CURRENT ELECTRONIC VOTING MACHINES IN INDIA: INSIGHTS INTO THE WORLD'S GREATEST DEMOCRATIC ELECTIONS

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ABSTRACT: According to a 2011 census, India has more than 1.4 billion people, making it the world's largest country. It appears promising because it has the potential to help extend democracy over the world while simultaneously understanding and valuing distinctions in culture, society, economy, and geography. According to the 2019 election overview report (ECI, 2019), there were about 90,87,17,791 voters (including NRIs) in 543 parliamentary districts. People can express their opinions to their government by voting in elections. Elected politicians are chosen by the public and must rely on their votes to remain in office. Before you can vote, your choices must be written on a ballot. Because India is the world's largest populous democracy and a developing economic and political force, its elections are widely watched around the world. Elections in India are crucial since the country has one of the most important government systems in the world. According to the Universal Declaration of Human Rights (UDHR), everyone has the right to vote in fair and free elections to choose their government leaders. The Election Commission of India, an independent constitutional body, is in charge of election administration in India. Voter involvement and comprehension are critical for a successful election. Anything may be said about how foreign trade is now going.

Keywords: democracy, government, accommodates, public, Human Rights.

1. ELECTRONIC VOTING IN INDIA

The names of voters are not made public until the Election Commission of India (ECI) has thoroughly vetted them. This is due to the fact that it phones each voter's house to ensure that they are properly registered. Until 2004, the ECI held its elections using the same procedure. The election required over 800,000 metric tons of paper and over 400 thousand gallons of permanent ink.

According to Kumar et al. (2012) and Aditya et al. (2004), 2.5 million secure boxes would be maintained in a secure location until the election results were known. Voter ID cards and Aadhar cards can both be used to establish your identity when voting. Before they can vote, voters must mark their left fingers with permanent ink and sign the voters' record. Some have suggested that if the votes were counted by hand, the results would be skewed in favor of one candidate. However, developments in ICT resulted in a one-of-a-kind, low-cost solution that enabled additional e-government progress.

By introducing more validation processes to ensure that ballots are genuine, the technical solution has reduced the likelihood of election fraud. Vote rigging and impersonation are examples of this. E-voting is a relatively new trend in e-government employing ICTs. There are a few ways to vote on a computer, but few people use them. In recent years, India, the United States, Japan, South Korea, and Brazil have all embraced cutting-edge technology to make their voting systems safer and more effective. Bhutan, Nepal, Bangladesh, and Namibia import their voting equipment from foreign nations, whereas India manufactures its own (The Hindu, 2014). A lot of countries are lobbying for computerized voting devices.

Aditya et al. (2004) list electronic voting systems such as online voting systems, cell phones, machine-readable ballot systems, and direct recording electronic (DRE) voting tools. As new technologies emerge, computer voting systems that are more user-friendly and secure become accessible. Because blockchain voting keeps voter information private while remaining open, it may help reduce election fraud (Alam et al., 2020). The layout of the Indian EVMs is simple, and they only require a little amount of software to function. Researchers have already demonstrated that complicated software is at the heart of the issue. As a result, it was proposed that the trusted computer base (TCB) be reduced in size. India's EVMs were created by the government-owned enterprises Electronics Corporation of India (ECI) and Bharat Electronics Limited (BEL). Section 61A of the Representatives of the Peoples statute of 1951, as well as subsequent amendments to that statute and the Conduct of Election Rules of 1961, have allowed the ECI to utilize VVPATs and EVMs throughout the country.

On May 19, 1982, ECI held its first election with electronic voting machines at fifty polling sites in Kerala's No. 70 Parur Assembly Constituency. In the early 1980s, the government-owned corporation ECIL created the first version of an EVM using Hitachi 6305 microcontrollers. However, during the 1998 elections for three state governments in Madhya Pradesh, Rajasthan, and Delhi, these machines were only tested in a few sites in India. National elections were never held with them (ECI, 1999). Both BEL and ECIL produced the second generation of EVMs in the early 2000s.

They have been widely used since the 2004 Indian national elections. Based on ECI feedback, ECIL and BEL improve EVM technology. Before they are marketed, all EVMs are reviewed and approved by the Ministry of Information and Technology's Standardization Testing and Quality Certification (STQC) division. The most recent generation of EVMs, manufactured after 2013, are known as "M3 EVMs," whereas the oldest, manufactured before to 2006, are known as "M1 EVMs." It is crucial to note that, while being controlled by the government, these enterprises are not members of the ECI. Members of each political party conduct at least three simulated elections to ensure that all EVMs are ready for use in a real election.

Wolchok et al. stated in 2010 that paperless DREs are no longer utilized in polls around the world. Among these are the United States, Australia, Ireland, and the Netherlands. On the other side, the Indian government has stated once again that it believes computerized voting machines would function effectively. The Netherlands was the first country to employ electronic voting procedures when DREs were implemented in 2006.

The 2019 Dutch provisional elections, on the other hand, reveal a flaw in security-based verification because specific candidates can be backed using a modified ES3B rather than a hacked EPROM. In 2016, the United States claimed that the Russian government was interfering in American elections via the internet. Many individuals believe that Russia tampered with voting equipment in 2016 to aid Donald Trump's presidential campaign. It is crucial to recall that Mr. Trump, a businessman turned politician, astonished everyone when he was elected President in 2016. The Federative Republic of Brazil, the largest country in South and Latin America, employed the Advanced Encryption Technique (AET) for its local elections in 1996.

According to the facts, the official method of holding a large-scale election is the most challenging option (Adekunle, 2020). In India, on the other hand, the Election Commission (ECI) supports the use of EVMs and has pushed back against anti-EVM groups and political parties to demonstrate their weakness. Some DREs can be very expensive in the United States and other wealthy countries. The new EVMs are reasonably priced (about $200 per) because to the low cost of the components that comprise them. Booth capture is a widespread kind of election fraud in the United States. It can be stopped by capping the amount of votes cast every minute to five.

In India, electronic voting machines (BU) are composed of two major components: the Control Unit (CU) and the Ballot Unit. People vote in the BU, and the CU collects and counts them. Both locations are included in the voting region. A 5-meter connection connects the two machines, with the voting system at one end. The machine appears to be powered by the CU's internal battery cell. When the voting system is not in use, a plastic masking tab can be used to conceal the sixteen

candidate settings.

Assume there are more than sixteen applicants for the position. In this situation, one additional ballot block (BU) might be added, bringing the total number of BUs and candidates to four. Because 25.63 percent of Indians cannot read or write, poll officials began putting candidate names and party emblems on paper labels on voting buttons in 2018. The control unit has multiple locked compartments that prevent anybody from getting to the counting and cleaning processes before the voting period is ended. The poll workers will always have the most up-to-date results using this method.

The Election Commission of India (ECI) established the Visa Verified Paper Audit Trail (VVPAT). After then, the voter can employ a third-party verification mechanism to ensure that their vote was appropriately counted. The voting machine prints a piece of paper with the names of the candidates, a number, and a group symbol on it. After gazing through the VVPAT machine's glass window for seven seconds, voters can be confident that they voted for the correct candidate. When the seven seconds are over, the ballot is placed in a secure location in case of charges of vote fraud or incorrect counting. The paper results are more likely to be right than the electronic findings when adding up the VVPAT cards. In preparation for the 2014 Indian elections, ECIL and BEL collaborated to create the VVPAT gadget. For the first time, VVPATs were utilized in Nagaland's 51-Noksen AC by-election. EVMs and VVPATs are not connected to one other for security reasons because they are different entities (ECI, 2021).

In response to what the Supreme Court (SC) said in a case brought by twenty-one protest groups, N. According to the Supreme Court, each assembly area must have five electronic voting machines (EVMs). According to the court, "not only political parties but also the entire electorate would be happier" (Mathur, 2019). National and local party leaders, such as Sharad Pawar and Chandrababu Naidu, agreed with this plan.

2. THE POPULAR PERCEPTION OF EVMS

There have been reports that EVMs can be hacked and attacked in many ways (Chauhan et al., 2018),

raising concerns about the security of the vote and the final count. This makes determining the credibility of the study's data and methodology difficult. Remember that Indian political organizations have never been afraid to say they oppose computerized voting machines. However, those in charge of the party do not always agree with those who say this. According to studies, people are more eager to use internet-connected products if they have reason to believe their personal information is secure. Many research studies on electronic voting, such as one by Venkatesh et al. (2003) and others, support the premise that when people learn about electronic voting machines from other people, they are more inclined to use them.

Although Indian EVMs have less TCB and easier-to-use software, scholarly security publications have proven that paperless DREs are forgeries. The ECI, on the other hand, continues to use them for voting across the country. According to Wolchok's 2010 research, shady insiders and other dishonest people with authorized or unauthorized access to voting machines could install malicious software that could be used to steal votes for the duration of the machines' use, which in India is typically more than 15 years or three general elections. Electronic voting machines are used in many important elections, including state and local elections. In India, electronic voting machines are the only ones capable of ensuring the safety of voting machines and the fairness of the voting process. Some sorts of fraud may have become more widespread after the implementation of electronic voting machines (EVMs). Election fraud, on the other hand, may have become less widespread. Election workers must be cautious since there is a risk of bribery, inebriation, intimidation, and technological attacks on EVMs at voting booths.

Over time, more and more research have revealed that machine voting has numerous advantages. The Indian School of Business (ISB), the Indian Statistical Institute (ISI), and the Brookings Institution (now the Center for Social and Economic Progress) examined survey data from the Indian Council for Social Research-funded Independent Center for the Study of Developing

Societies. This was done following the 2017 elections. EVMs have been found to be useful for both vuvuzela and smaller parties.

According to Debnath et al. (2017), the introduction of electronic voting machines (EVMs) has significantly reduced violent crimes such as murder and attacks on women such as rape. Without a doubt, the use of EVMs has reduced election violence. According to South Asia Monitor, 70% of voting locations in Bihar were designated as sensitive or hypersensitive, implying that violence was more possible. Tensions have decreased following the implementation of EVMs since it is more difficult to seize control of a box due to technical issues such as the minutely vote constraint. Voters had greater access to public goods with EVMs than with ECI, hence they were more satisfied with ECI. When voting tools are employed, there are far fewer invalid ballots cast, and more votes are cast for small candidates.

The Remote Electronic Voting Machine (RVM) has been approved by the Election Commission of India (ECI). This equipment allows voters to cast ballots for up to 72 distinct seats from a single voting location that is not in the same building. According to the 2017 Economic Survey, India has approximately 14 billion domestic workers. The ECI is doing it for the one-third of registered voters (67.4% of those eligible) who did not vote in the 2019 General Elections. The ECI's hurried steps are not helpful because the group aims to build RVMs by 2023. EVM trust has not increased significantly.

Up to 17 opposing parties, including the Indian National Congress (INC) and the Trinamool Congress (TMC), claim that electronic voting machines (EVMs) were responsible for the Bharatiya Janata Party's (BJP) victories in state assembly elections (Chatterji & Ramachandran, 2018). The BJP is likely to attend the RVM prototype demonstration. The INC, on the other hand, stated that they will not participate in the protest and urged the ECI to "restore trust" in the voting system. It is more crucial than ever to keep a careful eye on the ECI as it works to hold fair elections that involve everyone and maintain voter support. Many individuals are losing faith in the

ECI's trustworthiness and objectivity, as well as the EVM statistics. Nonetheless, the ECI was critical to India's prosperity since it introduced numerous new and improved voting techniques, such as the National Electronic Voting Machine (EVM) and the VVPAT.

3. CONCLUSION

The Indian Election Commission should (1) invest in the technological security of electronic voting machines (EVMs) and (2) use print, television, government websites, special events, and other forms of media to raise public awareness of the features, transitional benefits, and technological security of EVMs. Each voter is required to assume some responsibility for how the portion functions. The election is being closely monitored by all levels of government, major political parties, and the media because the outcome will have a significant impact on economic growth. Democracy would crumble if people did not believe that polls were free and fair.

In large democracies like India, where issues like security, privacy, eligibility, preventing duplicate voting, and ensuring voters do not receive receipts must all be addressed, secure electronic voting is more difficult to set up than ordinary tallying software. This is critical when utilizing electronic voting machines. There were 57 state-level political parties and 8 national political parties in January 2023. Voters, the media, and think tanks must exert pressure on the ECI to safeguard the right to free and fair elections.

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