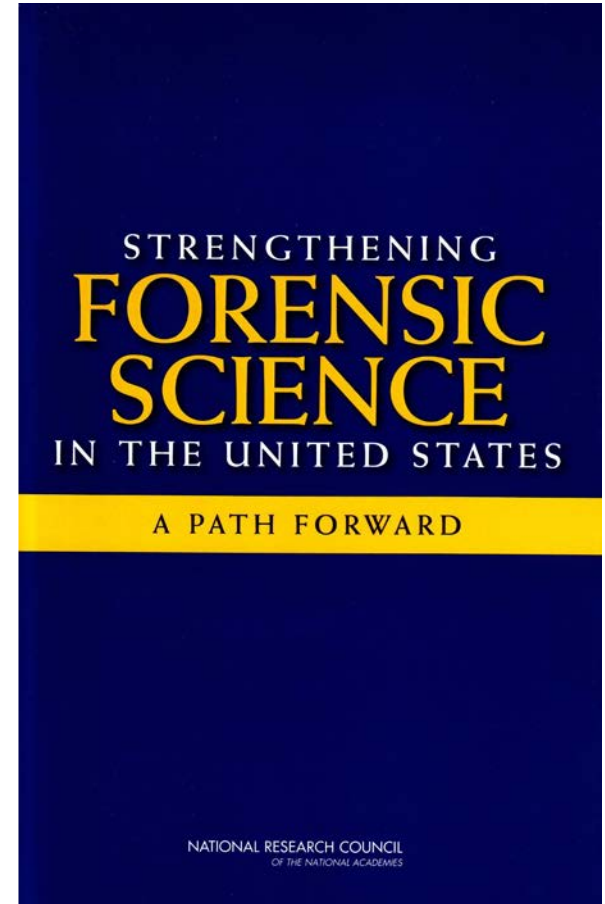
P Roberts - The British Journal of Criminology, 1996 - academic.oup.com

... **forensic science** services and (ii) **regulation** of the **forensic science** community by a **Forensic**

... It is argued that the market approach to **forensic science** services is flawed in principle. After ...

Calls for regulation of forensic science...

- 2009 the NAS - report on strengthening forensic science in the USA was published
- Creation of an independent, scientific oversight entity for forensic science in the USA.
- 13 years later, no regulator in place in the USA



Calls for regulation of forensic science...

- In 2010 Indian report on the perspective plan for Indian Forensics was done
- The call for a regulator of forensic science in India was made

PERSPECTIVE PLAN for INDIAN FORENSICS

Final Report

presented to the

Ministry of Home Affairs

Government of India

New Delhi

Calls for regulation of forensic science...



- The report recommended the establishment of the Forensic Council of India (FOCI)
 - regulate,
 - maintain of Indian Forensic Registry, and
 - Certify & Recertify forensic practitioners
- V. Since it has become important to **regulate forensic profession and the concomitant education and practice** in the country, an overarching statutory body, namely Forensic Council of India (FOCI) should be constituted for stipulation and oversight. Under this regulation, maintenance of Indian Forensic Registry and Certification & Re-Certification of forensic practitioners should also be taken care of. For the purpose an Act, the Forensic Act, should be passed by the Parliament which is enabled by the Constitution of India (*Vide* Entry 65 (c) of List I – Union List in the Seventh Schedule under Article 246).

Calls for regulation of forensic science...

- In December, 2012 we see a draft Bill named “Forensic Regulatory and Development Authority of India. By Posted by [Dr. Mukesh Yadav](#)

FORENSIC REGULATORY & DEVELOPMENT AUTHORITY OF INDIA BILL, 2011

Monday, January 9, 2012

CHAPTER I PRELIMINARY

- (1) This Act may be called the Forensic Regulatory and Development Authority of India Act, 2011.
 - (2) It extends to the whole of India, except the State of Jammu and Kashmir.
 - (3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.
2. In this Act, unless the context otherwise requires,—
- “Advisory Council” means the Forensic Science Advisory Council constituted under section 13;
 - “appropriate statutory authority” means any council or board or commission or authority, by whatever name called, constituted or established under any law for the time being in force for the purpose of regulating the profession of forensic science or medicine;
 - “Authority” means the Forensic Services Development Authority of India established under section

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CHAPTER I
PRELIMINARY

CHAPTER II THE
FORENSIC
REGULATORY AND

Calls for regulation of forensic science...

- In 2017 we are asking the whereabouts of the forensic regulator in India.
- In 2022 no report of the forensic science regulator in India

Home > Mumbai > Mumbai News > Article > Mumbai Wheres the regulatory body for forensic science laboratories

Mumbai: Where's the regulatory body for forensic science laboratories?

Updated on: 16 June, 2017 11:19 AM IST | Mumbai
Vinod Kumar Menon | vinodm@mid-day.com

With the burgeoning private industry of forensic science labs, the need of the hour is to create a regulatory body and pass a Bill to accredit these businesses, say lawyers and forensic scientists



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Tanzania's DNA Regulator



- In 2009 Tanzania established the Human DNA regulator.
- The Chief Government Chemist was appointed as the Regulator, and the provider of Human DNA analysis.
- The DNA Laboratory under the Regulator was exempted from regulation.

THE HUMAN DNA REGULATION ACT, 2009

ARRANGEMENT OF SECTIONS

PART I

PRELIMINARY PROVISIONS

<i>Section</i>	<i>Title</i>
1.	Short title and commencement.
2.	Application.
3.	Interpretation.

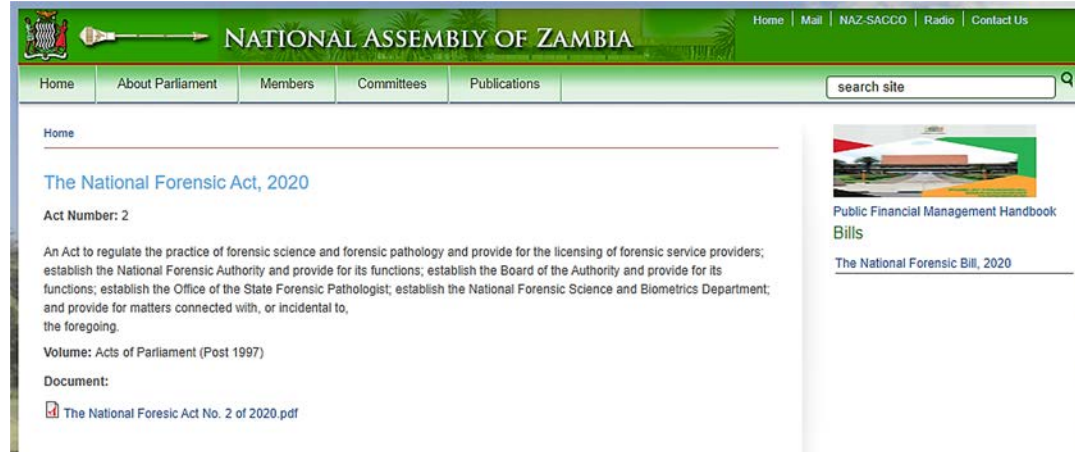
PART II

ADMINISTRATION

4.	The Regulator.
5.	Functions of the Regulator.
6.	Powers of the Regulator.

The Zambian Forensic Regulator

- In 2020 Zambia established the regulator of forensic science and forensic pathology.



The screenshot displays the official website of the National Assembly of Zambia. The header features the national emblem and the text "NATIONAL ASSEMBLY OF ZAMBIA" in a green banner. Navigation links include Home, Mail, NAZ-SACCO, Radio, and Contact Us. A search bar is located on the right side of the header. Below the header, a menu bar contains links for Home, About Parliament, Members, Committees, and Publications. The main content area is titled "Home" and features a section for "The National Forensic Act, 2020". This section includes the Act Number (2) and a detailed description of the Act's purpose: to regulate forensic science and pathology, license service providers, establish the National Forensic Authority and its Board, create the Office of the State Forensic Pathologist, and set up the National Forensic Science and Biometrics Department. It also specifies the volume (Acts of Parliament, Post 1997) and provides a document link for "The National Forensic Act No. 2 of 2020.pdf". On the right side of the page, there are additional links for "Public Financial Management Handbook Bills" and "The National Forensic Bill, 2020".

The Zambian Forensic Regulator Functions



- Regulate forensic service providers (Public and Private)
- Develop and Enforce compliance to standards and guidelines
- Promote Public accountability and transparency in forensic analysis
- Monitor compliance to forensic ethical and privacy matters

2017

PART II NATIONAL FORENSIC AUTHORITY

Establishment
of National
Forensic
Authority

3. There is established the National Forensic Authority which is a body corporate with perpetual succession and a common seal, capable of suing and being sued in its corporate name and with power, subject to this Act, to do acts and things that a body corporate may, by law, do or perform.

Functions of
Authority

4. (1) The function of the Authority is to regulate forensic services.

(2) Despite the generality of subsection (1), the functions of the Authority are to—

- (a) regulate forensic service providers;
- (b) promote integrity of forensic services;
- (c) monitor and make proposals on the conduct and performance of forensic analysis;
- (d) monitor compliance with forensic ethical and privacy matters;
- (e) propose minimum quality standards to be implemented and maintained in performing forensic analysis;
- (f) promote public accountability and transparency with respect to performing forensic analysis;
- (g) promote public awareness and understanding of forensic science;
- (h) facilitate the carrying out of forensic research;
- (i) develop and approve protocols of testing and examination methods; and
- (j) advise the Minister on matters relating to forensic science and forensic pathology.

Powers to Inspect



- Enter and search a forensic facility
- Examine a document or an article that has a bearing on the inspection
- Obtain information from the forensic facility owners or those in control

11. (1) An inspector may, in performing any function under this Act—

Powers of inspectors

- (a) examine a document or an article found on the premises that has a bearing on the inspection;
- (b) enter and search any premises; and
- (c) require information to be given about a document or an article by—
 - (i) the owner of the premises;
 - (ii) the person in control of the premises;
 - (iii) a person who has control of the document or article; or
 - (iv) any other person who may have the information.

(2) Where a forensic service provider has discontinued a forensic service or has been closed down and does not have a laboratory or facility, an inspector may require a person who has custody of a document or an article related to past forensic services to produce the document or article at a reasonable place and time.

(3) An inspector shall furnish the Authority with a written report and any other information relating to an inspection, as the Authority may require.

(4) A person commits an offence if that person—

- (a) delays or obstructs an inspector in the performance of the inspector's functions under this Act;

Offenses



- Delays or obstructs an inspector
- Refusal to give an inspector reasonable assistance
- Giving an inspector false or misleading information
- A person convicted on these offenses is liable to a fine or imprisonment.

(4) A person commits an offence if that person—

(a) delays or obstructs an inspector in the performance of the inspector's functions under this Act;

(b) refuses to give an inspector reasonable assistance that the inspector may require for the purpose of exercising the inspector's powers;

(c) gives an inspector false or misleading information in answer to an inquiry made by the inspector; or

(d) impersonates or falsely represents oneself to be an inspector.

(5) A person convicted of an offence under subsection (4) is liable to a fine not exceeding two hundred thousand penalty units or to imprisonment for a term not exceeding two years, or to both.

Is Regulation the golden bullet?

- The regulation should be one of the many ways to ensure quality and objectivity in forensic science delivery.
 - Quality system,
 - self regulation, and
 - expert evidence admissibility legal criteria

should be additional measures to regulation.





Benefits of regulation

- Misapplication problems will be detected faster
- Heightened Self regulation to avoid regulator sanctions
- Enhance validation of methods and techniques
- Standardize methods and techniques



Conclusion

- It is the duty of each forensic provider to guard against the misuse of forensic science.
- Until the regulator is in place, we **MUST**;
 - self-regulate, and
 - Adhere to quality measures in our practice.



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- https://www.mha.gov.in/sites/default/files/IFS%282010%29-FinalRpt_0.pdf
- <https://www.mid-day.com/mumbai/mumbai-news/article/where-s-the-sebi--tra-i-of-forensics-mumbai-news-regulatory-body-18342153>
- <https://www.parliament.gov.zm/node/8571>
- <https://innocenceproject.org/?causes=misapplication-forensic-science>
- <https://nij.ojp.gov/topics/articles/wrongful-convictions-and-dna-exonerations-understanding-role-forensic-science>
- Samuels A. Forensic Science Regulator The Forensic Science Regulator Act 2021. Medico-Legal Journal. 2022 Mar 16:00258172211068227.
- <https://innocenceproject.org/lasting-impact-of-2009-nas-report/#:~:text=Based%20on%20its%20findings%2C%20the,educating%20judges%20and%20legal%20practitioners.>

Thank you all for listening



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