



Maharashtra Police Journal

Volume No. 15
July to December, 2022



Centre for Police Research Pune

For Internal Circulation Only



Hon'ble Shri. Devendra Fadnavis, Deputy Chief Minister & Home Minister, Maharashtra State with Shri. Rajnish Seth, DGP, M.S., Mumbai & Shri. Vivek Phansalkar, CP, Mumbai City - Conference on Crime and Law & Order at CPR, Pune on 14th Jan, 2023



'Memorable Moment' Hon'ble Shri. Sanjay Kumar, IPS, DGP (Training & Spl. Unit), M.S., Mumbai in discussion with Hon'ble Shri. Kulwant Kumar Sarangal, IPS, Addl. DGP (Law & Order), M. S. Mumbai on 14th Jan, 2023 at CPR, Pune.



► All honourable senior officials present for the Conference on Crime and Law & Order at CPR Auditorium on 14th Jan, 2023

Hon'ble Shri. Retesh Kumaarr, CP, Pune City- Presentation - Conference on Crime and Law & Order on 14th Jan, 2023

		2022		% compared to 2021	Reg.	
Sr. No.	Commissionerate/District	Reg.	Fluc.		Reg.	Reg.
Commissionerate						
1	Thane	2571	219	9.31%	2352	2081
2	MBVV	1635	209	14.66%	1426	-
3	Pune	1948	206	11.83%	1742	1348
4	Pimpri Chinchwad	1420	179	14.42%	1241	1089
District						
1	Ahmednagar	3711	266	7.72%	2445	2081
2	Pune Rural	2856	263	10.14%	207	207
3	Jalna	1898	206	12.17%	120	120
4	Yavatmal	1922	181	10.40%	11	139
5	Aurangabad Rural	1539	158	11.44%	12	12



आ नो भद्राः क्रतवो यन्तु विश्वतः

ऋग्वेद - १/८८/१

LET NOBLE THOUGHT COME FROM ALL DIRECTIONS

अंक पंधरावा : जुलै ते डिसेंबर, २०२२

Volume No. 15 : July to December, 2022



पोलीस संशोधन केंद्र, पुणे

Centre For Police Research, Pune

Chavan Nagar, Pashan Road, Pune - 411 008.

Tel No.: 020 25678978, Fax : 020 25653696

Visit us at www.cprpune.org



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Director General of Police, Maharashtra



Message

This is the 15th volume of the 'Maharashtra Police Journal'. The articles published in the Journal are well researched and reflect views of the authors on various aspects of Policing. Many of the articles are of topical interest and of use to serving Police Officers.

Police is not immune to the changing socio-economic situation in the country. It has to also respond to the technological advances taking place.

The growth in Cyber Crime and Economic offences are challenges that the department faces. The rapid growth in social media usage and its use to disseminate information and misinformation are also areas of concern.

Young officers now joining the department

are more tech savy and in a better position to understand and cope with the use of technology both as a facilitator and also to deal with the disruptive force it can be in emerging areas of crime.

The Police Force will have to constantly upgrade to keep up with changes taking place in the country and at the same time, maintain high standard of professional conduct so as to have the confidence and trust of the Public.

I am sure that this edition will give readers an indepth understanding about the different facets of contemporary policing and methods to respond to emerging challenges.

(Rajnish Seth)

Director General of Police,
M. S., Mumbai.

Director General of Police, Training & Spl Units Maharashtra State



Message

Policing is a complex subject. It involves not only core knowledge of subject and procedure of law, but also requires indepth understanding of socio-economic, cultural and emotional status of the citizens and area being policed. With accelerated growth in technology and changing life pattern, policing has to be updated to the need of the time.

The Maharashtra Police Journal strive to reach to the expectations of police officers by publishing contemporary articles and views on the subject related with policing.

This edition compiles articles that will help the readers know various facets of police work culture.

In article "Personal Ethics Vs Departmental Ethics, ret'd. DGP Shri V. K. Saraf has explained

the ethical dilemma faced by the police officers and ways to successfully deal with it.

In article "Phases of a Collision and Road Accident Reconstruction", Shri Rajaraman has tried to explain different phases of collision, which will help investigating officer of accidents reach correct conclusion.

As I am superannuating on March 31, 2023, this will be my last message to readers. I thank all the officers and staff associated with publication of Maharashtra Police Journal for their unconditional and pro-active support. I wish all the best to all of them and to Maharashtra Police Journal.



(Sanjay Kumar)

Director General of Police
(Training & Spl.Units)
Maharashtra State

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Personal Ethics Versus Departmental Ethics

Shri. V. K. Saraf

IPS (Retd.)

Three distinct driving forces seem to be at work, as we survey the current socio-economic scenario. The operation of these three forces together is bound to bring about profound changes in every field of human endeavour, more so in the tradition bound hierarchical bodies like the government. The first of these forces is rapid advances in technology. Then there is the globalization of business and everything connected with it directly and indirectly. This is, as one can readily see, directly related to advances in technology inasmuch as it is technology induced. The third, which probably is the most challenging, concerns the unprecedented growth in activity including industrial growth, on a global scale. This, as a consequence, severely strains natural human systems. At the same time, it increases complexity and interdependence as one can easily visualise. An inevitable fallout of this has been breakdowns including institutional breakdowns. We may not be able to describe it succinctly but it can be felt in the guts. Things are not the same any longer with human systems. These breakdowns come from (a) dehumanising the systems, though peculiarly, there is ever growing interdependence; and (b) speeding up of the processes due to technological innovations. It is hard to find any institution - business, government, even family for that matter - that is not affected by it. One might even say that blind technological progress is exacerbating this problem because it contributes more complexity in human systems at a time when we cannot understand fully the complexity that already exists despite our recent emphasis on human

resource development. Luckily, awareness is growing that we are in trouble.

Modernisation versus Traditional Roots :

In his best seller book 'The Lexus and the Olive Tree : Understanding Globalisation,' Pulitzer prize winning journalist, Thomas L. Friedman argues that globalisation is not simply a trend or fad but is rather an international system that cannot be wished away, and that it has its own rules and logic that today directly or indirectly influences politics, environment, geopolitics and economics of virtually every country in the world. Globalisation, he further argues, has its own defining technologies, namely, computerisation, miniaturisation, digitalisation, satellite communication, fibre optics and Internet. They reinforce its defining perspective of integration. The characteristic attribute of globalisation is speed — speed of commerce, travel, communication and innovation. Globalisation tends to revolve around the Moore's Law which states that the computing power of silicon chips will double every 18 or 24 months while the price will halve.

Getting Increasingly Disconnected :

One of the paradoxes of a world in which we are increasingly getting connected is that it makes it much easier for us all to become increasingly disconnected. Because the more we are networked together the easier it becomes for each of us to work alone. There is thus very little face-to-face interaction in an informal way with colleagues, with people we deal with.

Author Intro : *An M.Sc., in mathematics, Shri V.K. Saraf joined the Indian Police Service in 1956. After a distinguished career covering several important assignments, he retired in 1992 as the Director General of Police, Maharashtra State. He is the author of several books including three on leadership and many scholarly articles and well-researched monographs.*



Sociologist Richard Sennett in his provocative book titled 'The Corrosion of Character : The Personal Consequences of Work in the New Capitalism,' observes that this disconnectedness leaves us all uncertain of who we are and how we should act. In the aggregate, it erodes the foundation of society. We do not bond with others and are left with an ironic sense of ourselves as fabricators. Perhaps, corroding of character is the inevitable consequence.

Moral Values and Cyberspace :

So where do the moral values fit in this situation with everyone wanting to be in the cyberspace? Thomas Friedman argues that there is nothing about Internet that eliminates the need for ideals or code of restraint of human behaviour. The more we are dependent on technology the more we need to come to it armed with our ideals and codes of restraint. Cyberspace is unifying but one does not want to be unifying mankind through Internet without any value system, without any view of human beings other than nodes in a huge network.

But this value system is best learned 'offline' and brought in our heads, hearts and behaviour while we dwell in the cyberspace.

It is perhaps the manifestation of the breakdown of institutions, the human systems that include the huge government machinery we talked about a little while ago, that not a day passes without the print media as well as the electronic media reporting about a scam here and a scandal there in which bureaucrats are as much involved as their political masters, though admittedly this cannot be entirely attributed to introduction of technology. In fact, these conspiracies to fleece the public exchequer, bribery, frauds and unholy collusion with racketeers and swindlers clearly occur more frequently than the media finds out or we care to acknowledge. Evidently, they occur more often than is permissible to gain the level of public trust and support that the government needs to carry out its policies and plans to establish good governance.

While clearly these official wrongdoings contradict the standards laid down in the numerous rules and regulations as well as manuals that the governments have issued decades ago, it is somewhat doubtful if those are also in contradiction of the personal values held by government servants individually, by most of them at any rate. In other words, is our personal ethics in consonance with the departmental ethics as laid by the government? Does our conscience unhesitatingly permit us to act in the manner we do while making questionable decisions that harm the larger interests of the government and hence of the tax paying citizens?

Conscientious People, the Core Issue :

In his famous essay on civil disobedience, Henry David Thoreau wrote that a corporation has no conscience, but a corporation of conscientious men is a corporation with a conscience. If Thoreau is right which undoubtedly he is, then it is obvious that whatever be the lofty ethical ideals that the government manuals might have laid before its employees or the code of conduct it has prescribed for them, it is the common denominator of the ethical values that the individual employees entertain, consider dear to their hearts and abide by them in their conduct of official business that will determine the ethical standard of the government. It therefore follows that the ethical standard of the government as a corporate body will be high if the personal ethical value system of individual employees is high. The larger their number the higher would be the ethical standard of the government. Any amount of coercive insistence on compliance of rules will not raise it a wee bit unless there is willingness more so, commitment on the part of the employees.

Eternal Values :

Now, without doubt each individual has a set of personal values to guide the course of his or her life, his or her behaviour in society and so on. But all sets of values may not be laudable. A former Prime Minister, V. P. Singh spoke incessantly while he was in power of value based politics. Well, politics, as any



other activity, is always value based but what sort of values? A thief has values too. He may decide not to rob ornaments from women but simply steal them, that is, use no physical force. He may, therefore, be highly regarded by his colleagues as a man of principles, but you and I would not be impressed because for us thievery itself is anathema. We will still find him obnoxious. Therefore, the values we talk appreciatively about must be close to the Eternal Values that the society cherishes.

They are called eternal because they are accepted by conscientious people irrespective of community, culture, religion, region or time. I will not enumerate those values here at length. You can go by the biblical ten commandments, or the ten Yama Niyama prescribed by Patanjali or the ten Dharma lakhsanams the Manusmriti lists or better still the twenty Daivy Sampadas the Geeta enumerates. For the purposes of our present discussion, we must speak of straightforwardness or probity, courage of conviction, commitment, honesty, humility, non-covetousness, compassion or empathy and fairness or equity, the sum total of which determines our integrity. It is not that we are not aware of these everlasting ennobling values. Each one of us is, though somewhat in the abstract, and we do strongly feel about them but mostly in their application by others in dealing with us. Thus, a terrorist is well aware of the virtues of non-violence but wants the law enforcement agencies to respect it when dealing with him while he thinks nothing of killing innocent men, women and children. This dichotomy in thinking inevitably causes disharmony and conflict in mind, and results in inner unhappiness but that is a different issue. Each one of us is thus aware of the struggle we face when ethical dilemmas arise. It is a common struggle between ethical values, as we know them and the exigencies of the situation when our deemed self-interests tend to rule the roost.

Ethical Dilemmas :

The questions that we must ask ourselves every time we face an ethical dilemma are: (i) How much am I willing to compromise my principles? and, (ii) Am I willing to risk something I value or consider important for doing the right thing?

Michael Josephson, a noted ethics expert defines ethics thus : He says, 'Ethics is about character and courage and how we meet the challenge, when doing the right thing will cost more than we want to pay.' That payment in common parlance for government servants, as we very well know, is by way of an inconvenient transfer or side posting. There are, to be sure, men and women in every department and organisation, in fact in every office in whose case ethical sense almost always triumphs over all other considerations. Ethical sense is what our scriptures term as Dharma - Dharma that reins your desire to make money and enjoy good things of life, Arth and Kama, so that those desires do not go out of control and become obsessive greed and delusion, Lobha and Moha. How do we help those men and women whose conscience is still not benumbed, who confront and address the ethical challenges they face in everyday work with fortitude? This is a puzzle we must solve.

When I was Police Commissioner, Bombay I often addressed citizens' gatherings in which inevitably the question of police corruption was raised during question and answer time. Instead of retaliating by saying that it existed in every other department too, or that people get the police they deserve, for police are part of the society and not apart, I would admit that the scourge of corruption did afflict the police. But at the same time would remind them that since they often called the Bombay police as second only to the Scotland Yard, the police must also be doing some good work and that good work was done by men and women of integrity who were excellent professionals too. So while criticizing the corrupt and the debased, also remember these people of character who work for a loftier ideal, and encourage them so that their tribe may grow, otherwise getting discouraged they may also follow suit and make amassing money by fair means or foul their sole objective.

Trustworthiness begets Trust :

It is these men and women of character who beget trust by their impeccable behaviour and rectitude. And trust as we all know, is what creates a special



spirit or bonding that is indispensable for teamwork, and for securing public cooperation. This in turn leads to effectiveness in producing the results that are envisaged.

Trust stands, so to say, on the foundation of trustworthiness, and trustworthiness is the manifest result of your character. That character is trustworthy which is based on principles or eternal values more particularly rectitude. For, it generates a conviction that you honestly believe in what you say. It becomes unshakable when people are sure that your decisions and actions shall always be within the latitude permitted by those values whatever the pulls and pressures of the environment or situation. Some people we trust unhesitatingly because we perceive their basic goodness and strength. The easily recognisable transparency even in their routine behaviour makes us feel relaxed. These are the people of unfailing integrity who maintain a standard of behaviour that is in harmony with the highest moral code of a society whatever may be its present state of degeneration.

This kind of ethical behaviour cannot be moulded by rules and regulations and fear of punishment. You can't force ethical behaviour in an organisation simply by laying down rules or enacting laws and providing stringent punishments. Ethics as we have seen, is a function of the collective attitude of the people who comprise it. As Swami Vivekanand has said, 'what is the point polishing the outside when there is nothing inside?' If people are debased and morally bankrupt you cannot make them righteous simply by crackling the whip. This is not to say that there should not be any constraints. In fact, they are very necessary as a guideline, to highlight what is right and what the organisation's work-culture is expected to be. Ultimately, high standards can be maintained in an organisation as a whole only if they are modeled and woven into the fabric of the organisation.

But the point one would like to emphasise here is that the stress should be more on promoting personal value system of a high order because it is this state of mind that invariably expresses itself

through wholesome positive attitudes and ethical behaviour. It is proactive rather than reactive. As your actions and decisions start reflecting your fidelity to principles, the eternal values, people working with you will by and by adopt them as their guiding principles too. No rhetoric, no lecturing, no directives or commands would work as well.

For this purpose, in addition to principle-based conduct of both personal and official affairs, you will have to build these values or principles in all your structures and systems so far as you control them. These values must govern the issues and problems of postings, promotions and transfers, as also when the work output and evaluation are determined and accountability established. Once you do that the subordinates will be with you.

Secondly and more importantly, your response to situations where individuals are involved will stir up a positive human response in people you deal with, that springs from the depth of the human spirit in them. Self-centred motives like money, careerism will be relegated to secondary position because they will view them in the larger social context if you do the same.

Lastly, the most heartening news is that courage of conviction carries with it a great reward — a successful career and genuine admiration from the principal stakeholders, namely the people. And above all, rest assured, you will never come to grief for, it is an infallible Vedantic injunction that righteous conduct protects its protector -Dharmo rakshati rakshitah.

The indispensability of raising individual character was succinctly put by Rajaji the twentieth century Chanakya when he said that 'National character is the key stone on which rests the fate of our public affairs. National character again depends upon and in fact is individual rectitude. He goes on to add, 'If the parched field of Indian policies and administration has to get fresh green life and grow, we need the monsoon of purity in National character. And the monsoon consists of little drops falling and uniting to make the rain. Individual purity of character alone can revive the parched field.'



Need for Institutionalisation of Ethical Conduct :

Having highlighted the prime importance of individual ethical character of employees in government if we wish to raise the ethical standard of government business it must be added that it is imperative to have in place an ethical infrastructure, a form of codified guideline that lays down and promotes high standards of conduct by government employees, and also prescribes the mechanisms for achieving the intended objective. If we ponder a bit over this requirement of a directive guidebook, we will discover that any such manual should have five segments, namely, 1. A statement of values; 2. Standards of conduct; 3. Tools to promote and raise awareness of values; 4. Control of wrongdoing; and 5. Management and evaluation of values and ethics programmes.

Indeed, we do have a framework in the form of conduct rules separately for the All-India Service officers, the Central government employees and State government employees. All these have, mutatis mutandis parallel provisions. The main features of these rules, especially those prescribed in the State rules get incorporated in the manuals of various departments including the police. The question of cardinal importance is, do they adequately deal with the five stipulations listed above? Let's examine.

1. Statement of values :

The rules pertaining to the three categories of officers mention, to quote from the AIS Conduct Rules, 1968 as amended in 2014, high ethical standards, integrity, honesty, political neutrality, promoting of principles of merit, fairness and impartiality in the discharge of duties as well as accountability and transparency. In this context, it would be pertinent to quote in toto the UN Code of Conduct for Law Enforcement Officials passed by the UN General Assembly on December 17, 1979, that vividly enunciates the standard of behaviour expected of police officers. It comprises eight pithily worded Articles. Those are :

Article 1 : Law Enforcement Officials shall at all times fulfil the duty imposed upon them by law, by serving the community and by protecting all persons against illegal acts, consistent with high degree of responsibility required by their profession.

Article 2 : In performance of their duty Law Enforcement Officials shall respect and protect human dignity and maintain and uphold the human rights of all persons.

Article 3 : Law Enforcement Officials may use force only when strictly necessary and to the extent required for the performance of their duty.

Article 4 : Matters of confidential nature in the possession of Law Enforcement Officials shall be kept confidential unless the performance of duty or needs of justice strictly require otherwise.

Article 5 : No Law Enforcement Official may inflict, instigate or tolerate any act of torture or other cruel, inhuman or degrading treatment or punish, nor may any Law Enforcement Official invoke any superior orders or exceptional circumstances such as state of war or threat to national security, internal political instability or any other public emergency as a justification of torture, other cruel, inhuman or degrading treatment or punishment.

Article 6 : Law Enforcement Officials shall ensure the full protection of the health of persons in their custody and, in particular, shall take immediate action to secure medical attention whenever required.

Article 7 : Law Enforcement Officials shall not commit any act of corruption. They shall also rigorously oppose and combat all such acts.

Article 8 - Law Enforcement Officials shall respect the law and the present Code. They shall also, to the best of their capability, prevent, and rigorously oppose any violation of them. Law Enforcement Officials who have reason to believe that a violation of the present Code has occurred or is about to occur shall report the matter to their superior authorities and, where necessary, to the appropriate authorities or organs vested with reviewing or remedial power.



2. Standards of conduct :

The Indian conduct rules do provide in ample measure how a government employee shall or shall not conduct himself. These prescriptions are, generally speaking, adequate enough to define for the employee what are high ethical standards or what constitutes integrity though these terms are not clearly defined in the rules.

3. Tools to promote and raise awareness :

These Conduct rules do not prescribe how the employees should be indoctrinated with these values and modes of conduct. It is presumed that the employees are made to study these rules to the extent they are applicable to them while they are undergoing the foundational course, if indeed such a course is prescribed. As for police, such a foundational course is indispensable at every point of entry into the service. It cannot, however, be said with confidence that the salient features of the Conduct rules are sufficiently impressed upon the new entrants and they are taught the importance of ethical behaviour all the time while conducting their official duties. In the United Kingdom, new employees are given thorough grounding in ethics when they are taught the Civil Service Code. Besides, there are a number of other measures including ethics committees in the ministries to promote ethical behaviour. In Australia, besides initial training and subsequent workshops etc. on the subject, a statement of values is incorporated in the work contract. Additionally, internal monitoring mechanisms also exist. They also run a telephone helpline for employees who face a moral dilemma in the course of their work.

4. Control of wrongdoings :

The only mechanism that exists is to take disciplinary departmental action and in the case of gross misconduct amounting to criminal offence, file a case against the wrong doer in a criminal court.

5. Management and evaluation of values and ethical programmes :

In the United Kingdom, the Committee on Standards in Public Life oversees the ethical issue

and provides advice to government on standards. It reviews implementation of recommendations contained in its reports. It also reviews existing standards of ethics in most major sectors. The Australians have a body called the Public Service and Merits Protection Commission established in 1995. It acts as the government's coordinator. It provides departments with a common understanding of the ethical framework of the Australian Public Service, monitors performance of departments in implementing the values and ensures compliance with the Code of Conduct.

In India, we do not have any such mechanism. Admittedly, however, we have the institution of Lokayukta but its role is confined to attending to public grievances. What is more, as a Lokayukta himself publicly complained, it is a toothless organisation inasmuch as its findings and recommendations are mostly ignored by the State governments. It is obvious that though we may prescribe high standards of behaviour to the employees we fail woefully in ensuring that they imbibe those values and adopt them scrupulously in their official discharge of duties because there is very little follow-up action. Besides apportioning sufficient time and attention to teaching the conduct rules during foundational courses at least some hours must be devoted to discussions on them in the special purpose or refresher courses that the employees are required to attend. Even special workshops can be held on the subject. This will reasonably ensure that the main features of the conduct rules get impressed on the minds of the employees and they remain conscious of them while performing their duties. Once this happens, the cumulative effect would inevitable be to synergistically raise the ethical standard of the organisation itself.

□□□



Role of Social Media in Better Policing

Shri. Sunil Kolhe

IPS (Retd.)

1. Social Media : Nowadays, we all use social media in one or another form in day to day life. WhatsApp has become a part of our communication mode. News and rumours are spread on WhatsApp at lightning speed. So what is social media? It's nothing but an Application and / or Website meant to share ideas, information in any form. Information may be in the form of Video, Audio, Pictures, Words, or combination of all. social media focuses on content/information sharing and collaboration. There are various platforms of social media like Facebook, Twitter, Instagram, WhatsApp, YouTube, Telegram, LinkedIn, etc. Now a days, vernacular languages can also be used in communication on social media.

Characteristics associated with social media are : it is a powerful tool, its speed, its spread, its flexibility, anonymity, and use of Artificial Intelligence. It is so powerful that it can topple and / or form Government of a country. Speed and spread is phenomenal, has reached to almost every household. Anonymity and use of artificial intelligence makes it more and more powerful. It can change the thought process of an individual. It can manipulate minds of voters.

Due to all these characteristics, social media attracted everyone, be it has politicians, social activists, trouble mongers, and / or criminals. There is competition among all to put certain information on Social Media. So, from the Law Enforcement Agency perspective, it becomes prime source of collecting information.

2. Impact of Social media from Police perspective : Rumors are spread at lightning speed. People forward posts without thinking its Impact on Public order. Blasphemy/Religious posts are spread in community with fear of attack on their religion. This results in Flash mob - a challenge posed due to social media.



Hatred between communities, class and creed is spread on social media knowingly or unknowingly, resulting in Law & Order situation.

Author Intro : *Shri Sunil Kolhe B.E Civil Engineering, M. Tech (IIT Kanpur) joined the Police Service on 1992 (Direct ACP/DYSP) & IPS – 2004. Dedicated Professional with over thirty years of experience in Police operations at Senior Position in Crime, Terrorism and Intelligence in Mumbai and Maharashtra of India. Earned five Medals for excellence in field. With experience of working with UN Mission in Kosovo. He retired in 2022 as Joint Commissioner, SID, Maharashtra State, Mumbai.*



Another Impact of social media is radicalization. A study by UN suggests that radicalization is increased manyfold during COVID. Particular version of Jihad is spread on Social media to radicalize youths.

Crime Syndicates are also found to be using social media to their benefits, which was noticed in the murder of Moosewala in Punjab.

3. Challenges faced by LEA : The biggest challenge faced by Law Enforcement Agency is Encryption. All communication on social media chat Apps is end-to-end Encrypted. And it's very difficult to decrypt it.

VOIP (Voice over Internet Protocol) calls are another challenge to LEA, as it has no Physical boundaries. Any one sitting at any corner of world can call another person sitting at other corner. Terrorists have been found to be using VOIP calls for communications. And so are criminals. And there are ample Apps available for making such calls. Here no need to mention that anonymity and speed are communication are major factors that challenge us.

4. How to deal with it? :



Spreading correct narrative to counter the rumors with equal speed and spread is important in dealing with it. And to do this LEA must have a ready communication mode with common people. For example, Mumbai Police Twitter handle has 4.7 Million followers. So, one message on twitter can reach up to 47 lakh people. Mechanism in the form of Social Media Lab is necessary to remove objectionable content on social media and to kill rumors, and to spread correct narrative.

Avatar - Avatar is very effective in spreading correct narrative and killing rumors. Only challenge is that it's not a one day job. One needs to create Avatar and maintain communication frequently for a particular ideology, and establish credibility of Avatar. Content feed on avatar must be quality content, so that there are many followers and its credibility is established.

Social Media Lab : Social media lab is a must now for LEA. It helps in understanding pulse of society.

To establish good social media lab, it must have good hardware in the form of server with ample storage capacity. Both static and dynamic IP connections. Handy handsets and Tabs are equally important.

Along with good hardware, social media manpower is equally important. Tech savvy manpower is a must for running SML. Though there are ample softwares available for social media analysis, Tech savvy and experienced manpower is must for SML.

Up-to-date daily monitoring chart which includes-Hash tag to be monitored, Twitter handle to be monitored, social activists to be monitored, based on local issues of units, need to be prepared. SML to run 24x7 monitoring activities on social media in shifts. Every shift to prepare its report of monitoring. This report should be sent to Unit In-charge.

Event:-	In Mumbai	DATE: 05/01/2020
Event Name:-	Protest Against Brutal Attack On JNU Students By ABVP Goons	
Date:-	शुक्रवार दि. ०६/०१/२०२० दुसरी ०४.०० वा.	
Place:-	हुतात्मा चौक, फोर्ट, मुंबई.	
Posted By:-	Joint Action Committee for Social Justice	
Link:-	https://www.facebook.com/jacmumbai/photos/a.1709813205897154/2528790297332770/?type=3&theater	
<p>Joint Action Committee for Social Justice calls for a</p> <p>PROTEST AGAINST BRUTAL ATTACK ON JNU STUDENTS BY ABVP GOONS..</p> <p>Gather in huge number at</p> <p>Hutatma Chowk, Fort CST</p> <p>4 PM 6 Jan 2020</p>		
<p><u>Conclusion:-</u></p> <ul style="list-style-type: none">➤ सदस्या इच्छा हा Joint Action Committee for Social Justice चा facebook प्रोफाईलवर वर आइटम आला आहे.➤ सदस्यो विदुषी हो संघकार दि. ०६/०१/२०२० दुसरी ०४.०० वा. हुतात्मा चौक, फोर्ट मुंबई येथे आयोजित करण्यात आला आहे.➤ सदस्या विदुषी हो जवाहरलाल नेहरू विद्यापीठ येथील विद्यार्थ्यांवर झालेल्या हत्याकांडा विरोधात आयोजित करण्यात आलेला आहे.➤ सध्या बाबत विचारण केल विरोध शाखा १, LWE शाखा, H शाखा, M शाखा व परिसंज ०६ येथे काळजीघ्यात आले आहे.		

5. Various Platforms on Social Media and its monitoring : As mentioned earlier there are various platforms on social media that need to be monitored daily. Let us see one by one-

Twitter : Twitter is very effective in reaching out to people at large, for spreading positive news about LEA. Mumbai Police twitter handle is the best example, which has about 47 lakh followers. It's very effective in sending positive messages and building positive image in Public. Police in day to day working does do a lot of good things like helping blind crossing streets, creating green corridor for ambulance, taking care of senior citizens etc, to be feed on Twitter for consumption of public.

Apart from this social media lab to monitor important twitter handle to get information. spreading correct narrative in case of rumors, Avatar on twitter can be of great help in killing rumors.

During CAA NRC agitations, and COVID 1st and 2nd wave, Mumbai twitter handle played important role in avoiding law and order situations, and spreading narrative that helped police.



FACEBOOK : Facebook can be best utilised by SML in collecting basic information about various activists, like Leftist, Islamic extremists. A dedicated team in SML to work on Facebook to collect information on social activists and

trouble mongers. As there is a fashion now a days to go live on Facebook to address people by socialists. Here trained manpower is more useful than any tools, as whom to monitor depends on local situation.

To identify radicalized persons, Facebook plays important role, by monitoring posts of particular persons on Facebook. Here too Avatar can play important role as many persons lock their content of Facebook.

WhatsApp : This chat App is also very effective in spreading correct narrative. To give an example, Mumbai police have 93 police stations. There is a group of Senior PI on WhatsApp, including all senior officers. And every police stations have multiple WhatsApp groups, at least 20, with members ranging from 50 to 200. So, if senior officer wish as to viral any message he simply has to put that message on Senior PI's group with instructions of spreading it. In minutes, it gets viral on hundreds of WhatsApp groups. During COVID, appeal to people to stay home, by Maulana's made viral via Video messages found to be very effective, rather than appeal made by Government agencies.

WhatsApp has one drawback, it has too much of traffic. Individual receives plenty of messages which tends to miss important information. And WhatsApp server also gets flooded and choked during festival season.

So is the Case with other chat Apps like Telegram, Snapchat, and Signal etc.

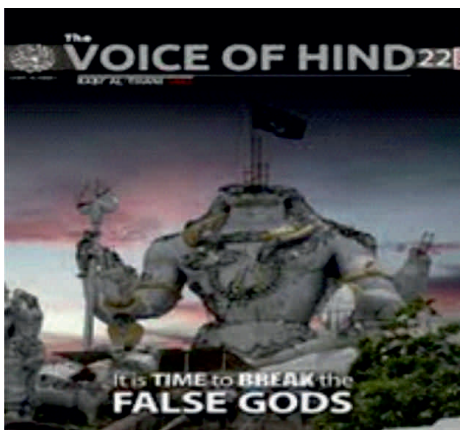
YouTube : Videos spreading hatred amongst communities, cast, creed and religion is spread on YouTube purposely. It is the basic job of SML to find out such videos before it gets viral and block it. Such videos to be stored in SML with time and date and incident with persons involved / tagged to it. So that it can be used against individuals in taking legal action.

One such video was made viral during CAA and NRC agitation by a Social activists for

giving call of agitation in the form of chocking Mumbai's traffic, which was used against activists in preventive action, High court also upheld decision of Preventive Officer.

6. Social media and Law and order : Social media gives initial hints of law-and-order issue, in form of call of meetings of activists, ground building on social media in the form of posts-appear, and this early detection helps LEA in preventing law and order issue.

7. Social media and terrorism : Social media is used by terrorist organization for radicalizing youth. ISIS started using social media for the first time since 2014 for radicalizing youth by way of pushing messages, videos, and articles on social media. And other organizations also followed the path. Voice of Hind is official magazine of ISIS, which is available on almost all Social Media platforms.



Now AQIS and its allies also use social media for radicalization of youth. It is the first time the concept of LONE WOLF is propagated by ISIS on social media. And world saw many Lone Wolf attacks in Europe, Australia, New Zealand, and America.

8. Social-Media and Criminals : Criminals also did not stay behind in using social media. Recent murder of Moosewala in Punjab is the best example. Someone sitting in Canada gave Contract to kill Moosewala to Gangster in Punjab, who hires killers using Social Media from Maharashtra, Haryana, and Punjab. Initial symptoms of criminal is available on social media, who displays weapon on their social media, by cutting birthday cake with sword, photos, videos posted on Social Media. Photos with fire arms are displayed to impress friends and girlfriend by criminals. Timely detection of such elements on social media and taking preventive actions may avert grave incidents.

* ***Overall from LEA perspective, every information is available on Social Media, only one should know how to extract it. Which will avoid any embarrassing situation, by way of initial detection on Social Media.***

* ***The author is B.E. (Civil) from Gulbarga University & M. Tech from IIT Kanpur. He retired recently as IGP and Joint Commissioner SID Mumbai. He worked in Spl.Branch, Mumbai for 3 Years. And worked in Anti-Terrorism Squad, M.S. Mumbai for 4 years. Recently, the Central Government awarded him with 'Asadharan Aasuchana Kushalata Padak' in recognition of his act of exceptional courage and skill in intelligence. Also, he has been awarded with Presidents Police Medal on occasion of Independence day 15th August, 2022 for Distinguished services.***

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Investigation of Economic Offences

CA. RANJAN KUMAR SHARMA

IPS (Addl. Commissioner, East Region, Pune City)

The Economic Offences are spreading worldwide on the wings of Globalization and Technological Advancement. Apart from causing huge economic losses to the individual victims, the Society at large is being affected adversely and severely in terms of economy, morality, faith, trust, values, harmony etc. Above all, the National Economy and Security are challenged by these offences and put at risk. Proper understanding of these offences is needed for challenging these offences through appropriate legislation and enforcement. Hence, "The Economic Offences are the well planned and managed illegalities primarily involving deception and betrayal committed generally without coercion against individuals or public, exclusively for maximum personal financial gains of the perpetrator(s) with or without taking undue advantage of any or more of technical know-how, power, position, responsibility and system lacunae; being capable of affecting adversely - directly or indirectly, the Society as a whole in terms of any or more of Morals, Values, Health and Economy - with consequent after-effects over any or more of National Growth, Security, Defence and Development apart from triggering of Cross-Border Issues and/or Global Concerns."

This cover all the contemporary Economic Offences like Builder and other related Property frauds, Business/Company frauds, Forgeries, Financial Institution frauds, NBFC Frauds, Share Market frauds, MLM/Ponzi Schemes/Chit Fund frauds, Mortgage and Loan frauds, Corporate frauds, Job Racket frauds, Fixed Deposit frauds, Air Ticketing frauds, Cooperative Group Housing Societies (CGHS) frauds, Insurance frauds, Investment

frauds, Tax related frauds, Criminal Breach of Trust (CBT) frauds, RTGS frauds, Provident Fund (PF) Frauds, Post Office frauds, Pension frauds, Money Transfer frauds, Funds Misappropriation frauds, Manpower Rackets, Hawala Scams, Impersonation Frauds, Forged Debit/Credit card frauds, FEMA & ROC violations, FDR frauds, Fake e-mail frauds, Export-Import related frauds, Billing frauds, ATM related frauds, Admission Rackets, Money Laundering, Intellectual Property Rights (IPR) and Trade Marks (TM) related offences and all other Economic Offences not mentioned here.

The ambit and scope of this definition is quite wide capable of bringing in its ambit all types of Economic Offences incorporating Individual Sufferers, Multiple Victims, Mortgage Frauds, Corporate Scams, Real Estate Scams, Criminal Breaches of Trust, Cheatings, Forgeries, Copy Right & Trade Marks Violations, Impersonations, FEMA Cases, Tax Frauds, Money Launderings, Hawala Scams, Export-Import Matters, various Ponzi Schemes, Share Market Frauds, E-Mail Frauds etc. committed within or across borders.

The NCRB in its publications of Crime in India for the years 1994-2015, mentions 24 crimes covered by 21 main Acts coming under the ambit of Economic Offences. The Acts incorporating the Economic Offences, as per NCRB, include : Income Tax Act; Customs Act, 1962; COFEPOSA, 1974; Central Excise Act, 1944; Antiquity and Art Treasures Act, 1972; Foreign Exchange Regulations Act, 1973; Money Laundering Act, 2002; Foreign Contribution (Regulation) Act, 1976; Transplantation of Human Organs Act, 1994; NDPS Act; Banking Regulation Act, 1949; Prevention of Corruption Act, 1988;

Author Intro : *Shri Ranjan Kumar Sharma IPS, B. COM. (Hons.), C.A., ICWA (Inter), Masters Degree in Police Management. Awarded as CA Distinguished Contributor in Civil Services in 11th ICAI Awards ceremony at Nehru centre, Mumbai. Lexicon Bharat Leadership Award for Leadership by Lexicon group of Institutes, Pune.*



Import & Export (Control) Act, 1947; Passport Act, 1920; Arms Act, 1959; Explosives Act, 1884; Explosive Substances Act, 1908; Copyright Act, 1957; 2000; Companies Act, 1956; MRTP Act, 1968 and IPC & related Acts.

The above definition shows the following Characteristics of Economic Offences :

- Illegalities intended primarily for the Personal Financial Gains of the perpetrator – regardless of the loss to the Individuals, Society or Nation.
- Potential capability of affecting a large number of persons and causing predominating injury to the Society apart from individual victimisation.
- Crime against Society having capacity of affecting Social Health, Values, and Economy whether intended or not by the doer.
- Capability of causing Serious Impact on National Defence, Security, Growth and Development.
- Presence of Fraud, Inducement, Misrepresentation or Suppression of Material Information as integral parts - running through as the constituents of the central supporting fiber.
- Integral interwoven elements of Deception and Betrayal.
- Winning or Breaching the Trust imposed of the victims.
- Presence of element of Misuse of Power and Position.
- Not primarily directed against individual interests of the victims.
- Proper Planning and Management with Deep Conspiracies.
- Resulting Damage to Public Morals and Faith in the system.
- Triggering of Insecurity Feeling in the public.
- Taking Advantage of the Shortcomings of the Existing Legal Provisions and System Lacunae.
- Use of appropriate coercion, in case of requirement to maintain nondisclosure, safety & protection and to avoid detection, busting & apprehension.

It is very interesting to note that in Maharashtra, out of the total registered cases of cybercrime, 66% of the cases are Cyber Economic crime cases and in Mumbai, this pattern further deepens as 93% of the total cases registered are cyber economic crime cases.

In Maharashtra following officers/agencies are responsible for the investigation of economic offences.

- The Additional Director General of Police, EOW, MS, Mumbai is the main officer to supervise the cases of economic offences in the Maharashtra State. He is the Nodal officer of MPID cases.
- The Additional Director General of Police (CID) and The Deputy Inspector General of Police (CID) Pune are the Supervisory officer for the cases of economic offences under Investigation in CID.
- In Commissionerate area DCP EOW/ Crime supervises the cases of economic offences under the overall supervision and guidance of CP/ Jt. CP/ Addl CP.
- In Districts the Deputy SP (EOW) supervises the cases of economic offences under the overall supervision and guidance of SP.

Despite the fact that Economic offences are generally investigated by the officers and supervised by many Supervisory officers, it is pity that the conviction rate is consistently around 10% in Maharashtra state in the last five years.

Following Flaws in the investigation are the reasons for low conviction rate :

- IDENTIFYING THE CORE OF THE PROBLEM
- INSTITUTIONAL ISSUES
- PROOFING PROBLEMS
- FINANCIAL INVESTIGATION
- SEIZURES AND CONFISCATION
- PROCEEDS OF CRIME
- RESPONSIBILITY OF LEGAL PERSONS

Areas of Investigation which need to be improved for Economic Offences

1. **Pre FIR Inquiry :** This is the most important step in Economic offences investigation. It



should clearly establish that offence is Civil or Criminal – and whether offence is made out. The crime is due to Negligence or there is Conspiracy behind this. The Quantum of amount involved should be clearly established, as it will decide the direction of investigation and resources to be used for investigation. The Time for enquiry as envisaged in the case of Lalita Kumari vs. State of U.P shall be followed.

(For this the instructions given vide DG Standing Order 03/2018 must be followed.)

Preliminary Enquiry - Points of Scrutiny

- **Nature of Allegation - trivial or vague**
- **Breach of Code of conduct / SOP / Rules – regulations in any organization**
- **Pending Litigations / Trials**
- **Intention reflected through facts and circumstances**

- **Wrongful loss vis - a- vis wrongful gain**
- **Irregularities vis - a – vis criminal lapses**
- **Routine commercial decision or intentional action**
- **Negligent acts of non-applicant - wrongful loss - while he had the knowledge that due diligence could prevent the wrongful loss**
- **Accepted market practice/s - exploiting such market practices**
- **Jurisdiction (Whether Police or any other office) Ex. Special Acts – Companies Act/ SEBI Act / PMLA / Charity Commissioners Act :** This is the most important point as many FIRs have been quashed or resulted into acquittal due to wrong jurisdiction. The following chart clearly shows the type of economic offences and agencies empowered to do investigation.

Sr. No	Economics	Acts/Logistation	Enforcement Authorities
1.	Tax Evasion	Income Tax Act.	Central Board of Direct Taxes
2.	Illick Trafficking in Contraband goods (Smugglling	Customs Act 1962 COFEPOSA 1974	Collectors of Customs
3.	Evasion of Excise Duty	Central Excise Act. 1944	Collectors of Central Excise
4.	Cultural Object's theft	Antiquity and Art Treasures Act. 1972	Police/State CB-CID/CBI
5.	Money Laundering	Foreign Exchange Regulations Act. 1973 Money laundering Act. 2002	Directorate of Enforcement
6.	Foreign Contribution Manipopulation	Foreign Contribution (Regulation Act. 1976	Police/CBI
7.	Land grabbing/Real Estate Frauds	IPC	Police/State CB-CID/CBI
8.	Trade in Human Body Parts	Transplantation of Human Organs Act. 1994	Police/State CB-CID/CBI
9.	Illict Drug Trafficking	Narcotic Durgs and Psychotropic Substances Act. 1985 & NDPS Act. 1988	NCB/Police/State CB-CID/CBI
10.	Fraudulent Bankruptcy	Banking Regulation Act. 1949	Police, CBI
11.	Corruption and Bribery of Public Servants.	Prevention of Corruption Act. 1988	State/Anti Corruption Bureaux vigintance Bureaux/CBI
12.	Bank frauds	IPC	Police/State Vigilance/CB-CID/CBI
13.	Insurance Rrauds	IPC	Police/State Vigilance/CB-CID/CBI
14.	Racketooring in Employment	IPC	Police/State CB-CID/CBI



15.	Illegal Foreign Trade	Import & Export (Control) Act. 1947	Directorate General of Foreign Trade / CBI
16.	Racketeering in False Travel Documents	Passport Act. 1920/IPC	Police/State CB-CID/CBI
17.	Credit Cards Fraud	IPC	Police/State CB-CID/CBI
18.	Terrorist Activities	IPC & Related Act.	Police/State CB-CID/CBI
19.	Illicit Trafficking in Arms	Arms Act. 1956	Police/State CB-CID/CBI
20.	Illicit Trafficking of Explosives	Explosives Act. 1884 & Explosive Substances Act. 1908	Police/State CB-CID/CBI
21.	Theft of Intellectual Property	Copyright Act. 1957 (Amendments 1984 & 1994)	Police/State CB-CID/CBI
22.	Computer Crime/Software Piracy	Copyright Act. 1957/I.T. Act. 2000	Police/State CB-CID/CBI
23.	Stock Market Manipulations	IPC	Police/State CB-CID/CBI
24.	Company Frauds	Companies Act. 1956/IPC MRTA Act. 1968	Police/ CB-CID/CBI

2. FIR : Following important Terms i.e.; **Wrongful gain, Wrongful loss, Dishonestly, Fraudulently, Mens rea, Intention, Motive etc.** shall be included and explained in the FIR properly. Generally the victim (person cheated/defrauded) shall give the FIR but in exceptional circumstances with reasons explained some other person may also give the FIR.

Important Sections of IPC

- Dishonest misappropriation - 403
- Cri. Breach of trust – 405 – 409
- Cheating – 415,417,419,420
- Forgery – 463,465,467,468,471,474
- Cri. Conspiracy – 120(B)
- Causing disappearance of evidence – 201
- Common intention - 34

Important Minor Acts

- ☞ **Prize Chits and Money Circulation Schemes (Banning) Act, 1978**
- ☞ **RBI Act 1934**
- ☞ **The Banning of Unregulated Deposit Schemes Act, 2019**
- ☞ **Maharashtra Co-operative Societies Act, 1960**
- ☞ **Multi State Cooperative Societies Act, 2002**

☞ **Banker's Books Evidence Act 1891**

☞ **SEBI (Securities and Exchange Board of India) Act 1992**

3. Preparation of SOP : After the registration of FIR, proper plan of action and SOP shall be prepared to investigate the case after due scrutiny by Law officer/ Legal Advisor and approval by the Supervisory officer. The SOP prepared by the CID, Maharashtra shall be followed religiously.

4. Collection of evidence : Collection of evidence should be given utmost importance as this gives the direction and the details of accused to be prosecuted.

Different types of evidence :

1. Documentary evidence - Search & Seizure : In many cases, proper search and seizure has not been done and many evidences left unrecovered, which was proved fatal during the trial. The documentary evidence is the best evidence for the Economic offences; hence utmost importance must be given to collect it.

2. Digital evidence : Digital evidence is of zero value without the certificate under section 65(b) Indian Evidence Act. Hence, all Digital evidences must accompany this certificate issued by Competent Technical Expert.



3. Oral evidence : It is recorded to correlate or corroborate the truthfulness of the Documentary or Digital Evidence. Following factors should be kept in mind for collecting Oral evidence:

A) Interrogation - Prepare questionnaires

B) Recording of statement -

- i) Facts in issue
- ii) Related facts
- iii) Mens Rea
- iv) Motive, preparation
- v) Conduct, previous subsequent
- vi) Intention

C) Cr.P.C Section 164 statement

4. Scrutiny of evidence : Following factors should be kept in mind while scrutinizing the evidence:

❖ **Admissibility /Quality of Evidence**

- 1) Direct/Indirect
- 2) Primary, Secondary
- 3) Documentary/Oral

❖ **Evidence Chart**

- 1) As Per Sections applied
- 2) As Per Accused

5. Attachment of Properties : The procedure for attachment of property has been laid as below:

- i. Procedure for attachment of properties Cr.P.C 1973
- ii. Cri. Law (Amendment) Ordinance 1944
- iii. MPID Act 1999
- iv. MCOCA 1999 (Section 20)

6. Arrest : This should be the last step in the investigation as early arrest without proper evidences has proved fatal for the trial in most of the cases. Hence, following precautions shall be taken for effecting arrest:

☞ **Arrest after evidence**

☞ **No unnecessary arrest**

☞ **Prepare questionnaire for interrogation.**

☞ **All norms to be followed (Arnesh Kumar vs. State of Bihar, D.K. Basu Case)**

7. Final Report : After investigation the final stage is sending the Report to the Court as per **Section 173 of Cr.P.C.** It can be in the form of **Charge sheet - Legal Language or A Final, B Final, C Final Summary.**

(The instructions given vide 14 Govt. GR in 2014 regarding Scrutiny Committee must be followed.)

8. Aids for Investigation of Economic Offences : The investigation of Economic Offences can't be properly done without the help of:

- **Forensic Auditor**
- **Law Officer**
- **Special PP**

9. Court Trial Monitoring : The Investigating Officer work is not over just by sending the Charge sheet but he has to follow the case till the judgement is delivered by the Courts. For this he has to do following post- charge sheet work as below :

- i. Liaison with Prosecutor & Pairavi Officer
- ii. Court environment management
- iii. Ensuring attendance of Witness and Muddemal
- iv. Prosecution plan
- v. Pre trial briefing
- vi. Refreshing memory of witness

10. Golden Rules for Investigation of Economic Offences

- i. Clarify all the necessary doubts in Preliminary Inquiry.
- ii. Draft FIR with all the important terms mentioned in Point No. 2.
- iii. More emphasis on Collection of Documentary and Digital Evidences.
- iv. Evaluation of Evidences with the help of Expert Aid as per Point No. 9.
- v. First collect the evidence then Arrest.



- vi. Take the help of Forensic Auditor, Law Officer and Special PP in Most of the Cases.
- vii. Charge sheet only after the scrutiny by the Scrutiny Committee as per 14 GR.
- viii. Activate Trial Monitoring System.

Conclusionally - In economic offences, the investigating officer has to ensure that :

1. The true culprit is brought before the court of law.
2. Sufficient evidence collected for conviction.
3. The victim gets back his invested money.

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Procedure of investigation of offences in CID:

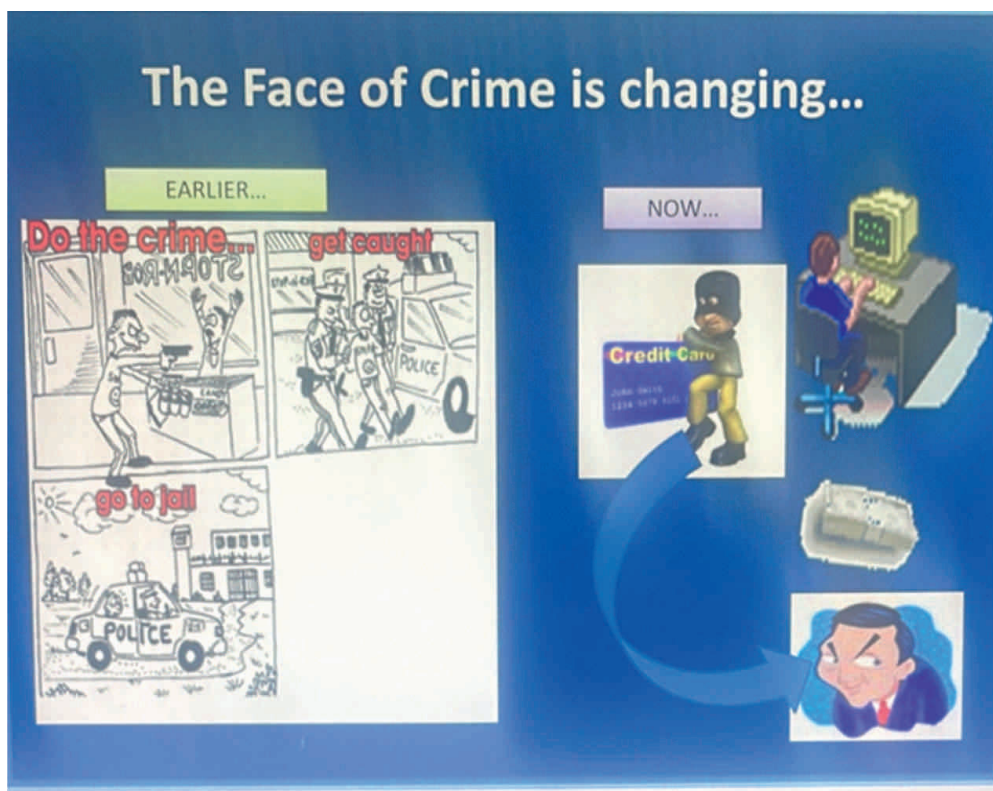
CID, Maharashtra follows one of the best procedures for file noting and investigation of economic offences cases. It can be followed in other units also.

Receipt of Economic Cases in CID :

- By The Director General of Police, MS, Mumbai
- By Home department, MS, Mumbai
- By High Court/ Supreme Court

Procedure after Receipt of Cases :

- Formal order by ADG, CID.
 - Takeover of Case Papers from Local Police.
 - Preparation and Approval of Plan of Action.
 - Whole Investigation through Note sheet only.
1. Collection of Evidence
 2. Witness Statement
 3. Arrest of Accused
 4. Preparation and approval of Charge sheet
 5. Filing Of Charge sheet/ Supplementary Charge Sheet
 6. Approval of ADG, CID for Closure of Investigation
 7. Sending Report to the DGP, MS/ Home Deptt. MS/ HC/ SC



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Operation Parivartan: Transformation of Lives from Illegal Liquor Traders to Dignified Labours

Tejaswi Satpute

IPS (DCP, Mumbai City)

Abstract :

Operation Parivartan is an epitomic movement initiated to transform the lives of the people of Solapur district of Maharashtra who were very much involved in the illegal liquor trade and make them respectable citizens giving numerous alternate means of livelihood. The people involved in the production, sell and distribution of liquor have been motivated to change their business, encouraged to start a new one, were given helping hand by providing financial assistance to stand on their own feet. In fact, it was a herculean task as stopping the liquor trade was a challenging task before the police department. Several attempts were made to stop illicit liquor trade in the past but failed due to reluctance of the people. This paper focuses on how the Operation Parivartan, a positive campaign with positive intentions could literally bring out the people from such an illegal business. The campaign played a vital role in revitalizing them to start a new life with full of respect, dignity, pride, satisfaction and happiness.

Keywords : Liquor trade, Operation Parivartan, illegal business, campaign etc.

Introduction :

Solapur is one of the largest districts of Maharashtra. It consists of eleven tehsils. Solapur shares a border with the Karnataka state. The problem of illicit

liquor/illicit liquor dens (tandas) is critical in Solapur and has been prevalent since preindependence. The handmade hazardous illicit liquor manufactured on dens has not only killed many people in previous incidents because of poisonous characteristics, but also has come forward as the cause of the social tensions and domestic violence in various parts of the country as well as the state. The geographic location of Solapur is conducive to transportation of raw material and manufactured liquor as well as hiding purposes to the neighbouring state in wake of police action, making the problem complex in nature.

Definition of Liquor :

Wikipedia defines Liquor as:

“Liquor is an alcoholic drink produced by distillation of grains, fruits, vegetable or sugar that have already gone through alcoholic fermentation.”

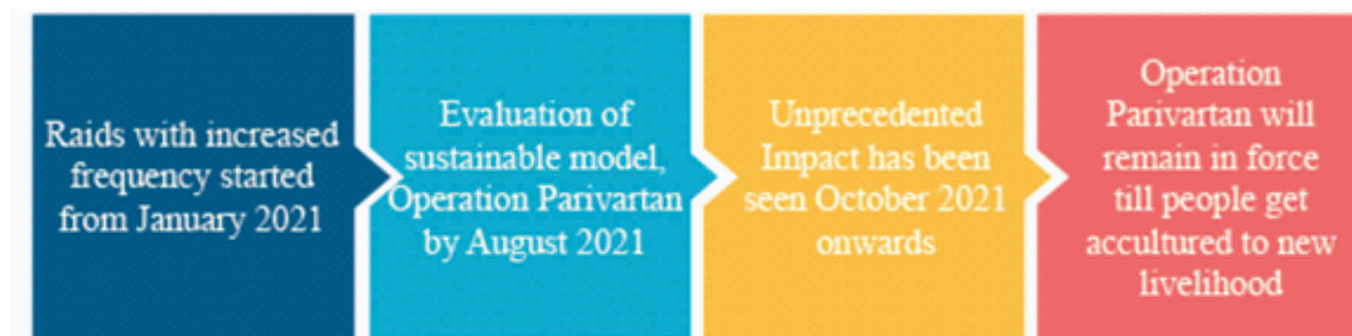
Illicit Liquor :

Illicit liquor in this context is a handmade country liquor manufactured on raw dens which is hazardous to health, consumed mostly by low income groups. It is an alcohol produced in an uncontrolled environment such as an open field or at home with low or zero safety standards that is intended for purposes of sale, without any authorization. This liquor can lead someone to death and it can also give rise to many diseases related to liver.

Author Intro : *Smt. Tejaswi Balasaheb Satpute, an IPS officer from the batch of 2012. She has worked in Pune City, Satara & Solapur. Presently working as DCP in Mumbai City. She has been widely recognized for commendable work she has done "Womenempowerment" by way of "Operation Parivartan" in Solapur District as SP, Solapur Rural in her Previous tenure.*



Identification of the Problem :



The paper focuses on the issue of illicit country liquor in Solapur which has been a matter of worry and a top priority of Solapur Rural Police for many years and hence raiding these dens remained a regular agenda of police department. It was observed in July 2021 that even after an increased number of police raids, the problem of illicit liquor in Solapur was far away from success. Solapur Rural Police decided to evolve an alternative and sustainable strategy. Firstly, identifying the problem which is underlying the issue of illicit liquor was a major concern... Solapur Rural Police realised that these historically marginalized communities involved in business hardly have any knowledge about alternative livelihood or the mindset of switching to an alternative. After a lot of brainstorming, The police or excise department action was restricted to raids and destroying, seizing of material of liquor. The police also realised the fact that even after the periodic police raids, a longer frequency of raids kept this business profitable to people. These two crucial realisations i.e. necessity of rehabilitation of the people and finding out the modus of operation to make the business unprofitable for involved people led to the conceptualisation of 'Operation Parivartan'.

Aims and Objectives of the Initiative :

- To stop the production of illicit liquor completely on a sustainable basis and prevent the mishaps like mass poisoning and casualties on a proactive basis.
 - To reduce the incidents of crime, social conflicts and domestic violence associated with illicit liquor.
- Ensuring alternative, sustainable and dignified livelihood to marginalized people involved in the business of illicit liquor so that they do not move back to this illicit business even in the absence of raids.
 - To build confidence among the police force and historically marginalized communities bearing a social tag of criminal since British time by bringing them in the mainstream through this initiative
 - To create an amiable atmosphere between the police and the community.

Research Methodology :

In order to carry out the initiative, Solapur Rural Police attempted to adopt the following methodological procedure.

- a) **Data Source :** The available data related to the illicit dens, and their hotspots, cases filed, actions taken i.e. raids etc.
- b) **Case Study :** The team studied the problems of the families involved in this trade and found the reason behind the problem.
- c) **Interviews :** The team also interviewed some family representatives and counselled all the families.
- d) **Questionnaire :** The team created a form for these families and circulated among them. The families responded by filling the form.



Significance of the Initiative :

As the illicit liquor trade is a blot for the society, the police department intended to stop it permanently. Taking into account the integrated approach the entire team of Solapur Rural Police has undertaken this initiative. This initiative has definitely helped the people involved in illegal activities to adopt the new legal activity for the sake of their bread and butter. Almost 90% families have adopted legal business like start-up, skilled and unskilled labour, agriculture etc.

Evolution of Operation Parivartan :

Operation Parivartan began in the month of August 2021 with an integrated approach. Though, it was a continuation of targeted police action against illicit liquor started in January 2021, it became an initiative with an integrated approach to solve the problem of illicit liquor permanently. Three more components have been added to the 'action'- a traditional single component of the operation. 'Operation Parivartan' now consisted of four components.

- A) Regular and frequent Action/Raids
- B) Counselling
- C) Rehabilitation
- D) Awareness among its addicts, an integrated approach to solving the problem of illicit liquor.

Integrated approach of Operation Parivartan :



The police department spent considerable time in the planning of 'Operation Parivartan and bringing clarity in the police force towards the new approach through their training. Formal circulars were circulated to all the police stations of Solapur Rural District for better clarity to the team involved in the

initiative, which consisted of details of the initiative. Given below are the details:

A) Regular and frequent Action/RAID :

Firstly, 56 hotspots of manufacturing and 102 hotspots of the sale of illicit liquor were identified. These hotspots (Locations) were distributed among police officers of the respective jurisdiction, dedicated responsibility was given to the concerned officer. The time interval between raids was reduced from 15 days to 3 days. This action of the police made the business unprofitable for the people involved in the illicit liquor.



B) Counselling of involved people :

Previously, it was found out that only action (raid) couldn't solve the problem, therefore the police took untiring efforts to change the mindset of the people towards the alternative livelihood. The data of the people involved in the production, distribution and sale of this illicit liquor was collected, the information forms contained basic information like family background, monthly income, education, skills etc. In this way data of 586 families was gathered, based on which the strategy of counselling was formed. Around 3000 counselling sessions were conducted with involved people and their families where they have been motivated to pursue an alternative livelihood by giving all the necessary information in presence of people from all walks of life, e.g. government officers, social workers, small vendors, entrepreneurs, skilled/semi-skilled/unskilled labours etc. The focus of counselling sessions was to change the mindset of people and build up trust among them.



Rehabilitation :

Rehabilitation of families is a noteworthy and progressive step taken by the Solapur Rural police. Instead of taking just actions and filing FIRs against people involved in illicit liquor, the police went a step ahead thinking out of the box. Solapur Police could help 714 families in shifting to alternative livelihoods like grocery, tea shops, food joints, unskilled/semi-skilled/skilled labour, agriculture or animal husbandry till today.

Classification of Rehabilitated People

Catagory of Alternative Livelibood	Number of Families Rehabilitate
Embroidery Product	215
Private Company Job	153
Sewing Machine Operator	41
Agriculture	76
Skilled/ Semi -Skilled / Unskilled Labour	77
Animal Husbendry	69
Small Shops	83
Total	714



The project has brought a revival in the lives of these families by facilitating the ladies for stitching and embroidery training sessions and helping them with the new business. The stitching training was imparted to 41 women with the help of Udyog Mahamandal through MITCON. Out of which 30 ladies decided to make sewing their profession. Industrial sewing machines were made available to them through the loan from Lead Bank. Companies like Apex Garments and Jay Garments came forward to give them initial orders. The work place was made available through the CSR of Balaji amines. The women who used to do illicit liquor production are now busy with manufacturing shirts, school uniforms, aprons and several other products. They have proudly named there small unit as “Parivartan Udyog Samuh”.

The Success of Parivartan Udyog Samuh motivated the team of Solapur R police to take a further step. Banjara ladies have skill of embroidery and they prepare their traditional costume on their own. As it is regularly worn by only old ladies from the family or only on the festivals, it does not have market. After several discussions the concept of the new version of the old embroidery skill came up. The team decided to give the traditional weaving skills the modern outlook. KKSSP Pune took lot of efforts in this regard. Around 40 sessions of 2 hours each were conducted in various villages/Tandas and around 300 women were trained. On training they were motivated to make products like embroidered sarees, blouses, jackets, kurtis, dupattas, cushion handworks, jewelleryes, decoratives, wall hangings, etc. The capital required for raw material was made available through Government scheme called 'Umed'. An exhibition was arranged at Solapur R head quarter to introduce



these products to the market. Going one step ahead the team is now trying to provide online platforms for their products. Recently their products are introduced on flipkart with the brand name “Gormati Art” . At present 215 women are actively involved and are getting benefitted.



D) Awareness among its addicts :

Awareness is the last component of the integrated approach. Awareness drives have been organised for the people who consume this illicit liquor to convince them not to consume this poisonous liquor. This was intended to reduce the demand side of the problem, by discussing the ill effects it has on the human brain and body.

Impact of Integrated Approach:

Operation Parivartan has achieved a grand success with 75-80% decrease in the production of illicit liquor in the district by the end of August 2022. This is an unprecedented number for the administration of the district. More importantly, it also proved as a welfare and trust-building measure. People associated with the business of illicit liquor are historically marginalised people who belong to mostly nomadic or denotified communities carrying a social tag of the criminal community by the policy of the British. Bringing them into the mainstream of society and helping them to find an alternative livelihood ensured their physical and psychological detachment from their unwanted past. The police were previously seen as hostile by these communities. The rehabilitation component of the initiative has changed their views about police administration

positively. The integrated approach of Action, Counselling, Rehabilitation and Awareness has made Operation Parivartan sustainable and effective.

Key Benefits to Public and Government :

- Operation Parivartan has achieved around 75-80% decrease in the production of illicit liquor in the district by the end of August 2022. This is an unprecedented number for the administration of the district
- This initiative has positively affected the proportion of incidents of crime, social tensions and domestic violence associated with illicit liquor.
- An important chunk of society, which has been marginalized since historical time, has come out of the vicious cycle of poverty and unwanted social image and now will integrate into the mainstream of society through alternative, dignified and sustainable livelihood. Till this date, total of 714 families have been helped by police to secure alternative, sustainable and dignified livelihood.
- It has positively altered the image of police in the minds of the people from marginalized communities and helped them to build greater confidence which will lead to a larger positive impact in other parts of the state as well.
- On complete eradication of illicit liquor, the workload of the police force got reduced as their time and energy getting invested in periodic raids on dens decreased, and it helped them to focus on other issues of law and order.

This has helped to improve public health, particularly marginalized communities or low-income groups of society by reducing the consumption of this hazardous liquor. It has prevented casualties happening due to the consumption of poisonous liquor. It has directly impacted the welfare and prospects of children and women of marginalized communities or low-income groups of society.

Stakeholders of the Initiative :

- People involved in the production of illicit liquor and their families



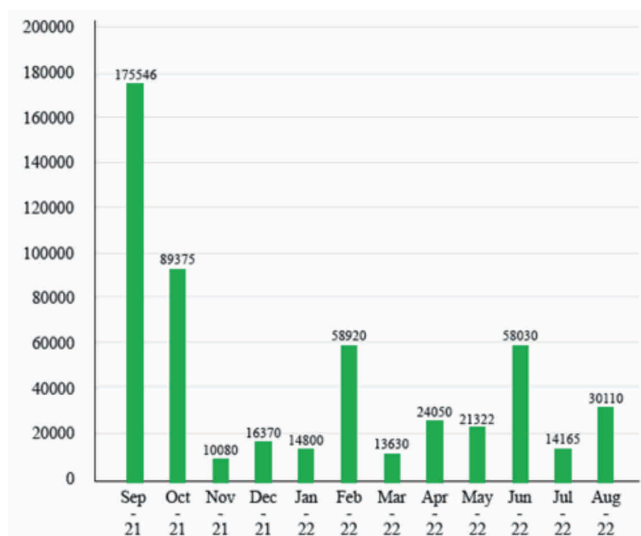
- People involved in the distribution of country liquor and their families
- People who used to sell the illicit country liquor
- People who used to consume this illicit liquor
- The police force and other departments of government associated with the issue like Excise Department
- Different departments of government which are nodal agencies for various welfare schemes
- Teams of Counselors
- NGOs, Entrepreneurs and Bodies of Industry
- Media (Print and Electronic)

Procedural/ Administrative Legislative Changes:

The problem of illicit liquor has been prevalent in Solapur since before independence. Hence, action or raids of police is not a new phenomenon. The uniqueness of the project found expression in the new modus of action and rehabilitation component. The integrated approach of action, counselling and rehabilitation has helped to solve the problem on a sustainable basis. Following are the procedural changes or trajectory the initiative has adopted.

Short Interval Raids :

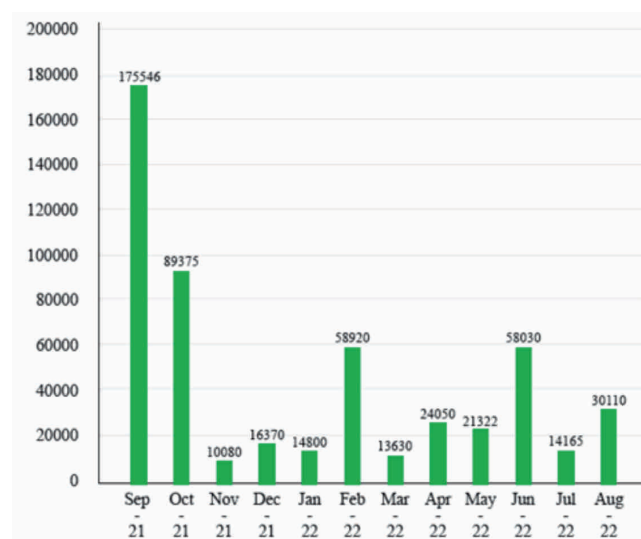
Liquor Confiscated :



The number mentioned in the graph denotes the amount in rupees.

It was observed that the interval of police raids on such liquor dens was of 15-30 days on an average. The normal activation period raw set up of den is 1 or 2 days. Hence, a raid of police after every 15 days was not an area of concern for the involved people. It was like 2 days of loss and 13 days of profit, keeping business profitable at large. When the fact was realized, the modus of operation was changed. The team planned and executed raids on dens every 3rd day throughout the district. The decreased interval of raids from 15 days to 3 days played a significant role and made it difficult for the people to settle down and run the business. Distortion of the business mechanism of profit and making business unprofitable was the bottom line of the procedural raids. The short interval raids helped to succeed.

Counselling:



The second step of the initiative was counselling. These people were involved in this business for many generations. Low literacy rate, meagre capital and negative social tag made it difficult for them to pursue an alternative livelihood. Hence, previously after the police raid on dens, they used to indulge in business by restarting dens. Hence, it was necessary to change their mindset to pursue an alternative livelihood. Counselling sessions helped in this direction to a great extent. Almost 21,502 counselling sessions have been conducted till date.



Rehabilitation :

It is the crucial and noteworthy procedural innovation in this initiative. Under Operation Parivartan, police went out of the box and facilitated the rehabilitation options for the people apart from raiding the dens. Till now, 714 families are rehabilitated by helping them find an alternative, sustainable and dignified livelihood. This is the noble factor of this initiative which has been lauded by every individual of the society.

Awareness :

It is the last component of the initiative where police have been working on the demand side. The awareness drives are being organised to discourage

demand of this hazardous liquor. With the help of NGOs and media, awareness has been created among consumers of this liquor about the hazardous impact of this liquor on their physical, psychological health as well as their family.

Current Status of the Initiative :

- Total 56 hotspots of production and 102 hotspots of selling illicit country liquor were identified. These hotspots were allocated to police teams of respective tehsils of the district. Raids on these hotspots are being made consistently after every three days since the first day of the project.

Police Stations	Manufacturing Hotspots	Sale Hotspots	Police Hotspots	Manufacturing Hotspots	Sale Hotspots
Solapur Tehsil	11	13	Kurduwadi	-	03
Mohol	02	02	Karkamb	02	01
Kamati	01	03	Sangola	06	07
Valsang	02	04	Akaluj	04	05
Akkalkot North	01	04	Malshiras	06	06
Akkalkot South	04	07	Natepute	03	04
Barshi Tehsil	02	05	Velapur	01	03
Vairag	01	05	Mandrup	-	13
Karmala	04	06	Barshi City	-	01
Tembhurni	01	02	Pangri	-	02
Pandharpur City	01	01	Madha	-	01
Pandharpur Tehsil	02	--	Mangalvedha	-	02
Pandharpur (R)	02	02	Total	56	102



- Total 802 cases were filed and 958 people were arrested under Operation Parivartan.
- Total 714 families have been rehabilitated in an alternative livelihood. The alternative livelihood consists of small grocery shops/ tea stalls/agriculture/ horticulture/unskilled jobs in an industrial set-up as well as ensuring basic income for dependent people like single women or old age parents through different welfare schemes of the government.
- A total 75-80% reduction has been observed in the production of illicit country liquor till date.

Financial Implications :

- The project has not seen separate budgetary provisions on the part of the police force.
- Raiding dens were a regular part of the duty of police hence didn't require different allocations of budgetary provision.
- The police force has been playing the role of facilitator in rehabilitation work. They have helped and guided people in settling in the alternative livelihood. This involved helping people to get small loans from banks or forming self-help groups as well as guiding them to become beneficiaries of different government schemes available for them. The police force has taken the help of NGOs and entrepreneurs in the area for capacity building of unskilled youth as well as finding them appropriate jobs available in industries around them.

Follow-up Initiatives :

- The cycle of components of the initiative i.e. action, counselling and rehabilitation and awareness is still going on and will remain operational for a considerable time i.e. till the

complete eradication of illicit liquor and till these people get settled well in the alternative livelihood.

- Solapur Police is attempting to bring more and more NGOs and entrepreneurs to the table for the skill development of the youth and women of these communities to help secure jobs in their nearby areas.
- Solapur Police is attempting to collaborate with the different educational institutes where children and youth from these communities could get quality education as well as vocational education.
- Solapur Rural Police team is trying to connect the ladies with embroidery skill with brands like Fab India etc. so that they keep getting work regularly.
- The team is attempting to make the online platforms available for the sale of products made by these ladies.

Conclusion :

The paper concludes that clear intention leads to clear results. Operation Parivartan which is started to bring the marginalized people with criminal tag into the main stream through different stages. The figures indicate that it has got clear results with the help of untiring and exceptional efforts of entire police department. The project has proved that the Police department can bring revolution in the society. The police force can also go beyond the law and order and transform the lives of the people through such initiatives. The people involved in the illegal business are now actively involved in the legal one and this is the achievement of the epitomic movement Operation Parivartan.

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Crime and Society

Shri. Raj Tilak Roushan

IPS

The running theme of our society throughout the history had been one of a war between good and evil. Crime in society forms a subset of this theme. There had never been a time when society was entirely crime free. We err so we are human. The ways to deal with crime has varied with the form of governments and type of administration of that time. In current times, we have more or less a uniform system of police in all the countries to deal with crime and criminals.

The society has been in continuous churning with periods of advancement and stability. Form, types and definition of crime have changed accordingly. While a hundred years ago in India, no one would have gone to police for a simple matter of quarrel between a husband and wife, today a lot of cases reported every day at Police Stations are of these types. In a society of earlier times where joint family was the norm, a matter of this type might have been solved with intervention of other family members and elders, today it's not the case. This may imply two things; one is gradual decline of family and societal values with time and another is that such disputes may have actually increased and need attention as a sensitive society to give fair treatment to both the genders. The definition of crime also varies across societies. An apt example would be gambling which is illegal in India but legal in UK. New types of crime have surfaced as well which no one would have imagined of even fifty years ago. While rise of modern economy has led to the birth of economic offences, exponential development in information

technology has also produced cyber criminals whose ever changing modus operandi baffles one's mind. While there are various theories of criminology as to determine causes of crime and criminal behaviour in society, a common thread does bind them. It is the **principle of equilibrium** or balance. As a general rule in science, any system as a whole has tendency to attain a state of equilibrium. It happens when all kind of forces acting on it balance each other. Applying it to society, we can take an individual, a society or the interactions within the society as a system. Forces can be biological, psychological, social, political, economic or anything that affects society.

The *classical theorists* opine that an individual commits crime as a free will and it is a type of immoral activity. The biological theories of crime fix responsibility on genes. The sociological theories fix responsibility on society. The interactionist theory considers association with other criminals as a factor for criminal behaviour. First two type of theories consider internal factors of individual as the cause of criminal behaviour while the latter two pin responsibility onto external factors. In all of these cases, crime is a result of disequilibrium within individual or society. As one of the pillars of Criminal Justice System in addition to legislature and judiciary, police acts to enforce equilibrium through various actions against crime and criminals. Imagine Neo in the movie Matrix who is always fighting against the agents to ensure that the system he is part of remains in a stable state.

Author Intro : *Raj Tilak Roushan* a budding poet, an IITian and an IPS officer. Born in a remote village in Bihar. He was trained as an engineer at the IIT, Kharagpur, where he received his B.Tech & M.Tech degrees. IPS - 2013. He has been awarded numerous accolades, including the Union Home Minister's Medal for Excellence in Investigation, the FICCI award for smart policing and the IIT KGP Young Alumni Achiever's Awards.

Books – *The Good, The Bad and The Unknown*, *Banjarapan*



Depending on how criminals operate, they can be conveniently placed into three types :

1. Habitual criminals,
2. Criminal due to a circumstance of momentary passion or provocation
3. Psychopaths.

Habitual offenders are those who take crime as profession. They are involved in property offences like theft, robbery, dacoity, or other crimes such as extortion, money for murder, kidnapping, types of organized crime such as drug peddling, arms peddling etc wherein they operate in a gang. These criminals almost never reform in spite of going to jail multiple times. The purpose of jail is to punish and reform criminals but many times, jail even acts as a place where these criminals get a chance to bond, exchange knowhows and become even more hardened criminals. A body offender going to jail meets a drug peddler, he comes out and gets involved in drug peddling. It is these habitual criminals who are menace to the society, the types we read about almost everyday in the newspaper when police catch them. A common aspect of them is that they invariably emerge from poor social background with little access to quality education and have no one to look up to for guidance and motivation in life. For many of them, crime runs in their family. In case of organized crime, they are no poor men. In many cases, it is a family or clan business. An example in case is infamous Italian mafia brought to life in the movie Godfather.

Readers will find it interesting and disturbing to learn examples of some communities who have got caught in the vicious circle of crimes of theft, robbery, dacoity because of various reasons including historical. Pardhi tribe, majorly found in Maharashtra, Madhya Pradesh and Gujarat are caught often by police in involvement of crimes of theft, robbery and dacoity or illicit liquor production. They know no other means of living. Some have settled and become agriculturists. Only a small percentage of them have received formal education and merged with mainstream society, the result being the lack of direction and guidance for majority

of them from within family or close community ties. Another community of Irani descent (not to be confused with Parsi community), are found involved in chain snatching by police all over India with bike manoeuvring skills on road next to none. They are most active in Mumbai and areas around it. Only a small percentage of them have taken up respectable professions. The problem with them is the same, lack of formal education. Within the community, the level of expertise of a person in committing a crime of chain snatching and escaping unscathed from police is discussed with pride and praised. That is the only direction of life most of them know. In all these cases, community level interventions in right direction can help them in coming out of this crime cycle.

All of these aforementioned criminals know the consequences of their crime and still commit it. This is the category of crime where police have to devote maximum planned effort for prevention and detection. However, the root causes for growth of most of these crimes and criminals in society lie in lack of socio-economic development and employment opportunities. The ultimate solution too lies therein.

Discussion of this type of crime will be incomplete without special mention of new additions in modern times – economic offences and cyber offences. They are called white collar criminals. They are invariably well educated, smart, come from well off socio-economic background and understand the consequences of their crime too well. Their modus operandi is sophisticated and the fraud involves large amount of money or property. Ever changing modus of cyber criminals is mind boggling. Their opportunities are rising with rise of digital economy, and so is the challenge to police who are continuously updating their skill sets to deal with these criminals. The second type of criminals are those whose profession is not crime but have committed one in a momentary passion or provocation due to various reasons. A revengeful murder, a murderous attack, a violent quarrel between neighbours over, say, a boundary dispute etc. The law violators in these cases



are still treated as criminals as others but they don't pose a threat to society as a whole. These crimes are limited to individuals. It can be typed as momentary deviant behaviour of otherwise law-abiding citizen.

The third type are psychopaths whose purpose of crime is not monetary gain but sadistic pleasure that satisfies their inner demons. Serial killers, serial rapists etc are examples. The only solution for police is to find them and put them behind bars once they are detected. Such criminals create shudder in society. There is hardly any correlation with socio-economic background they belong to. It has more to do with psychology and defective genes. The biological theory of crime can't agree more on this.

Let's pick examples of gambling and juvenile delinquency for detailed analysis.

Gambling or betting is illegal in India and punishable under law. It is considered a social vice and moral evil. A lot of cases are registered in police stations across India and no strata of society is untouched by its attraction. But take a country like UK and betting is legal there. One must keep in mind though that culture and economic development level of these two countries are different. Laws have been made accordingly. Naturally, two school of thoughts germinate. One is in favour of continuing the ban in India and the other is in favour of lifting the ban and let people exercise their free will. But on the same point, the former one is sure that exercising the free will is a sure shot way onto a slippery slope which will destroy families. One of our greatest scriptures Mahabharata narrates an innocuous game of gambling ultimately ending in the Great War of Mahabharata. Yudhisthira loses everything including his family and kingdom to Shakuni in gambling. Even today, in a gambling raid an addict can be found who, as a last resort, has put his last belongings like land or house on bet after losing all his money, in order to gain everything back. Ultimately, as they say, the house always wins.

The second school of thought also argues that the ban leads to formation of parallel economies creating nexuses, making the vice even more vicious and socially impactful in a negative way. The ban has

not led to any reduction in gambling phenomena. Whatever be the school of thoughts, the root cause lies in natural human tendencies and social pulls and pushes. A rich person is more likely to bet just for fun while a poor person is more likely to bet for other reasons (such as becoming rich). The rich person hasn't been able to fight his own inner urges in spite of knowing the consequences while the poor man's vision to become rich though this route has overpowered his finer understandings. For the former, gambling as a criminal tendency is a result of his failure to fight his internal forces and for the latter it is the result of disequilibrium in his life due to internal as well as social forces.

A disturbing scenario today is of crime committed by juveniles who are not of adult age yet as per law of the land, termed Juvenile delinquency. It is a matter of serious concern all over the world, no less in India. This often is a direct result of broken families, careless parents, neglected and deprived childhood, harassment, criminal past of one of the parents as well as influence of the social surroundings and peer behaviour.

A big chunk of juvenile offenders happen to come from poor socio-economic background such as from slums or poor families. A majority of them have parents who are divorced, or live separately, or the father is delinquent. That doesn't mean that the percentage of juvenile offenders coming from good families is zero. There have been cases where they have become involved in crimes like chain snatching, dacoity to get easy money to maintain high life style or to indulge in such things as drugs or just to impress a girlfriend.

Association with a peer group with criminal background, aloofness of parents, influence of cinema, deprivation, glamour etc play part in such behaviour. As they say, parents are the first school for children. Without an iota of doubt, an analysis of juvenile delinquency patterns enforces this dictum. Where there is neglect, other forces of society take over and the impressionable mind of a child is swayed away by criminal tendencies. Merton's theory that social structures within society may create pressure



on citizen to commit crime holds true in most of juvenile delinquency cases. When they don't have the means to achieve well accepted social goals like financial security, they take to crime to achieve that.

Police, by law, is entrusted with the responsibility to deter crime, catch criminals and maintain peace in society. It's a task of responsibility and accountability like no others considering the fact that society walks on a path of progress in all spheres only when there is a peaceful atmosphere where people are leading a fearless life. More so in India, where diversity in society is humongous resulting in myriads of force of pull and pushes disturbing the equilibrium of society. Our democracy is still in a process of continuous flux. In a nutshell, the actions of police help in bringing balance and stability to society.

While police does its core work of crime detection, maintaining law and order etc, it also has to maintain and show cordial relations with law abiding citizens of the society. This other aspect of policing is called

community policing by which police reaches out to society through various programs, engages with people and tries to understand their problems in advance. An example is visit of local police men to schools and colleges and teaching young kid about traffic discipline. It enhances positive image of police and public feel confident that police are approachable and will help them in times of dire. The good public in turn cooperates police in diffusing situations of law and order. Well-known administrative thinker Mary Parker Follett talks of win-win philosophy in an organization where one has to use non-coercive power as "power with" rather than "power over". The philosophy of community policing confirms to this dictum.

As long as there is society, there will be crime. It will change in form and intensity with change in society but will also see addition of new kind of crimes unleashed by forces yet unseen. We err, so human, and so crime.

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Phases Of A Collision And Road Accident Reconstruction

Shri. Ravishankar Rajaraman

Technical Director (JP Research India Pvt. Ltd.)

When we arrive at a road accident scene, we usually get to see the consequences in the form of wrecked vehicles and injured people. Road crash investigation involves collection of evidence by examining volatile scene evidence such as tyre marks, assessing vehicle damages, interviewing involved persons and eyewitnesses and gathering any supporting evidence such as CCTV footage, medical reports, etc. The purpose of a road crash investigation is to gather all the evidence available so that the road accident can be “reconstructed” to determine how it occurred and also analyze what could be done to prevent such occurrences and injuries in future.

To understand road accident reconstruction, one must understand that every road accident involves a sequence of phases that finally results in a collision. So what are these phases leading to a collision? How do road crash investigators identify them? What is the minimum evidence required to be collected at the road accident scene to scientifically analyze and reconstruct crashes? These are the questions this article aims to answer.

Every collision has the following phases :

1. Point of Perception
2. Point of Action
3. Point of Impact
4. Final Resting Position

The above phases are explained in the graphical representation of a road accident below with the collision between a car and a pedestrian as an example.

- 1. Point of Perception :** This is when the driver identifies the traffic situation ahead as a potential hazard and then prepares to take action to avoid the accident. Figure 1 shows an example of a driver having seen a pedestrian crossing the road and realizing that he has to take action to avoid the crash.

Author Intro : *Mr. Ravishankar Rajaraman is the Technical Director for the JP Research India offices and Chairman of the Technical Steering Committee for RASSI (Road Accident Sampling System – India), India’s only on-site crash investigation and in-depth crash data collection program. Mr. Rajaraman has a Master’s degree in automotive engineering from Lawrence Technological University, USA and Master’s Degree in Traffic Accident Research from Graz University of Technology, Austria. Over the past 12 years, Mr. Rajaraman has provided crash investigation, reconstruction and safety engineering expertise to JP Research’s efforts to collect and create a “real world” accident database for various regions in India.*





Fig. 1 : Point of Perception – Driver notices pedestrian crossing the road and plans to take action to avoid a collision. (Image source: https://www.youtube.com/watch?v=XUXJ6ky69kI&ab_channel=OdairAlves)

- 2. Point of Action :** This is when the driver acts in response to the hazard identified and to avoid the traffic conflict with the other road user/object. The action typically involves braking or steering or a combination of both. In Figure 2, we see that the driver has stepped on the brakes.



Fig. 2 : Point of Action – Driver steps on the brakes hard to avoid a collision. (Image source : https://www.youtube.com/watch?v=XUXJ6ky69kI&ab_channel=OdairAlves)



- 3. Point of Impact :** If the Point of Action is successful, then the accident is avoided, else there is a collision. The position of vehicle(s)/pedestrians when the first contact occurs is called Point of Impact (POI). In Figure 3, the position on the road, where the car first contacted the pedestrian, is the Point of Impact.

► **Fig. 3 : Point of Action – Driver steps on the brakes hard to avoid a collision.** (Image source: https://www.youtube.com/watch?v=XUXJ6ky69kI&ab_channel=OdairAlves)

4. Final Resting Position : This is the position where the vehicle(s)/pedestrian(s) lie after the collision. This is what is usually observed when a road accident investigator arrives immediately at the scene. In Figure 4, the car and pedestrian positions are shown in their Final Resting Positions.

Fig. 4 : Final Resting Position – Position of the car and the pedestrian after the collision. (Image source: https://www.youtube.com/watch?v=XUXJ6ky69kI&ab_channel=OdairAlves)

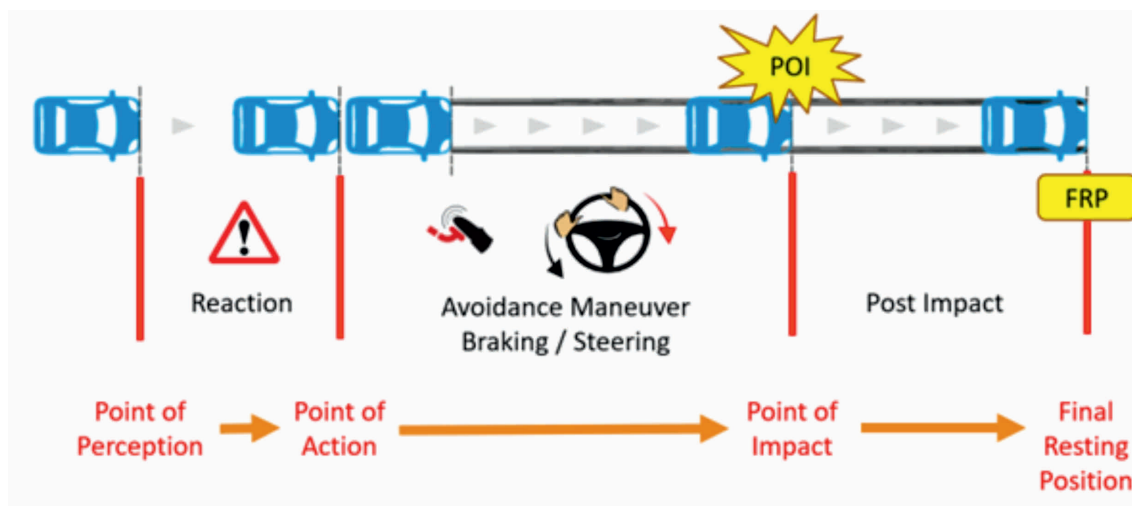


Fig. 5 : Graphical representation of the phases of a collision. Image Source: JP Research India Pvt. Ltd.

HOW DO ROAD ACCIDENT INVESTIGATORS DETERMINE THE ABOVE PHASES IN A CRASH? :

Keeping in mind that the Final Resting Position is the only phase of a collision that is available to examine after a collision, road accident investigators must arrive at the scene as close to the time of accident as possible, and before the vehicles involved have been towed away or moved. After arriving at the scene, road accident investigators identify the Final Resting Position (FRP) and the Point of Impact (POI), based on the examination of traces such as tyre marks, scratch marks, debris, fluid/blood pools, etc. Tyre mark evidence of start of braking or steering may also be available to identify the Point of Action. The evidence are captured by road accident investigators through detailed measurements plotted on a to-scale scene diagram and photographs of the road accident scene and vehicles involved.

ROAD ACCIDENT RECONSTRUCTION :

With good quality evidence collected by the road accident investigators at the scene and from the vehicles involved, road accident reconstructionists can identify and determine each phase of a collision in terms of speed, distance and time. A road accident reconstruction is the determination of the speed, distance and time for each phase of the road accident.

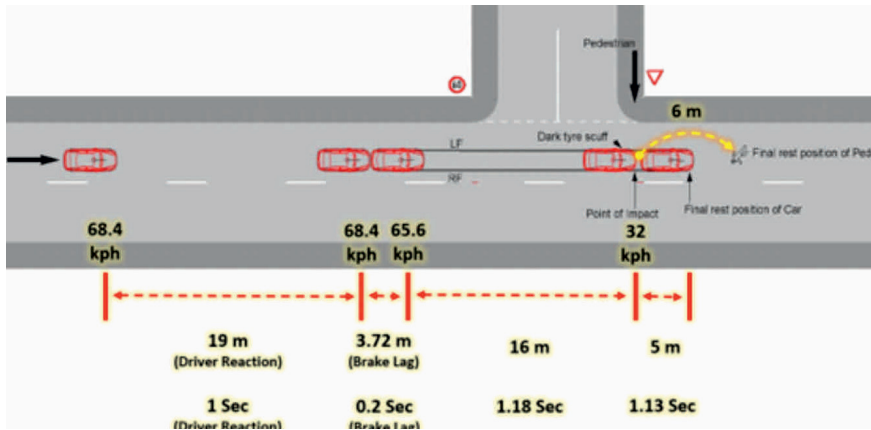


Fig. 6 : An example of a reconstruction showing the 4 phases of a collision and the speed, distance and time for each phase of the collision. Image Source : JP Research India Pvt. Ltd.

MINIMUM EVIDENCE REQUIRED FROM THE ROAD ACCIDENT SCENE :

The following are the minimum evidence that must be collected to ensure a good quality reconstruction of the road accident.



Fig. 7 : An example of photo taken at the scene showing the Final Resting Position. Source: JP Research India Pvt. Ltd.

1. Photos taken at the scene with the vehicle(s) in position, before being moved or towed away.
2. 8-angle photos taken of each involved vehicle – front, right front, right, right back, back, left back, left, left front.
3. GPS coordinates – Latitude and Longitude – of the road accident location, preferably at the Point of Impact.
4. Measurements of length, in centimetres, of brake/skid marks if available.

With the above information, many road accidents can be examined to determine the phases of the collision and reconstructed to determine the speed, distance and time at each phase of the collision.



Fig. 8 : An example of 8-angle photos taken for an accident involved vehicle. Source : JP Research India Pvt. Ltd.

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Digital Evidence: Identification, Collection and Preservation

Dr. Prashant S Lokhande

(Head T&P, Centre for Cyber Security and Digital Forensics
Pillai College of Engineering, Navi Mumbai.)

Proliferation of digital devices increased the importance of the collection of digital evidence. Along with traditional investigation techniques one must consider the collection of digital evidence, as these are the important links to establish the modus operandi, planning and preparation of accused. Digital evidence is the valuable source through which investigators can understand the character of the criminal. Police investigators face many challenges in identification, collection and preservation of the digital evidence, lack of training and knowledge of handling electronics equipments are the main reasons. Challenge of submitting the admissible evidence in court of law by following up the procedure described, obtaining the hash value and getting the 65B certificate is another hurdle in investigation. This paper discusses the challenges and mitigation steps to identify, collect and preserve the digital evidence.

What is digital evidence? :

Digital evidence is information stored or transmitted in binary form that may be admissible in court. It can be found on any computing device, a computing device is any electronic device having the capability

to store, process and transmit the data. The examples are computer hard drives, a mobile phone etc. Digital evidence is commonly associated with electronic crime, or e-crime, such as child pornography or credit card fraud, but many times during the normal crimes, the use of digital/ electronic devices provides important lead. The digital evidence is now used to prosecute all types of crimes, not just cyber frauds and cybercrimes. For example, suspects' e-mail or mobile phone files might contain critical evidence regarding their intent, their whereabouts at the time of a crime and their relationship with other suspects. Digital evidence is volatile and fragile and the improper handling of this evidence can change it, and it may lose the admissibility. Due to its volatility and fragility, suggested guidelines need to be followed to ensure that data is not modified during its handling (i.e., during its access, collection, analysis, packaging, transfer, and storage). The digital evidence handling protocol has the steps to be followed when handling it. There are four phases involved in the initial handling of digital evidence: identification, collection, acquisition, and preservation.

Author Intro : *Dr. Prashant S. Lokhande* presently working as Head- Training & Placement and Professor Dept.of Computer Engineering, Pillai College of Engineering, Navi Mumbai. Dr. Prashant Lokhande completed his B.E. (Computer Engineering), M.E. (Information Technology) and PhD (Computer Engineering) with focus research area in Cyber Security and Digital Forensics. Apart from these professional qualifications he also did B.A. in Human Psy and Diploma in Cyber Law from Govt. Law College, Mumbai.



Electronic evidence and the Indian Evidence Act 1872 :

The Indian Evidence Act, 1872 has given the definition of evidence as

- a) the evidence of witness i.e. oral evidence, and
- b) documentary evidence which includes electronic records produced for the inspection of the court.

Section 3 of the Act was amended and the phrase “All documents produced for the inspection of the Court” was substituted by “All documents including electronic records produced for the inspection of the Court”. Regarding the documentary evidence, in Section 59, for the words “Content of documents” the words “Content of documents or electronic records” have been substituted and Section 65A & 65B were inserted to incorporate the admissibility of electronic evidence.

The Person who can issue the certificate is given in Sec. 65B (4)

Regarding the person who can issue the certificate and contents of certificate, it provides the certificate doing any of the following things:

- i) Identifying the electronic record containing the statement and describing the manner in which it was produced;
- ii) Giving the particulars of device, dealing with any of the matters to which the conditions mentioned in subsection (2) relate and purporting to be signed by a person occupying a responsible official position in relation to the operation of the relevant device or the management of the relevant activities (whichever is appropriate) shall be evidence of any matter stated in the certificate and for the purposes of this subsection it shall be sufficient for a matter to be stated to the best of the knowledge and belief of the person stating it.

This contention is further strengthened by the insertion of words “Notwithstanding anything

contained in this Act” to Section 65A & 65B, which is a non obstante clause, further fortifying the fact that the legislature has intended the production or exhibition of the electronic records by Section 65A & 65B only.

Challenges in collection of digital evidence :

The various categories of electronic evidence such as browser history, website data, social network communication, email, instant chat messages, SMS/MMS and computer-generated documents poses unique problem and challenges for proper authentication and subject to a different set of views, some of the major challenges faced by the police department are:

- 1) Lack of computer knowledge,
- 2) Improper handling of digital evidence,
- 3) Lack of proper equipment and forensics tools,
- 4) Admissibility of evidence in the court of law.

Many investigations are hampered as the presentation of digital evidence is more difficult than its collection because there are many instances where the legal framework acquires a soft approach and does not recognize every aspect of cyber forensics, as in *Jagdeo Singh V. The State and Ors*, case Hon'ble High Court of Delhi held that “*while dealing with the admissibility of an intercepted telephone call in a CD and CDR which was without a certificate under Sec. 65B of the Indian Evidence Act, 1872 the court observed that the secondary electronic evidence without certificate u/s. 65B of Indian Evidence Act, 1872 is not admissible and cannot be looked into by the court for any purpose whatsoever.*” This happens in most of the cases as the cyber police lack the necessary qualification and ability to identify a possible source of evidence and prove it. Besides, most of the time electronic evidence is challenged in the court due to its integrity. In the absence of proper guidelines and the nonexistence of proper explanation of the collection, and acquisition of electronic evidence gets dismissed in itself.



Legal challenges :

Sr.	Particular	Description
01	Lack of guidelines and standards regarding collection of digital evidence.	In India, there are no proper guidelines for the collection and acquisition of digital evidence. The investigating agencies and forensic laboratories are working on the guidelines of their own. Due to this, the digital evidence is neglected.
02	Limited Provision in the Indian Evidence Act, 1872	The Indian Evidence Act, 1872 have limited approach, it is not able cope up with the current times and technological evolution and address that the digital evidences are more susceptible to tampering, alteration, transposition, etc. The Act lacks / fails to describe the method of collection of digital evidence; it only focuses on the presentation of electronic evidence in the court by accompanying a certificate as per subsection 4 of Sec. 65B. This means no matter what procedure is followed it must be proved with the help of a certificate.

Resource Challenges :

Due to fast change in technology like operating systems, application software and mobile and computer hardware, acquisition of digital evidence is becoming more difficult as new version softwares are not supported to an older version and the software developing companies did not provide any backward compatibility which also affects legally. This issue is widely faced by the cyber cell as the proprietary forensics' tools are rapidly upgrading themselves and every time, they expect the client to invest in purchasing or licensing the newer version.

Technical Challenges :

As technology develops crimes and criminals are also developed with it. Digital forensic experts use forensic tools for collecting shreds of evidence against criminals and criminals use such tools for hiding, altering or removing the traces of their crime, in digital forensic this process is called Anti- forensics technique which is considered as a major challenge in the digital forensics world.

Digital forensics :

Digital forensic is a branch of forensic science that focuses on the recovery and investigation of material found in digital devices related to crime. Digital

forensics is the process of identifying, preserving, analyzing, and documenting digital evidence. This is done in order to present evidence in a court of law when required. In the digital forensics the footprints of the suspect are traced from various sources such as, WhatsApp chat history, browser history, google activity record, chats, social media posts, deleted data from computer hard drive, USB drive, Mobile SD Card, photograph exif data etc.

Hash Value :

Why is Hash value so important? :

Hash values can be considered as fingerprints for digital files. The contents of a file are processed through a cryptographic algorithm, and a unique numerical value the hash value is produced that identifies the contents of the file. Hash values are used in digital forensics to ensure electronic evidence data has not been altered. Even a small change to a file changes its hash value, so an altered file would have a different hash value than the original. For example, if you have a document of 100 pages and you only added a full stop, that slight change will change the hash value of that particular file, thus you can come to know the alteration of the original document. Two algorithms are currently widely used to produce hash values: the MD5 and SHA1 algorithms.



How to obtain the hash value? :

Various forensics tools are available to obtain the hash value they are FTK (Forensic Toolkit) <https://accessdata.com/product-download/ftk-imager-version-4-5> ,

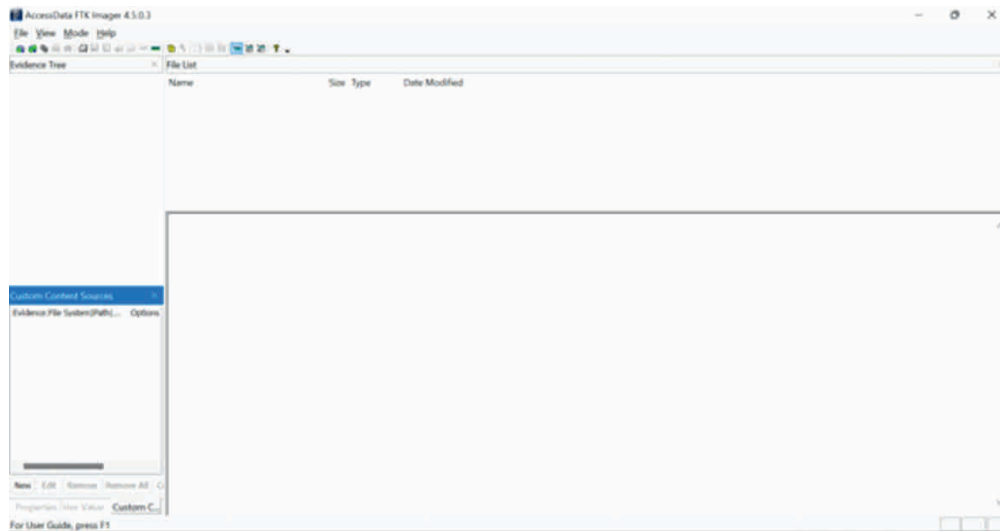
WinHex <http://www.winhex.com/winhex/hex-editor.html> etc. Before attaching your original evidence to the computer for obtaining the hash value make sure that you have connected the

hardware or software write blocker so as to maintain the integrity of the original evidence.

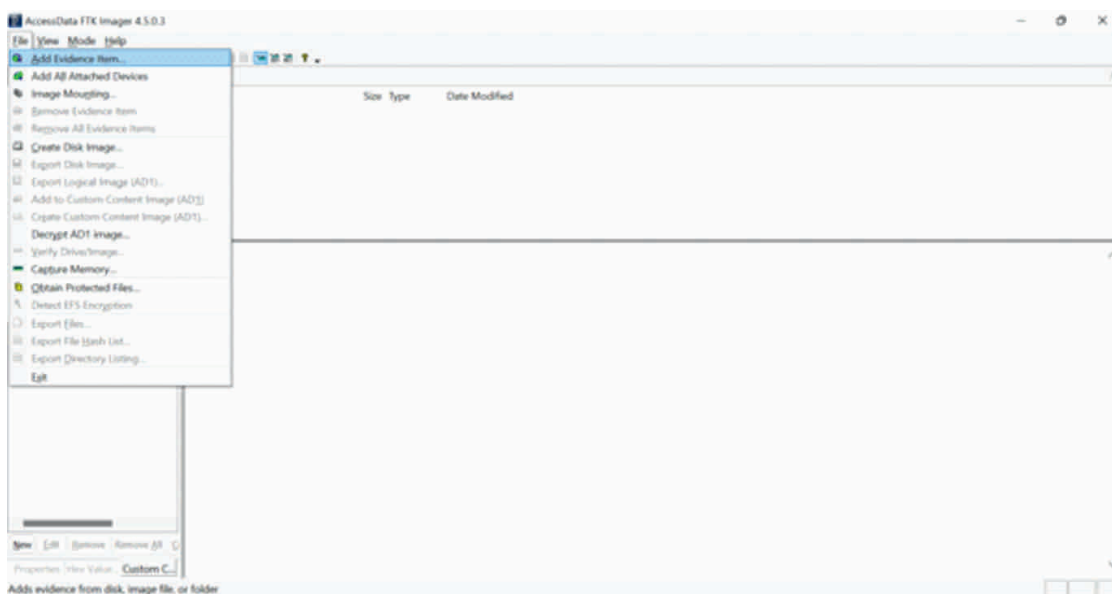
You can download the software write blocker from this link: https://drive.google.com/file/d/1jnhk14lcIvP1oDs3bReeQsgsjEwbLfj0/view?usp=share_link

Steps to calculate hash of Storage Drive with the help of FTK imager is shown below.

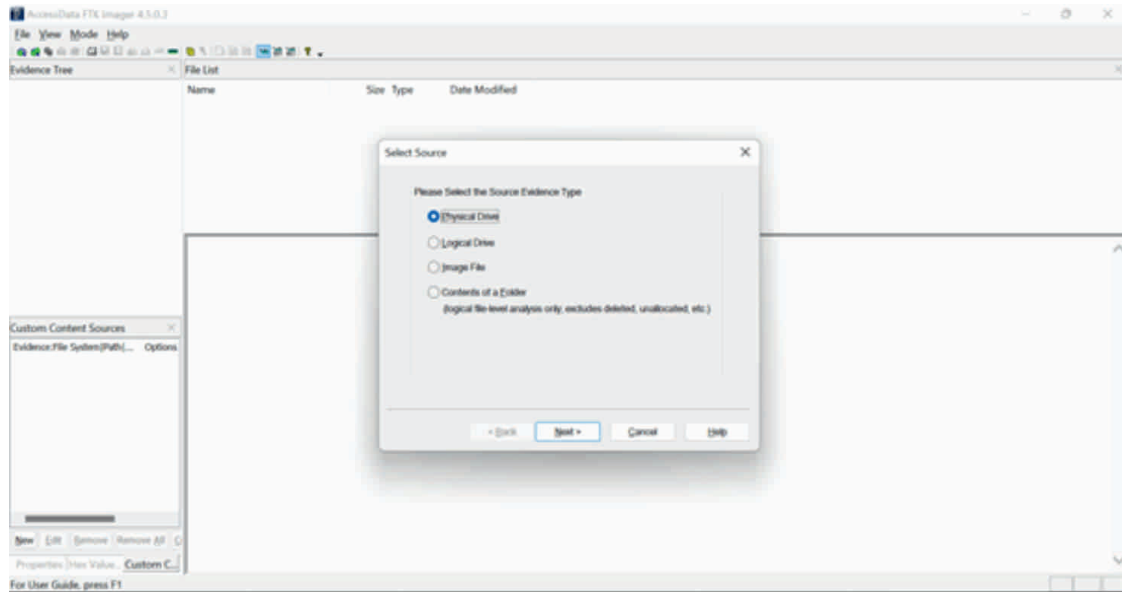
Step1: Download FTK imager from the above link, install the application, run it.



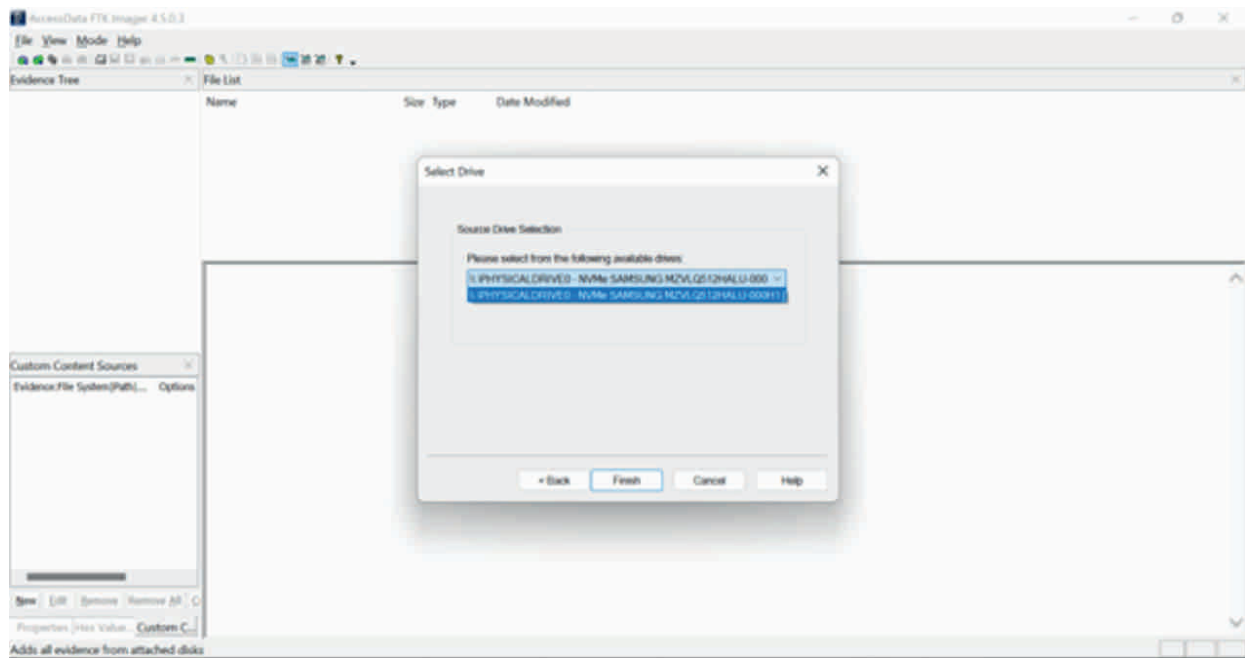
Step2 : Click on File Menu and select “Add Evidence Item”.



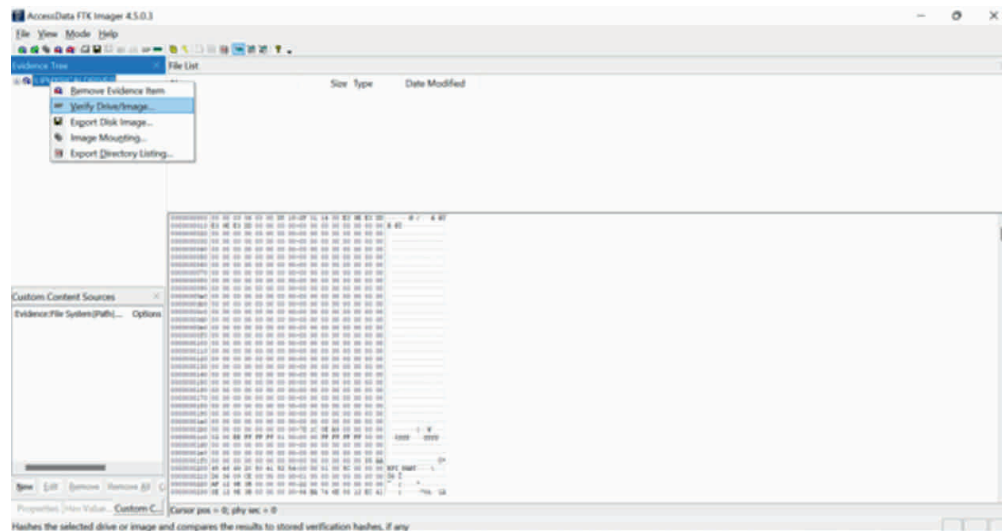
Step 3 : Then Select Source Evidence Type (e.g. We are using Physically Drive for USB drive and Hard Disk)



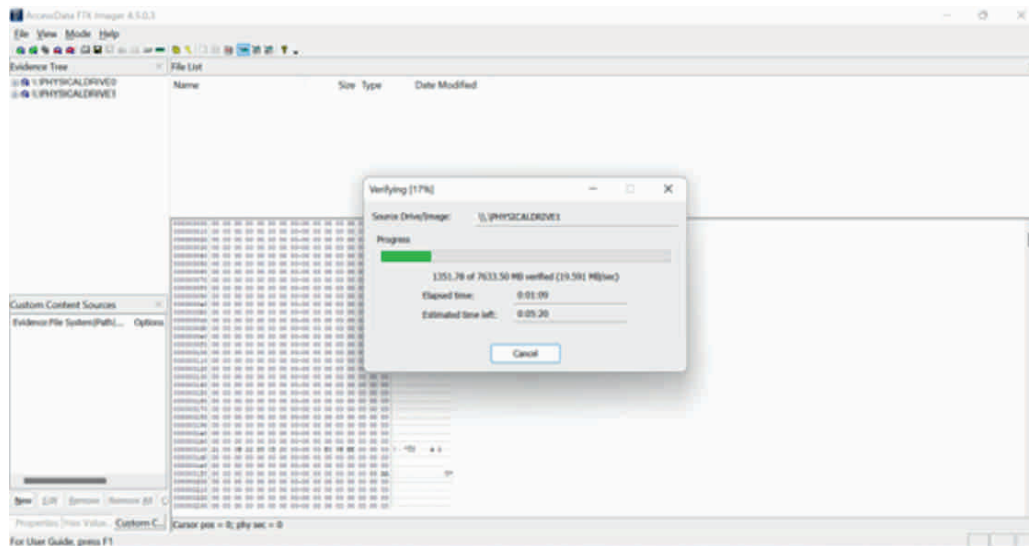
Step 4 : Select Source Drive Selection. In this section, you can add any physical hard disk like the computer hard disk, USB drive, memory SD card etc.



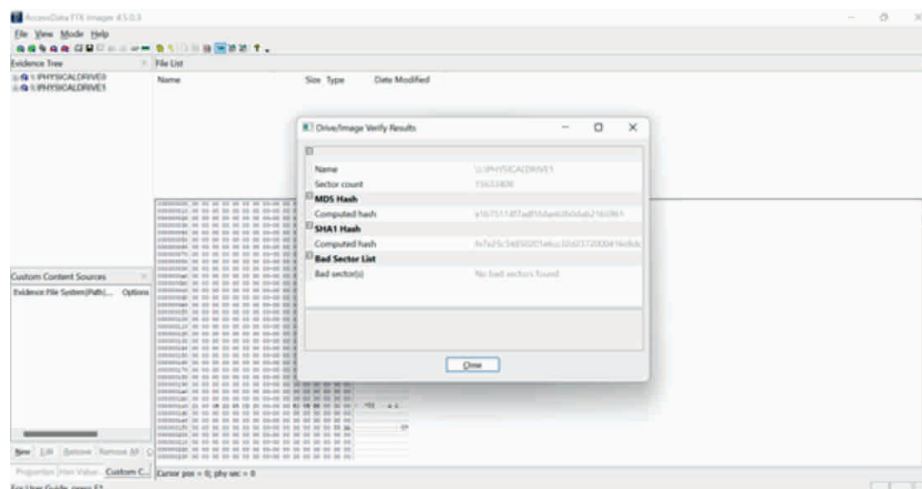
Step 5 : In this step the Physical Drive is added on Evidence Tree, right click on physical drive and then click on Verify Drive/Image



Step 6 : It will start verification of the Physical Drive, taking time as per capacity of drive.



Step 7: After the verification you can see the MD5 and SHA1 Hash value of your Physical Drive.



Investigation :

During the investigation, the important step is to identify the digital evidence, this is a tricky situation one may be puzzled to identify it. The approach to deal with such a situation is based on 5W1H. The 5W1H (5 times W and 1 time H) is an acronym in which every letter corresponds to a question: what, who, where, when, why and how. The 5W1H method allows you to discern the information needed to better understand, encompass, clarify, structure, frame a situation; as this way of thinking allows you to explore all the dimensions from different perspectives.

For example :

- Who was involved?
- What happened?
- When did cybercrime / crime occur?
- Where did the cybercrime / crime occur?
- Why does this happen?
- How did cybercrime / crime occur?

Conclusion :

In today's technological era every human is having digital history, and this will be useful information during the investigation, investigation officers must look at this angle while working on any criminal case. The scope of cyber forensics is wider and the use of various forensic tools and techniques and their different ways of working raise many issues in front of legal as well as technical experts. The common challenges are lack of proper guidelines for identification, collection, acquisition and presentation of digital evidence, fast change in technology, mobiles, use of anti-forensic techniques by criminals, use of free online tools for investigation, etc. are focusing towards the requirement of new

enactments and amendments in present law and technologies with updated and advanced patches. The investigation agencies need to organize training and awareness sessions for their digital forensics officers so as to make them familiar with new technologies. The software providers for digital forensic investigation must provide proper instruction manuals that have a proper explanation, pros and cons regarding the tools. The mobile or software developing companies need to provide patches related to outdated technology so the experts can easily analyze and preserve data for evidence purposes if they found any old mobile model or old computer system on the crime scene.

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Occupational Stress

Shri. Narsinh Bhosale

(Asst. Commissioner of Police, Greater Mumbai (Retd))

Introduction :

Occupational Stress is a commonly used term in professional business and industry. It refers to the ongoing or progressing stress that an employee experiences due to the responsibilities, conditions, environment or other pressures of the workplace. There are several types of Occupational stress and it is said to be dependent on individual employee, his/her job role, company culture and other factors.

It has been stated on various platforms that stress is critical to human health and ageing. Population-based studies that have measured perception of, or exposure to, stressors have documented its effects on health.

While the sources of occupational stress can vary from person to person, the important factor is that an employee of almost all organizations irrespective of being large or small can be affected by occupational stress.

Meaning of Occupational stress :

Occupational stress is commonly defined as harmful physical and emotional responses that occur when the demands of the job exceed the capabilities, needs or resources of the worker.

Whatever the cause, the effects of occupational stress can be monumentally damaging to the overall well-being and productivity of an employee. Occupational stress causes accelerated ageing and other personal issues and can also greatly hamper motivation, inspiration and dedication to work of an employee.

The reasons for stress are said to include negative working environment, unhealthy relationships as well as unhygienic eating and sleeping habits. An individual elasticity to sustain stress depends upon numerous aspects which are related to personality, environment and socio-cultural situations. Reasons for occupational stress could be due to : Policies of the organization including time management Restricted avenue for professional and personal growth, Departmental conflicts raising difficulties for peaceful work, Mismanagement of workforce resulting in being overworked, Lack of support from human resource departments, Personal, situational, or professional issues, Discrimination and disguised threats, Lack of occupational guidance.

A person is said to go through occupational stress in almost all the jobs but the stress level is highest in Police force. They do not have fixed duty hours, and work load increases day by day. Many times, police officers have to stay away from family. While there are many other factors responsible for mental stress among the Police force, everyone is aware that Police officers have to go through various situations and problems. Here we are discussing about various mental disorders, present scenario, suicidal tendency and increasing suicidal cases, need for help from psychiatrists and psychiatric and genetic counsellors along with important tips on stress management.

Occupational stress and mental health :

When stress becomes overwhelming and prolonged, the risk for mental and general health problems

Author Intro : *Mr. Narsinh Manyabapu Bhosale has been honored by around 200 rewards for his exemplary services spanning 36 years at Maharashtra Police Force as an officer reaching and retiring from the position of Assistant Commissioner of Police, Mumbai. "Drug Free Mira-Bhayander" was among one of the meritorious activities during his tenure for rehabilitation of drug addicts, which was quite notable for service to the society. His book in Marathi titled "Janma Te Punarjanma" received coveted Sahitya Seva Award from Rangat Sangat Pratishthan, Pune, as also Shantidoot Seva Ratna, Pune Award 2021 for his contribution towards social work. Book: Dealing with Stress*



increases. Long-term stress increases issues related to anxiety, depression, substance use, sleep, pain and bodily complaints such as muscle tension.

The effects of chronic, or long-term stress can be harmful on their own, but they also can contribute to depression, a mood disorder that makes you feel sad and disinterested in things you usually enjoy.

Physical and mental health :

If we are constantly under stress, we can have physical symptoms such as headaches, an upset stomach, high blood pressure, chest pain, and problems with sex and sleep. Stress can also lead to emotional problems, depression, panic attacks, forms of anxiety and worry.

Mental health as defined by World Health Organization :

This is a state of well-being wherein the individual realizes his or her own abilities and can cope with the normal stresses of life, can work productively and fruitfully and is able to give a contribution to his or her community.

Emotional, psychological and social well-being are factors considered in mental health.

There is a dismal picture in our society. Most of the people ignore their mental health and mental disorders and are more bothered about physical health. Some people have an intrinsic fear that visiting a psychiatrist or psychologist, people may consider him / her as insane or mentally deranged and may avoid him / her.

Instead of ignoring mental health, we should go ahead and seek mental help and care. Ignoring the signs could create serious mental and physical issues with complications. Apart from taking care of mental health for your own and your family, creating awareness about mental health in the society is also important.

Physical and mental health is equally important as stress can be physical, emotional and psychological and can obstruct biological rhythm.

Measurement of occupational stress :

Occupational stress is measured in terms of Pressure Management Indicator (PMI). This is a 120-

item self-report questionnaire developed from the Occupational Stress Indicator (OSI). The PMI is more reliable, more comprehensive, and shorter than the OSI. PMI provides an integrated measure of major dimensions of occupational stress.

Work Stress Scale :

Work Stress Scale is a measure of personally experienced stress at work. It consists of nine items that have a five-point Likert-type response format. One of the most common scale types is a Likert scale. A Likert scale is commonly used to measure attitudes, knowledge, perceptions, values, and behavioral changes.

Likert scale involves a series of statements that respondents may choose from in order to rate their responses to evaluative questions.

Coping inventory for stressful situations (CISS) :

Coping Inventory for Stressful Situations (CISS) was developed by Endler and Parker during 1990 and is widely used. CISS is a four-factor model of human coping with adversity and is a measure of coping styles. Emotion, Task and Avoidance are the three major methods prescribed for coping in stressful situations. .

Genetic disorders :

Most of the times, we think that mental illness is caused by occupational stress and by other factors but sometimes mental illness is caused due to a genetic disorder. Here, one will have to go for genetic counselling, testing and treatment from genetic point of view.

Recruitment :

While one undergoes strict medical examination before recruitment, he is supposed to be of perfect physical and mental health. However, it is after a few months in the employment, that one may start showing symptoms of some mental issue though minimal. Actually members such as psychiatrists, genetic counsellor for genetic testing and clinical psychologist have to be there in the clinical team



along with general physicians and surgeons on medical board.

After studying medical history and genetic test, a genetic counsellor can predict percentage and probability of mental disorders occurring in future.

Stressors :

From my experience of long 36 years in police services, I could understand and have experienced a few stressors for occupational stress in Police Department. Here are some of important findings through which one can understand various stresses and train themselves to cope up with them.

Structural stressors :

The structural stressors can be defined with elementary structural mechanics theory. It provides an idea of the effective measure of a stress state for fatigue. For this, behaviour of welded joints is provided as an example. The fatigue could be in the form of both membrane and bending components. Some of the structural stressors are :

Insufficient housing and medical facilities, Low salary, insufficient staff and lack of resources, Lack of a democratic process and barrier between ranks, Harsh treatment from superiors with disguised threat for punishment, Colonial mind-set in structure of the force and in superiors, Left to his own for decision making without intervention by a senior, Absence of rationale in transfers and poor distribution of duties, Leave refusals and lack of a firm promotion policy.

The staff has to be prepared for any activity and responsibility whatsoever, that of investigation, prevention, detection of crime, law and order situation, Bandobast for VVIP meetings and rallies.

Occupational stressors :

Occupational stressors are work-related and occur as a response when people are presented with work demands and pressures that are not matched to their knowledge and abilities as also they challenge their ability to cope. High level of occupational stress has been linked to an increased risk of physical injuries, cardiovascular disease, high blood pressure, depression and increase in negative personal behaviour such as anger, anxiety and irritability.

The main occupational stressors could be identified as :

Time consuming paper work,

Work overload resulting in irregularity of food intake, Insecure feeling and perception of threat to health, Continuous exposure to distress.

Environmental stressors :

Working in an unsuitable topography and Public interference, Non-cooperation from public as well as occasionally from media, Direct interface with violent mob with undue political pressure, Inability to spend time with family members

Family stressors :

A Police force person at any time cannot be without family stressors due to schedule of his duties. The same may include issues in the family, close relations, financial issues and the main issue of being away from the family for quite some time.

Personal stressors :

Similar to family stressors, a police person has to go through personal stressors such as perfectionism, uncontrollable anger, anxiety, worries and depression as well as low self esteem.

Coping strategies :

It is important that every person holding a post in the Police Department should be provided training and re-training in Strategic Coping with stress. The same could be taken up in modules such as

Problem solving strategies and team work, Anger and Time management, Appropriate changes in lifestyle, Relaxation, Meditation and Healthy diet.

Changes in police after stress

Behavioural changes :

Overall decline in communication or performance of a group in Police Alcoholism and Chain-smoking

Physiological changes :

With a high tension job such as a Police, physiological issues are bound to come to the fore. Some of these are: High blood pressure, stomach ulcer, palpitation, headache as well as Cardio vascular disorders.



Psychological changes :

To name a few, these are Impulsive behaviour, frustration, fatigue, emotional detachment, suicidal tendencies, reserved, feeling agitated, anxious, irritable, depressed or angry. All of these result into burn outs, pessimistic and behaviour such as misconduct, rude, arrogant and cynical.

A research study on stress levels and associated diseases for Bengaluru city police personnel was recently conducted. The responses from the staff were assessed on answers they provided for a questionnaire based on stress. We have already discussed the answers in these chapters. However, the factors that were noted and taken in to consideration apart from those we have discussed are :

Clinical and Biochemistry studies

Blood sugar and hormonal studies

Cholesterol and Body mass index

Higher levels of Low density lipoproteins (ldl) detected in police

Following recommendations were provided :

Instituting regular health check up, Including additional parameters as a part of medical health check up such as- Diurnal variations of salivary cortisol levels, Interleukins and study of HRV by long term recording using Holsters for determining physiological variations due to stress.

Periodic psychological evaluation to assess stress.

As all the State Police Departments in India have almost similar issues, it has been recommended to use these recommendations.

Stress management at organisational level :

We have already discussed stress management in details and also coping with stress. We shall now discuss Stress management at organisational level.

Stress management training :

Proper stress management modules should be provided to employees during training and in service. Lectures from psychiatrists and counsellors need to be arranged on healing techniques and creating awareness about negative effects of stress, reduction of stress level and coping up with stress.

Yoga, meditation and pranayama :

Help and Assistance to Tackle Stress (HATS):

Started in 2016, the main aim of HATS program is to reduce stress in police officers and their families and to take them away from suicidal thoughts.

There are physicians, psychologists, counsellors in this team with well equipped air-conditioned rooms, machines, recliners, music system and recreational activities. Police officers and their family members who are under mental and occupational stress can enjoy happy and stress-free life in this unit.

This program has been launched in most of the capital cities in the country.

Mentor system :

Senior officers work as mentors for their subordinates in order to resolve their problems and keep them stress free. Senior officers have good dialogue, understand problems of subordinates and help them to reduce stress.

Compulsory medical tests once a year :

Institutions with large number of employees conduct annual medical test in terms of physical and mental health and genetic counselling. Physicians, psychiatrists, psychologists, psychiatric counsellors, dieticians, physiotherapist need to be permanently appointed at this place.

Appointment of female mentors :

A senior female officer needs to be appointed as lady mentor to look into grievances of all types and to reduce the stress levels of female police officers and female staff. Mentors will listen to the problems like leave, inconvenience of duty, duty hours as well as physical and mental stress. A woman is said to be the best judge to understand female problems. Each woman can open up her mind to the female mentor. Every lady employee has to do justice to her job as well as domestic responsibilities at the same time. She goes through stressful situations at every level while maintaining balance between job and domestic responsibilities.

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Forensic Science Laboratories Maharashtra - Indias Leading Lab In Crime Investigation

Dr. Krishna Kulkarni & Shri. Rajendra Kokare

Forensic Science Laboratories (FSL) are multi-disciplinary institutions doing highly specialized and sophisticated analytical work. The prime role of FSL is to provide unbiased scientific evidence to investigating agencies and in turn to the judiciary system and produce indispensable analytical reports to Criminal Justice System proving the guilty or cleaning the innocent.

The institute provides scientific analytical reports in various crime cases under different laws like I.P.C., Cr.P.C., Indian Arms Act, N.D.P.S. Act, Explosive Substances Act, Petroleum Act, Bombay Police Act, Prohibition Act, Essential Commodities Act, Motor Vehicle Act, I.T. Act, Wild Life Protection Act, TADA, MCOCA etc.



Mumbai FSL established in 1958 as a small laboratory in a small place and with handful of workers. Maharashtra FSL has emerged into a big 'Directorate' having Head Quarter at Mumbai and seven regional laboratories at Nagpur (1966), Pune (1979), Aurangabad (1981), Nasik (2004) ,

Amravati (2008), Nanded (2015) and Kolhapur (2016) and five mini laboratories at Chandrapur (2019) Ratnagiri(2019),Dhule (2019),Thane (2019) and Solapur (2020).

Home Department, Maharashtra government, had created a new post of Director General Legal & Technical in April 2015 as a Head of the Department of Forensic Science Laboratory and Legal Department. First D.G.(Legal & Technical) was Shri. Satish Mathrur and then Mrs. Meeran Chadha Borwankar, Shri Prabhat Rajan, Shri. S.P. Yadav and Shri. Hament Nagrale respectively. From May 2021, Shri. Sandeep Bishnoi is D.G. Legal and Technical.

The forensic scientists should be treated as an essential scientific advisor to the investigation team. His/her professionalism ensures that the independence and integrity of findings are in no way compromised by actual involvement in the process.



Author Intro : *Dr. K. V. Kulkarni* M.Sc., Ph.D. , 29 Years Experience of Analyzing Crime cases. Publication: One book on Forensic Toxicology & More than 100 scientific research papers are published in scientific journals (National & International)

Sh. Rajendra Namdeo Kokare, M.Sc (Chemistry) in 1986 from University of Pune. Post Held - Scientific Assistant in Explosive Research and Development Laboratory Pashan, Pune Ministry of Defence from 1986 to 1994. Selected through MPSC in Directorate of Forensic Science Laboratories Mumbai, Home department- State of Maharashtra as Assistant Chemical Analyser Class II and worked from 1994 to 2015. Selected through MPSC in Directorate of Forensic Science Laboratories as a Deputy Director Class I and worked from 2015 to 31st March 2022 at Mumbai, Pune and Kolhapur. 30 Research papers published in different National/ and International Journals and Conferences of Forensic Science.



A visit of forensic experts to the crime scene and guidance for collecting proper samples from the site is very helpful for further investigation. The Maharashtra FSL launched the mobile forensic laboratories in the year 2004 and started the new era in crime scene management. In 2016, the Mobile Forensic Support Unit were made available in 36 District places and 9 commissioner of Police in Maharashtra state. Detailed SOP regarding MFSU prepared by Directorate of Forensic Science Laboratories Mumbai was circulated to all police Units and supervisory Officers through Addl. DG CID Crime Pune. All MFSUs are equipped with the Kits and equipment which are used for on the spot collection, preservation and preliminary examination of various clues in the Crimes.

The investigating police officers and judicial officers are regularly trained by FSL staff to make the forensic services more effective. The DFSL will be accredited soon. The accreditation of DFSL (ISO 17025 & NABL certification) is in process.

The infrastructure of laboratories is modernized to international standards. The DFSL, having biological and analytical grade infrastructure, has started new techniques like Polygraphy, Narco Analysis, Brain Finger Printing, Cyber Forensics, Tape Authentication and Speaker Identification so as to provide total services within the State.

The DFSL & RFSL are having full-fledged DNA, Cyber Forensic Facilities. Maharashtra is one of the leading state under the Nirbhaya fund, three units for POCSO cases have been established at Mumbai, Nagpur & Pune. Wild life DNA examination facility is made available at Nagpur.

Forensic clinical toxicology is the unique laboratory of its kind in the country. DFSL Maharashtra has prepared FSL manual in line with police manual. All the divisions of FSL are using 'Working Laboratory

Procedure Manuals' which have been prepared and approved by National Level Committee. Experts from this directorate actively contributed in preparation of such manuals for 'Toxicology', 'Narcotic Drugs', 'Explosives' and 'Petroleum Products'.

The Police Officers and Judicial Officers are regularly trained to make the forensic services more effective. It is seen that the advantage of any innovative technology is first taken by criminals before other citizens, to combat such crime it is necessary for a forensic scientist to update himself in latest developments of science and technology. Therefore, constant efforts are made to train the scientific staff by way of workshops, seminars and giving them special trainings at various reputed institutes in the country or abroad, if necessary.

FSL staff is motivated to carry out case related research work, they are also sent to attend important conferences, seminar and encouraged to publish their research papers in National and International Scientific Journals. The nature of Scientific / Analytical work undertaken by various divisions is briefly described as follows.

1. Toxicology Division :

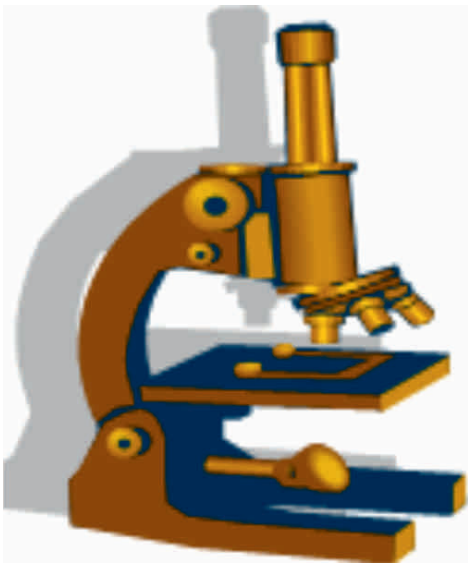
This division examines viscera, stomach wash/ aspirate, vomit, blood and other biological / non-biological material submitted by the medical and police officers in homicidal and suicidal poisoning cases for the detection of poison, if any, present therein. Systematic analysis and quantitation of poison levels is routinely done to ensure successful prosecution. This division also examines exhibits in animal and bird criminal cases. Advanced instrumental techniques like Accelerated Solvent Extractor, Solid Phase Extractor, Gas Chromatography, Spectrophotometry and High Performance Thin Layer Chromatography (HPTLC) with scanner are being used for confirmative analytical reports.





2. Biology / Serology Division :

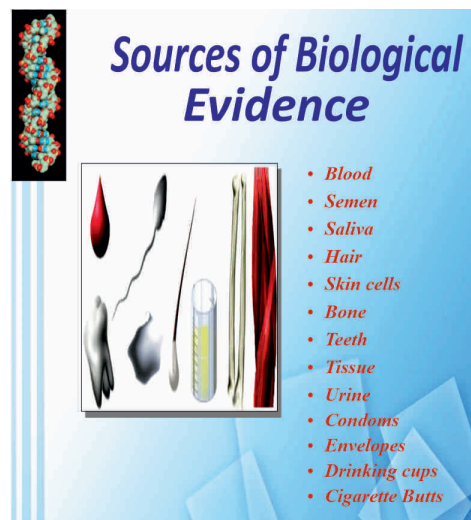
Detection, species typing and blood grouping of blood / seminal and other body fluid stains in murder, assault, rape, disputed paternity cases is carried out in this division. Other biological evidence like hair, tissue, vegetable material, wood etc. have also been examined. This division prepares its own biological reagents (anti-sera). This anti-serum is also supplied to all regional and mini laboratories.



3. DNA Finger Printing :

The DNA division of this laboratory is well-equipped with modern instruments and ultra pure chemicals. DNA fingerprinting or profiles have broad application

in forensic analysis such as paternity testing, murder, rape, individualization etc. The conventional use of immunological and polymorphic enzyme systems, work best in exclusion cases but chance of inclusion does not exceed above 99.7 %. In DNA profiling, the probability of identical pattern between the two randomly selected individuals is in order of 1 in 10¹⁴ to 10³⁰, keeping in mind the world population which is approximately 5x10¹⁶. Thus the DNA profile can be considered highly unique (except monozygotic twins). The objective of DNA laboratory is to help the police to solve the crime and also to help the judiciary in criminal justice.



4. General Analytical & Instrumentation Division :

Chemical analysis of material like petroleum products, cement, explosive material and post explosion residues, oils and fats, dyes, dangerous drugs like heroin, brown sugar/gard, cocaine, methaqualone, LSD; narcotics such as opium, cannabis: charas, ganja, bhang, blood and urine samples in consumption of such drugs, industrial chemicals and residues thereof in cases of murder, arson, explosion, theft, cheating etc. is carried out in this division. Instrumental Analysis is carried out using High Performance Liquid Chromatography, Gas Liquid Chromatography and so many. Other automated equipments to determine flash point,

viscosity and distillation range, which are mostly used for analysis of petroleum products, have also been used.



5. Physics Division :

Examination of “Trace Evidence” materials like soil, paint, glass, metal, fiber and restoration of erased numbers/marks, examination of tool marks etc. in murder, theft, vehicle accident and other cases is done in physics division. For the examination of these exhibits the instruments like, Simultaneous Thermal Analyzer (STA), Energy Dispersive X-Ray Fluoroscence Spectrophotometer(EDXRF) are used and Video Spectral Comparator (VSC-5000) is used for examination of ink on forged documents like duplicate currency notes, fake stamps, stamp papers, lottery tickets, certificates and bank cheques.



6. Ballistics Division :

This division examines standard and country-made firearms, deadly weapons like revolvers, pistols, assault rifles, carbines and ammunition.



A comparison microscope is used for comparing the striations on the fired bullets and firing pin impression on fired cartridge cases from crime scene with test fired bullets and fired cartridge cases.

This division also undertakes the work for examination of gun shot residues of fired ammunition, shot holes on clothes/skin/window glasses etc. and distance of firing in cases of murder/assault. The examination of fire arms in possession under Arms Act is, also carried out in this division.

7. Prohibition Division :

Detail reporting about percentage of alcohol in the samples of illicit liquor/wash, liquor, foreign liquor, in possession offences under Bombay Prohibition Act and blood alcohol in serious offences like rash driving in drunken condition under Motor Vehicle Act, and offences which fall under I.P.C. sections 302, 307, 304 done by this division. Alcohol assay of Excise is done by using Densitometer.

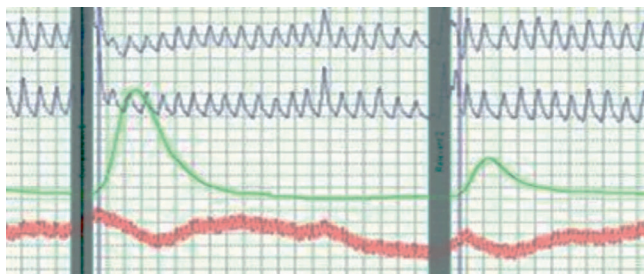


8. New Emerging Techniques :

I) Polygraph or Lie Detector Test :

Polygraph examination is a non-invasive procedure in which the arousal of the Autonomic Nervous System (ANS) of the subjects are tested with the help of electronic sensors attached to different parts of subject's body. This is based on the Psycho-physiological principle that there will be an ANS arousal that can be detected in the bodily functioning when a person tries to lie or hides information related to his involvement in a criminal conduct. For polygraph testing, the subject is asked to sit in a chair comfortably in a quiet room and the

sensors are attached to his chest, abdomen, biceps (upper arm), fingers and ear lobe. The physiological parameters that are taken into consideration for scoring and interpretation include Blood Pressure (Sphygmograph) Respiration –Upper and Lower (Pneumograph), Skin Resistance and Conductance (Galvanic skin Response), and Countermeasure. The computerized polygraph detects and displays the body functioning of the subjects throughout the testing during which he /she is asked a set of questions.



The changes in the physiological arousal recorded by the sensors after each question is asked are compared with the baseline activity. The responses to the Relevant Question are compared with the Comparison Questions on all the parameters. There are Computerized as well as Manual Scoring systems available, in which numerical values are assigned to the responses observed. The results are classified as ‘Deceptive’, ‘Truthful’ or ‘Inconclusive’ based on the statistical significance of the difference between the answers to the relevant and comparison questions. ‘Deceptive’ means physiological changes seen in the graph during polygraph testing when the relevant question shows more changes than the comparison question. It means that person is being deceptive in other words the subject (person) has not been truthful in answering that particular question and so possibly hiding some information related to it.

II) Narco Analysis :

An invasive technique where a particular Barbiturate-Sodium Pentothal, is administered to the subject which causes an alteration in his state of consciousness during which time question related to the crime

are asked. Sodium Pentothal is given in small increments till the subject exhibits certain symptoms like slurred speech and / or motor restlessness. The drug is continuously administered in small doses, to maintain a state of anesthesia. Sodium



Pentothal affects the Frontal Lobe of brain to remove a person’s inhibition. It makes him more relaxed, comfortable, free and conversant. Narco-analysis is used mainly in cases of National Interest. It may help in revealing concealed information. The team conducting Narco-analysis comprises of Anesthesiologist, Psychiatrist, Forensic Psychologist and the Supporting staff, if required.

III) Brain Electrical Oscillation Signature Profiling :

Brain Electrical Oscillation Signature Profiling is a technique that based on various principles of Neurosciences in detecting the involvement of individuals in crime with the use of applied Electroencephalogram (EEG).



This technique is based on the concept of 'Experiential Knowledge acquired by the subject through participation in a criminal activity. This is acquired through execution of a particular act or a personal participation in an event and hence it is different from 'Conceptual Knowledge' of familiarity of the word. BEOS helps to reveal the presence or absence of experiential Knowledge of crime-related activities in individuals who are investigated for the same. This is based on the fact that 'Probes' that are presented to the suspect evoke remembrance of experience that he or she would have had. Such remembrance will be accompanied by extensive changes in the electrical oscillation pattern in the brain. The electrical oscillations are acquired and analyzed by a system called Neuro Signature System (NSS), developed exclusively for forensic use.

This system carries out recording of the electrical activity of the brain by placing 30 cephalic electrodes with reference electrodes in the ear lobes and 2 channels for recording the eye movements. The probe presentation and acquisition of electrical oscillations are carried out automatically by the NSS. After continuous acquisition, an epoch file with the orthographic and auditory probes is automatically made for analysis. The data is analyzed automatically by the NSS program and a report is printed out by the system. In this report, each probe shows either "Experiential Knowledge" or "Emotional Response" or the level at which each probe was cognitively processed, indicating either, "Primary Processing" "Encoding", "Familiarity", "Activation Suppression" or "Negative Response".

IV) Cyber Forensic :

Cyber Forensic can be defined as the process of extracting information and data from computer storage media and guaranteeing its accuracy and reliability. The challenge, of course is actually finding this data, collecting it, preserving it, and presenting it in a manner acceptable in a court of law.



Figure 1: SOLO IV forensic duplicator

It is simply the application of Computer/ PDA/ SIM/ Credit/Debit Card investigation and analysis techniques in the interest of determining potential legal evidence. Evidence might be sought in a wide range of computer crime or misuse, including but not limited to theft of trade secrets, theft of or destruction of intellectual property, and fraud. Computer specialists can draw on an array of methods for discovering data that resides in a Computer/ PDA/ SIM/ Credit/Debit Card or recovering deleted, encrypted or damaged file information. Any or all of this information may help during discovery, depositions or actual litigation

The analysis could be used in recovering any sort of data from hard disks or other similar storage devices, data like documents, e-mails, images etc. Certain other small electronic devices which would be used depending on the nature of the case are also available such as PDA seizing devices, mobile SIM card readers to retrieve information from seized cell phone SIM cards, credit card readers, to retrieve information from credit/debit cards etc.

V) Tape Authentication :

To determine whether or not a tape has been edited, tampered with, or altered in any way. The output signals of tape recorders can be damaged by three general factors –noise, interference and distortion – each of which is caused by a specific condition.



In addition, there are what Cain calls “adverse forensic influences” that include the bandwidth equalization of telephone lines that limit voice frequencies to between 300 to 3500 hertz. To reduce or eliminate various noise and distortion sounds from an audio tape, forensic audio specialists use a variety of filter. For example, when a tape hiss occurs within the speech frequency range, a so-called filter is used to eliminate it.

The tape enhancement process, therefore, must start with examination of the equipment used and the recording tape speed. Once a tape is “cleansed” of interfering noises to make the recorded voices or other pertinent sound as clear as possible, it usually must be authenticated before it can be introduced as evidence in court, to avoid any charges of illegal tampering.

Video Authentication :

Video authentication is a process that is used to ascertain the trustworthiness of a digital video. In other words, a video authentication system ensures the integrity of digital video, and verifies that the video taken into use has not been tampered.

Forensic Video Examination :

The forensic video examiner is concerned with the authenticity and integrity of the signal. Questions relating and whether the tape is copy, a compilation of other tapes or an edited version are of important

consideration. Forensic examinations of videotapes usually consist of both a visual and aural examination. One of the more important piece of equipment used in forensic video examinations is a waveform monitors which is a specialized oscilloscope. It displays the voltage versus time mode and has specialized circuits to process the signal. If any editing occurs, then it's possible to display the signal aberration on the display screen of the instrument.

Softwares used for Video Examination :

i) **Video Focus Version 2 :** This software is basically used for video authentication. It has various techniques like stabilizing the video clip, enhancing the quality of video tape etc. so that the tape is in suitable form for further use. We can also compare and match the similarities between various videotapes.

ii) **Image Pro Version 6 :** This is basically image enhancement software. It enhances the quality of image so that it is in suitable format for further use. In this, you can process the image through various image processing algorithms. You can also process the image by passing it through various image filters.

VI) Speaker identification :

The use of auditory analysis, acoustic analysis and/or computerized techniques to recognize, identify or discriminate among human voices. A human voice is unique to an individual as a fingerprint. This makes it possible to identify a speaker and to record the characteristics of his or her voice for use as the basic for future verification, identification of a person from the sound of their voice. Speaker identification is the way of identifying a person solely by their speech.

Forensic Speaker Identification :

Forensic Speaker Identification usually consists of both aural and spectrographic analysis of voice. Various steps such as digitization, segregation, clue word formation etc. are involved. The spectrographic test involves testing of various parameters such as frequency, pitch, energy, amplitude in voice signal.

The level of noise involved also affects the result. Different filters are applied to remove noise such as broad band filters.

Software used for speaker Identification : Gold Wave is used for editing signals and noise removal. **Computerized Speech Lab-4500** is used for spectrographic analysis of speech

9. Other Divisions :

Apart from above technical divisions, Administration Division, Accounts Division, Stores, Library, Photography Division and Animal House are also important divisions of this Directorate.

10. Animal House :

Biology division has an animal house which produces anti-sera against human and other animals. The anti-serum is used to confirm the species of the biological evidence material. The anti-sera produced are also supplied to all the regional laboratories also. In that way biology division is considered as backbone of Forensic Science Laboratory.

Public Important cases analyzed :

- Bomb blast cases: 1993 serial blast, 2003, 2006 in local trains, 2011 serial blast in Mumbai, Malegaon blasts- 2010, German Bakery blast, Pune.

- 26/11 terrorist attack (2008)
- Rave party – Pune in 2007, Juhu in 2009, Khalapur in 2011.
- Ballistic examination- Pramod Mahajan murder case, Dr. Narendra Dabholkar murder case, Shri Pansare murder case.
- Psychology- RTI activist Satish Shetti murder case, Serial bomb blasts in Ahmedabad and Bangalore in 2008, Malegaon bomb blast Case, Arushi Talwar murder case.
- Cyber Crime: Digital examination in 13/7/11 Mumbai blast case, German Bakery blast Case, Rave Party case.
- Tape Authentication & Speaker Identification (TASI)- analysis of Abu Jundal's voice samples in 26/11 terrorist attack, Analysis of CCTV video footages in Dive Agar dacoit case, Ravi Pujari extortion case.
- DNA : Sheena Bora's murder happened in year 2012.

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► Hon'ble Shri. Rajnish Seth, DGP, M.S., Mumbai releasing book titled "Dealing With Stress" during Conference on Crime and Law & Order at CPR, Pune on 14th Jan, 2023



Hon'ble Shri. Sanjay Kumar, DGP Training & Spl. Unit, M.S., Mumbai emphasizing the need in improvement of investigation & Visitations to the participants of Sr. OPSU-2, Batch-1 (SP/DCP/Addl.SP)



Hon'ble Shri. Rajnish Seth, DGP, M.S., Mumbai addressing the Award function for Best Investigation from Central Home Affairs Ministry at CPR auditorium - 15th Feb, 2023



Hon'ble Shri. Rajnish Seth, DGP, M.S., Mumbai with Award Winners of Maharashtra State Police for Best Investigation from Central Home Affairs Ministry on 15th Feb, 2023



Hon'ble Sh Rajnish Seth, DGP, M.S., Mumbai with All DGP's, ADGP's, CP's, Spl.IGP's & SP's - Conference on Crime and Law & Order at CPR, Pune on 14th Jan, 2023



Hon'ble Shri. Devendra Fadnavis, Deputy Chief Minister & Home Minister, Maharashtra State Launched Maharashtra Emergency Response System(MERS) - Dial 112 Social Media Integration project, on 14th Jan, 2023 at CPR, Pune.



Smt. Jyoti Kshirsagar, SP, CPR, Pune Receiving Medal from Hon'ble Shri. Rajnish Seth, DGP, M.S., Mumbai - Medal for Best Investigation of Central Home Affairs Ministry- Beed Ashti Murder Case



Hon'ble Shri. Rajnish Seth, DGP, M.S., Mumbai is releasing the book titled 'Police Patlancha Sarthi' on 15th Feb, 2023 at CPR, Pune.

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पोलीस संशोधन केंद्र, पुणे

Centre For Police Research Pune

Chavan Nagar, Pashan Road, Pune - 411 008. | Tel : +91-20-2567 8978 / 2565 3696

Email : directorcprpune@gmail.com | www.cprpune.org