

# Past, Present, and Past as Present in India's Predictive Policing

**In India, law enforcement's use of big data to thwart crime has instead amplified the discriminatory presence of caste, religion, gender, and other social markers within a system that is supposedly objective and neutral.**

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DOI: 10.1145/3433144

In 2014, when I started my MPhil/Ph.D. program in India, my professors were skeptical about a research project on big data and its impact on the current society. At the same time there was a universal biometric identification system called UID, or its Hindi name *Aadhaar*, looming in the background. For the next two years, against speculations that Aadhaar would be just another government project only talked about in the newspapers, UID had become mandatory to receive welfare subsidies, register a marriage, and even open bank accounts and purchase prepaid SIM cards.

So when Delhi Police launched a Crime Mapping and Predictive System (CMAPS) in 2017 that promised to predict crime in the city, it became clear that big data's impact was not in the distant future but in the here and now. Though Delhi Police promised the software was objective because it would only point to a "location" as opposed to any specific individual for crime, we all know—and as Cathy O'Neil also argues [1]—in our deeply segregated societies, location is a good

proxy for race (here in India it's caste), religion, even immigrant status.

The historical data for CMAPS comes from another department within Delhi Police, which could be understood as a type of prototype CMAPS, called the Digital Mapping Division (DMD). The purpose is to manually plot crime maps using data from the local emergency call number, 100, (akin to 911 in the United States) under four "heinous" crimes: rape, robbery, snatching, and Eve teas-

ing.<sup>1</sup> These calls are sorted based on the details given by the caller. A Police Control Room (PCR) van is then dispatched to each crime scene to investigate and collect details that were not available on the call; final sorting is done based on these details. This processed, verified data is then recorded in a daily database called the "Green

1 "Eve teasing" is a colloquial term for catcalling, a phenomenon most women in India face in public everyday.





Diary.” Green diaries are manually mapped in DMD and the maps (23 of them in total) are sent to heads of various police district for daily resource allocation of the police. The data from these diaries informs the “layers” for CMAPS [2]. Layers could be imagined as the historical data that helps the algorithm learn to classify further data. CMAPS itself maps the emergency call data, which is unverified unlike that in DMD, and First Information Report (FIR) data from all the police stations in Delhi. Though not discussed here, literature shows FIR to be a skewed representation of crime data [3].

The maps that are made in DMD and in CMAPS constitute an important element of policing infrastructure. Therefore processes that make them possible, especially the institutional culture in which they are developed and used, gives a fair idea about the impact AI in policing would have on communities, especially marginalized and vulnerable communities that have very little resources for grievance redressal.

### THE POLICE AND THE CASTE FACTOR

Through ethnographic fieldwork at the Delhi Police Headquarters from 2017 to 2019 for my Ph.D. research, I studied the construction of “the criminal” through predictive policing in Delhi. This experience not only broadened my understanding of the institutional culture of law enforce-

ment, but also exposed how social backgrounds interact with data-led policing.

Except for the Indian Police Service (IPS) officers who make up the ranks of deputy commissioners and above, the vast majority of police in New Delhi come from the neighboring state of Haryana, many from the caste of landed farmers who are looking for a “respectable” job in the police force. Such, the Delhi Police largely represents an upper caste but low economic class strata of society. According to some junior officers (constables), a respectable police job would ensure a higher social standing in their respective caste communities rather than following their ancestral professions, and also secure better marriage prospects for them. A constable level officer in the DMD told me his family has enough property to support them-

**The inscriptive devices of the crime map hide power dynamics between what is chosen to be represented and who is in charge of the choosing.**

selves but a *sarkari* (public, in service of the state) job, especially in the police, increases his social standing.

A 2018 report ranks the Delhi Police 11<sup>th</sup> for diversity among the 21 states studied in India [4]. The report also states the composition of the police force is largely upper caste at the lower rungs where officers are not hired according to constitutional rules of affirmative action of the depressed classes [5] defined as: Scheduled Castes (erstwhile “untouchable” castes and still the most marginalized section of the population in India); Scheduled Tribes (indigenous tribes who have been granted protection by the government); and Other Backward Castes. The representation of Muslims, a stigmatized minority religion in India, is also low because—ineffective as it is at this level—there is no affirmative action in hiring practices for Muslims in government services.

Without the most marginalized sections represented in the police force, it is not surprising social imaginaries of castes remain unchecked amongst officers. Stereotypes of lower castes and Muslims being lazy, devoid of intelligence, and prone to crime are commonplace [6].

Several policemen on investigation duty, thus, consider their callers, often people from such marginalized classes, as inherently “criminal” or with criminal tendencies. Call takers have the perspective that those residing in “posh” areas of Delhi or those who are “educated”<sup>2</sup> hardly call the emergency number. In cases of sexual harassment calls, a call taker told me how the girls will start apologizing and ask to brush away the matter the moment the police reach the incident location. According to the police’s own calculations, only about 5,000 calls are considered “true” out of a total of more than 20,000 calls. An officer in the DMD opined that the high numbers were due to the emergency number being toll free, implying that when more poor people are able to access the police, it becomes a nuisance.

<sup>2</sup> Being educated in India is a euphemism for belonging to the upper class, a reference to those who do not bother, or rather, do not have to be bothered, by the petty occurrences in life.

## HISTORICAL ROOTS OF THE POOR AS DEVIANTS

A nuisance is what the poor, overrepresented by the lower castes and minority religions (especially Muslims), are to the police. Being poor is also considered a natural state and not something connected structurally to the government or its policies. [7]

Considering certain specific castes and communities as naturally criminal has a long history in India. The Criminal Tribes Act of 1871 formalized in colonial India an informal understanding propagated by Brahmins (the upper most caste in the caste hierarchical convention in India) that relegated everyone living outside the village boundaries, those engaging in acts declared against the village moral code, or people of a lower caste background as a criminal by birth. As Piliavsky notes, conflating caste and criminality—especially in the cases of lower castes, nomadic tribes, and other non-Brahminic castes—was not a colonial invention as many historians have argued, but rather a legal formalization of common beliefs in the country at the time [8]. Radhika Singha argues it was the attitudes of high caste elites toward the poor and lower castes that shaped them as debased and criminally inclined in the eyes of the colonial government [9].

Immigrants are also viewed under the same skewed lens, an attitude that has deep historical roots. According to Nandi, an inherent prejudice against the poor male migrant transformed into fear as three prominent riots broke out in the city of Calcutta between the years 1896 and 1898. The responsibility of these riots and the ensuing disturbance in the city was put on the outsider, the poor male migrant. Giving birth to the figure of the “Goonda”<sup>3</sup> and solidifying its legitimacy in the Goonda Act of 1923. The Goonda Act was enacted to legalize the removal of petty criminals from the city of Calcutta. Only those “criminals” who could prove residence of three fa-

3 Goonda is loosely the wayward vagrant who indulges in petty crimes. He is fearless of the police and the local administration because of a combination of factors, such as being from outside the region and having strong local networks of similar petty criminals to provide protection [10].

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mial generations in the city were exempted from being deported [10].

### PAST AS PRESENT

Fast forward almost a century, the Criminal Tribes Act has been struck down since India’s independence but its cultural vestiges remain. The members of such tribes are still the poorest and the most disadvantaged citizens of the country. They still carry the social stigma of being born criminals and, thus, are overrepresented in the police system. The law has given birth to such artifacts as Ruffian Registers, *Badmaash* Registers, and records of habitual offenders in India. The inhabitants of these records are never upper caste Hindus, but always marginalized castes and tribes or Muslims, all poor and residing in slums or shanties [3].

Back in the communications wing at Delhi Police HQ, I observe officers working on call data to render it useful for hotspot mapping. Casual conversations that stigmatize the poor are deep rooted in this culture. What are considered publicly, and very vehemently described as criminal areas, are immigrant colonies, minority settlement areas, or areas that lay, quite literally, in the “outer” districts of the city [11]. Police officers working in the crime mapping division believe most crime originates from these areas [12]. Exercises such as the National Register of Citizens<sup>4</sup> would rid the city of “outsid-

4 The National Register of Citizens is proposed to be a nationwide exercise in India to document “illegal” immigrants in the country. The exercise is already underway in Assam.

ers” officers claim, which would be an important condition for restoring the city’s crime free status. For sexual harassment crimes, the officers question the need for women to be outside after hours. A senior officer also argued that while sexual offenses with minor girls is an indication of a deranged mind, those with girls above 16 years of age do not take place without some fault of the girl. Officers also reprimanded me for wishing to visit so-called “crime prone” areas (North East Delhi) for research. When I insisted, they made me promise I would not visit those areas without a “male” companion. Officers assigned to North East Delhi and outer districts of Delhi characterize these communities as “punishment postings,” due to their high crime figures and the perceived unlikelihood of any improvement in the conditions of the people living there because of their supposed natural inclinations toward crime.

The rules of police investigating, recording, and processing crimes are set even before a complaint is filed; people are classified and categorized according to binaries of good/bad, legal/illegal, civilized/criminal, and clean/dirty. As Khanikar puts it, the institution of the police, needed to maintain law and order, navigates through these binaries to ascertain who requires “protection” and who requires “regulation” and “surveillance.” She writes, “Thus, while the elite of New Delhi were guarded routinely by disproportionately larger numbers of policemen, the city of Old Delhi, on the other hand, experienced policing for ‘disciplining’ only, in times of disturbances” [6].

### PREDICTIVE POLICING AS A REPRESSIVE SOCIO-TECHNICAL SYSTEM

If algorithmic systems are indeed sociotechnical systems, and Nick Seaver [13] argues they are, these attitudes make their way into data collection and analysis. While reviewing a daily crime map of Delhi one day in DMD, I observed the Muslim majority regions of the city considered to be heavily crime prone were showing to be relatively crime free. An officer commented how this was because Muslims were cunning enough to leave their neighborhoods safe while attacking



other areas. He also added, “what would they [being so poor] have to rob in their own areas?”

One of the sites of technological neutrality, but still a place where gender and caste negotiations play out everyday, are standardized forms in the call center environment, where the details of emergency calls are recorded. The form contains 130 categories of crime into which all the calls are sorted. These categories are taken from the Criminal Procedure Code (CrPC) and the Indian Penal Code (IPC) of the constitution, which derives heavily from gender and caste understandings of the colonial era. [14] Again, as Piliavsky [8] argues, the colonial era did not have any epistemic value, therefore, criminal laws developed in that era should be studied further for their caste origins.

At Delhi Police HQ, complaints from women are treated and recorded with a perceived guilt of the victim. These women are viewed as licentious manipulators who use the threat of the police to get back at a lover, or they are someone out at night to seduce unknowing men. But they are hardly ever victims of sexual harassment. Gender-based notions are laid stark in categories of domestic violence, which is defined as the husband beating the wife. However, there are no categories that could be used if the wife beats the husband. It is put aside as a mere “quarrel.” The categorization of a domestic dispute as either a quarrel or domes-

tic violence according to the gender of the perpetrator shows the lack of nuance, which is a feature, not a bug, of standardized forms [15]. Standardization, an essential condition for the development of a modern society, and in that vein the use of algorithms too, thrive on removing nuance from the fuzziness of human life [16]. Details are not valued; context is set aside and there is no room for anything but the “bare facts,” which are according to the norms set by the dominant group of the society. The desired end-product of such a society becomes a standardized criminal, who is a criminal merely for being out of the fold of the dominant group standardization.

Several calls from shanty settlements and similar areas get neither a reaction or a visit from the PCR vans. During my fieldwork at the Delhi Police Headquarters, the officers dis-

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covered PCR vans cut deals with their Dispatch counterparts to not visit all crime scenes allotted to them; dispatch keeps those vans only in certain “light areas of the city and does not send them to the “known crime prone areas.” Dispatch teams oversee the scheduling of mobile patrol cars and assign locations for them to visit according to the calls received. The officers on van duty, in turn, refuse to carry handheld GPS enabled tablets to avoid their own surveillance.

The need for making socio-economic layers in CMAPS as a definite way to rid Delhi of criminals also stems from such an understanding of a causal connection between poverty and crime. A sales representative of ESRI, maker of the platform ArcGIS on which maps in DMD are plotted, asked the officers in DMD to install solutions from ESRI to analyze socio-economic data from Delhi as a sure way to find criminals in the city. He explained many proven theories that poverty begets crime, therefore, surveillance of such areas is what is needed for better crime management. He and one of the senior officers in DMD were disappointed that Delhi Police is not spending enough money on collecting data on socio economic conditions of the city.

### CRIME MAPS AS INSCRIPTIVE DEVICES

Latour and Woolgar describe inscriptions as the final diagrams or curves about a substance in a laboratory, which then become the focus of its discussion. The activities, including the time and cost, that made the diagram/curve possible are hidden away, probably in manuals that no one cares to read. Any further writing or discussion about the substance takes the diagram/curve as a starting point [17]. Comparisons are made within diagrams and curves, effectively denying the processes that brought them into existence.

Reading hotspot maps, or even DMD’s static crime maps as the starting point of crime analysis hides a thick layer of cultural and historical background that informs how these systems are used. They hide technical glitches too, which can go unno-

ticed completely. For example, Delhi Police works with a dismal database of addresses in the city—500,000 for a city of 30 million. If you are poor and live in shanty in a slum, chances are high that your address is not in the database. The unplanned nature of the city makes it difficult for correct locations to be recorded for mapping, making it an extremely error ridden activity, especially for those with temporary addresses outside the planned architecture of Delhi [2]. When maps become the starting point of any discussion about the geography of Delhi, the “criminal areas” become a given, and not a constructed reality [18].

It might be too much of an expectation for crime maps to show the social arena of discrimination when even the colors, pallets, and legends used in these maps push a uniform, bureaucratic agenda. Does a Delhi Crime Map show the civic apathy shown to certain geographies? Do we even know about the lack of public resources in these areas? The crime map shows a uniform space of the city without any differences. The only difference is the amount of crime in different regions. Of course, all things being the same, if the only point of difference is number of crime events, then it alludes to a natural propensity to crime of certain people. That the police officers’ colonies<sup>5</sup> are hotbeds of crime is probably the best kept secret of New Delhi. Officers take pride if their kids escape the culture of their localities with the help of education. “There is so much crime ma’am, it is a difficult place to raise a child,” said one of the officers about living and raising children in a police colony. But, as I said before, these colonies are never publicly acknowledged as “criminal areas.” The inscriptive devices of the crime map hide power dynamics between what is chosen to be represented and who is in charge of the choosing. This is akin to Dennis Wood’s theorization

5 Police officers in Delhi have special residential spaces allotted to them in the city (this is a feature across India) where officers of lower and mid ranks live together, they are known as “police colonies.”

## People are classified and categorized according to binaries of good/bad, legal/illegal, civilized/criminal, and clean/dirty.

of maps projecting a myth of the geography rather than the geography itself [19].

### CONCLUSION

It is difficult to separate social and cultural roots from any sort of categorization, especially when the category in question is that of “crime” and “criminality” which according to Emile Durkheim, is that which offends the collective conscience [20]. The definition of crime is always in the hands of the powerful. In such a case, it is important to look at algorithmic systems, which claim to override such connections and promise an objectivity that would always be elusive to such systems. Caste hierarchies have always been linked to deviance in India, where those belonging to the lowest categories and not conforming to a normalized way of living were feared and criminalized by the upper castes. This history has not gone anywhere, with most prison/policing systems overwhelmingly represented by marginalized castes and tribes even today. With what we know about algorithmic systems being enmeshed with the social [13], it calls on us to understand the kind of “truths” these systems are trying to tell us.

### References

- [1] O’Neil, C. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown Random House, New York, 2016.
- [2] Marda, V. and Narayan, S. Data in New Delhi’s predictive policing system. In *Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency*. 2020.
- [3] Biderman, A.D. and Reiss, A.J. On exploring the “dark figure” of crime. *The ANNALS of the American Academy of Political and Social Science* 374, 1 [1967].

- [4] Common Cause, CSDS, Lokniti, Tata Trusts, Lal Family Foundation. Status of policing in India. 2018 Report. Common Cause and Centre for Study of Developing Societies. 2018.
- [5] Dhara, T. Principles of reservation and diversity do not matter while recruiting state police personnel. *Caravan*. [September 30, 2019]; <https://caravanmagazine.in/caste/principles-of-reservation-and-diversity-do-not-matter-while-recruiting-state-police-personnel>
- [6] Khanikar, S. *State, Violence, and Legitimacy in India*. Oxford University Press, 2018.
- [7] Pichon, T. 4 examples that show that poverty isn’t a natural human condition. The Rules. [October 17, 2015]; <https://therules.org/4-examples-that-show-poverty-isnt-a-natural-human-condition>
- [8] Piliavsky, A. The “criminal tribe” in India before the British. *Comparative Studies in Society and History* 57, 2 [2015].
- [9] Singha, R. *A Despotism of Law: Crime and Justice in Early Colonial India*. Oxford University Press, Oxford, 1998.
- [10] Nandi, S. Goondas of Calcutta. K. Jaishankar, eds. In *Routledge Handbook of South Asian Criminology*. Routledge, 2019.
- [11] Bhattacharya, S. Outer Delhi takes ‘heinous’ spot on crime map: Study. *Times of India*. [December 16, 2015]; <https://timesofindia.indiatimes.com/city/delhi/Outer-Delhi-takes-heinous-spot-on-crime-map-Study/articleshow/50195141.cms>
- [12] HT Correspondent. Delhi Police chief blames migrants, youth’s frustrations for rising crime graph. *Hindustan Times*. [January 10, 2019]; <https://www.hindustantimes.com/delhi-news/delhi-police-chief-blames-migrants-youth-s-frustrations-for-rising-crime-graph/story-ju0IAjinW171Ae22tyYvL.html>
- [13] Seaver, N. Knowing algorithms. Janet Vertesi and David Ribes, eds. In *digitalSTS A Field Guide for Science & Technology Studies*. Princeton University Press, Princeton, 2019.
- [14] Subramanian, K.S. The sordid story of colonial policing. [November 20, 2017]; *The Wire*. <https://thewire.in/government/sordid-story-colonial-policing-independent-india>
- [15] Lampland, M. and Star, S.L. *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life*. Cornell University Press, Ithaca, NY, 2009.
- [16] Scott, J.C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale University Press, New Haven, 2020.
- [17] Latour, B. and Woolgar, S. *Laboratory Life: The Construction of Scientific Facts*. Princeton University Press, Princeton, 1986.
- [18] Kindynis, T. Ripping up the map: Criminology and Cartography Reconsidered. *The British Journal of Criminology* 54, 2 [2014], 222–243.
- [19] Wood, D. *Rethinking the Power of Maps*. Guilford Press, New York, 2010.
- [20] Jones, T.A. Durkheim, Deviance and Development: Opportunities Lost and Regained. *Social Forces* 59, 4 [1981].

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