GRASSROOTS JOURNALS

GRASSROOTS INSTITUTE

01(01) ● August 2021 | ISSN 2564-212X

Journal of POLICY & GOVERNANCE

Frequency: Biannual Language: English DOI: 10.33002

JOURNAL OF POLICY & GOVERNANCE
ISSN 2564-212X | 01(01) ● August 2021
www.grassrootsjournals.org/jpg

Journal of Policy & Governance is comprehensively covering the subjects of policy and governance in interdisciplinary and multidisciplinary approach. By bridging both academic and professional domains, the journal provides professionals, practitioners, researchers, students, and policymakers, and any other persons with information on developments in the field of policy and/or governance.

Published by:
The Grassroots Institute
548 Jean Talon Ouest
Montreal, Quebec
Canada H3N 1R5

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JOURNAL OF POLICY & GOVERNANCE
ISSN 2564-212X | 01(01) ● August 2021
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GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
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M – 00226 | Inaugural Editorial

Policy and Governance

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INAUGURAL EDITORIAL

Dear colleagues,

Welcome to the “Journal of Policy & Governance”!

In my opinion, an editorial may reflect the general direction of the journal, values, strategy, priorities, goals and objectives, and so on. This is the first edition of the Journal of Policy & Governance where I act as the Editor-in-Chief. The title of the journal includes two key concepts, the "Policy" and the "Governance", and they are crucial for the target audience of the journal. That is, the field of "Policy Science": policy cycle, problem identification for analysis, policy environment, resources, stakeholders’ analysis, communications (strategic, multilevel, etc.), policy tools and evaluation, etc. Also, these are values, objectives and methodology of the research and policy analysis, policy as the process and reasons for state intervention, evidence-based policy, quantitative and qualitative methods of data processing and the formation of evidence in the policy process and so on.

The field of governance is also valuable for research: democratic, good, sensitive, multilevel, digital, and so on: Service State, public consultation, and interaction between government, business and civil society in the policy-making process. Common decisions, power and out of power policy makers, leadership, analysts and policy actors also require semantic and empirical content in the articles of the journal.

……Cont.

How to cite this editorial: Tertychka, V. (2021). Inaugural Editorial. Journal of Policy & Governance, 01(01), vi-vii. https://doi.org/10.33002/jpg010100

Promising areas of research would be multilevel governance and balanced social development, cohesion policy, vertical-horizontal interaction and networks in the multilevel governance, digital multilevel governance, etc. An interesting example would be benchmarking of global and multilevel governance: supranational, national, regional and local levels in their interaction. Also, the "Spiral of Success" as a follow-alternative to linear model of policy making is worth mentioning. As an applied aspect it would be desirable to show different types of policy documents in the articles. Public administration, gender aspects, microeconomics for policy analysis, finance and budgeting, local self-government, administrative behavior, policy paradoxes, urban planning, etc. are important areas of research in the articles of this journal. Special emphasis should be placed on policy and governance monitoring and evaluation, performance audit, governance forecasting and diagnosis, and policy measurement indicators. Multidisciplinarity and interdisciplinarity are the basic and main components for promising cross-researches of "Policy" and "Governance" areas. Ethics and morality as well as effectiveness, efficiency, economy, balance and publicity of policy are necessary components of research in the published articles. These are promising and urgent directions for studying in the articles of our journal.

I believe that strategic public management in the context of governance would be an innovative area for research in future articles. Moreover, such threads would be important, such as strategic public management, planning, forecasting, target programming and public policy, governance and operational management, research of information and technical support for policy-making, change management and public policy and governance.

Of course, the above thoughts only clarify the formulated purpose of the journal. Innovation, interdisciplinary benchmarking and a cross-cultural approach to public policy and governance will contribute to the quality of the journal. I hope that this first edition of "Journal of Policy & Governance" and subsequent editions will meet the high standards of quality articles and content of promising research. I would like to wish the authors bring a sustainable and evidence-based content to the future articles. The Editorial Board, following the principles of the academic integrity, will support and encourage authors for innovative and promising articles.

I wish all the success and inspiration to the authors and journal staff.

Prof. Dr. Valeriy Tertychka
Editor-in-Chief
Journal of Policy & Governance

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00227 | Lead & Research Article

Systematic Literature Review of Walkability and the Built Environment

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ABSTRACT

Walking is the most sustainable form of transportation. It is the socially equitable, economically viable and environmentally friendly mode of transportation. However, transportation technology has caused the desertion of the pedestrian space due to excessively motorized transport. Consequently, the pedestrian environment has degraded. In many cities, the abandonment of the pedestrian space has created a socially unfriendly environment. Walkability is a measure of how friendly an area is to walk. In measuring walkability, several criteria are considered, which include *inter alia*, the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security and comfort for walking. Findings from studies are mixed; some stated that improving the built environment does not encourage people to walk more; however, there are other studies that indicated otherwise. The aim of this paper is to review the built environment characteristics that promote walking. A literature review of studies that focused on walking, walkability, the built environment, pedestrian and urban design was conducted. This study has searched the electronic databases that intertwined with the Web of Science database. The choice was made due to the comprehensiveness of quality academic studies indexed in the database, thus providing reliable sources of body of work. The database integrates numerous sub-databases such as Web of Science Core Collection, Derwent Innovations Index, KCI Korean Journal Database, Russian Science Citation Index and SciELO Citation Index. The data are then thematically coded. The fields of urban planning, urban design, geography, transportation, sociology, and other related areas were included in the research. The result of this review offers evidence to the criteria that promote walking. The review found that three criteria are somewhat constant in promoting walking, namely, population and building density, land use and land use mixes, and safety. In short, by making an area perceived as safe with the presence of land use mixes and density are the best combination to create a walkable environment.

Keywords: Walking; Walkability; Built environment; Pedestrian; Urban planning

Received: 15 July 2021
Reviewed: 30 July 2021
Accepted: 31 July 2021
Published: 10 August 2021

How to cite this paper: Ariffin, R.N.R., Rahman, N.H.A, & Zahari, R.K. (2021). Systematic Literature Review of Walkability and the Built Environment. Journal of Policy & Governance, 01(01), 1-20. https://doi.org/10.33002/jpg010101

1. INTRODUCTION

Walking is the most sustainable form of transportation. It is the socially equitable, economically viable and environmentally friendly mode of transportation most accessible to the masses. However, advancement in transportation technology has caused the desertion of the pedestrian spaces due to the availability of primarily motorized transport. Consequently, this phenomenon has caused a degradation of the pedestrian environment (Kim & Mateo-Babiano, 2018). A vibrant pedestrian environment has been found to contribute to a more livable urban area (Shamsuddin et al., 2012). Jacobs (1961) in her book, "The Death and Life of Great American Cities (1961)" advocated a vibrant urban life that promotes pedestrian activity. This seminal book emphasizes cities as social connector, a hub where people can enjoy each other and appreciate the vitality of the community. Alas, in many cities, the abandonment of the pedestrian space has created a socially unfriendly environment (Yassin, 2019). It is reiterated in many studies that sense of community would be stronger in individuals living in pedestrian-friendly neighborhoods (French, 2014; Tsai, 2014). As an example, the finding in a study by Lund (2002) showed that pedestrian environment factors significantly influence sense of community. The surveys for the study were conducted in one pedestrian-oriented neighborhood and one automobile-oriented neighborhood in Portland, Oregon. Another study undertaken in Seoul, Korea showed that residents of pedestrian-oriented neighborhood were more likely to feel a sense of community in their neighborhood than were residents of auto-oriented neighborhood (Jung et al., 2015). Furthermore, the results of the study also revealed that social interaction factors and walkability among pedestrian environment factors positively influence a sense of community. These findings are in line with the New Urbanists' belief that a high-quality pedestrian environment will enhance sense of community by increasing opportunities for interaction among neighbors.

The pollution caused by motorized vehicles and accidents involving pedestrians are issues faced by cities when the built environment that support walking is neglected (Zhang et al., 2014; Peng & Bongard, 1999). The World Health Organization (2018) estimated that almost 12 million pedestrian road traffic injuries occurred annually. While Khan et al. (2020) found in their study on pedestrian road traffic injuries that globally, although the mortality rate is decreasing, the incidences of pedestrian injuries increased by 3.31% in 2017 compared to 1990. Compared to other road injuries, pedestrian injuries carry the highest risk of a person being severely injured, leading to significant morbidity, disability, and death (Kim et al., 2008; Mayou & Bryant, 2003). Acknowledging the importance of road safety issue, the United Nations has included this as among their main concern in Goal 11 of the Sustainable Development Goals (United Nations, undated).

Walkability is the basis of a sustainable city and a fundamental concept in sustainable urban design (Rafiemanzela et al., 2017). It is a measure of how friendly an area is to walk. In measuring walkability, several criteria are considered, which include among others, the quality of pedestrian facilities (Blečić et al., 2014; Lo, 2009), roadway conditions (Lee et al., 2013; Wang et al., 2012), land use patterns (Cowen et al., 2018), community support, security and comfort for walking (Devarajan et al., 2019; Ranasinghe et al., 2015). Findings of several studies indicated that improving the built environment did not cause people to walk more (Forsyth et al., 2009). However, there are evidence from other studies that stated otherwise (Park et al., 2014; Pearce et al., 2011). Generally, studies on walkability have several basic attributes that are cited as antecedents to walking. Some listed proximity, comfort, and aesthetic, while others have included public security and pavement safety, among others. Amidst this background, this paper aims to review the built environment characteristics that promote walking.

2. METHODOLOGY

2.1 Research Design

The systematic literature review (SLR) methodology was applied in this study to disclose the criteria of built environment that could promote walking. Preliminary step to understand this context is through conducting systematic literature review. This step is a fundamental aspect of an academic research. Initially, systematic literature review was done on healthcare research (Nightingale, 2009), and later developed and grew in other areas of research. Systematic literature review has become an established methodology to investigate the accumulated knowledge from various fields (Al-Tabbaa et al., 2019). Prior to starting any research, literature review must be conducted to understand the breadth and depth of the existing body of work and this process led to better understanding of the research field (Liu

et al., 2020). The procedure of literature review must be valid, reliable and repeatable (Xiao & Watson, 2019). Besides that, systematic literature review helps avoid research bias and errors (Smith & Noble, 2014; Dada, 2018) and reduce implicit prejudice and discrimination towards a subject matter (Sirelkhatim et al., 2015). Systematic literature review aims to synthesize all available and accessible sources of topic or research (Tight, 2019). It provides powerful strategies to collect and combine the evidence from many studies (Mertens, 2018). This gives advantage of providing totality of evidence by incorporating and judging positive and negative studies in the literature analysis (Torgerson, 2003). Hence, it produces robust comprehension of the topic of research, which subsequently will be useful for designing robust research framework and identifying the research gap, the important pillars in any research.

2.2 Search Strategy

First step in operating systematic literature review is to decide and determine the search strategy (Carvalho et al., 2013) in order to obtain all relevant studies (Guo et al., 2016). With that, this study has searched the electronic databases that intertwined with Web of Science database. The choice was made due to the comprehensiveness of quality academic studies indexed in the database, thus providing reliable sources of body of work. The database integrates numerous sub-databases such as Web of Science Core Collection, Derwent Innovations Index, KCI Korean Journal Database, Russian Science Citation Index and SciELO Citation Index. This study adopts systematic search strategy proposed by Bramer et al. (2018), which consists of the following steps:

Table 1: Systematic search strategy procedure

Step	*Activity*	*Description*
1	Determine a clear and focused question	Research questions must be well-defined, not too broad or too vague or too specific.
2	Describe the articles that can answer the question	Find the answer for the research question in the published studies.
3	Decide which key concepts address the different elements of the question	Key concepts refer to topics or themes that should be derived from the research questions, depending on the focus and context of the study. Important to also consider relevant synonyms to all key concepts.
4	Decide which elements should be used for the best results	Do not strict search strategy to research questions elements. Consider taking all relevant elements (important and less important) into the strategy. This may avoid obtaining limited results and maximizing number of related articles to be included in the study. Consider and be careful with bias and overlapping elements in the search strategy.
5	Choose an appropriate database and interface to start with	Important to consider all relevant synonyms to all key concepts. Some areas of study may have its own specific jargons to explain about something, phenomenon or activity, which most of the time will not be used in everyday language. Some studies will also use words that refer to the same thing interchangeably in the title, abstract and content.
6	Document the search process in a text document	Record each step in search strategy taken during the process in a log document. Besides reporting this information in methodology part, it would also help other researchers to follow and reproduce the steps for other research areas or in the same research area in the future to see the development or trend of the area / discipline.
7	Identify appropriate index terms in the thesaurus of the first database	Index all terms and arrange them from most appropriate to less appropriate to the context of study. The index can also be updated while searching for the studies.

8	Identify synonyms in the thesaurus	Most databases will usually provide structure of search with options and levels. This can be utilized if the words have a few equal important meanings.
9	Add variations in search terms	Skill for searching is not lest important here. Variation in search terms should be identified such as spelling difference (e.g., UK English or US English), abbreviations (e.g., World Health Organization or WHO) and relevant opposite words of the terms (e.g., integrity and corruption). In this stage also, truncation would be helpful in searching relevant studies (e.g., organization, institution*)
10	Use database-appropriate syntax, with parentheses, Boolean operators, and field codes	Utilizing parentheses and Boolean operators such as "AND" "OR" and "NOT" would help a lot in finding the right and relevant articles. For example, this can be done by combining the concepts and the context (e.g., Walkability AND built environment). Many databases provide selection of these functions.
11	Optimize the search	Step 3 to 10 should be optimized at this stage. Search strategy should combine different terms, synonyms with parentheses/ Boolean operators. At this stage also, there are several functions that can be utilized for year of publication, open access articles, languages and types of sources. Selection of these functions will affect the results.
12	Evaluate the initial results	After applying up to step 11, the initial results will be obtained. At this evaluation stage, examine all articles. Most of the time, the researcher will know which articles are considered as most important articles (for example by analyzing the most cited articles or the authors who are the expert in that specific areas). Several databases also have functions to sort it to researcher preferences such as the most relevant and oldest to newest or vice versa.
13	Check for errors	Errors sometimes not easy to be detected. However, it can be done by doing initial screening to the titles. It is also important to pay attention to irrelevant articles that appear in the search result.
14	Translate to other databases	Similar process should be done for each selected database to ensure the same procedure is conducted in maximizing the number of search results. Besides that, it is also part of the protocol of methodology to avoid bias and guarantee the research ethics.
15	Test and reiterate	It is important to carefully take note what has been done for each step, so that it can be replicated in the next cycles for different databases. Usually, the first cycle is very vital to set the ground rule for the whole search strategy.

Source: Adopted and adapted from Bramer et al. (2018)

2.3 Inclusion and Exclusion Criteria

It is important to establish inclusion and exclusion criteria based on the research objectives or questions (Kitchenham & Charters, 2007). There were few inclusion criteria set for searching the articles. The criteria are the articles that published in English language, published from January 2014 until January 2019, and the abstract is accessible. Whereas the exclusion criteria of searching articles were non-English articles and published outside the year range set for the study. These criteria were set based on the followings:

(a) English language: Majority of the articles were written and published in English and most importantly all reviewers can read and understand English to do the identification and screening process.

(b) Published from January 2014 until January 2019: The period was chosen because this period is the second half of Decade of Action for the implementation of UN GA Resolution 64/255. The main aim of this resolution is to improve road safety at the global level through various aspects, including improving walkability. Thus, it is important to review what have been done to achieve this in the second half of its implementation through literature and empirical studies. This objective is also in line with the aim of the present study where the study purposes is to review the built environment characteristics that promote walking.

(c) Abstract is accessible: Screening the abstract is part of the main element in PRISMA protocol. Therefore, it is important to include articles that provide abstracts.

In addition to this, the study follows suggestions by Cauwenberg et al. (2018) to exclude several types of articles published in the database such as conference proceeding and expert opinion. All these criteria were set to ensure the context of the study reflecting the current trend of the study area. To search for articles, the study has used several combinations of key terms, which were related to the objective of this study. The combinations of key terms are Walk* AND Built Environment. The study found 133 articles resulted in search based on the set key terms. However, only 20 articles were included in the study. Three reviewers have screened the articles' title and abstract in order to ensure the articles meet the inclusion and exclusion criteria that were set earlier. Summary of the selection criteria is presented in table 2 and pathway of articles included and excluded in review is shown in figure 2.

2.4 Data Extraction and Quality of Scoring

Data extraction from the reviewed studies should follow pre-established guidelines. For this purpose, this study adopts Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Protocol 2015 (PRISMA-P 2015) to guide the process. The PRISMA-P consists of a 17-item checklist in facilitating the preparation and reporting systematic review (Moher et al., 2015). This guideline helps to improve the reporting and screening of systematic review (prisma-statement.org, 2015). Three researchers conducted data extraction process using similar format to ensure relevant studies are included while minimizing bias and reducing errors (Munn et al., 2014). Screening process of each article was not only to determine the suitability of the articles with the context of this study, but also aims to extract information from each article. Data extraction flow diagram is presented in figure 1.

Table 2: Summary of study selection criteria

Criteria	*Limit to*
Main keywords	Walk* AND Built environment
Access type	Open access
Year	January 2014 until January 2019
Document type	Article
Publication stage	Published
Source type	Journal
Language	English

The extracted data consist of the details on the type of information such as title of the articles, first authors, year of publication, research objectives, study design, sample characteristics and study findings. Extraction of the data using a piloted form (table in excel document) is used to ensure that the information generated from each article is placed in the same self-created database, to create an easy screening process, especially, in identifying replicate articles, and to do contextual analysis by reviewing and analyzing all selected articles. During this screening process, the study also conducted assessment for quality of scoring for each included study. The quality indicators are adopted and adapted from Buckley et al. (2009), which are indicated in table 3.

3. RESULTS

The following results are based on analysis of the included studies, where the assessment investigated the characteristics of the articles, themes network and main theme.

3.1 Characteristics of Included Studies

There are 20 articles included in the study. The range of the year of publication is between 2014 to 2018. Out of 20 articles, 7 were using qualitative approach, 12 articles were quantitative works, and 1 article adopted mixed-method approach. The research settings are various namely meta-literature analysis, survey, video analysis, focus group discussion, street connectivity, interview, and streetscape photo evaluation. In the included study, the location of the studies involved 12 countries. Details for each article can be referred to in table 4.

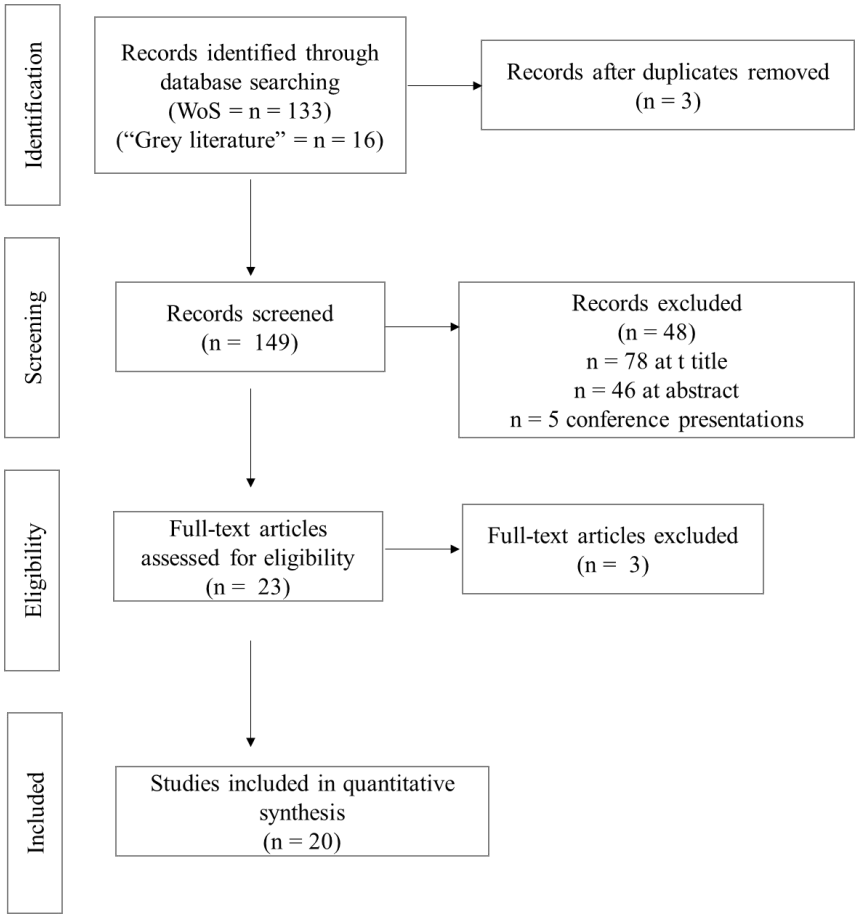

Figure 1: Pathway of articles included and excluded in the review

Table 3: Quality Indicators

Indicator	*Detail*
Research question	Is/are the research question(s) clearly stated? Note: If the study has not stated the research question, the research will look for the research objectives.
Study subjects	Is the study group appropriate (size, characteristics, selection)? Note: For some studies, especially from qualitative social science disciplines, the information is not available for example the size, but those studies will still be included during selection process.
Data collection methods	Are the methods reliable and valid?
Completeness of data	What is the drop-out / response rate? Note: Most quantitative studies do not have issues in terms of presenting drop-out or the response rate. However, oftentimes, this information is not presented in studies using qualitative approach.
Control for confounding	Have confounding variables been removed / minimized / accounted for?
Analysis of results	Are the methods of analysis appropriate?
Conclusions	Can the data justify the conclusions?
Reproducibility	Could the study be repeated by another group?
Prospective	Is the study prospective (forward looking), as opposed to retrospective?
Ethical issues	Were ethical issues addressed adequately?
Triangulation	Are the results supported by data from other studies?

Source: Adopted and adapted from Buckley et al. (2009)

3.2 Themes Network Mapping Analysis

The study employed Gephi Software Tools to map the key findings to show the linkages between themes and selected studies. Fahimnia et al. (2015) proposed that Gephi Software Tools can be utilized to implement literature metric analysis for systematic literature review. Prior to conducting themes network mapping analysis, the keywords co-occurrence analysis was constructed using Excel file. Relevant information namely sources, year of publication and themes were keyed-in in the file. A generated .csv file format was then imported into Gephi Software Tool to map themes co-occurrence network. The contraction layout algorithm has been used to position the themes that are linked to each selected article. The results of themes network analysis mapping are presented in figure 2. Based on figure 2, it indicates that population and building density, safety as well as land use and land use mixes have the most linkages towards the selected studies compared to the other four identified themes. This analysis presents that these three themes received much attention from the literature, which also demonstrates that the importance of these three themes to be examined in walkability and built environment research.

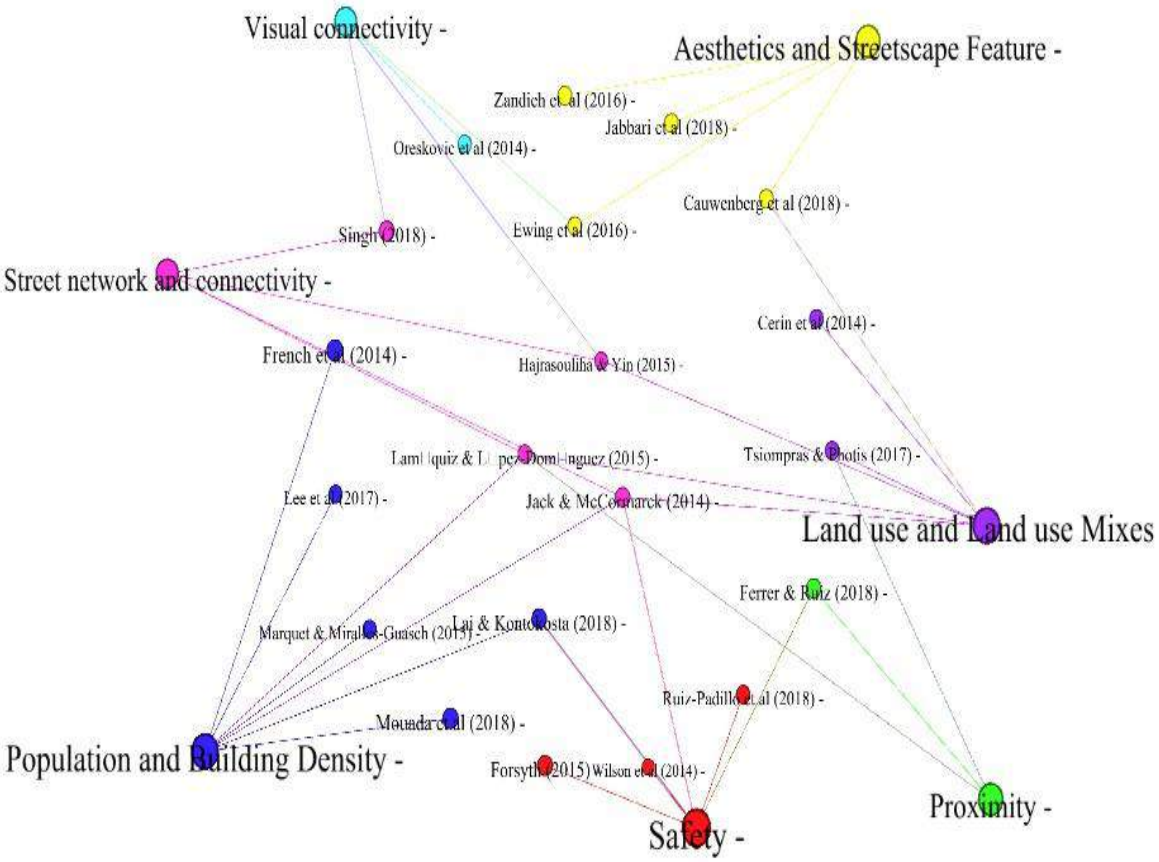

Figure 2: Themes network mapping analysis of walkability and built environment

Table 4: Characteristics of studies included in the review

ID	*Author (Label)*	*Year*	*Research objectives*	*Study design*	*Research setting*	*Location of study*	*Main findings*
1	Cauwenberg et al.	2018	Reviewing statistically and quantitatively summarise study findings on the relationships between physical environmental attributes and leisure-time physical activity among older adults.	Qualitative	Meta-literature analysis	Not applicable	i) There are positive associations for walkability, land-use mix—access and aesthetically pleasing scenery with leisure-time walking. ii) Leisure-time walking within the neighbourhood has positive associations with land-use mix—access and access to public transit and a negative association with barriers to walking/cycling ($p = 0.03$). iii) Positive relationships between overall LTPA and access to recreational facilities and parks/open space.
2	Cerin et al.	2014	Examining associations of perceived environmental attributes with overall and neighbourhood-specific walking for transport among the elderly.	Quantitative	Survey	Hong Kong, People's Republic of China	i) The degree of perceived access to shops, crowdedness, presence of sitting facilities and easy access of residential entrance were positively related to frequency of overall and within-neighbourhood walking for transportation. ii) Infrastructure for walking and access to public transport were predictive of higher frequency of transport-related walking irrespective of location. iii) The perceived degree of land-use mix was predictive of higher levels of within-neighbourhood walking.
3	Ewing et al.	2016	Identify main variables associated with pedestrian traffic volumes.	Qualitative	Video analysis	Not applicable	There are significant positive correlations between three out of twenty streetscape features with pedestrian counts after controlling for density and other built environmental variables, namely proportion of windows on the street, the proportion of active street frontage, and the number of pieces of street furniture
4	Ferrer & Ruiz	2018	Comparing factors of the built environment influencing the decision to walk for short trips in two different Spanish cities.	Qualitative	Focus Group Discussion	Valencia and Granada, Spain	i) Respondents perceive more facilitators to walking in Granada than in Valencia, explained by the smaller size of the former city and the driving restriction policy in the city centre of Granada for private cars.

ID	*Author (Label)*	*Year*	*Research objectives*	*Study design*	*Research setting*	*Location of study*	*Main findings*
							ii) The main common barriers to walking in the two cities were insecurity from crime. (absence of people, a poor street lighting or walking along a conflictive area), a high density of traffic lights and walking along large avenues.
5	Forsyth	2015	Reviewing the range of walkability definitions and conceptualising the area by identifying relevant themes.	Qualitative	Meta-literature analysis	Not applicable	There are six themes identified related to walkability definitions, namely, lively and sociable, sustainable transport option, exercise-inducing, proxy definitions, multidimensional and measurable and holistic solution.
6	French et al.	2014	Investigating the influence of neighbourhood built form on sense of community.	Quantitative	Street connectivity	Perth, Australia	Sense of community was positively associated with walking for transport and positive perceptions of neighbourhood quality, and negatively associated with residential density.
7	Hajrasouliha & Yin	2015	Investigating the impact of street network connectivity on pedestrian volume	Quantitative	Street connectivity	New York, United States	The conventional metric-based measure of physical connectivity and geometric based measure of visual connectivity has significant positive impacts on pedestrian volumes, together with job density and land use mix.
8	Jabbari et al.	2018	Assessing a pedestrian network by combining multi-criteria and space syntax	Quantitative	Street connectivity	Oporto, Portugal	i) The city centre offers various conditions, but overall, they are poor for pedestrians. ii) The streets, which scored best, are not integrated into the network.
9	Jack & McCormarck	2014	i) Comparing self-reported measures of the neighborhood built environment between objectively-determined low, medium, and high walkable neighborhoods. ii) Estimating the relative associations between self-reported and objectively-determined neighborhood characteristics and walking. iii) Examining the extent to which the objectively-determined	Qualitative	Phone interview	Canada	i) Respondents positively perceived access to services, street connectivity, pedestrian infrastructure, and utilitarian and recreation destination mix, but negatively perceived motor vehicle traffic and crime related safety. ii) Majority of the respondents who live in high walkable neighbourhoods participate in and spend more time per week on walking. iii) Perceived access to services, street connectivity, motor vehicle safety, and mix of recreational destinations were also

ID	*Author (Label)*	*Year*	*Research objectives*	*Study design*	*Research setting*	*Location of study*	*Main findings*
			built environment moderates the association between self-reported measures of the neighbourhood built environment and walking.				significantly associated with transportation walking.
10	Lai & Kontokosta	2018	Bridging in-situ observations of pedestrian counts and urban computing by integrating high-resolution, large-scale, and heterogeneous urban datasets and analysing both fixed attributes of the urban landscape with dynamic environmental and socio-psychological factor.	Quantitative	Street connectivity	New York, United States	i) Overall pedestrian count increase over the last seven years. ii) Relative stable local pedestrian volumes regardless of season. iii) Places with high building density, large local populations, and well-connected transit have large intra-day fluctuations in pedestrians. iv) Complex interaction between pedestrian activity, urban context, and situational factors iv) Building density, transit access, and the proportion of local residents are found to drive pedestrian activity regardless of the specific day or time of day.
11	Lamíquiz & López-Domínguez	2015	Analysing the influence of the built environment on the decision to walk	Quantitative	Street connectivity	Madrid, Spain	Configuration of the urban grid can influence the proportion of pedestrians (as a part of total trips in any transport mode) who choose to walk on single-journey trips
12	Lee et al.	2017	Examining the impact of the multidimensional concepts of the built environment on pedestrian volume in a high-density urban environment.	Quantitative	Survey	Seoul, Korea.	i) Most built environment variables such as density, diversity, distance, connectivity, and design have statistically significant associations with pedestrian volume. ii) Relationships between some built environment measures and pedestrian volume have different associations depending on whether they are in residential or commercial zones

ID	*Author (Label)*	*Year*	*Research objectives*	*Study design*	*Research setting*	*Location of study*	*Main findings*
13	Marquet & Miralles-Guasch	2015	Analysing proximity travel in Barcelona.	Quantitative	Street connectivity	Barcelona, Spain	i) Proximity is more related with personal activities than professional ones and strongly links neighborhood utilization with the personal and domestic realm. ii) Density acts both as a precondition and a facilitator of proximity uses. However, in highly homogeneous environment it cannot provide the sole explanation for the intensity of local-scale uses.
14	Mouada et al.	2018	Investigating the different urban environments in the hot, dry city of Sidi Okba, (Biskra) during the summer season.	Quantitative	Street connectivity	Sidi Okba, Algeria	i) The results show that urban morphology (building density, height/width ratio and tree density) is significantly associated with the outdoor thermal conditions and potential pedestrians over short distances. ii) In order to provide a comfortable climate and to increase pedestrian choice in the urban environment, the public space should include high building density, combined with deep streets with a high connection between them, and a large amount of vegetation along the lower parts of streets.
15	Oreskovic et al.	2014	Assessing the impact of specific form-related attributes of the built environment have on perceived walkability using cognitive methods	Qualitative	Streetscape photo evaluation	Massa-chusetts, United States	The results showed that perceived walkability varied according to the degree to which a particular design attribute was present, with the presence of ground-floor windows and a street focal point most consistently associated with a space's perceived walkability.
16	Ruiz-Padillo et al.	2018	i) Determining the importance of the urban environment characteristics to encourage walking trips from the point of view of the pedestrian using Fuzzy Analytic Hierarchy Process (FAHP). ii) Comparing the values obtained by FAHP with those from other, simpler multi-	Qualitative	Meta-literature analysis	Porto Alegre city, Brazil	i) The three most important walkability attributes were: Public Security, Traffic Safety and Pavement Quality. ii) The most important aspect is public security, which closely related with urban violence such as thefts, robberies, and assaults. ii) The second most important attribute is traffic safety, which is motivated by the

ID	*Author (Label)*	*Year*	*Research objectives*	*Study design*	*Research setting*	*Location of study*	*Main findings*
			criteria decision analysis techniques. iii) Analysing the existence of differences between various population strata in the walkability evaluation.				high importance attributed to the security/safety criterion. iii) The aspects considered less important by the individuals are slope and connectivity. Majority of the respondents are more concern about their safety and the convenience of the route.
17	Singh	2018	Identify factors that contribute to increase urban walkability in order to improve neighbourhood sustainability and public life	Quantitative	Survey	New Delhi, India,	The most important factors affecting pedestrians' perception of walkability were related to the built envelop on either side of the streets. Factors relating to urban morphology like enclosure block length and edge conditions were found crucial in creating the perception of a walkable neighbourhood.
18	Tsiompras & Photis	2017	Present a weighted approach of a GIS-based walkability index, adapted to the Greek urban environment and either for utilitarian or recreational walking trips.	Quantitative	Survey	Greece	Majority respondents choose walking / cycling to their daily destinations. The study also found that proximity to basic urban destinations is assigned the highest weight and population density is the lowest value.
19	Wilson et al.	2014	(i) Examining the feasibility of using a simple survey instrument to assess the quality of street-connecting walkways (ii) Determining whether such walkways would be suggested routes on a commonly used internet-based service (Google Maps)	Quantitative	Street connectivity	Welling-ton, New Zealand	Walkways are very feasible for and favourable by the respondents.
20	Zandieh et al.	2016	Examining inequalities in perceived built environment attributes and its possible influences on disparities in older adults' outdoor walking levels in low- and high-deprivation areas	Mixed method	Survey and interview	Birming-ham, United Kingdom	Inequalities in perceived neighbourhood safety, pedestrian infrastructure and aesthetics in high- versus low-deprivation areas. The attributes influence disparities in participants' outdoor walking levels.

3.3 Thematic Analysis of the Systematic Literature Review

The following sub-sections present the details explanation of the systematic literature review results. The results have been divided into seven sections, based on themes constructed through analysis of literature.

3.3.1 Population and Building Density

Several literatures have mentioned density as a very fundamental precursor for walking. Using a multi-variate model, Lamíquiz and López-Domínguez (2015) found density as one of the five indices that consistently influence the preference for walking. While the findings from a research undertaken by Mouada, Zemmouri and Meziani (2018) show that building density and tree density, which is known as urban morphology, are among the attributes that are significantly associated with the outdoor thermal conditions and potential pedestrian activity over short distances. This finding is supported by a study by Lai and Kontokosta (2018) who found building density to drive pedestrian activity regardless of the specific day or time of day.

The result of a study undertaken by Lee et al. (2017) in Seoul, Korea indicates that density has statistically significant association with pedestrian volume in Seoul. Meanwhile, a study involving adults in Calgary, Canada shows that a high walkable (HW) neighborhood has high population density compared to medium and low walkable neighborhood (Jack & McCormark, 2014). Although density is considered fundamental in promoting walking, some studies have shown that it has limitation. As an example, a research by Marquet and Miralles-Guasch (2015) suggests that beyond a certain level of density, income and sociological factors gained dominance in determining walkability at a local level.

3.3.2 Land Use and Land Use Mixes

Lamíquiz and López-Domínguez (2015) in their study found land use as one of the indices that influence walking. Different land use attracts different characteristic of people, which is then very much associated with the usage of the type of transport mode. Many studies have shown the importance of land use mix in attracting walking. Land use mix is the level of integration among different land use types in an area, which means that it shows the spatial intensity of heterogeneous land use types (Tsiompras & Photis, 2017). In their study, Tsiompras and Photis (2017) found that other than proximity, land use mix is the next most popular motivation for walking. Another related study associated to land use mix was undertaken by Jack and McCormack (2014) who found that utilitarian and recreation destination mix is positively perceived as an inducer to walking in HW neighborhood. The findings from the two studies are consistent with a study by Hajrasouliha and Yin (2015) who suggest that land use mix has significant positive impacts on pedestrian volumes.

There is a growing body of literature on the elderly, ageing and their relationship with walkability. In this context, many a times, it is related to the importance of mobility as a precursor to a healthy lifestyle for the elderly. A study of the elderly in Hong Kong shows that the perceived degree of land use mix was predictive of higher levels of within neighbourhood walking (Cerin et al., 2014). A systematic review and meta-analysis study of relationships between neighbourhood physical environmental attributes and older adults' leisure-time physical activity observes that there are positive associations for walkability and land-use mix-access (Cauwenberg et al., 2018).

3.3.3 Safety

Many studies show that the lack of safety is a key barrier to walking. This is true of safety from crime as well as traffic (Forsyth, 2015). For instance, a study of a random cross-section of 1875 Canadian adults found that respondents in HW neighbourhood have a negative perception on motor vehicle traffic and crime related safety (Jack & McCormack, 2014). Meanwhile, the finding in another study undertaken in two cities, Granada and Valencia, shows that the main common barriers to walking were insecurity from crime (Ferrer & Ruiz, 2018). The insecurity was due to the absence of people, a poor street lighting or walking along a conflictive area. According to Wilson et al. (2014), perceptions of safety may also impact walking levels.

Local crime events have a constant negative impact on pedestrian activity (Lai & Kontokosta, 2018). On similar note, a study by Ruiz-Padillo et al. (2018) in Porto Alegre, Brazil found that the most important aspect in promoting walkability is the public security. They further stated that the result is not surprising, as urban violence, related mainly to thefts, robberies, and assaults, is one of the principal social

problems in Brazil. The next important aspect after public security or safety from crime, according to the study, is traffic safety.

3.3.4 Aesthetics and Streetscape Feature

Aesthetic refers to a sense of beauty and visual appearance of a neighbourhood (Zandieh et al., 2016), while streetscape feature is the micro features of the street environment (Ewing et al., 2016). A study by Ewing et al. (2017) in New York found significant positive correlation between three out of twenty streetscape features with pedestrian counts. The significant streetscape features are the proportion of windows on the street, the proportion of active street frontage, and the number of pieces of street furniture. The street furniture is defined as all kinds of signs, benches, parking meters, trash cans, newspaper boxes, bollards, streetlights, and other things related to this category. The next feature is the percentage of active uses, which are defined as shops, restaurants, public parks, and other uses that generate significant pedestrian traffic. The final feature is 'windows as a percentage of ground floor façade'. According to the study, the last feature is a common operational definition of transparency. A high level of transparency at the ground level can facilitate interaction between adjacent buildings, which has been known to promote street vitality.

Cauwenberg et al. (2018) in a systematic review observes that there is a positive association for walkability and aesthetically pleasing scenery with leisure time walking. Among the elements that can contribute to aesthetically pleasing scenery are greeneries and street furniture. A study by Jabbari et al. (2018) shows that green spaces are linked to higher walkable scores. They further stated that the green spaces create more attractive walking environments and have positive impact on the microclimatic conditions at the pedestrian level.

3.3.5 Street Network and Connectivity

Many studies have shown the importance of street network in motivating walking. Network design has been said to help in determining the ability of pedestrians to reach their destinations. Grid networks with short blocks allow for relatively direct routes, while long blocks and curvilinear streets lengthen pedestrian trips by requiring circuitous routes. A study by Singh (2016) in India concluded that block length and perceived walking distance are directly proportional to each other. He further stated that shorter block lengths make the streets more walkable as people perceive the distances to be shorter and prefer taking such routes, thus increasing street activity.

Finding in a study by Hajrasouliha and Yin (2015) suggests that physical connectivity has significant positive impacts on pedestrian volumes. Similarly, Jack and McCormack (2014) found in their study that respondents in HW neighborhoods positively perceived street connectivity. This is in line with the suggestion by Lamíquiz and López-Domínguez (2015) that the design of a street network configuration could insert multiple activities along the routes, and thus shorten distances if done appropriately. The findings introduce the idea that the configuration of the urban grid can influence the proportion of pedestrians who choose to walk on single-journey trips.

3.3.6 Visual Connectivity

Visual connectivity has significant positive impacts on pedestrian volumes (Hajrasouliha & Yin 2015). The results of a study by Oreskovic et al. (2014) show that perceived walkability varied according to the degree to which a particular design attribute was present. According to the study, the presence of ground-floor windows and a street focal point are two attributes that most consistently associated with a space's perceived walkability. The presence of a window at the eye-level of pedestrian, which indicate retail presence is an important attribute towards promoting walkability. This idea is similar to the study by Ewing (2016) that mentioned the importance of windows at the ground floor façade. A study by Singh (2016) also has a parallel concept with the above two studies where he found most of the recorded answers from the respondents stated that the presence of blank walls was the factor they thought made them feel unsafe or claustrophobic on the street. This factor discourages pedestrians to be on the roads and, as a result, decreased the walkability of that area.

3.3.7 Proximity

Basically, many definitions of walkable places are places that support short walking trips to essential facilities and services for running daily errands. Studies have shown that proximity to destinations supports active transport and mobility (Tsiompras & Photis, 2017). The results of a survey

by Tsiompras and Photis (2017) indicate that proximity (up to 400 m) to urban destinations is the main motivation for people to walk. This finding is consistent with a study by Lamíquiz and López-Domínguez (2015) that found distance, either real or perceived, is one of the most principal barriers for travelling on foot. In general, smaller cities are more walkable because distance between different activity locations is shorter than in larger cities (Ferrer & Ruiz, 2018). Therefore, Ferrer and Ruiz (2018) suggested for large cities to pay more attention to the provision of mixed land uses as an important characteristic of the built environment in encouraging walking for transport. They suggested that proximity to destinations in conjunction with the land use mix seems to be the fundamental keys for walkability. Their result also show that participants perceive more facilitators to walking in Granada than in Valencia due to the smaller size of the former city.

4. DISCUSSIONS

Walking relies not only on the infrastructure but also on the state of the built environment (Cauwenberg, 2018). While pedestrian infrastructure is an imperative to fulfil certain pedestrian needs, others such as proximity, safety or aesthetics, depend not so much on the pavements, but on the surrounding environment. In this context, how pedestrian-friendly buildings are, or the type of land use found in the area, do influence walking. Some discourses on walkability focus on environmental features or means of making walkable environments. These environmental features include areas being passable, compact, physically enticing, and safe, while others are more concerned with the outcomes fostered by such environments (Forsyth, 2015). Among the potential outcomes are making the places lively, enhancing sustainable transportation options, and encouraging the physical exercise.

Many of the criteria found to be the antecedents to walking are not a detached or unconnected element. Many of them must be combined to create a walkable environment. For instance, a study by Mouada, Zemmouri and Meziani (2018) shows that to provide a comfortable condition and to increase pedestrian choice in the urban environment, the public space should include high building density, combined with deep streets with a high connection between them, and an abundance of vegetation along the lower parts of streets. This example shows that density is combined with street network, connectivity and aesthetic or pleasing scenery to encourage walking (Raja Noriza et al., 2019).

The review found that three criteria are somewhat constant in promoting walking, namely, population and building density, land use and land use mixes, and safety. Mixed or different uses in the same place tend to strengthen the identity of the place according to Jacobs (1961), while density or proximity of the mixed uses strengthen the economy of the place and enable people to travel less distance to access daily needs. Undoubtedly, safety is a very fundamental precursor to walking. Studies have indicated that people are very much reluctant to walk in the absence of safety. It means that although they are presented with pleasing scenery and good infrastructure, people do not want to jeopardize their safety by walking.

5. CONCLUSION

Jacobs (1961), who triggers the concept of New Urbanism that advocated pedestrian-friendly design, mixed land use, and transit-oriented development has championed the 'eye on the street' concept, which emphasized the needs of having high pedestrian volume in an area. The presence of pedestrian, according to her, can deter crime and increase sense of community. There is an element of safety in promoting walking in this concept. In short, the literature review shows that by making an area perceived as safe and the presence of land use mixes and density are the best combination to create a walkable environment. Hence, cities need to consider these three fundamental criteria in formulating policy towards creating a friendly pedestrian environment. This review has some limitations. It does not differentiate between walking for leisure, walking for public transit or any other reasons for walking, such as commuting, going to work, running errands and others. Nor does it differentiate between the Eastern and Western countries. There may exist variance between the East and the West due to the environment, cultural and behavioral differences. Thus, we recommend that future systematic review to differentiate between these fundamental attributes.

ACKNOWLEDGEMENTS

This work was supported by the Research University Grant – Faculty Program funded by University of Malaya, Malaysia under grant number GPF016P-2018.

REFERENCES

Al-Tabbaa, O., Ankrah, S., & Zahoor, N. (2019). Systematic literature review in management and business studies: A case study on university–industry collaboration. SAGE Research Methods Cases, https://www.doi.org/10.4135/9781526467263

Blečić, I., Cecchini, A., Congiu, T., Fancello, G., & Trunfio, G. A. (2014). Walkability explorer: An evaluation and design support tool for Walkability. Computational Science and Its Applications – ICCSA, 2014, 511-521. https://doi.org/10.1007/978-3-319-09147-1_

Bramer, W. M., de Jonge, G. B., Rethlefsen, M. L., Mast, F., & Kleijnen, J. (2018). A systematic approach to searching: an efficient and complete method to develop literature searches. Journal of the Medical Library Association (JMLA), 106(4), 531–541. https://doi.org/10.5195/jmla.2018.283

Buckley, S., Coleman, J., Davison, I., Khan, K.S., Zamora, J., Malick, S., Morley, D., Pollard, D., Ashcroft, T., Popovic, C. & Sayers, J. (2009). The educational effects of portfolios on undergraduate student learning: a Best Evidence Medical Education (BEME) systematic review. BEME Guide No. 11. Med Teach, 31, 282e98. https://doi.org/ 10.1080/01421590902889897

Carvalho, M.M., Fleury, A., & Lopes, A.P. (2013), An overview of the literature on technology roadmapping (TRM): contributions and trends. Technological Forecasting and Social Change, 80(7), 1418-1437. https://doi.org/10.1016/j.techfore.2012.11.008

Cauwenberg, J., Nathan, A., Barnett, A., Barnett, D. W., & Cerin, E. (2018). Relationships Between Neighbourhood Physical Environmental Attributes and Older Adults' Leisure-Time Physical Activity: A Systematic Review and Meta-Analysis. Sports Medicine, 48(7), 1-26. https://doi.org/10.1007/s40279-018-0917-1

Cerin, E., Sit, C. H., Barnett, A., Johnston, J. M., Cheung, M. C., & Chan, W. M. (2014). Ageing in an ultra-dense metropolis: perceived neighbourhood characteristics and utilitarian walking in Hong Kong elders. Public Health Nutrition, 17(1), 225-232. https://doi.org/10.1007/s40279-018-0917-1

Cowen, C., Louderback, E. R., & Roy, S. S. (2018). The role of land use and walkability in predicting crime patterns: A spatiotemporal analysis of Miami-Dade County neighborhoods, 2007–2015. Security Journal, 32(3), 264-286. https://doi.org/10.1057/s41284-018-00161-7

Dada, O. (2018). A model of entrepreneurial autonomy in franchised outlets: a systematic review of the empirical evidence. International Journal of Management Reviews, 20(2), 206-226. https://doi.org/10.1111/ijmr.12123

Devarajan, R., Prabhakaran, D., & Goenka, S. (2019). Built environment for physical activity—An urban barometer, surveillance, and monitoring. Obesity Reviews, 21(1), e12938. https://doi.org/10.1111/obr.12938

Ewing, R., Hajrasouliha, A., Neckerman, K. M., Purciel-Hill, M., & Greene, W. (2016). Streetscape Features Related to Pedestrian Activity. Journal of Planning Education and Research, 36(1), 5-15. https://doi.org/10.1177%2F0739456X15591585

Fahimnia, B., Sarkis, J., Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. Int. J. Prod. Econ, 162, 101–114. https://doi.org/10.1016/j.ijpe.2015.01.003

Ferrer, S. & Ruiz, T. (2018). The Impact of the Built Environment on the Decision to Walk for Short Trips: Evidence from Two Spanish Cities. Transport Policy, 67(1), 111-120. https://doi.org/10.1016/j.tranpol.2017.04.009

Forsyth, A. (2015). What is a walkable place? The Walkability Debate in Urban Design. Urban Design International, 20(4), 274-292. https://doi.org/10.1057/udi.2015.22

Forsyth, A., Michael Oakes, J., Lee, B., & Schmitz, K. H. (2009). The built environment, walking, and physical activity: Is the environment more important to some people than others? Transportation Research Part D: Transport and Environment, 14(1), 42-49. https://doi.org/10.1016/j.trd.2008.10.003

French, S., Wood, L., Foster, S.A., Giles-Corti, B., Frank, L., & Learnihan, V. (2014). Sense of Community and Its Association with the Neighborhood Built Environment. Environment and Behavior, 46(6), 677-697. https://doi.org/10.1177/0013916512469098

Guo, P., Watts, K., & Wharrad, H. (2015). An integrative review of the impact of mobile technologies used by healthcare professionals to support education and practice. Nursing Open, 3(2), 66–78. https://doi.org/10.1002/nop2.37

Hajrasouliha, A. & Yin, L. (2015). The impact of street network connectivity on pedestrian volume. Urban Studies, 52(13), 2483-2497.

Jabbari, M., Fonseca, F., & Ramos, R. (2018). Combining Multi-Criteria and Space Syntax Analysis to Assess a Pedestrian Network: The Case of Oporto. Journal of Urban Design, 23(1), 23-41. https://doi.org/10.1080/13574809.2017.1343087

Jack, E., & McCormack, G. R. (2014). The Associations between Objectively-Determined and Self-Reported Urban Form Characteristics and Neighborhood-Based Walking in Adults. International Journal of Behavioral Nutrition and Physical Activity, 11(1), 71-82. https://doi.org/10.1186/1479-5868-11-71

Jacobs, J. (1961). The Death and Life of Great American Cities. London, UK: Penguin Random House.

Jung, E., Lee, J., & Kim, K. (2015). The Relationship Between Pedestrian Environments and Sense of Community in Apartment Complexes in Seoul, Korea. Journal of Asian Architecture and Building Engineering, 14(2), 411-418. https://doi.org/10.3130/jaabe.14.411

Khan, M. A., Grivna, M., Nauman, J., Soteriades, E. S., Cevik, A. A., Hashim, M. J., Govender, R., & Al Azeezi, S. R. (2020). Global incidence and mortality patterns of pedestrian road traffic injuries by Sociodemographic index, with forecasting: Findings from the global burden of diseases, injuries, and risk factors 2017 study. International Journal of Environmental Research and Public Health, 17(6), 2135. https://doi.org/10.3390/ijerph17062135

Kim H.M. & Mateo-Babiano I. (2018). Pedestrian Crossing Environments in an Emerging Chinese City: Vehicle Encountering, Seamless Walking, and Sensory Perception Perspectives. Sustainability, 10(7), 2200. https://doi.org/10.3390/su10072200

Kim, J.K., Ulfarsson, G.F., Shankar, V.N., & Kim, S. (2008). Age and pedestrian injury severity in motor-vehicle crashes: A heteroskedastic logit analysis. Accid. Anal. Prev., 40, 1695–1702. https://doi.org/10.1016/j.aap.2008.06.005

Kitchenham, B., & Charters, S. (2007). Guidelines for Performing Systematic Literature Reviews in Software Engineering. In EBSE Technical Report, Software Engineering Group, School of Computer Science and Mathematics, Keele University, Department of Computer Science, University of Durham

Lai, Y., & Kontokosta, C. E. (2018). Quantifying Place: Analyzing the Drivers of Pedestrian Activity in Dense Urban Environments. Landscape and Urban Planning, 180(1), 166-178. https://doi.org/10.1016/j.landurbplan.2018.08.018

Lamíquiz, P. J., & López-Domínguez, J. (2015). Effects of Built Environment on Walking at the Neighbourhood Scale. A New Role for Street Networks by Modelling Their Configurational Accessibility? Transportation Research Part A: Policy and Practice, 74(1), 148-163. https://doi.org/10.1016/j.tra.2015.02.003

Lee, C., Kim, H. J., Dowdy, D. M., Hoelscher, D. M., & Ory, M. G. (2013). TCOPPE school environmental audit tool: Assessing safety and Walkability of school environments. Journal of Physical Activity and Health, 10(7), 949-960. https://doi.org/10.1123/jpah.10.7.949

Lee, S., Sung, H., & Woo, A. (2017). The Spatial Variations of Relationship Between Built Environment and Pedestrian Volume: Focused on the 2009 Seoul Pedestrian Flow Survey in Korea. Journal of Asian Architecture and Building Engineering, 16(1), 147-154, 2017. https://doi.org/10.3130/jaabe.16.147

Liu, A. G., Schuler, K., & Herberman Mash, H. B. (2020). Using a systematic literature review to assess the utility of mobile applications in disaster health settings. SAGE Research Methods Cases. https://www.doi.org/10.4135/9781529722741

Lo, R.H. (2009). Walkability: what is it? Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 2(2), 145-166. http://doi.org/10.1080/17549170903092867

Lund, H. (2002). Pedestrian Environments and Sense of Community. Journal of Planning Education and Research, 21(3), 301-312.

Marquet, O., & Miralles-Guasch, C. (2015). The Walkable City and the Importance of the Proximity Environments for Barcelona's Everyday Mobility. Cities, 42(1), 258-266. https://doi.org/10.1016/j.cities.2014.10.012

Mayou, R.; Bryant, B. (2003). Consequences of road traffic accidents for different types of road user. Injury, 34(3), 197–202. https://doi.org/10.1016/s0020-1383(02)00285-1

Mertens, D. (2018). Mixed methods evaluation designs for systematic reviews. In Mixed methods design in evaluation. Thousand Oaks, CA: SAGE Publications, Inc. https://www.doi.org/10.4135/9781506330631

Moher, D., Shamseer, L., Clarke, M., Ghersi, M., Liberati, M., Petticrew, M., Shekelle, P., Lesley A Stewart, L.A.; PRISMA-P Group (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Syst Rev, 4(1). https://doi.org/10.1186/2046-4053-4-1

Mouada, N., Zemmouri, N., & Meziani, R. (2018). Urban Morphology, Outdoor Thermal Comfort and Walkability in Hot, Dry Cities. International Review for Spatial Planning and Sustainable Development, 7(1), 117-133. http://dx.doi.org/10.14246/irspsda.7.1_

Munn, Z.; Tufanaru, C. & Aromataris, E. (2014). JBI's Systematic Reviews. American Journal of Nursing, 114(7), 49-54. https://doi.org/10.1097/01.NAJ.0000451683.66447.89

Nightingale, A. (2009). A guide to systematic literature reviews. Surgery, 27(9), 381-384. https://doi.org/10.1016/j.mpsur.2009.07.005

Oreskovic, N. M., Charles, S. L., Roth, P., Tsigaridi, D., Shepherd, K., Nelson, K. P., & Bar, M. (2014). Attributes of Form in the Built Environment that Influence Perceived Walkability. Journal of Architectural and Planning Research, 31(3), 218-232.

Park, S., Kang, J. & Choi, K. (2014). Finding determinants of transit users' walking and biking access trips to the station: A pilot case study. KSCE J Civ Eng, 18, 651–658. https://doi.org/10.1007/s12205-014-0073-6

Pearce, J.R. & Maddison, R. (2011). Do enhancements to the urban built environment improve physical activity levels among socially disadvantaged populations? Int. J. Equity Health, 10(28). https://doi.org/10.1186/1475-9276-10-28

Peng, R.Y. & Bongard, F.S. (1999). Pedestrian versus motor vehicle accidents: an analysis of 5,000 patients11No competing interests declared. Journal of the American College of Surgeons, 189(4), 343-348. https://doi.org/10.1016/s1072-7515(99)00166-0

PRISMA Statement. (2015). PRISMA Statement. Retrieved on 14 February 2021 from http://www.prisma-statement.org/

Rafiemanzelat, R., Emadi, M. I., & Kamali, A. J. (2017). City sustainability: The influence of walkability on built environments. Transportation Research Procedia, 24, 97-104. https://doi.org/10.1016/j.trpro.2017.05.074

Raja Noriza Raja Ariffin, Rustam Khairi Zahari & Nur Hairani Abd. Rahman (2019). Walkability and the Built Environment: A Literature Review. 6th International Multidisciplinary Scientific Conference on Social Sciences and Arts 2019, 6(6.1), 649 – 656. https://doi.org/10.5593/sgemsocial2019V/6.1/S17.077

Ranasinghe, G., Amarawickrama, S., Rathnayake, R., Randeniya, T., & Rathnasiri, S. (2015). A model for assessing the level of Walkability in urban neighborhoods in Sri Lanka. International Journal of Built Environment and Sustainability, 2(4). https://doi.org/10.11113/ijbes.v2.n4.97

Ruiz-Padillo, A., Pasqual, F. M., Uriarte, A. M. L., & Cybis, H. B. B. (2018). Application of Multi-Criteria Decision Analysis Methods for Assessing Walkability: A Case Study in Porto Alegre, Brazil. Transportation Research Part D: Transport and Environment, 63(1), 855-871. https://doi.org/10.1016/j.trd.2018.07.016

Shamsuddin, S., Hassan, N. & Bilyamin, S. (2012). Walkable Environment in Increasing the Liveability of a City. Procedia - Social and Behavioral Sciences, 50(1), 167 – 178. https://doi.org/10.1016/j.sbspro.2012.08.025

Singh, R. (2016). Factors Affecting Walkability of Neighborhoods. Procedia-Social and Behavioral Sciences, 216(1), 643-654. https://doi.org/10.1016/j.sbspro.2015.12.048

Sirelkhatim, F., Gangi, Y. and Nisar, T. (2015). Entrepreneurship education: a systematic literature review of curricula contents and teaching methods. Cogent Business and Management, 2(1), 1052034. https://doi.org/10.1080/23311975.2015.1052034

Smith J. & Noble H. (2014). Bias in research evidence-based. Nursing, 17, 100-101. https://dx.doi.org/10.1097%2FPRS.0b013e3181de24bc

Tight, M. (2019). Systematic reviews and meta-analyses. In Documentary research in the social sciences (pp. 85-94). London: SAGE Publications Ltd, https://www.doi.org/10.4135/9781529716559

Torgerson, C. (2003). Systematic Reviews (Continuum Research method): a very accessible and readable guide to systematic reviews. London: Bloomsbury Publishing.

Tsai, T. (2014). Strategies of Building a Stronger Sense of Community for Sustainable Neighborhoods: Comparing Neighborhood Accessibility with Community Empowerment Programs. Sustainability, 6(1), 2766-2785. https://doi.org/10.3390/su6052766

Tsiompras, A. B., & Photis, Y. N. (2017). What Matters When It Comes to "Walk and the City"? Defining A Weighted GIS-Based Walkability Index. Transportation Research Procedia, 24(1), 523-530. https://doi.org/10.1016/j.trpro.2017.06.001

United Nations (undated). 17 Goals to Transform Our World. Retrieved from https://www.un.org/sustainabledevelopment/ (accessed on 28 February 2021).

Wang, L., Jiang, Y. L., & Li, Z. J. (2012). The Walkability assessment of Lishan road: A case study in Jinan, China. Applied Mechanics and Materials, 178(181), 1838-1841. https://doi.org/10.4028/www.scientific.net/amm.178-181.1838

Wilson, N., Brander, B., Mansoor, O. D., & Pearson, A. L. (2014). Building a Reliable Measure for Unobtrusive Observations of Street-Connecting Pedestrian Walkways. Journal of Urban Health, 91(6), 1129-1135. https://doi.org/10.1007/s11524-014-9891-6

World Health Organization. (2018). Global Status Report on Road Safety 2018: Summary; (WHO/NMH/NVI/1820). World Health Organization: Geneva, Switzerland, 2018. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/277370/WHO-NMH-NVI-18.20-eng.pdf?ua=1 (accessed on 28 February 2021).

Xiao, Y., & Watson, M. (2019). Guidance on Conducting a Systematic Literature Review. Journal of Planning Education and Research, 39(1), 93-112. https://www.doi.org/10.1177/0739456X17723971

Yassin, H. (2019). Livable city: An approach to pedestrianization through tactical urbanism. Alexandria Engineering Journal, 58(1), 251-259. https://doi.org/10.1016/j.aej.2019.02.005

Zandieh, R., Martinez, J., Flacke, J., Jones, P., & Van Maarseveen, M. (2016). Older Adults' Outdoor Walking: Inequalities in Neighbourhood Safety, Pedestrian Infrastructure and Aesthetics. International Journal of Environmental Research and Public Health, 13(12), 1179-1203. https://dx.doi.org/10.3390%2Fijerph13121179

Zhang, G., Yau, K. K., & Zhang, X. (2014). Analyzing fault and severity in pedestrian–motor vehicle accidents in China. Accident Analysis & Prevention, 73, 141-150. https://doi.org/10.1016/j.aap.2014.08.018

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*	*Author 3*
Conceived and designed the research or analysis	Yes	Yes	Yes
Collected the data	No	Yes	No
Contributed to data analysis & interpretation	Yes	No	Yes
Wrote the article/paper	Yes	Yes	No
Critical revision of the article/paper	Yes	No	Yes
Editing of the article/paper	Yes	Yes	No
Supervision	No	Yes	No
Project Administration	Yes	No	No
Funding Acquisition	Yes	No	No
Overall Contribution Proportion (%)	40	40	20

Funding
The funding for this research was made available by the Research University Grant – Faculty Program funded by University of Malaya, Malaysia under grant number GPF016P-2018.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? Yes

Competing Interests/Conflict of Interest
Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00228 | Research Article

Municipal Bonds as a Financial Component of the Development of Territorial Communities in Ukraine

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ABSTRACT

The world economic thought has a number of tools, the use of which helps attract financial investment and helps accumulate additional funds for infrastructure and social projects of municipalities. The issue of municipal bonds as a financial component of the development of territorial communities is considered vital for this research in which the factors that determine the ability to borrow are highlighted. The advantages and disadvantages of using municipal bonds by local governments are also identified. It is realized that the world experience in the application of municipal bonds is contradictory and ambiguous. It is established that the best results from the use of bonds have been the municipalities of countries with a high level of development and municipal management, which determines the demand for this type of securities from investors. The use of municipal bond in countries with economies in transition has led to a number of municipal defaults, resulting in severe restrictions on their issuance by central authorities. The united communities of Ukraine require additional financial resources. Smaller municipalities are characterized by a high rate of budget subsidies and low average income per community. Ukrainian territorial communities' municipal bonds are used insufficiently in comparison to developed industrial countries. Factors that shape the risks of implementing a system of local borrowing in Ukraine are identified and include lack of recognition and registration of local governments as legal entities under public law, imperfection of legislation, lack of experience in local borrowing, lack of clear information about the available resources of local communities and their valuation.

Keywords: Financial resources; Municipal bonds; Territorial communities; Securities; Financial market

Received: 13 June 2021
Reviewed: 29 June 2021
Accepted: 11 July 2021
Published: 10 August 2021

How to cite this paper: Ivanyshyn, V. & Pecheniuk, A. (2021). Municipal Bonds as a Financial Component of the Development of Territorial Communities in Ukraine. Journal of Policy & Governance, 01(01), 21-29. https://doi.org/10.33002/jpg010102

1. INTRODUCTION

The active phase of implementation of decentralization reform in Ukraine is accompanied by a number of challenges and uncertainties. A typical problem of municipalities in developing countries is their issues surrounding the financial security, weak fiscal base, low creditworthiness, and lack of experience in fulfilling their debt obligations, which leads to the search for ways to solve the financial crises.

The relevant economic theory tends to show developments concerning the municipal loan market, the main component of which is the issuance of debt obligations by municipalities in the form of bonds. Their issuance allows to provide local territorial communities with the additional financial resources enabling the implementation of socio-economic and infrastructural programs on the ground. In practice of local governance of Ukraine, municipal bonds have not received due attention and are characterized by low quotations compared to other types of loans. However, statistics show a fairly high level of popularity of this type of securities worldwide among a wide range of investors. Given that the decentralization of power in Ukraine should result into a new economic base for the development of its regions, an important aspect of solving a number of problems. It pertains to the creation of an effective financial market system in which municipal bonds can occupy a niche.

With the above backdrop, purpose of this article is to highlight trends of and prospects for the municipal bonds as a source of financial pool for strengthening the local governance and delivering development good.

2. REVIEW OF LITERATURE

The issues related to municipal bonds are reflected in the works of many scholars. In particular, Howard (2020) emphasizes on municipal bonds and identifies their types and characteristics as collateral. Kopanyi (2018) explores the issues of bond issuance, their financial security and the definition of prohibitions and restrictions on their issuance, which are specific to individual countries. Roberts (2020) highlights the impacts of pandemic on the financial condition of companies and governments, arguing that the world expects significant depressions and predicts the negative development of financial markets. Ukrainian researchers, in particular, Rekunenko (2014), Savenko (2020), Iorgachova and Kovalova (2019) indicate need of the development of the infrastructure of financial market in Ukraine and note the urgent need for infrastructure modernization and its harmonization with international standards. Scientific research by Zolotukhin (2017) highlights international experience of the functioning of local borrowing markets and how those conclusions can be adapted in Ukraine.

3. RESULT AND DISCUSSION

Aware of the existing scientific developments, authors believe that in-depth research requires finding the optimal concept of financing and raising funds in modern scenario from the standpoint of the use of municipal bonds by local governments.

What are the characteristics and global trends of municipal bonds? A significant growth in the municipal bond market occurred in the 1990s. It was triggered by the high rate of urbanization in Latin America and other developing regions. During this period, many municipalities issued bonds to ensure the inflow of financial resources and refinancing. The process at that time ended in municipal and regional defaults, forcing national governments to absorb municipal debts and increase public debt. As a result, many countries have legally banned or severely restricted the borrowings. In table 1 are summed up some generalized restrictions on borrowings.

As evident from the experience of many countries around the world, not all local governments can issue bonds. Exceptions to the rules are municipalities with significant investment programs and good ratings. For small municipalities, loans from commercial banks may be the best alternative. Important in this analysis of debt capacity is the question of whether local authorities will be able to pay outstanding and new debt on time. In this regard, the following factors that determine the ability to borrow should be considered: the prospects of the municipality (economic and financial); offer of new loans or bonds, which includes the amount of interest, form, maturity; existing debt obligations, their structure and size; and the presence of restrictions at the national or regional level. The significant attractiveness in the financial market of municipal bonds issued by the cities of South Africa should be noted. These are cities

that carry out effective budget management. Municipal bonds are often attractive to investors looking to reduce income tax bills. Usually, the payment of interest on them is exempt from federal tax. These securities are used by local and State authorities in order to create a positive environment for financing government projects or municipal governments: construction of schools, roads, repairs, etc.

Table 1: Municipal loan aspects of individual countries

Country	*Fiscal base*
Austria	Borrowing is allowed only to cover extraordinary expenses.
Brazil	Annual targets of income, expenses, primary balance changes in debt composition. Failure to comply with fiscal targets leads to sanctions and high risks for officials.
Colombia	Loan permission depends on the rating territorial governments based on liquidity ratios and solvency.
Czech Republic	No obvious restrictions.
Finland	Borrowings are coordinated by municipal organizations and are not guaranteed by the State.
France	Loans are allowed to finance capital investments in the absence of an operating deficit.

Source: Kopanyi (2018)

Municipal bonds are divided into two categories: general obligation bonds (GOs) and income bonds. The difference is in providing them. The first is provided by the total income of the issuing municipality, and the second is supported by a specific source of income. GOs account for 28% of the investment market and are issued by most local governments to fund the specific projects. The characteristics and types of GO bonds are illustrated in table 2.

Table 2: Types and characteristics of GO bonds

Types of bonds	*Characteristics of collateral*
GO is supported by unrestricted tax regulation and special tax	Secured by property tax, they can be supported by other taxes or state support. These bonds are a very strong collateral.
GO is supported by without special tax	They are provided with the general income of the issuer, including taxes, but do not have a clearly defined tax from which they must return. Bondholders are paid out of total income, and if they are insufficient to cover debt service, the issuer usually has to raise taxes. These bonds are a strong collateral.
GO is supported by limited tax regulation	Provided by the general income of the issuer, including taxes. However, the issuer does not have the opportunity to increase taxes for an unlimited amount to return the bonds. The limit on the amount of tax increase allowed is usually described in the bond supply report, and the bonds are clearly marked. Bonds are strong collateral, but tax restrictions reduce their security.

Source: Kopanyi (2018)

The advantages of municipal bonds include receiving money in advance, long term commercial banking, income stability and cheaper resources. The main disadvantages of bonds are the complexity of the preparatory process for the issue, as well as the high cost of service and implementation. It should be noted that there are different degrees of State control over the debt policy of local governments (Zolotukhin, 2017), dialogue-oriented cooperation (coordination of control over borrowing), regulatory (formation of fiscal rules to limit local debt), administrative (central government manages local debt). Municipal bonds are common in the United States, and bank loans predominate in Europe. The composition of creditors also differs. In the United States, investors in municipal securities are households, whereas in Europe (including Ukraine), local governments are credited with funds from financial institutions. In order to determine the volume of municipal bond issues, we use the data in table 3.

Table 3: Dynamics of the issue of US municipal bonds, $ billion

Bond Type	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*The relative deviation of 2020 from 2011, %*
GO	106	136	128	136	159	179	165	124	164	200	189
Revenue	189	247	208	203	246	272	284	223	263	285	151
Average maturity, years	15.5	15.6	16.2	16.0	16.4	16.8	17.5	18.1	18.1	17.4	112.2

Source: US Municipal Bonds Statistics

These statistics indicate a significant increase in the issuance of municipal bonds in the United States. In terms of total liabilities, GO bonds during the period of study increased by 89%, income bonds by 51% (refer Table 3). It should be noted that the issue of yield bonds, which have a higher risk of default over time, but provide a higher rate of return for investors, significantly exceeds the issue of GO. In addition, the average maturity of securities increased by 12.2% (Table 3). Municipal bonds can be purchased by individual investors both through an organization that issues securities and through a mutual fund. The results described by Horton (2020) were used giving 5 highest ratings of municipal funds, which were relevant in December 2020 (Table 3).

Table 4: The highest rated funds of municipal bonds

Name of the fund	*Characteristic features*
American High-Income Municipal Bond Fund	Much of the assets ($ 7.8 billion) are invested in debt bonds of city bonds. It has a 10-year annualized yield of 5.46%. The cost ratio of the mutual fund is 0.67% with advance sales of 3.75% when buying shares. The minimum investment is $ 250.
Nuveen High Yield Municipal Bond Fund I	It invests at least 80% of the mutual fund's assets in municipal bonds. It brings a 10-year yield of 6.62% per annum. The mutual fund has a cost ratio of 0.99%. Ir targets at investors with higher net worth, with an initial investment of $ 100.000.
Vanguard Intermediate-Term Tax-Exempt Fund Investor Shares	It is one of the longest mutual funds of municipal bonds in the market. It invests at least 75% of its $ 78.2 billion in municipal bonds. The weighted average maturity is 6 to 12 years. 10-year profitability is 3.59% with a low-cost ratio of 0.17%. The initial investment required is $ 3.000.
T. Rowe Price Maryland Tax-Free Bond Fund	It invests in at least 80% of assets in debt securities. It brings a 10-year annual return of 3.78% at a cost ratio of 0.48%. The initial investment required is $ 2.500.
Oppenheimer Rochester High Yield Municipal Fund Class A	It invests at least 80% of its net assets in high-yield municipal bonds issued throughout the United States. 10-year yield is 6.89%. The cost ratio of the mutual fund is 0.95%, and total sales are 4.25%. The initial investment required is $ 1.000.

Source: Horton (2020)

A common feature of these funds is that they provide investors with a high level of current income, which is exempt from the regular federal income tax and has a fairly high annual rates, which determines their attractiveness. Roberts (2020) in his study suggests that, in a crisis caused by a pandemic, cheap loans may be a thing of the past, despite attempts by the Federal Reserve. The world is facing a wave of debt default, which will have a negative impact on financial markets.

3.1 Features of Transformations in Ukraine

Decentralization reform in Ukraine has revealed rather acute social problems and contradictions. Undoubtedly, those territorial communities that have significant economic potential have found themselves in better conditions and will be able to achieve good financial results with the right organization of their management activities. A major problem today is that these entities have low infrastructure development, low index of financial capacity, and, consequently, insufficient working capital, which should be attracted in order to strengthen the competitive position of the community.

The conclusions of scientists Rekunenko (2014), Savenko (2020), and Iorgachova and Kovalova (2019) is logical in the sense that the financial market of Ukraine and its infrastructure must be modernized in accordance with international standards. At the same time, the creation and development of financial market infrastructure should be accompanied by the formation of its own development concept with appropriate mechanisms for implementing strategic and tactical objectives. An important issue concerning the study of municipal bonds and the opportunities or challenges that may arise from their issuance and implementation in financial markets, is to identify the financial preconditions of the newly formed united communities and the feasibility of attracting this type of financing. In the Ukrainian reality, this issue requires serious analytical research and relevant conclusions.

The data in table 4 is used to estimate the financial capacity of the united communities of Ukraine. It should be noted that the above information only partially reflects the real state of budget subsidies, as statistical base and information on newly created territorial communities do not exist at the end of 2020 and their financial indicators due to lack of relevant targeted state subvention and their economic activity in the new borders.

Table 5: Incomes of the united territorial communities of Ukraine, 2020

The criteria for grouping communities	*The number of UTCs in the group*	*The average amount of own income received by 1 UTC of the corresponding group, UAH million*	*Average income per capita in the corresponding UTC group, UAH*	*The highest indicator of budget subsidy by group, %*
Population over 15 thousand people	110.0	95.9	4,453.7	54.4
Population from 10 to 15 thousand people	134.0	55.9	4,600.1	61.5
Population from 5 to 10 thousand people	77.0	32.8	4,669.3	64.0
Population up to 5 thousand people	110.0	16.7	4,888.4	60.6
UTC - cities of regional significance	23.0	505.7	6,412.6	22.0

Source: Ventsel, Gerasymchuk and Onyschuk (2021)

These data indicate that the highest rates of profitability and the lowest level of budget subsidies are formed by those communities that are created around cities of regional importance. In worst prospects are those having a population of less than 10,000. These groups are characterized by a high rate of budget subsidies (more than 60%), as well as low average income per community. This situation can lead to a deepening financial crisis and a reduction in number of basic social programs and services in the local community, which will determine the impossibility of its existence in the future. A research by Ivanyshyn, Pecheniuk and Pecheniuk (2019) described a similar negative situation in the field of education in terms of obtaining an educational subvention for these purposes. Undoubtedly,

decentralization reform in Ukraine creates new challenges and opportunities for communities. In practical terms, there is a chance to obtain significant income from their own physical assets through strategic management of the sale, lease and acquisition of land and property by using land valuation tools.

Modern decentralization processes are accompanied by heated discussions on the feasibility of acquiring the status of a legal entity under public law by territorial communities of Ukraine. World experience shows that in European countries, communities have been legal entities for hundreds of years, and in the countries of the so-called Eastern bloc, such a reform took place after the overthrow of totalitarian regimes. Sometimes legal entities are not only territorial communities, but also all levels of their management. Upon registration, the community-legal entity receives the right to enter into agreements with individuals and legal entities, can obtain full credit ratings for loans and credits. In this case, the property, that the community has, belongs directly to the community - a legal entity. At the same time, the legal entity community is becoming the only centre of responsibility (Hurin, 2020).

Debt financing can expand infrastructure and facilitate community development. In the context of this study, it is worth considering the issue of maximum use of local assets by local governments. One of the important sources of replenishment of the local budget is the sale or lease of land or buildings. Given the growing demand for land resources and the limited limitations of the latter, administrations may resort to the conversion of agricultural land to urban use[1], which increases the value of urban land, respectively, the price of rent and sale, resulting in additional funding. However, the practice of local governments in Ukraine shows that municipal administrations often do not have an accurate idea of their ownership and value of assets. According to the Resolution of the Cabinet of Ministers of Ukraine[2] (Resolution, 2020), in pursuance of the Presidential Decree (Decree of the President of Ukraine, 2020), a mechanism of full transfer of agricultural lands to all united territorial communities was introduced. According to the document, more than 2 million hectares of agricultural land will be transferred to local governments. This will allow to develop registers of property holdings and to establish the market value of important land plots, to make strategic decisions on better development of land resources, and to take into account their financial contribution.

The second aspect is how municipal governments can effectively issue debt. Undoubtedly, bank loans and bonds are common debt instruments that have been tested in developed countries, but municipal governments in developing countries face significant problems due to weak fiscal base, low debt capacity, lack of experience in preparing investment plans, payments debt obligations. In Ukraine, it has traditionally been the case that most communities rely on the central government. This was facilitated by public policy, in which a significant part of the funds was distributed centrally through transfers and subsidies to finance investment needs. The practice of local governments considers these resources to be insufficient to provide financing for long-term investments.

In case of the financial analysis that determines the need for borrowing, lending options may be considered: bank loans or bond issues. Other ways could be grants or public-private partnerships. Some countries (Colombia, Mexico, Czech Republic) have developed segmented markets, where the smallest cities have the right to borrow from subsidized government agencies, and medium-sized cities - from commercial banks and bond markets. In addition, Municipal Development Funds can be established as specific financial intermediaries to assist cities in capital planning, financial structuring and project evaluation.

Brus (2017) highlights the main features of the Ukrainian municipal bond market, which includes high budget centralization that makes the local borrowing risky and illiquid, unsystematic entry into the market of municipal loans, insignificant volumes of trading in the stock market, the complexity of the procedure for entering both domestic and foreign markets for borrowed resources. However, the Ukrainian authorities are also taking some steps to improve the use of municipal bonds as possible collateral for loans. In particular, the National Bank of Ukraine (2020) extended the terms of refinancing of banks and the list of acceptable collateral, which includes municipal bonds. Their inclusion is aimed at expanding the tools of banks to regulate their own liquidity. It will also contribute to the development of regional infrastructure projects, which should have a positive impact on the securities market in general.

[1] This has negative impact from sustainable development point of view. World over, the urbanization is seen as negative phenomenon, particularly when it is changing land use from agriculture to concrete built areas. However, we present this solution in the theoretical context of replenishment of local budgets.

[2] https://www.kmu.gov.ua/npas/deyaki-zahodi-shchodo-priskorennya-reform-u-sferi-zemelnih-vidnosin-i161120-1113

4. CONCLUSION

World economic opinion has developed a number of mechanisms through which municipalities can provide financial investment and accumulate additional funds for infrastructure and social projects. One of them is the issue of municipal bonds. The experience of their application in the financial markets of different countries is quite wide and contradictory. For countries that traditionally have high development rates and effective municipal management, the use of bonds is characterized by positive effects. The use of this type of securities in countries with economies in transition has been accompanied by a number of municipal defaults, which has led to the accumulation of debt by the governments of these States.

At this stage of development of Ukrainian territorial communities, this form of attracting financial resources is used insufficiently and inefficiently compared to developed industrial countries. In addition, imperfect legislation, lack of experience in local borrowing, lack of recognition and registration of local governments as legal entities under public law, lack of clear information on available resources and their valuation, create significant risks to the implementation of local borrowing in Ukraine. Areas of recommended further research include the development of mechanisms for effective property management of territorial communities and finding the optimal concept of financing projects for economic and social development of regions, taking into account the best world practices of using municipal bonds.

REFERENCES

Brus, S.I. (2017). Municipal bonds in Ukraine in the context of the prospect of use. *Zbirnyk naukovykh prats Universytetu derzhavnoi fiskalnoi sluzhby Ukrainy.* № 2. p. 67-85 (Ukrainian)

Decree of the President of Ukraine (2020). Decree № 449/2020 on some measures to accelerate reforms in the field of land relations (15 October 2020). Retrieved from: https://zakon.rada.gov.ua/laws/show/449/2020#Text

Horton, M. (2020). Municipal Bond Funds for 2021. Retrieved from: https://www.investopedia.com/articles/investing/010716/top-5-municipal-bond-funds-2016.asp (accessed on 1 March 2021)

Howard, C. (2020). Understanding general obligations of municipal bonds. Retrieved from https://www.schwab.com/resource-center/insights/content/understanding-general-oligation-municipal-bonds (accessed on 20 March 2021).

Hurin, D. (2020). To be a legal entity in the community or not? Retrieved from: https://decentralization.gov.ua/admin/articles/12990.html (accessed on 10 March 2021).

Ivanyshyn, V., Pecheniuk, A., & Pecheniuk, A. (2019). Financial and educational inclusiveness of rural territorial groups. Innovatsiina Ekonomika, 1-2 (78), 156-161.

Kopanyi, M.E.F.M. (2018). Asset and Debt Management for Cities. IGC International Growth Centre, London School of Economics and Political Sciences. Retrieved from: https://www.theigc.org/publication/asset-debt-management-cities/ (accessed on 23 April 2021).

Korniiaka, O. V. (2016). The role of municipal bonds in the development of municipalities in the second half of the XIX - early XX century. Ukrainskyi Sotsium, 1 (56), 138-145 (Ukrainian).

Iorgachova, M., & Kovalova, O. (2019). Investment and innovative model of the market of Ukraine in the conditions of transformation. Investytsiyi: praktyka ta dosvid, 10, 22-26. Doi: 10.32702/2306-6814.2019.10.22 (Ukrainian).

National Banks of Ukraine (2020). The method of valuation of municipal bonds as a possible collateral for refinancing loans is determined. Retrieved from: https://bank.gov.ua/ua/news/all/viznachena-metodika-otsinki-munitsipalnih-obligatsiy-yak-mojlivoyi-zastavi-za-kreditami-refinansuvannya (accessed on 11 May 2021).

Rekunenko, I. (2014). Methodological bases of research of processes of formation and development of infrastructure of the financial market of Ukraine. Ekonomika ta derzhava, 12, 10-13 (Ukrainian).

Resolution of the Cabinet of Ministers of Ukraine (16 November 2020). Some measures to accelerate reforms in the field of land relations. № 1113. Retrieved from: https://www.kmu.gov.ua/npas/deyaki-zahodi-shchodo-priskorennya-reform-u-sferi-zemelnih-vidnosin-i161120-1113 (accessed on 2 March 2021).

Roberts, M. (2020). Pandemic Economics. Crisis Critique, 7 (3), 299-321.

Savenko, D. (2020). Formation and development of financial market infrastructure of Ukraine. Investytsiyi: praktyka ta dosvid, 4, 81–85. Doi: https://doi.org/10.32702/2306-6814.2020.4.81 (Ukrainian).

US Municipal Bonds Statistics. Retrieved from: https://analytics.clickdimensions.com/forms/?visitor=contact (accessed on 30 April 2021).

Ventsel, V., Herasymchuk, I., & Onyshchuk, I. (2021). With what financial indicators did the united communities end 2020 - rating. Retrieved from: https://decentralization.gov.ua/news/13333 (accessed on 30 March 2021).

Zolotukhin, Ye. (2017). Comparative analysis of foreign experience in the functioning of local borrowing markets: lessons for Ukraine. Investytsii: praktyka ta dosvid, 11, 55-60 (Ukrainian).

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*
Conceived and designed the research or analysis	Yes	Yes
Collected the data	No	Yes
Contributed to data analysis & interpretation	Yes	No
Wrote the article/paper	Yes	Yes
Critical revision of the article/paper	Yes	No
Editing of the article/paper	No	Yes
Supervision	No	Yes
Project Administration	Yes	No
Funding Acquisition	No	No
Overall Contribution Proportion (%)	50	50

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00229 | Research Article

Community Forestry Governance in Federal System of Nepal

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ABSTRACT

This research was conducted to find out the relationship between Community Forests User Groups (CFUGs), local government, and provincial government concerning monitoring and management ownership. The benefit-sharing mechanism in community forestry has always been a point of discussion to deal with, that follows the share given by law and constitution. In this study, different stakeholders were interviewed to record the actual views of CFUGs, local political leaders, forest officials and others on forest use and management responsibility in the context of federal restructuring of Nepal. CFUGs along with local political leaders were found favoring to hand over the monitoring and management responsibility to the local government, whereas the forest officials were reluctant on this proposed arrangement. The forest officers considered that giving the functions of monitoring and management responsibilities to the local government would destroy the past successful history of community forestry in Nepal, and it would turn to massive deforestation along with degradation of forests in the name of development. Being the policy formulation process occurring on a provincial and local levels, a lack of coordination among local governments and CFUGs may create a major challenge in the forest management and utilization of resources. The benefit-sharing mechanism in both the scientifically managed and traditionally managed forests was found not following the provisions of the Forest Act, 2019 and 1993. In particular context of pro-poor livelihood activities and coordination with local government during the community development activities reflect weak governance. Proper coordination and cooperation among three tiers of government are necessary through involving the CFUGs in the local government planning process and support to CFUGs.

Keywords: Forest User Groups; Coordination; Federal system; Governance; Province

Received: 04 June 2021
Reviewed: 22 June 2021
Accepted: 09 July 2021
Published: 10 August 2021

How to cite this paper: Dahal, B., Joshi, R., Poudel, B., & Panta, M. (2021). Community Forestry Governance in Federal System of Nepal. Journal of Policy & Governance, 01(01), 30-45. http://dx.doi.org/10.33002/jpg010103

1. INTRODUCTION

Forest, the most important natural resource, has become the central point of attraction due to the modernization and urbanization that lead to global warming and other several changes in the world (Tsiantikoudis et al., 2019; Joshi et al., 2020). Nowadays, most of the developed countries have focused on the promotion of the protection and conservation of forest resources in developing countries by providing funding and other awareness programme (Rijal et al., 2021). Developing countries like Nepal have focused on conserving and managing the forest through different forest management modalities. This has resulted an increase in forest areas of Nepal. In the year 1957, the government enforced the Private Forest Nationalization Act, 1957 and nationalized privately owned forests within the country. Many scholars suggest the deforestation in Nepal can be traced to the nationalization of communal forest lands in the 1950s by the government, thereby alienating local people from their ancestral institutions and controls (Bhattarai, 2016). The Master Plan for Forestry Sector (MPFS), 1988 was developed and approved in 1989 that recognized community and private forestry as priority programs in the forestry sector and encouraged the transfer of forest access with management rights to the local community (Pokharel et al., 2012). Forestry institutions can be considered as main actors to lead the sustainable management of forest, especially for forest policy formulation, implementation, and analysis (Schusser et al., 2016); where government agencies, community-based institutions, Federation of Community Forest Users in Nepal (FECOFUN) and other agencies are main forestry institutions (Gautam et al., 2004). The FECOFUN is a non-government organization established in 1995 to complement government initiatives related to the development of community forestry.

The community forestry (CF) is considered as one of the most successful models addressing forest management and governance challenges in the developing world (Sapkota et al., 2020). It is also rewarded as the most successful participatory approach all over the world (Baral et al., 2019). In fact, community forest management in Nepal is managed by the community themselves through Community Forest User Groups (CFUGs), which were evolved after the late 1970s when massive deforestation happened in state-controlled forests (Joshi et al., 2020; Joshi et al., 2021). The community forest management approach ensures and encourages the active participation of local people in the forest management where local communities are provided with a certain degree of responsibility and authority for the forest management is regarded as the most effective way of addressing the subsistence needs of local people (Khadka et al., 2021; Bijaya et al., 2016). The total funds collected in the CF account are to be allocated in such a way that 25% of it should contribute the forest development, conservation, and management, 35% of the funds should be invested in women, dalits[1], Indigenous and underprivileged groups considering the well-being ranking of CF members (Poudel et al., 2015; Rijal et al., 2021). The rest of the funds can be spent on community development activities with community consent during general assembly (Community Forestry Division, 2014). The timber and non-timber forest products extracted from the community forests, such as fuelwood, fodder/grass, leaf litter, etc., are part of the local people's subsistence, and help strengthen the local economy improving the livelihoods of local people (Khanal & Devkota, 2020). In addition, the Government of Nepal provides the rights to the CFUGs to access, use, and manage according to their needs, but retain ownership through the community forestry (Paudel, 2018). The main goal of the community forestry program in Nepal is to increase the participation of the local user in the decision-making of forests and gaining benefits (Adhikari et al., 2016). Moreover, this program has been facing some shortcomings in some CFUGs due to poor record management, lack of technology, excessive politicization of the local issues, and others (Chhetri et al., 2013).

For a long, the terms of governance and good governance are being used increasingly in development literature wherein government acts as one of the main actors. Governance is described as the process of decision making and is perceived as the process of establishing, promoting, and supporting a specific type of liaison between governmental and non-governmental bodies by which decisions are implemented (Howlett et al., 2009). It includes both formal and informal actors involved in decision-making and in implementing the decisions. Additionally, governance is viewed in donor circles as the bedrock on which economic growth, poverty reduction, and the improvement in the quality of life and social well-being rest (Hyden et al., 2008). The problems associated with achieving targeted developmental goals are understood to be a result of poor governance. Conversely, good governance is seen as one way of achieving such goals. In fact, some consider it as a prerequisite for sustainable development and economic growth (Roberts et al.,

[1] Dalit is a name for people belonging to the lowest caste in Nepal, characterised as "untouchable".

2007). The key elements of good governance include transparency, accountability, and participatory decision-making (UNDP, 1997; Choudry, 2002; Pasape et al., 2015). FAO (2020) has defined governance as the processes through which public and private actors articulate their interests; frame and prioritize issues; and make, implement, monitor, and enforce the decisions.

The forest governance is defined as the way in which public and private actors, including formal and informal institutions, smallholder and indigenous organizations, small, medium-sized and large enterprises, civil-society organizations and other stakeholders negotiate, make and enforce the binding decisions about the management, use and conservation of forest resources from local to global (Piabuo et al., 2018). The analysis of forest governance in community forestry helps provide the condition of forest in respect of elements as participation, transparency, gender equality, and other things that determine the path towards sustainability. Community forestry governance has always been a top prioritized issue in Nepal that provides four decades of successful history of community forestry.

The political system has always become the major turning point for forest policy reform in Nepal. Nepal's forest management modalities are major departures from the state-centric, centralized, and expert-led approaches to decentralized and community-led forest management regimes with political change (Banjade et al., 2017); however, the land tenure was always controlled by the central government. The first time, the Constitution of Nepal, 2015 has introduced three layers of government (i.e., federal, provincial and local level) and forest has come under concurrent powers of federal, provincial, and local government (Muni, 2015). The recently approved Local Government Operation Act, 2017 has provided the responsibility of environment and biodiversity conservation to the local government. The national budget related to community forest has also been allocated under local government. However, the recently approved organizational and management arrangement of the Ministry of Forest and Environment has not recognized the local government during the organizational restructure of the Ministry of Forest and Soil Conservation. There is no unit within the local government of Nepal (Chaudhary, 2018). This unclarity in rights and powers of the hierarchical federal government has put community forests in dilemma (Rijal et al., 2021). Community forestry and good governance are interlinked; however, the federal system's obscurity in powers over community forestry has put governance at high risk (McDermott & Schreckenberg, 2009). The accountability and responsiveness principles of governance are the main considerations in this research.

Till now, only 663 sub-divisions have been authorized and managed in Nepal, but there are altogether 753 local bodies administered in the country (Acharya, 2018). The natural resource is regarded as the major revenue source for provincial and local government; however, community forest user groups have rights to get full benefits generated from the community forest (Bijaya et al., 2019). Local and provincial governments may feel pressure to over-exploit natural resources to raise revenues (Thakali et al., 2018). Similarly, there is no spatial linkage between the territory of local governments and forest sub-divisions. This has created ambiguity with regard to forest management modality and the authority to facilitate the community forestry process at the grassroots level. The provisions of the Constitution and the Forest Act 1993 have created debate among the stakeholders having rights over community forestry management, monitoring, and benefit-sharing. Being a new structure, no study has been conducted on forest tenure, revenue sharing mechanism, and the effects of forest administration restructuring in relation to community forest governance. Therefore, this research was conceived to focus on the issues that would further help in policy planning.

2. MATERIALS AND METHODS

2.1 Study Area

This study has been conducted in the territory of four local governments representing two different provinces and two different economic settings (Figure 1). Two local governments were selected from Chitwan district (Bagmati province) representing Inner Terai[2] and Siwalik region. Similarly, two local governments were selected from the Gorkha district (Gandaki province) representing mid-hill and high Himalayan physiographic zone. The Chitwan district represents low land with high-value timber forest and a highly sensitive biological corridor. Likewise, Gorkha represents mid-mountain and high Himal that is highly dependent on forest resources for local people's livelihoods. Among the selected local government in

[2] Terai is a lowland belt of southern Nepal, mainly characterised by tall grasslands, scrub savannah, Sal forests and clay rich swamps.

each district, one represents the rural area, and another represents the urban municipality, so that the findings of this research can represent different socio-economic settings. Two CFUGs from each of the local governments were selected; one being connected to CF implemented with Scientific Forest Management (SFM), and another linked to the CF with Traditional Forest Management (TFM). From Chitwan district, Kankali Community Forest managed scientifically, and Panchakanya Community Forest managed traditionally were selected. From the Gorkha district, Ghaledada-Ranakhola Community Forest managed scientifically, and Birinchowk Community Forest managed traditionally were selected (Table 1).

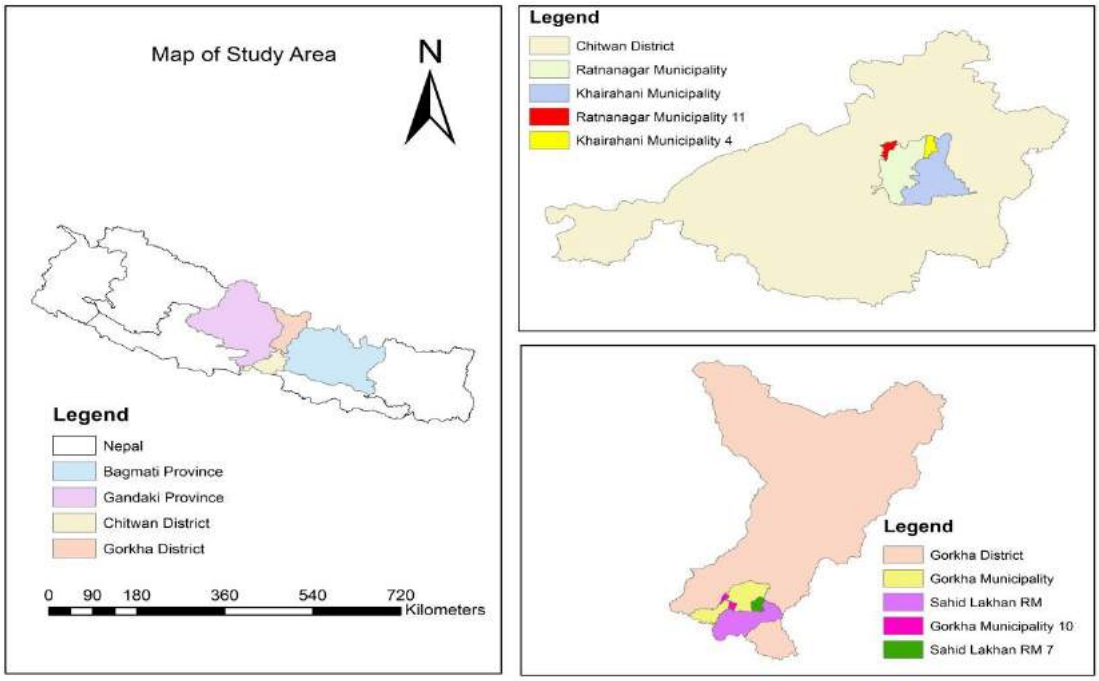

Figure 1: Map of the study area

Table 1: The main characteristics of selected CFs

Name	*Panchakanya CFUG*	*Kankali CFUG*	*Ghaledada-Ranakhola CFUG*	*Birinchowk CFUG*
Address	Ratnanagar municipality-11, Chitwan	Khairahani municipality-4, Chitwan	Sahid Lakhan rural municipality-7, Gorkha	Gorkha municipality-10, Gorkha
Date of handover	20/09/2010	20/06/1995	28/02/1999	23/12/1994
Area (ha)	198.73	749.13	475.8	114.82
Altitude (masl)	200-500	220-580	1100-1500	700-1200
Type of Forest	Natural forest	Natural forest	Natural forest	Natural forest
Dominant species	*Shorea robusta*	*Shorea robusta*	*Shorea robusta, Castanopsis indica, Schima wallichi*	*Shorea robusta, Schima wallichi*
Forest protection	Household rotation & bars	Household rotation & bars	Household rotation	Household rotation
No. of households	2,127	2,098	531	202
Office building	Own	Own	Own	Own
Management approach	TFM	SFM	SFM	TFM
Total population	10,635	11,802	1,139	1,038

2.2 Data Collection

2.2.1 Primary Data Collection

Primary data were collected using Participatory Rural Appraisal (PRA) tools such as an interview with stakeholders, key informant interviews, questionnaire surveys, formal and informal discussions, focus group discussions, and direct observation. To gather the information, firstly, key informant interviews were conducted to know the status of the socio-economic context and the condition of forest management and governance prevailing in community forests. Key informants having detailed information about community forests were chosen for an interview, and they included local political leaders, ex-presidents of community forests, schoolteachers, ward presidents, forest guards, and so on. A total of 25 forest officials were interviewed using an open and close-ended questionnaire to access the view of officers regarding monitoring and management responsibility of the forest. 12 forest officials from the Gorkha district and 13 forest officials from the Chitwan district were interviewed who represent the provincial government. The unstructured questionnaire was developed and used to access the views regarding management responsibility of forests from 15 FECOFUN members. The representative sample of 5% (i.e., 248) was drawn from total forest user households (4,958) of four CFs to conduct the questionnaire interviews. A stratified random sampling method was exercised for this study where proportionate samples of interviewees from each category of well-being were selected. The questionnaire survey method was used to collect data on various aspects affecting governance, such as income source, fund mobilization, transparency, forest tenure, revenue sharing mechanisms, effects of forest administration restructuring, and decision-making process prevailing among community forest user groups. Minute review of Operational Plan and Constitutions and official records were collected from each of the sampled CFUGs. The audit reports of the year 2016/17, 2017/18, 2018/19, and 2019/20 were collected to understand the benefit-sharing mechanism of CFUGs. Focus group discussion with the forest users was conducted focusing on the role of local government for the management of forest resources and the response of the users to fulfill their basic requirement of forest products from the existing forest management system. The most important five pillars of effective governance, i.e. the people, the land, laws & jurisdiction, governing systems, and resources, were investigated through key informant interviews and focus group discussions involving the local peoples, political leaders, elders, ward president, academics, CFUGs members, etc. These five pillars were developed to blend the traditional values of respective Indigenous peoples' nations with the modern realities of federal governance. The main principle of these five pillars was to develop and deliver tools and services to help transform the nations in federal system.

2.2.2 Economic Analysis

The economic analysis was done employing Net Present Value (NPV), Benefit-Cost Ratio (BCR), and Profitability Index (Schwab & Lusztig, 1969).

Net Present Value (NPV): Formulas and calculation

The first step involved in the calculation of NPV is the estimation of net cash flows from the project over its life. The second step is to discount those cash flows at the hurdle rate.

The net cash flows may be even (i.e., equal cash flows in different periods) or uneven (i.e., different cash flows in different periods). When they are even, the present value can be easily calculated by using the formula for the present value of an annuity. However, if they are uneven, we need to calculate the present value of each net cash inflow separately.

Once we have the total present value of all project cash flows, we subtract the initial investment on the project from the total present value of inflows to arrive at net present value.

Thus, we have the following two formulas for the calculation of NPV:

When net cash flows are even, i.e., when all net cash flows are equal:

$$\text{NPV} = \text{R} \times \frac{1 - (1 + \text{i})^{-\text{n}}}{\text{i}} - \text{Initial Investment}$$

In the above formula,
R is the net cash inflow expected to be received in each period;

i is the required rate of return per period (i.e., the hurdle rate, discount rate);
n is the number of periods during which the project is expected to operate and generate cash inflows.
When net cash flows are uneven, i.e. when net cash flows vary from period to period:

$$NPV = \frac{R_1}{(1+i)^1} + \frac{R_2}{(1+i)^2} + \frac{R_3}{(1+i)^3} + \ldots - \text{Initial Investment}$$

Where,
i is the hurdle rate (also called the discount rate);
R_1 is the net cash inflow during the first period;
R_2 is the net cash inflow during the second period; R_3 is the net cash inflow during the third period, and so on.

Benefit-Cost Ratio (B/C Ratio)

It is the ratio of the present worth of benefit stream to the present worth of cost stream. The investment is said to be profitable when the BCR is one or greater than 1. This method is widely used in economic analysis and not in private investment analysis.

Profitability Index

Profitability Index = (Net Present Value + Initial Investment) ÷ Initial Investment (Schwab & Lusztig, 1969). Therefore:

- If the PI > 1, the project generates value and the company may want to proceed with the project.
- If the PI < 1, the project destroys value and the company should not proceed with the project.
- If the PI = 1, the project breaks even and the company is indifferent between proceeding and not proceeding with the project.

2.2.3 Secondary Data Collection

Secondary data were collected for institutional information about the community forest user groups registered, forest conditions for the study area from the divisional forest office and local government office. The CFs' nominal and functional policies were reviewed to understand the constitutional provisions regarding forest resource management, federal government policy, state government policy, and local government policy. The Constitution, operational plan, minute register of CFUGs and Division Forest Office (DFO) records were reviewed to retrieve the information.

2.3. Data Analysis

Methods of both qualitative and quantitative analyses were applied to analyze the data. Information collected from the field was carefully recorded, compiled, categorized, coded, tabulated, and analyzed. Simple statistical tools, such as bar diagrams and pie charts, were used to analyze results with the help of MS-Excel.

3. RESULT AND DISCUSSIONS

3.1 Result

3.1.1 Response of People on Intergovernmental Relationship

The relationship between the local and provincial government (one representative is the Division Officer) determines the further path of community forest in the production and sustainable management of forests. However, the findings of this study reveal that majority of respondents (70%) fully sought that the monitoring and management responsibility should be of local government; whereas 19% of respondents said that the monitoring and management responsibility should be given to provincial government; and 11% of the respondents answered that management and monitoring responsibility should be delivered by the coordination of both provincial and the local government (Figure 2). Government officers, such as DFO (Divisional Forest Officer) and rangers, wanted that the responsibility of monitoring and forest management should be given to the provincial government, while some officers said that this responsibility needs to be delivered in coordination of both the parties. FECOFUN also gave the opinion that the monitoring and management responsibility of community forest should be

fulfilled through the coordination of both the parties, while all respondent CFUGs wanted that the local government should be given this responsibility.

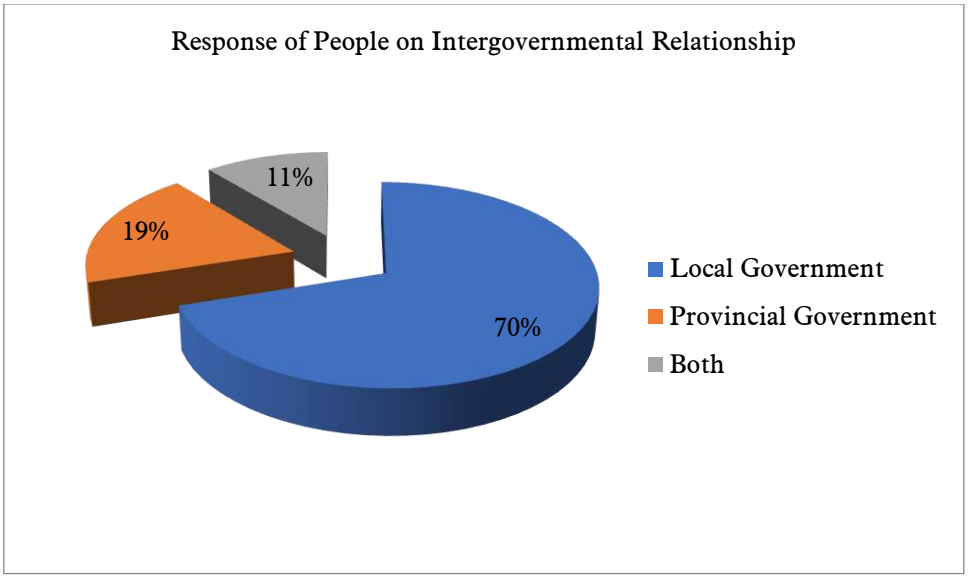

Figure 2: Monitoring and management responsibility of forest

3.1.2 Intergovernmental Relationship

Local government can also play a leading role in forest management by providing financial and technical support. The findings of this study show very good relationship between local leaders and CFUGs in Bagmati Province, mostly in Kankali CF. This relationship is seen in financial support and technical works such as trainings, tourism development, construction work, etc. (Figure 3). This kind of the relationship was absent in Panchakanya CF area. However, technical support such as trainings, plantation activities, were carried out in Ghaledada-Ranakhola CF, whereas this kind of support was not existing in Birinchowk CF.

3.1.3 CFUG Involvement in Planning Process of Municipality

Lack of coordination and cooperation has been seen in the local government and CFUGs. 72% of the respondents were not involved in any planning process of the municipality. Those who participated (i.e 28%) in the activities of municipality were also not actively involved, rather they were just present passively in the meetings (Figure 4). This seems to be an issue of concern for the forest management activities. It is apprehended that this can evolve later as the main point of dispute between CFUG and the local government.

Future collaboration among Local government and CFUGs: Almost all members from four CFUGs sought collaboration of the local government in the future in financial affairs and development activities. The CFUG members are highly attracted towards revenue from tourism development and promotion rather than production of the forests. In contrast, local political leaders perceived the environmental conservation as an area of collaboration in the future. These results show diversity of perceptions regarding the collaboration.

3.1.4 Income from Different Sources

Table 2 shows various sources of the income of all four CFUGs in the year 2016/17, 2017/18, 2018/19, and 2019/20 (Table 2). In the year 2019, Kankali and Ghaledada-Ranakhola CFUGs earned the highest income, which was calculated as USD 163028.93 and USD 14708.18, respectively. In 2016, they earned the lowest income i.e., USD 66031.04 and USD 9704.12, respectively. Likewise, in the year 2017, Panchakanya CFUG earned the highest income of USD 88879.99, while, in the year 2016, it had the least income (USD 62747.93). In 2017, Birinchowk CFUG earned the maximum income, which was recorded as USD 14564.91 and the minimum income was recorded in the year 2018 i.e., USD 4498.13. From this table, it can be said that CFUGs from the Terai region have a higher income from fuelwood i.e., Kankali and Panchakanya CFUGs. Likewise, the CFUGs from mid-hill region have a high source from timber

i.e., Ghaledada-Ranakhola and Birinchowk CFUG. The table also shows that CFUGs with scientific forest management has a high income in comparison to traditionally managed CFUGs.

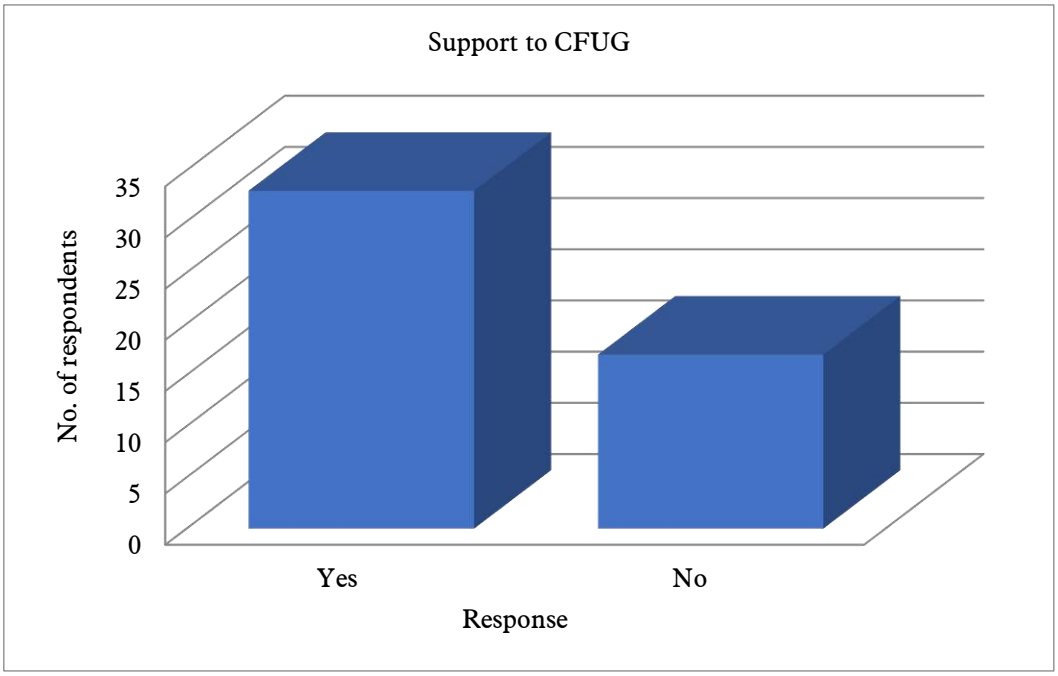

Figure 3: Support from the local government to forest management in CF

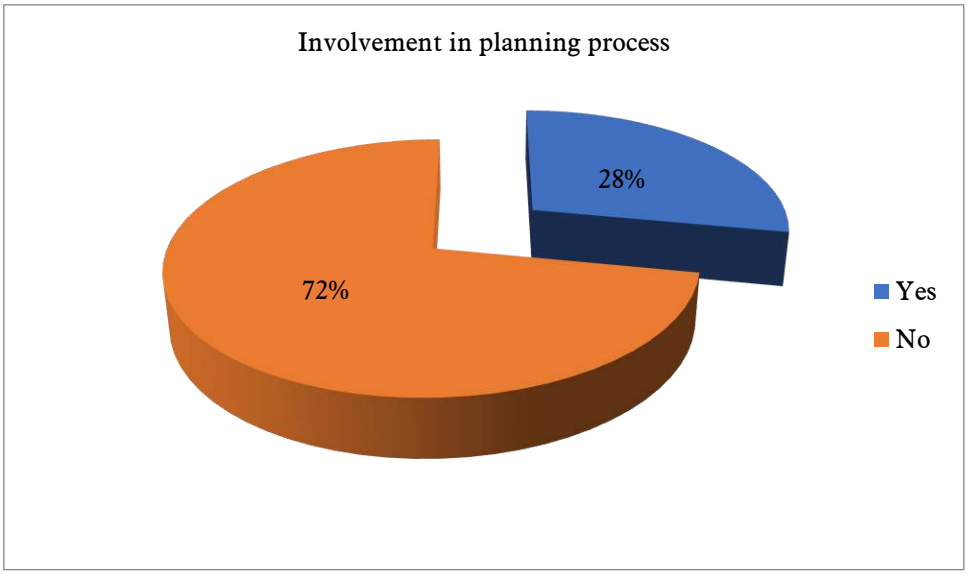

Figure 4: Involvement of CFUG in planning of municipality

Table 2: Sources of income of all CFUGs in different years

Particulars	*Income generation of Kankali CFUG (USD)*				*Income generation of Ghaledada-Ranakhola CFUG (USD)*			
	2016/17	*2017/18*	*2018/19*	*2019/20*	*2016/17*	*2017/18*	*2018/19*	*2019/20*
Timber	10421.58	38088.86	5102.22	16714.36	172.17	481.95	3166.96	1229.42
Fuel wood	36944.23	10782.44	69099.93	37466.36	944.33	1200.08	3792.47	1899.20
Non wood	625.52	645.40	1518.29	889.94	12.28	581.13	0.00	183.11
Donation	888.79	917.03	10050.27	3821.62	46.53	2304.59	0.00	725.47
Tourism	14358.07	14814.43	14383.83	13796.70	0.00	0.00	0.00	0.00
Other	2792.85	2881.62	7376.20	4166.93	8528.80	6871.05	7748.75	7342.87
Total	66031.04	114956.45	163028.93	109275.99	9704.12	11438.79	14708.18	11380.08
Particulars	*Income generation of Birinchowk CFUG (USD)*				*Income generation of Panchakanya CFUG (USD)*			
	2016/17	*2017/18*	*2018/19*	*2019/20*	*2016/17*	*2017/18*	*2018/19*	*2019/20*
Timber	228.01	576.02	2422.08	1034.87	43369.38	48137.56	128749.60	70354.98
Fuel wood	3116.80	963.65	1496.70	1773.74	75.94	13625.10	8369.93	6937.41
Non wood	4.75	288.07	0.00	90.34	160.82	1574.80	74.95	561.07
Donation	3804.14	12193.20	0.00	4970.40	10946.95	23125.53	68422.43	32781.50
Tourism	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	358.32	543.96	579.34	469.44	8194.83	2416.99	4900.83	4940.45
Total	7512.02	14564.91	4498.13	8338.80	62747.93	88879.99	81768.14	73863.61

3.1.5 Expenditure

Table 3 shows the expenditure on administrative work, forest conservation, tourism, and social development in the year 2016/17, 2017/18, 2018/19 and 2019/20. Among the four CFUGs, in 2018, Kankali CFUG spent the highest amount of budget in the field of administration, forest conservation, tourism, and social development, which was USD 68733.00. While in the year 2017, Birinchowk CF had the least spending on administration, forest conservation, tourism, and social development, which was estimated to be USD 1255.49.

Forest conservation has got high priority in all CFUGs, while social development and pro-poor upliftment were almost negligible in Kankali, Birinchowk and Panchakanya CF areas. Tourism development was highly focused in Kankali CF, which showed distraction from production forestry. In contrast, Panchakanya CF with a traditional forest management module seemed to be better than Kankali CF having scientific forest management. Likewise, Ghaledada-Ranakhola CF with scientific forest management seemed to be better managed than Birinchowk with traditional forest management.

3.1.6 Benefits Earned by Community Forests

Table 4 shows the benefits earned by Kankali, Ghaledada-Ranakhola, Birinchowk, and Panchakanya CFUGs. Kankali CFUG has the highest benefit in the year of 2018 that was recorded as USD 94295.93, while, in 2016, Ghaledada-Ranakhola CFUG has the lowest income from the various sources which was estimated as USD 1917.53. The average benefit of Kankali CFUG and Panchakanya CFUG was calculated to be USD 55524.21 and USD 46698.00, respectively. But Ghaledada-Ranakhola CFUG and Birinchowk CFUG earned only USD 4282.53 and USD 6014.74 of benefit, respectively. Among these, all four CFUGs, Kankali CFUG and Panchakanya CFUG earned a good income in the year 2016, but Birinchowk CFUG and Ghaledada-Ranakhola CFUG were not able to gain good benefit from the community forests. Therefore, the hilly region has the least amount of benefit from community forest management in comparison with the Terai forest.

Table 3: Amount of income spent in different activities of the community forest in percentage

Particular	*Expenditure of Kankali CF (USD)*				*Particular*	*Expenditure of Ghaledada-Ranakhola CF (USD)*			
	2016/17	*2017/18*	*2018/19*	*2019/20*		*2016/17*	*2017/18*	*2018/19*	*2019/20*
Administrative	4437.29	8115.93	9618.71	7168.51	Forest conservation	1339.16	2476.49	2343.01	1949.02
Forest conservation	8709.49	21623.31	16710.47	15389.7	Social activities	3218.85	983.736	2843.09	2317.74
Tourism	13397.7	21864.72	36860.84	22554.56	Pro poor	3228.56	3351.56	2922.51	3127.24
Social activities	18290.6	7276.74	5542.98	13634	Total	7786.58	6811.8	8108.61	7394.01
Total	44835.08	58880.7	68733	58746.77					

Particular	*Expenditure of Birinchowk CF (USD)*				*Particular*	*Expenditure of Panchakanya CF (USD)*			
	2016/17	*2017/18*	*2018/19*	*2019/20*		*2016/17*	*2017/18*	*2018/19*	*2019/20*
Forest conservation	1870.494	308.77615	1903.607	1927.375	Administrative	12204.47	16176.16	5069.62	10796.4
Pro poor	493.2395	466.0772	365.6977	497.4374	Social activities	4894.34	7021.52	899.45	4136.36
Social activities	1253.757	480.64212	452.5115	835.2701	Forest conservation	6939.92	12061.01	26288.46	13979.92
Total	3617.49	1255.4955	2721.816	3260.083	Total	24038.73	35258.69	32257.53	28912.68

Table 4: Total Benefits earned by community forests

S.N.	*Total Benefits*	*2016/17 (USD)*	*2017/18 (USD)*	*2018/19 (USD)*	*2019/20 (USD)*
1	Kankali CFUG	21195.96	56075.76	94295.9	50529.2
2	Ghaledada-Ranakhola CFUG	1917.53	4626.99	6599.56	3986.06
3	Birinchowk CFUG	3894.53	13309.42	1776.31	5078.72
4	Panchakanya CFUG	38709.2	53621.3	49510.6	44950.9

3.1.7 B/C, NPV, and Profitability Index of Community Forests

The investment is said to be profitable when the Benefit-Cost Ratio (B/C) is one or greater than 1. Data in table 5 shows that all four CFUGs are making a profit. Among them, Panchakanya CFUG has more B/C and Ghaledada-Ranakhola CFUG has the lowest B/C which was calculated as 2.61 and 1.1.25, respectively. Likewise, Kankali CFUG has a maximum net present value (NPV) i.e., USD 143452.02, and Ghaledada-Ranakhola CFUG has minimum NPV, which is USD 8823.89. Birinchowk CFUG has highest Profitability Index (PI) and Ghaledada-Ranakhola CFUG has least PI, which was calculated as 6.46 and 2.73, respectively (Table 5). Higher profitability index means it is more attractive for investment.

Table 5: B/C, NPV and profitability index of community forests

S.N.	*CFUGs*	*B/C*	*NPV*	*PI*
1	Kankali CFUG	0.96	143452.02	4.96
2	Ghaledada-Ranakhola CFUG	0.57	8823.89	2.73
3	Birinchowk CFUG	2.22	17363.97	7.21
4	Panchakanya CFUG	1.55	130285.34	6.46

3.1.8 Subsidy from Different Organisations

Table 6 shows subsidies received by CFUGs from various organizations, such as Division Forest Office, Municipality and others (Table 8). The CFs from the Terai regions are getting priority from local government and provincial government, whereas CFs seems to be weak in mid-hills i.e., Ghaledada-Ranakhola and Birinchowk community forests. Subsidy plays a great role in the upliftment of the rural livelihood through infrastructure development.

Table 6: Subsidy given to CFUGs from different organisations

Organizations	*2016/17*	*2017/18*	*2018/19*	*2019/20*
Subsidy to Birinchowk CF (USD)				
Division Forest Office	3469.33	-	-	-
Municipality	2730.07	-	-	-
Ward	5618.19	770.74	-	-
Subsidy to Panchakanya CF (USD)				
Division Forest Office	1628.66	7487.91	56005.5	-
Rural Municipality	3722.66	15637.62	12219.5	-
Subsidy to Kankali CF (USD)				
Division Forest Office	-	1436.53	913.99	-
Municipality	888.79	4585.17	11046.19	-
Subsidy to Ghaledada-Ranakhola CF (USD)				
ICIMOD	46.53	-	-	-

3.2 Discussion

The history of Nepal shows a gradual shift in the policy and management model of the forest. It is elaborated in the following discussion points.

3.2.1 Intergovernmental Relationship and Support

The study shows that the management and monitoring responsibility of the community forest should be vested in local government. Most of the CFUG members and local political leaders are in favor of the local government, whereas provincial government members strongly disagree with this view. The power in local government can lead to misleading the successful history of community forest towards deforestation and degradation in the name of infrastructure and tourism development. In contrast to this, the Forest Act 2076 has given provision of forest management and monitoring of CF to local government if approved by the provincial government.

The policy planning involves perceptions and suggestions from all tiers of the government. Merely a participation in the planning process cannot provide effectiveness and sustainability in policy formulation and implementation. Local Government Operational Act, 2017 has the clear provision that all CBOs within the boundary of local government should be involved in the local government planning process.

As the federal structure is the new provision of Nepal, limited research has been conducted on the community governance model. However, some research has identified local government for governance strengthening in the rural areas (Acharya, 2018). The study conducted by Thakali et al. (2018) has identified the increased role of local government for local resource management. The present research shows the main role of local government in fund mobilization for resource management mostly in the case of Panchakanya and Kankali CF; the other two CFs are quite lacking on this part.

3.2.2 Fund Mobilization and Benefit Sharing

This study indicates fuelwood and subsidy as sources of income generation in Kankali and Panchakanya CFUG. Tourism has become the main attraction point in all CFUGs except Ghaledada-Ranakhola CF. Community forestry guideline has a clear provision of at least 35% expenditure for the pro-poor's livelihood activities; however, the expenditure has no connection with the provision. The study finds a very weak benefit-sharing mechanism in all CFUGs except Ghaledada-Ranakhola CF. The Forest Act, 2019 has provision to expend up to 25% for forest development, conservation and management, while remaining 25% for pro-poor livelihood, women empowerment, industry development, and establishment in coordination with the local members, which is not found being implemented practically in all CFUGs.

Community forestry user groups seem to stop looking after forests if all three levels of government imposes taxes on them (Mandal, 2019). The Intergovernmental Fiscal Arrangement Act, 2017 has proposed that 15% tax collected from the sale of timber of *Shorea robusta* (Sal) and *Acacia catechu*

(Khayar) should be distributed among local, provincial, and federal governments. Likewise, the Local Government Operation Act, 2017 has stated that community forests will have to contribute 10 percent from their product sales to the Reserved Fund at the local level. Heavy taxes from three layers of government have created great stress on community forestry user group to conserve and protect the forest. Various enforced and proposed taxes at all three levels of government are estimated up to 90% of CFUG's annual transactions, and the FECOFUN has been protesting against this (Mandal, 2019). Focused Group Discussion during this study supports the same view of FECOFUN. There are presently 528 forest sub-divisions and 753 local bodies. As per the constitutional provision, national forests will be under the provincial government while CFs will be under local government (Acharya, 2018). The CFUGs and local government bodies are in favour of this, while forest officers are afraid of this.

3.2.3 Benefit Cost Ratio, Net Present Value and Profitability Index

Assessing the economic contribution of the community forest products and the inequality of the subsequent income are the significant steps towards the sympathetic role of community forestry in local people's day-to-day life (Chhetri, 2005). The study finds that the Kankali CFUG and Panchakanya CFUGs earned more benefit in comparison to Ghaledada-Ranakhola CFUG and Birinchowk CFUG. This means Terai forests are more productive than hilly forests due to various factors i.e., topographic, edaphic, climatic and management practice adopted in such regions. Community forests have very good potential to contribute to the local economy (Gilmour & Fisher, 1991). It helps fulfill the subsistence needs and improve the condition of natural resource management practice, supporting the conservation of an ecosystem and its biodiversity (Acharya, 2001). The majority of rural households depend upon the community forest resources for their daily needs i.e., fuelwood, timber, fodder, leaflitter, etc., which also play vital role in the local economy (Gharti-Chhetri et al., 2016). This study shows that the Net Present Value of Kankali CFUG and Panchakanya CFUG is higher than that of Ghaledada-Ranakhola CFUG and Birinchowk CFUG. The community forests are not only providing the forest products but also serving the user groups to generate the income.

The management of community forest is a good source of income (Lama, 2010; Gharti-Chhetri et al., 2016). The economic analysis of community forests is foremost part of transparency in any institution; however, the community forest user groups are not profit-oriented institutions (Iversen et al., 2006). The economic analysis of the community forest user group is used to carry out the income and expenditure (Richards et al., 2003). The economic analysis comprises the benefit-cost ratio analysis (B/C) and net present value (NPV). It is a very important part of the community forest to show how the forest users have been benefited and how they have been managing the forest in the situation of economic valuation. The benefit-cost ratio of these four CFUGs was found to be good, all CFUGs are said to be profitable because it has more than 1 B/C value. However, the amount of NPV is less but the Profitability Index of Birinchowk CFUG is found to be highest, while Ghaledada-Ranakhola CFUG has the lowest value of profitability index. More profitability index means a low risk of losses from investment (Mandal & Neupane, 2020).

4. CONCLUSION

The federal structure of government is somehow new in the case of Nepal. Lack of policy formulation has led to a communication gap between all three tiers of governance. The increased support to CFUG funds from the local government after a federal model has identified the need for increased role of local government in monitoring of community forests. The CFUGs and local political leaders support the view of community forestry monitoring rights should be given to the local government; however, forest officials were found reluctant on this. Lack of coordination, awareness, and cooperation among local government and CFUGs members has created some ambiguity on forest resource management at the local level. Benefit-sharing pattern has not followed the provision of the existing Forest Act and CF Guidelines. No coordination was found with local government during CF fund expenditure that is beyond the provision of Nepal Forest Policy 2019 and the law. An area of interest for future collaboration somehow seems to be a mismatch between local leaders and CFUGs. The findings show that the scientifically managed forests of mid-hills are highly dependent on donors, which triggers and provides weak efficiency and efficient principle of good governance. The weak benefit-sharing mechanism shows poor governance. Finally, it is recommended to conduct an orientation program for forest officials and

CFUGs on new forest provisions to involve local government. Similarly, CFUGs plan should be incorporated in the local government planning process for sustainability.

REFERENCES

Acharya, K. K. (2018). Local governance restructuring in Nepal: From government to governmentality. *Dhaulagiri Journal of Sociology and Anthropology*, *12*, 37-49. https://doi.org/10.3126/dsaj.v12i0.22178

Acharya, K. P. (2001). Should community forest be taxed? Department of Forest Research and Survey, Nepal.

Adhikari, S., Kingi, T., & Ganesh, S. (2016). Incentives and community participation in the governance of community forests in Nepal. *Small-Scale Forestry*, *15*(2), 179-197. https://doi.org/10.1007/s11842-015-9316-8

Banjade, M. R., Paudel, N. S., & Mwangi, E. (2017). Political economy of forest tenure reform implementation in Nepal: evolution, contestation, outcomes and challenges. *Journal of Forest and Livelihood*, *15*(1), 1-14.

Bijaya, G. D., Cheng, S., Xu, Z., Bhandari, J., Wang, L., & Liu, X. (2016). Community forestry and livelihood in Nepal: A review. *Journal of Animal and Plant Sciences*, *26*(1), 1-12.

Bijaya, G. D., Jyoti, B., Zengrang, X., & Can, L. (2019). Contribution of Community Forestry in Poverty Reduction: Case Study of Multiple Community Forests of Bajhang District, Nepal. *Journal of Resources and Ecology*, *10*(6), 632-640. https://doi.org/10.5814/j.issn.1674-764x.2019.06.008

Binod, B. B. (2016). History of forestry and community forest in Nepal. *Imperial Journal of Interdisciplinary Research*, *2*(11), 424-439.

Chaudhary, D. (2019). The decentralization, devolution and local governance practices in Nepal: the emerging challenges and concerns. *Journal of Political Science*, *19*, 43-64. https://doi.org/10.3126/jps.v19i0.26698

Chhetri, B. B. K. (2005). Community forestry program in the hills of Nepal: determinants of users participation and household dependency. *MSc thesis, Norwegian University of Life Sciences*.

Chhetri, B. B. K., Johnsen, F. H., Konoshima, M., & Yoshimoto, A. (2013). Community forestry in the hills of Nepal: Determinants of user participation in forest management. *Forest Policy and Economics*, *30*, 6-13. https://doi.org/10.1016/j.forpol.2013.01.010

Choudry, A. (2002). The Asian Development Bank— "Governing" the Pacific. *ZNet Commentary*. Retrieved from http://www.zcommunications.org/the-asian-development-bankgoverning-the-pacific-by-aziz-choudry

Community Forestry Division (2014). Guidelines for Community Forestry Development. Department of Forest, Kathmandu.

FAO (Food and Agriculture Organization) (2020). The state of world fisheries and aquaculture 2020. FAO Fisheries and Aquaculture Department, Food and Agricultural Organisation of the United Nations, Rome; 2020. Retrieved from http://www.fao.org/state-of-fisheriesaquacultur

Gautam, A. P., Shivakoti, G. P., & Webb, E. L. (2004). A review of forest policies, institutions, and changes in the resource condition in Nepal. *International forestry review*, *6*(2), 136-148. https://doi.org/10.1505/ifor.6.2.136.38397

Gharti-Chhetri, D. B., Cheng, S., Xu, Z., Bhandari, J., Wang, L., & Liu, X. (2016). Community forestry and livelihood in Nepal: a review. *The Journal of Animal and Plant Sciences*, *26*(1), 1-12.

Gilmour, D. A., & Fisher, R. J. (1991). Villagers, forests, and foresters: The philosophy, process, and practice of community forestry in Nepal.

Howlett, M., Rayner, J., & Tollefson, C. (2009). From government to governance in forest planning? Lessons from the case of the British Columbia Great Bear Rainforest initiative. *Forest Policy and Economics*, *11*(5-6), 383-391. https://doi.org/10.1016/j.forpol.2009.01.003

Hyden, G., Mease, K., Foresti, M., & Fritz, V. (2008). Governance assessments for local stakeholders: What the World Governance Assessment offers. *Overseas Development Institute, Working Paper 287*.

Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A., & Seeley, J. (2006). High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai. *Ecological economics*, *58*(1), 93-107. https://doi.org/10.1016/j.ecolecon.2005.05.021

Joshi, R., & Singh, H. (2020). Carbon sequestration potential of disturbed and non-disturbed forest ecosystem: A tool for mitigating climate change. *African Journal of Environmental Science and Technology*, 14(11), 385-393. https://doi.org/10.5897/AJEST2020.2920

Joshi, R., Chhetri, R., & Yadav, K. (2019). Vegetation Analysis in Community Forests of Terai Region, Nepal. *International Journal of Environment*, 8(3), 68-82. https://doi.org/10.3126/ije.v8i3.26667

Joshi, R., Pangeni, M., Neupane, S.S., & Yadav, N.P. (2021). Regeneration Status and Carbon Accumulation Potential in Community Managed Sal (*Shorea robusta*) Forests of Far-Western Terai Region, Nepal. *European Journal of Ecology*, 7(1), 26-39.

Joshi, R., Singh, H., Chhetri, R., & Yadav, R. (2020). Assessment of Carbon Sequestration Potential in Degraded and Non-Degraded Community Forests in Terai Region of Nepal. *Journal of Forest and Environment Science,* 36(2), 113-121. https://doi.org/10.7747/JFES.2020.36.2.113

Joshi, R., Singh, H., Chhetri, R., Poudel, S., & Rijal, S. (2021). Carbon sequestration potential of community forests: A comparative analysis of soil organic carbon stock in community managed forests of Far-Western Nepal. *Eurasian Journal of Soil Science*, 10(2), 96-104. https://doi.org/10.18393/ejss.825066

Khadka, D., Aryal, A., Bhatta, K. P., Dhakal, B. P., & Baral, H. (2021). Agroforestry Systems and Their Contribution to Supplying Forest Products to Communities in the Chure Range, Central Nepal. *Forests*, *12*(3), 358. https://doi.org/10.3390/f12030358

Khanal, Y., & Devkota, B. P. (2020). Farmers' responsibilization in payment for environmental services: Lessons from community forestry in Nepal. *Forest Policy and Economics*, 118, 102237. https://doi.org/10.1016/j.forpol.2020.102237

Lama, G. K. (2010). *Contribution of Community Forestry on Livelihood of Local Users. A case study from Study from Sunsari District, Nepal.* (Master Thesis (Unpublished), Tribhuwan University, Institute of Forestry, Office of the Dean, Pokhara, Nepal).

Mandal, R. A. (2019). Carbon Sequestration Potential in Community Managed Forests in Mahottari District of Central Nepal. A Thesis Submitted to the Central Department of Botany Institute of Science and Technology, Tribhuvan University, Nepal for the Award of Doctor of Philosophy in Botany by Ram Asheshwar Mandal, January, (Doctoral dissertation).

Mandal, R. A., & Neupane, S. Economic Analysis of Community Forests in Terai Nepal. *International Journal of Advanced Research in Botany*, 6(1), 1-8.

McDermott, M. H., & Schreckenberg, K. (2009). Equity in community forestry: insights from North and South. *International Forestry Review*, *11*(2), 157-170.

MUNI, S. (2015). Nepal's New Constitution: Towards Progress or Chaos? *Economic and Political Weekly, 50*(40), 15-19. Retrieved June 2, 2021, from http://www.jstor.org/stable/24482618

Pasape, L., Anderson, W., & Lindi, G. (2015). Good governance strategies for sustainable ecotourism in Tanzania. *Journal of Ecotourism*, 14(2-3), 145-165. https://doi.org/10.1080/14724049.2015.1065834

Paudel, J. (2018). Community-managed forests, household fuelwood use and food consumption. *Ecological Economics*, 147, 62-73. https://doi.org/10.1016/j.ecolecon.2018.01.003

Piabuo, S. M., Foundjem-Tita, D., & Minang, P. A. (2018). Community forest governance in Cameroon. *Ecology and Society*, 23(3). https://doi.org/10.1126/science.1155369

Pokharel, R. K., Rayamajhi, S., & Tiwari, K. R. (2012). Nepal's community forestry: need of better governance. *Global perspectives on sustainable forest management. InTech, Shanghai, China*, 43-58.

Poudel, M., Thwaites, R., Race, D., & Dahal, G. R. (2015). Social equity and livelihood implications of REDD+ in rural communities–a case study from Nepal. *International Journal of the Commons*, 9(1).

Richards, M., Maharjan, M., & Kanel, K. (2003). Economics, poverty and transparency: measuring equity in forest user groups. *Journal of Forest and Livelihood*, *3*(1), 91-106.

Rijal, S., Subedi, M., Chhetri, R., & Joshi, R. (2021). Good Governance Assessment in Community Forest of Nepal. *Journal of Forest and Environmental Science*. 37(3), in Press.

Roberts, S. M., Wright, S., & O'Neill, P. (2007). Good governance in the Pacific? Ambivalence and possibility. *Geoforum*, 38(5), 967-984. https://doi.org/10.1016/j.geoforum.2007.04.003

Sapkota, L. M., Dhungana, H., Poudyal, B. H., Chapagain, B., & Gritten, D. (2020). Understanding the barriers to community forestry delivering on its potential: An illustration from two heterogeneous districts in Nepal. *Environmental management*, 65, 463-477. https://doi.org/10.1007/s00267-019-01224-0

Schusser, C., Krott, M., Movuh, M. C. Y., Logmani, J., Devkota, R. R., Maryudi, A., & Salla, M. (2016). Comparing community forestry actors in Cameroon, Indonesia, Namibia, Nepal and Germany. *Forest Policy and Economics*, *68*, 81-87. https://doi.org/10.1016/j.forpol.2016.03.001

Schwab, B., & Lusztig, P. (1969). A Comparative Analysis of the Net Present Value and the Benefit-Cost Ratio as Measures of the Economic Desirability of Investments. *The Journal of Finance, 24*(3), 507-516. https://doi.org/10.2307/2325349

Thakali, S., Peniston, B., Basnet, G., & Shrestha, M. (2018). *Conservation and Prosperity in New Federal Nepal: Opportunities and Challenges*. Australian Aid.

Tsiantikoudis, S., Zafeiriou, E., Kyriakopoulos, G., & Arabatzis, G. (2019). Revising the environmental Kuznets Curve for deforestation: an empirical study for Bulgaria. *Sustainability*, 11(16), 4364. https://doi.org/10.3390/su11164364

United Nations Development Programme (Ghana). (1997). *Ghana Human Development Report*. United Nations Development Programme.

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	Author 1	Author 2	Author 3	Author 4
Conceived and designed the research or analysis	Yes	Yes	Yes	Yes
Collected the data	Yes	No	No	No
Contributed to data analysis & interpretation	Yes	Yes	Yes	Yes
Wrote the article/paper	Yes	Yes	Yes	Yes
Critical revision of the article/paper	No	Yes	No	No
Editing of the article/paper	Yes	Yes	Yes	Yes
Supervision	No	Yes	No	No
Project Administration	Yes	Yes	Yes	Yes
Funding Acquisition	No	No	No	No
Overall Contribution Proportion (%)	30	30	20	20

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00230 | Review Article

Foundation of the Digital Global Economy

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ABSTRACT

A medium to facilitate the exchange of value has been the sole necessity for the mere existence of currency. As the civilization moved from using metals, paper, and plastic to facilitate exchange, our requirements from a currency became refined. Some of those requirements were the prevention of counterfeiting and accountability. As the human civilization moves forward, the solution to some of the problems faced by us are discovered by humans. Cryptocurrency is a decentralized form of currency mined by computers by solving complex equations in exchange for a reward of the very same commodity. This article aims to study the major cryptocurrencies and the concept of blockchain, how they operate, how it will be affecting India, and what are the consequences of banning this form of currency. This research is carried out by evaluating white papers of Bitcoin and Ethereum (the two main cryptocurrencies of present time) along with research papers and news articles found with the help of search engines and online discussion threads.

Keywords: Cryptocurrency; Blockchain; Bitcoin; Ethereum

Received: 18 June 2021
Reviewed: 05 July 2021
Accepted: 15 July 2021
Published: 10 August 2021

How to cite this paper: Walia, B. & Saggar, S. (2021). Foundation of the Digital Global Economy. Journal of Policy & Governance, 01(01), 46-53. https://doi.org/10.33002/jpg010104

1. INTRODUCTION

The difference between money and currency is merely a tangibility. The money is an intangible concept, while currency until now has been used to describe the notes or coins issued by the governments. The difference between these two words stands crystal clear with the advent of cryptocurrency being adopted across the world. This intangible form of currency is mined by computers through solving complex mathematical problems. The Bitcoin, for example, holds value simply because of its scarcity. In case of cryptocurrency, a government is not required to instruct the citizens about what holds value and what does not; community choice prevails. As of now, a community choice is observed thriving in terms of cryptocurrency. It can be examined how cryptocurrency operates. What are its limitations? How shall it provide a reliable and robust mechanism best suited for the economic needs of modern civilization? A special emphasis shall be on blockchain technology, which serves as the foundation of the technology. Here is an in-depth study of cryptocurrency's potential and problems it would help to solve. How does Indian government look at it? Whether Indian government will ban it; and, if it is banned, what are the consequences of banning cryptocurrency?

The purpose of this article is to establish an understanding of blockchain technology and how it has been used to establish two major cryptocurrencies of present time: Bitcoin[1] and Ethereum[2]. The implications of blockchain technology are the prevention of financial de-platforming[3] as well as de-platforming of social media, which are some of the advantages of blockchain technology. Here, this article looks into India's stand on cryptocurrency and its implications as well as drawbacks of banning cryptocurrency.

The scientific basis of this article can be explained in accordance with the purpose of the study as follows. Blockchain works as blocks of data arranged systematically in a chronological order. This chain of data is replicated by mining servers working as nodes on the network replicating and verifying transactions/events in a ledger accessible to everyone. The nodes can verify transactions by showing proof of work i.e., solving complex hashing algorithms; therefore, putting their computing power on stake. The former is the basic working of the Bitcoin blockchain as well as the native Ethereum blockchain. Blockchain platforms not only provide the technology to run peer-to-peer currencies, but also provide the possibility of building social media platforms completely independent and free of any intervention from major technological corporations.

2. METHODOLOGY

In the present article, secondary data were collected from well-known cryptocurrency platforms, for example, Binance. The research was conducted with the help of white papers, research papers and new articles found with the help of search engine and online discussion threads to look into the current scenario of cryptocurrency and blockchain technology.

3. CRYPTOCURRENCY

Individual coin ownership records are kept in a ledger that exists in the form of a computerized database employing strong encryption to protect transaction records. This regulates the production of new currencies and validates ownership transfers. It is usually not supplied by a centralized authority and does not exist in a physical form (like paper money). Cryptocurrencies, in contrast to centralized digital currencies and central banking institutions, are often decentralized. If a cryptocurrency is coined or manufactured prior to release, or if it is issued by a single issuer, it is classified as centralized. Each decentralized cryptocurrency makes use of distributed ledger technology, most often a blockchain, to function as a public financial transaction database. Bitcoin was the first decentralized cryptocurrency

[1] Bitcoin, launched in 2009 is a decentralized blockchain platform meant to facilitate the exchange of value. The first successful implementation of a cryptocurrency.

[2] Ethereum, launched in July 2015, is a decentralized platform that runs so-called "smart contracts". Smart contracts are "self-executing" contracts or applications that run exactly as programmed without any possibility of downtime (i.e., the blockchain is never down, it is always running), censorship, fraud or third-party interference.

[3] Deplatforming is the act of boycotting an individual or a group of individuals from availing the services of a platform (In this case financial and social media) by denying access to the said platform.

launched in 2009 as open-source software. Following Bitcoin's debut, several cryptocurrencies have surged in value.

4. BITCOIN

Bitcoin is a decentralized digital currency which can be sent directly from one user to another over its peer-to-peer network. There is no single administrator or central bank. Cryptography is used by network nodes to verify transactions, which are then recorded in a blockchain, which is a distributed ledger that is not centralized. As a result of this mining process, Bitcoins are created. According to a research performed by the University of Cambridge, the most popular cryptocurrency is Bitcoin (Houben, 2015). In 2017, there were 2.9 to 5.8 million unique users of cryptocurrency wallets (Bryans, 2014). It was founded in 2008 by an unknown person or group of individuals under the pseudonym Satoshi Nakamoto. It was implemented in 2009 when the currency's implementation was released as open-source software (Bryans, 2014).

Nakamoto (2008) proposed an electronic commerce system that is not dependent on trust. He began with the traditional technique of digital signature coins, which allows for enough ownership control but does not prevent duplicate spending. To address this, he suggested a proof-of-work peer-to-peer network that keeps a public history of transactions that becomes computationally impossible to alter when nodes control the majority of the CPU power. Due to its unstructured simplicity, the network is stable. The nodes work in unison, with very little coordination. Since messages are not directed to a specific destination and must be delivered quickly, they are not needed to be tagged. Nodes may leave and rejoin the network at any time, with the proof-of-work chain proving what happened while they were gone. They function by extending valid blocks while refusing to deal with incorrect blocks. This consensus method may be used to create any necessary rules and incentives.

Almost all online commerce today relies on banking institutions to handle electronic payments as trusted third parties. While the framework is adequate for the majority of transactions, it is vulnerable to the trust-based paradigm's basic flaws. Fully irreversible transactions are impractical due to financial institutions' inability to resolve disputes. Mediation costs raise transaction costs by reducing the minimum transaction size and eliminating the possibility of small informal transactions, as well as a wider cost connected with the inability to make irreversible payments for irreversible services. As the likelihood of a reversal grows, so does the need for confidence. Customers should be cautious of merchants that badger them for information they do not need. Fraud is generally seen as an unavoidable part of life. While these costs and risks of payment may be avoided in person by using real money, payments cannot be made without the help of a trustworthy partner via a communication channel.

5. ETHEREUM

Ethereum, or Ether, is a self-regulating platform (Houben, 2015) that enables payments to occur only when all agreed-upon criteria have been met. The platform is programmed in such a manner that payment is made only when the job is completed in accordance with the criteria of the encrypted coded contract (virtual contract). The transaction is not involving a third party. It allows the development and operation of Smart Contracts and Distributed Applications (D Apps) without the need for downtime, fraud, control, or intervention from a third party.

Ethereum is capable of "codifying, decentralizing, securing, and trading almost anything". One of the most significant Ethereum-related initiatives is Microsoft's collaboration with ConsenSys, which provides "Ethereum Blockchain as a Service (E BaaS) on Microsoft Azure, providing enterprise customers and developers with a single-click cloud-based blockchain development environment".

After a fraudulent attacker stole more than $50 million in assets from the decentralized autonomous organizations (DAO) (Houben, 2015), a collection of smart contracts built from Ethereum's computing platform, Ethereum was split into two separate blockchains in 2016: Ethereum and Ethereum Classic. Ethereum's current version was created as a hard fork from the original software in order to prevent further ransomware attacks. Ethereum is the second-largest virtual currency in the market in terms of market value in September 2019, behind only Bitcoin (Hileman & Rauchs, 2017) Ether money is much simpler to acquire than Bitcoin (roughly 14 or 15 seconds compared to Bitcoin's near-uniform 10 minutes), and there are significantly more ether units in circulation than Bitcoin

6. BLOCKCHAIN

A blockchain is a database that is built over time by a network of users who all use the same software and are bound and controlled by the program's limitations and regulations. A blockchain is made up of data blocks that are eventually "chained" together, as the name suggests. It is more like a spreadsheet that grows as more cells are added. The program builds and maintains a blockchain database while it is in use. As a result, unlike a centralized database controlled by a single entity, it remains "alive" even if individual members stop contributing (or, for example, go bankrupt). It produces an irreversible record that is unaffected by third-party interference.

Furthermore, if the underlying program being executed by participants' modified code changes, the resulting blockchain's design changes, allowing the development of blockchain databases capable of storing a variety of data types, such as property titles, contracts, shares, voting decisions (Noizat, 2015), and even reputation ratings. Through the development of platforms like Ethereum, Counterparty, and Block Stream 25, individuals and small businesses may now utilize blockchain-based solutions. Provenance, for example, is attempting to use the Ethereum architecture to build a very open global corporate supply chain ledger.

Experiments with smart contracts, which are small packets of code — or scripts — that can be stored on a blockchain and retrieved by users to perform simple functions, are in the fore (Wright & De Filippi, 2015). A typical insurance policy, for example, may be designed in this way (Mainelli & Von Gunten, 2014). Consider a blockchain-based script that is triggered when two parties send Bitcoins to a script-managed escrow Bitcoin account, which will subsequently release the Bitcoins to the person who wins a bet on the average amount of rainfall over a certain time in the future. This smart contract is set up to collect meteorological data from weather agencies and then release Bitcoins from escrow after a certain length of time, giving them to a farmer who is suffering from drought. This is a weather derivatives contract built on the blockchain.

Simple building-block contracts may be used to create more complex multi-stage or multi-function entities known as "decentralized autonomous organizations" (DAOs) by some. While complex multi-stage algorithms are kept in the background on a decentralized network of computers rather than being managed by a single management team, such DAOs are difficult to understand and seem to many people to be science fiction.

When it comes to collecting basic data for those with more urgent pragmatic needs, blockchain networks are often the most effective. The potential of blockchain technologies to permanently record property rights has drawn the attention of proponents of free market economics. Land registries are often used as examples. There is an issue of double registration of land, land title fraud, or unclear title to land in countries with poor governance and record-keeping systems, which may be addressed with a blockchain system that permanently records land title in a public manner. In 2015, Honduras formed a partnership with the American firm Factom 27 to create a land registry based on blockchain technology (Chavez-Dreyfuss, 2016).

Brian Singer believes that blockchain technology is the ultimate way to achieving Hernando de Soto's objective of establishing strong property rights in informal economies in an interview with Forbes titled "How Bitcoin Can End Global Poverty" (Forbes, 2015). Inert capital may be enabled if people are given names and property titles. The title to a home may be used to generate leverage, allowing banks to lend to informal entrepreneurs at a lower interest rate.

This paper is founded on the idea that, if property and contracts are properly protected, market and capitalization processes may help people overcome poverty by exposing the hidden potential of informal economies. Rather than relying on a politically controlled State to optimize these market processes, the poverty-eradicating power of property and markets might be enhanced by replacing inefficient state institutions with technology, which would be a kind of political "escape".

However, it is unclear if such blockchain registries can solve core issues. Uncertain land titles are frequent in areas where institutions are weak, which adds to the original ambiguity. In this situation, just providing a technology for recording claims is worthless unless there are strong legal institutions in place to accept the blockchain-registered claims, as well as strong processes in place to determine who gets to submit the claims. There is a sense of perspective here. While blockchain technology has the most promise in circumstances where institutions and parties are vulnerable and cannot simply trust one another. For example, Afghanistan, where governmental capacity is weak and confidence is poor due to war, is in the worst position to deploy such technology. 30 major banks, technology companies, and other

organizations, including J.P. Morgan Chase, Microsoft, and Intel, are collaborating to develop enterprise-ready implementations of Ethereum, a decentralized computing network based on digital currencies, because it paved the way for decentralized financing (Hackett, 2017).

6.1 Benefits of the Decentralized Blockchain Technology

6.1.1 Bitcoin's Technology Safeguards Financial Platforms from Deplatforming

The Reserve Bank of India (RBI) would govern a digital rupee, while Bitcoin and Ethereum are decentralized international cryptocurrencies that are not controlled by any one entity. Administrators of the RBI's digital rupee will be allowed to create wallets, suspend accounts, and reverse transactions. By contrast, Bitcoin is more comparable to digital gold in that it cannot be frozen or stolen by any government. This characteristic contributes significantly to Bitcoin's value in terms of maintaining India's national stability. In times of conflict, India and its diaspora will rely on a network that no government can shut down (Balaji, 2021).

6.1.2 Ethereum's Technology Prevents Social Media Sites from Being Deplatformed

India can emphasize national support for open technologies such as Ethereum in order to create social networks and chat applications that US corporations cannot shut down, for the same reasons that Mexico, Germany, and France expressed outrage over the de-platforming of a sitting US president and his supporters by a group of American tech giants. Global Twitter replacements would be part of the solution, but non-Indians would not be able to use Indian Twitter, and India would also need to interact with the rest of the world via neutral foreign channels. That is what blockchain enables. It is critical to keep in mind that the potential of political deplatforming exists. It is not a big thing to prohibit someone else once a social network prohibits the "world's most powerful man" (referring to Mr. Donald Trump's twitter account being disabled). Each day, another news confirms this tendency. Consider that millions of Indians already use American-developed applications such as Twitter, WhatsApp, Facebook, Gmail, PayPal, and Google Pay. If the Indian Prime Minister or the Indian people get enough negative publicity, American technology firms may ban them from entering the US and accessing most of the internet. Not just through telephone message, but also via payment submission and collection via US-controlled networks such as SWIFT, PayPal, and Google Pay.

America might serve as the impetus for such an occurrence. The New York Times published an erroneous photograph of a Brazilian rainforest on fire, leading an Atlantic writer to advocate for Brazil's invasion. Though the calmer heads prevailed when the photograph was revealed to be a fake, anyone could be the next victim of government misinformation (Chokshi, 2019). There is no way of knowing when digital warfare may erupt. Decentralization is incompatible with deplatforming; hence, blockchain solves the problem.

6.2 Foreign Investment: Crypto brings apital to India

People in the global technology community agree on the significance of Bitcoin. Olaf Carson-Wee of Polychain Capital projected that cryptocurrencies would create 25-50 percent of the world's millionaires if and when Bitcoin hits $200,000 per Bitcoin. Consequently, India's alleged prohibition of Bitcoin criminalizes the belongings of many otherwise innocent Indians. In the first case, it prevents a trillion dollars' worth of cryptocurrency from being transferred to India. The planned crypto ban would increase capital movement. Additionally, neoliberal travel. Let us not overlook the fact that Indian entrepreneurs are very mobile. The value of cryptocurrency exchanges such as Coinbase, Binance, and Kraken, as well as cryptocurrency mining companies and new digital currencies such as Ethereum, has risen to billions of dollars. All Indian counterparts to such institutions will be located outside the country, as Indian pioneers are once again forced to migrate. On the other hand, the right crypto approach would result in capital landing rather than capital flight. Consider the billions of dollars' worth of cryptocurrencies expected to arrive in India. Frequently, forward-thinking technological capitals and financial centers like Switzerland and Singapore have adopted pro-crypto positions in order to attract the world's largest creators and purchasers to their borders. At the present, the US and China are on a collision path with regard to monetary effect. The US wants all nations to adopt the dollar, while China may use the Belt and Road to promote its digital yuan. India may reinvent itself as a decentralized development that promotes crypto conventions as an alternative to the principles-based global request, beginning with its monetary framework: a computerized rupee backed by advanced gold.

India has successfully recognized that re-establishing uncommitted development would play a stabilizing role in the next US-China Cold War. Additionally, digital currencies provide a scholarly method for financial adjustment across the developments of often varied nations. In contrast to US and China, who will attempt to coerce nations into accepting the dollar or advanced yuan separately, India understands that each country will ultimately need its own public money on a local level and a global one. Bitcoin and crypto conventions provide that neutral stage, a calm environment conducive to global trade and communication, just as gold did in the past and the Law of the Sea does now. In comparison to the dollar or yuan, the advanced rupee is not a candidate to become the world's reserve currency. Thus, although India may have some responsibility for the advancing rupee on a local level, it would be preferable if nobody were in charge, particularly the inevitably unpredictable US or China.

6.3 Financial Fraud Prevention: Crypto refers to mathematically provable accounting

Blockchain, according to Deloitte, is a breakthrough in accounting since it allows for triple-entry accounting. Many people are unaware that the big four accounting companies (PwC, EY, KPMG, and Deloitte) are already using Bitcoin and Ethereum as gold standards of reality. PwC's Halo, for example, "interrogates the network in an unbiased and trustworthy manner to collect verifying information on blockchain transactions and balances", according to the company. The corroborating facts may be trusted because blockchains employ cryptography to establish a visible global record of who charged what money to whom, when and how. Furthermore, if a company's internal history of Bitcoin transactions has mistaken, it may always refer the blockchain record to reconcile a payment. This triple-entry bookkeeping has been dubbed a "game-changer" in accounting by Deloitte and others as a way to "dramatically simplify accounting procedures while staying compliant with regulatory requirements". It is the most significant accounting breakthrough since the introduction of double-entry bookkeeping, which academics say paved the way for the current financial sector.

On-chain accounting makes audits both easy and automated, which is a key feature. Proof-of-reserve technology, for example, allows businesses to confirm that they have the necessary cash on hand on a regular basis. This would prevent situations like those described in the Vijay Mallya[4] case, in which allegedly false proof of reserves was submitted to get loans. A blockchain-based lending network (such as MakerDao) will never fall for such a fraud since it requires cryptographically provable on-chain collateral. Regulators may use blockchains to replay transactions for market monitoring, assign some compliance to smart contracts, and even allow for on-chain stock certificate issuance and custody for real-time settlement. In addition, India is considering enabling technology firms to join the banking sector.

Authorities will be able to monitor and mitigate risk with the use of blockchain-based accounting. India may outperform the rest of the world by mandating on-chain accounting, invoicing, and stock issuance for all companies by 2030, thanks to the combination of India Stack and the digital currency. We can avoid manipulation, improve financial sector credibility, and attract more foreign direct investment by encrypting all financial transactions. Overseas investors will have confidence in the accounting. In a nutshell, this is a full 180-degree turn in legislative policy. In the same way that the US government attempted to prohibit encryption in the 1990s before eventually mandating it, intelligent Indian regulators should recognize that blockchains have the potential to deter financial fraud and increase trust in the mechanism through mathematical, cryptographic proofs of enforcement.

6.3.1 Banning crypto is not technically feasible

Banning Bitcoin is theoretically impossible since, even if a government bans cryptocurrencies, it cannot prohibit wallets because they are decentralized access to a wallet and can be reduced to a login ID and password. In case, an individual forgets his/her password, access to the wallet can be regained through a 12-word security key. Thus, cryptocurrency ownership can be reduced to the possession of 12 random words, which can easily be transported across international borders, as something as trivial as a handful of words cannot be regulated. Anyone can deposit Bitcoins (BTC) into your account, but only the individual who owns the wallet with the pass can withdraw them. Therefore, rendering crypto wallets is immune to third party intervention.

[4] Businessman Vijay Mallya is an accused in a bank loan default case of over $1.3 billion, which involved his defunct Kingfisher Airlines. https://blog.ipleaders.in/analysis-vijay-mallya-case/; https://economictimes.indiatimes.com/topic/Vijay-Mallya-case; https://blog.ipleaders.in/analysis-vijay-mallya-case/; https://economictimes.indiatimes.com/topic/Vijay-Mallya-case

7. CONCLUSION

Cryptocurrency and the blockchain technology are the next step in facilitating truly trustless exchange of value in modern civilization. The decentralization of blockchain will give rise to operating currencies that cannot be shut down without a complete agreement between nodes. Individual countries placing a ban on the technology or the currency running on it shall not be fruitful due to its decentralized nature. Decentralized open ledgers have proved to be the gold standard of accounting, embracing the technology shall only bring capital investment to the country. The currencies like Ethereum, which use smart contracts, allow users a very powerful platform to develop application on it. The benefits of using Bitcoin technology are that it protects finance platforms from being deplatformed. Whereas Ethereum's technology helps avoid the deplatforming of social media platforms. It enhances Foreign Investment that is Crypto brings capital to India. Another important benefit is Financial Fraud Prevention which could be understood by the phenomenon that Crypto refers to mathematically provable accounting. Finally, we conclude that banning Crypto is not technically feasible.

ACKNOWLEDGEMENTS

We are grateful to Binance exchange for the secondary data. We are grateful to our teachers at the Economics Department of Maharaja Agrasen Institute of Management Studies for guiding us in writing the paper. Our sincere thanks to Dr. Sonali Walia for helping us understand the concept of writing research articles.

REFERENCES

Balaji, S. S. (2021). Why India Should Buy Bitcoin? Blog: 4 February 2021. Retrieved from https://balajis.com/why-india-should-buy-bitcoin/

Bryans, D. (2014). Bitcoin and Money Laundering: Mining for and Effective Solution. Indiana Law Journal, 89 (1), 444. Retrieved from https://www.repository.law.indiana.edu/ilj/vol89/iss1/13

Buterin, V. (2014). Ethereum White paper. https://blockchainlab.com/pdf/Ethereum_white_paper-

Chavez-Dreyfuss, G. (2016). Sweden tests blockchain technology for land registry. *Reuters*, 17 June 2016. Retrieved from https://www.reuters.com/article/us-sweden-blockchain-idUSKCN0Z22KV

Chokshi, N. (2019). As Amazon Fires Spread, So Do the Misleading Photos. *New York Times*, 23 August 2019. Retrieved from https://www.nytimes.com/2019/08/23/world/americas/amazon-rainforest-fire-photos.html

Forbes, S. (2015). How Bitcoin Will End World Poverty? *Forbes*, 2 April 2015. Retrieved from https://www.forbes.com/sites/steveforbes/2015/04/02/how-bitcoin-will-end-world-poverty/?sh=1643555e2a5a

Hackett, R. (2017). Big Business Giants from Microsoft to J.P. Morgan are Getting Behind Ethereum. *Fortune,* 18 Februray 2017. Retrieved from https://fortune.com/2017/02/28/ethereum-jpmorgan-microsoft-alliance/

Hileman, G. & Rauchs, M. (2017). Global Cryptocurrency Benchmarking Study. Cambridge: Centre for Alternative Finance. Retrieved from https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/global-cryptocurrency/#.YPiFpegzZPY

Houben, R. (2015). Bitcoin: there two sides to every coin. ICCLR, 26, 193-208.

Mainelli, M. & Von Gunten, C. (2014). Chain of a lifetime: How Blockchain Technology Might Transform Personal Insurance-Long Finance. Z/Yen Group, Long Finance (December 2014), p.51. Retrieved from https://www.longfinance.net/publications/long-finance-reports/chain-of-a-lifetime-how-blockchain-technology-might-transform-personal-insurance/

Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system. Retrieved from https://bitcoin.org/bitcoin.pdf

Noizat, P. (2015). Blockchain Electronic Vote. In David Lee Kuo Chuen (Ed.). *Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data*, pp. 453–461. Amsterdam, Netherlands: Elsevier. Retrieved from http://www.gbv.de/dms/zbw/830306846.pdf

Wright, A. & De Filippi, P. (2015). Decentralized Blockchain Technology and the Rise of Lex Cryptographia. SSRN Electronic Journal. http://10.2139/ssrn.2580664, or http://dx.doi.org/10.2139/ssrn.2580664

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	Author 1	Author 2
Conceived and designed the research or analysis	Yes	Yes
Collected the data	Yes	Yes
Contributed to data analysis & interpretation	Yes	No
Wrote the article/paper	Yes	No
Critical revision of the article/paper	Yes	No
Editing of the article/paper	Yes	No
Supervision	Yes	No
Project Administration	Yes	No
Funding Acquisition	No	No
Overall Contribution Proportion (%)	80	20

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00231 | Review Article

International Legal Regulation and Supranational Interaction in Counteracting the COVID-19 Pandemic: Challenges and Proposals

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ABSTRACT

The purpose of the article is to study problems of international legal regulation and supranational cooperation in combating the COVID-19 pandemic. The institutional and international legal mechanism of counteraction to the spread of the pandemic is analyzed. The problem moments of realization of provisions of the main international acts in the area of counteraction to the Coronavirus disease by the national governments are marked out. The methodological basis for the article is general and special methods and techniques of scientific knowledge, in particular: formal-logical, Aristotelian method, method of documentary, system-structured method, formal and legal method, forecasting method, method of generalization. The key problems of international legal counteraction to the pandemic spread are as follows: advisory (not obligatory) character of the majority of international legal acts related to the fight against COVID-19; disinterest of the states in timely informing WHO about the outbreaks of infectious diseases; arbitrary interpretation of the international acts by national governments; human rights restrictions on the movement imposed by the states; lack of a clear funding mechanism to build the necessary global and national infrastructure to ensure commitment in accordance with the International Health Regulations.

Keywords: International law; Covid-19; Supranational cooperation; Human rights

Received: 31 July 2021
Reviewed: 05 August 2021
Accepted: 06 August 2021
Published: 10 August 2021

How to cite this paper: Shulga, I., Skaletska, Z., Kalaianova, O., & Shynkaruk, O. (2021). International Legal Regulation and Supranational Interaction in Counteracting the COVID-19 Pandemic: Challenges and Proposals. Journal of Policy & Governance, 01(01), 54-62. https://doi.org/10.33002/jpg010105

1. INTRODUCTION

Today, the global society is facing increasing challenges from the spread of infectious diseases. Over the past few decades, the world has faced such strains as Bird Flu (H5N1), Grippus Suum (H1N1), Febris Ebola (EBOV) and others. However, the most widespread so far is the spread of Covid-19 (SARS-CoV-2), the consequences of the spread have a transboundary character and have already manifested themselves in the social sphere and various sectors of the economy of many countries. On March 11, 2020, the World Health Organization (WHO) announced that the COVID-19 virus epidemic had reached pandemic level (World Health Organization, 2020a).

The rapid spread of the COVID-19 pandemic contains a number of threats from ensuring the national security of each individual state, interstate economic and political relations to respecting and protecting human rights. COVID-19 has been spreading around the world for over a year and is taking the lives of millions of people (Worldometers, 2021). The rapid spread of the new strain and the threats it poses to human life and health have brought the issue of pandemic to an international level. Now the international counteraction to the COVID-19 is a key task of international governmental (United Nations, World Health Organization, International Monetary Fund, World Bank, European Central Bank, etc.) and non-governmental (International Red Cross and Red Crescent Movement, Doctors Without Borders, Wild4Life, BRAC, etc.) organizations. Cooperation between international organizations and national governments is carried out mainly on the basis of coordination and recommendations. At the same time, direct implementation of anti-epidemic measures, management in the sphere of counteraction to the spread of the pandemic is the task of national governments implementing administrative restrictive anti-epidemic measures aimed at preventing the spread of COVID-19. Counteracting the spread of the pandemic through the administration of restrictive, anti-epidemic measures and vaccination of the population remain one of the most effective ways to prevent new infections.

The goal of this article is to study problems of international legal regulation and supranational cooperation in combating the COVID-19 pandemic.

2. RESEARCH METHODS

A set of methods were used to compile the article. The peculiarities of the research structure of the article are determined by a combination of legal and formal-logical methods that allow to achieve its goal. The aristotelian method allowed, based on the study of statistical literature, institutional menhanism to describe in detail and systematically the nature of international legal and supranational cooperation in the field of counteraction to the spread of pandemic COVID-19. Under the influence of the method of documentary analysis, it became possible to analyze the provisions of international legal acts on the essence of their provisions to counter the spread of the pandemic. Use of system-structured method helped to investigate the essence of available international legal countermeasures and their implementation by national governments of the states. The formal and legal method and the forecasting method made it possible to clarify the major problem points in the international legal regulation of combating the spread of infection and to highlight the prospects for their further improvement. Several other general and special methods of scientific knowledge were used in the work that allowed a thorough and comprehensive approach to the implementation of our study.

3. LITERATURE REVIEW

Different issues related to international legal regulation and supranational cooperation in an attempt to counter the COVID-19 pandemic have been studied by a number of scholars. Habibi et al. (2020) studied violations of the international health regulations during the COVID-19 pandemic. The authors conclude that upholding the rule of international law is needed now more than ever. Countries can start by rolling back illegal travel restrictions that have already been implemented and by supporting WHO and each other in implementing the International Health Regulations, 2005 (IHR).

Pevehouse (2020) examined populist ideology, which sheds light on some of the difficulties in disentangling the various individual-level ideologies and attitudes that hang together around international cooperation. In his work the author has argued that understanding the mechanisms by

which populism influences international cooperation is an important avenue of research for this topic.

The States' Duties to Prevent and Halt the Coronavirus Outbreak were analized by Dias & Coco (2020). In the conclusion, scholars noted that with origins dating back to the 19th century, due diligence remains a fundamental principle of international law. To the extent that they can, states must do more to stop this outbreak and prevent it from spreading further and reappearing in recovered areas. In particular, according to the International Health Regulations, 2005, states should continue to closely monitor the development of the disease with efficient testing and to prepare for the worst-case scenario.

Villarreal (2020) resumes that states by deviating from the WHO´s advice fail to fulfill their obligations under the IHR. In his opinion, article 43 of the International Health Regulations, 2005 (IHR)[1], which regulate relations between international and national authorities, in general is not 'hard-and-fast' in the sense that disregarding the WHO´s recommendations lead to a violation *per se*. Gostin (2004) in his scientific work focused on specific problems of international infectious disease law. The author claims that the WHO should ensure state compliance with health norms and generous economic and technical assistance to poorer countries. An important issue for the international community is how sovereign countries can join together to make global health work for everyone, the poor and the wealthy alike.

Milanovic (2020) highlighted as a separate problem the viral misinformation and the freedom of expression. At the same time, the researcher believes that the suppression of misinformation, on COVID-19 or some other issue, by state and corporate entities can at best be a mitigating strategy. They are not effective enough for the ultimate goal that they are pursuing, especially when there are serious structural problems in societies that create fertile ground for misinformation. Kurbatov & Rogozha (2020) also made stress on ethical dimensions of COVID-19 pandemic situation and its influence on development of educational and other practices at national and global level.

The new strain of COVID-19 virus is causing an imbalance in the body's immune response by infiltrating body cells, making its own copies of host new cells, which is extremely dangerous to human health (Gallagher, 2020). The first case of infection was recorded in the city of Wuhan, China, in late 2019, but a timely failure to implement administrative restrictions and a lack of global awareness caused the virus to spread to other nations and continents. Today, the WHO, as the main specialized organization in the field of health, officially recognizes the disease as a terrible pandemic and takes measures to coordinate and support states to prevent, detect and organize the fight against it. So, the organization created the Fund for assistance to the pandemic, developed international health regulations, adopted the updated strategy for combating COVID-19 with a number of recommendations and other activities (World Health Organization, 2020b).

The main international act in the sphere of fighting the pandemic is the new edition of the International Health Regulations (IHR) adopted by WHO in 2005 to prevent the global spread of diseases. Their prevention and control, taking a number of measures at public health level, which are adequate to public health risks, limited by them, and do not create unnecessary obstacles to international transport and trade. In accordance with the provisions of the IHR, the mechanism for combating COVID-19 includes two main steps. Step 1 relates to increasing the expressed obligations of state parties: a) the obligation to inform WHO about health risks regardless of the consent of the state; b) taking protective measures in strict accordance with the principle of respect for human rights and dignity; c) building the necessary capacity for timely identification, reporting and taking necessary actions in response to health risks, including establishment of national focal centers. Step 2 is connected with expanding the powers and obligations of the WHO: a) the right of the WHO to issue temporary and permanent recommendations to states where outbreaks of infectious diseases have been registered; b) the right to consider, in addition to information provided by official authorities, also information from non-governmental sources, such as data from non-governmental organizations, media, Internet resources; c) the obligation to check the reliability and confidentiality of the information received (World Health Organization, 2005e).

The other important international act to counter the pandemic is the COVID-19 Strategy Update (hereinafter referred to as the Strategy), which provides for the use of organizational and legal measures by states, such as rapid detection, testing and treatment of patients with severe disease, mobilizing all structures and populations to fight the pandemic, suppressing transmission in the population, reducing mortality by providing appropriate clinical care to COVID-19 patients (World Health Organization, 2020c).

[1] International Health Regulations (2005). Retrieved from https://apps.who.int/iris/rest/bitstreams/52146/retrieve

In addition, it is the responsibility of each country to develop and implement national strategies to combat the COVID-19 pandemic, including such areas as:

a) coordinating the national and regional response;
b) the involvement and mobilization of local communities affected by the virus and at risk;
c) applying contextually necessary medical and sanitary measures to slow down virus transmission and control sporadic cases;
d) preparing the health system to reduce COVID-19 related deaths, maintaining the priority of health services and protecting health workers;
e) emergency planning to ensure continuity of vital public functions and services (World Health Organization, 2020d).

It can be argued that the strategy acts as a kind of roadmap to combat the spread of the pandemic for national governments. However, as can be seen from the document these goals are rather abstract, and determine primarily the key areas of the international legal regulation of the spread of the virus creates a wide field for the implementation of the so-called "trial and error" system for national governments in accordance with their qualifications, democratic processes and financial capabilities.

4. RESULTS AND DISCUSSION

Analysis of the provisions of the Strategy shows that the above intergovernmental health organization entrusts national governments, represented by the ministries of health, with developing the components of the Strategy for combating Coronavirus infection and implementation of the International Health Regulations provisions on their own, giving only general guidelines. As a result, national governments can quite arbitrarily draft the provisions of the document. So, a series of measures, taken by the national governments in response to the pandemic COVID-19, violated the provisions of the IHR, which set the limits of the range of medical and sanitary measures. The states have the right to take, in conditions of public health risks, the measures, based on the scientific principles and data, which are comparable with the existing risks, and take into consideration the human rights. Thus, according to assessment of Habibi et al. (2020), the travel restrictions imposed were not based on scientific evidence or WHO guidance. It violates article 43, paragraph 2 of the IHR. The travel restrictions do not comply with article 43, paragraph 1, paragraph 5, which requires that the measures should be no more restrictive than the available reasonable alternatives. Therefore, some measures are discriminatory, in violation of the principles laid out in article 3 of the IHR. The states often failed to comply with article 43, paragraph 3 and 5, which require WHO to provide information on restrictions imposed (Habibi et al, 2020).

Conversely, some states have not acted with sufficient diligence in preparing and counteracting the spread of the pandemic and have not always taken the necessary measures and followed WHO recommendations (Dias & Coco, 2020). However, the legal consequences of states deviating from WHO recommendations remain open (Villarreal, 2020). The following factors also affect the effectiveness of implementation of the IHR and the Strategy:

1) challenges in implementation at the national level, which depend on the political will of states (manifested in states' disinterest in informing WHO in a timely manner about outbreaks of infectious diseases because of the possible prospect of loss of economic benefits, the possibility of future reservations, and the absence of a legally binding dispute resolution mechanism);
2) traditionally, WHO acts have been of a soft law nature, which may cause a negative attitude towards both the IHR as a whole and the recommendations issued on their basis by WHO, on the part of states;
3) new IHR are not aimed at preventing new infectious diseases and incorporate NOT preventive actions, but actions aimed at combating the consequences;
4) lack of an appropriate funding mechanism, which would allow to create the necessary global and national infrastructure to ensure obligations in accordance with the IHR, including assisting the least developed countries in building their own capacity (Gostin, 2004).

It should also be noted that WHO is not the only international governmental organization that coordinates the regulatory and legislative actions of national governments. Thus, the issue of developing principles and fundamental principles of international cooperation against the pandemic has been repeatedly put on the agenda of the UN General Assembly, resulting in a number of resolutions on combating the spread of COVID-19. Thus, Resolution 74/270 "Global Solidarity to Fight the Coronavirus

Disease 2019 (COVID-19)"[2] as of 02.04.2020 emphasized the central role of the UN in strengthening cooperation to take global measures to prevent and contain the spread of COVID-19. The resolution proclaimed the following:

(1) WHO has a crucial role in the fight against the spread of COVID-19;
(2) COVID-19 can be countered through global action based on unity, solidarity and active multilateral cooperation; the global response to the threat of COVID-19 must fully respect human rights and prevent discrimination, racism and xenophobia;
(3) There is a list of areas for international cooperation to be enhanced, such as sharing information, scientific knowledge and experience, including experiences in the implementation of the WHO recommendations and standards (United Nations, 2020a).

Resolution 74/274 "International cooperation to ensure global access to medicines, vaccines and medical equipment to face COVID-19" of 20.04.2020 co-authored by Ukraine establishes a model of cooperation between WHO and other relevant agencies in the UN common system, including international financial institutions. This embodies recommendations for operational scaling up of production, strengthening of supply chains that promote fair, transparent, equal, effective and timely access to prevention tools, laboratory tests, reagents and supporting materials, essential medical supplies, new diagnostic tools, medicines and future vaccines against COVID-19. The Resolution states that medical products should be available to all who need them, including developing countries (United Nations, 2020b). However, the provisions of this Resolution are quite difficult to implement, given the economic performance of states. Thus, countries with more developed economic potential are able to implement a wide range of measures from restrictions on the movement of citizens and their isolation to the implementation of compensatory policies. Less developed states have to consider the economic and social conditions of their citizens, while facilitating quarantine to provide opportunities to preserve workplaces and support small businesses.

The accumulated global experience of WHO and other international organizations within the UN system on COVID-19 and the development of recommendations, technical guidelines, resource management tools are presented in chronological order in a special "timeline: WHO's response to COVID-19" (World Health Organization, 2020d). However, the implementation of international legal measures to fight the pandemic are presented mainly in the form of restrictions. And in this case, there is a question of the correlation of the introduction of these quarantine restrictions with the observance of human rights. This issue arises in particular in the case of states of emergency or similar regimes, the imposition of which increases the powers of governments (sometimes also the police and the army) and reduces the powers of parliaments and the judiciary, with a serious blurring of the lines separating executive, legislative and judicial powers and may cause imbalances in the system of checks and balances that underlie democracy (European Parliament, 2020).

In general, international human rights standards guarantee everyone the right to the highest attainable standard of health and oblige states to take measures to prevent health threats and to provide health care to those who need it. At the same time, it is considered that the COVID-19 pandemic, which certainly reaches the level of threat to public health, may justify the restriction of certain rights and freedoms (European Union Agency for Fundamental Rights, 2020). However, these restrictions must be imposed on the basis of the rule of law, openness and transparency. They must meet the challenges and must be scientifically sound. Their application cannot be discriminatory and unlimited in time. In addition, restrictions must respect human dignity and human rights (United Nations, 2020c).

The application of measures aimed at countering the COVID-19 pandemic must not result in violations of people's rights to privacy, freedom from discrimination, freedom of information and freedom of expression (United Nations, 2020c). Such rights may be restricted; for example freedom of expression may be restricted in relation to the dissemination of false information, but any restrictions must balance human rights and the public interest. In the context of the COVID-19 pandemic, the state has a negative obligation “not to disseminate false information and a positive obligation to provide truthful, accurate and reliable information, as such information becomes an important part of combating the spread of the virus. At the same time, combating misinformation about the COVID-19 virus should not disproportionately limit freedom of the media” (Council of Europe, 2020).

[2] Resolution 74/270 "Global Solidarity to Fight the Coronavirus Disease 2019 (COVID-19)". Retrieved from https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/087/28/PDF/N2008728.pdf?OpenElement

It is interesting, in our opinion, to analyze supranational cooperation within the framework of the EU, an economic and political association of states that was created to promote peace, democratic values and the well-being of citizens. Here we should note the key role of the European Commission in counteracting the spread of coronavirus disease, which, since January 2020, has adopted a series of power and administrative measures (Leyen, 2021a) to protect EU citizens from the threat of coronavirus. Namely, the Commission has activated the EU Civil Protection Mechanism and carried out the repatriation (return) of EU citizens. Interstate measures to protect the population, in particular travelers, industry, agriculture, transport, joint procurement of personal protective equipment and medical equipment, research on the new Coronavirus 2019-nCoV, regulations on measures related to health protection at borders to protect the health of citizens, while ensuring the proper treatment of people who have to travel and ensure the availability of essential goods and services, free movement of essential workers etc., and additional funding of the health care system. Full disclosure of information on cooperation, communications, activities and decisions of a medical and other nature in chronological order are reflected on the website of the Council of Europe (European Commission, 2021). At the same time, each state was left alone in counteracting the spread of the COVID-19, introducing its own list of quarantine measures. Instead of developing a unified plan of action mandatory for all members of the Union and creating international research centers, the EU funded Astra Zeneca with more than 300 billion Euros, which in the end narrowed the production of vaccines in one company, could not meet the needs of vaccination of citizens of the Union. Thus, to date, vaccine shortages and failed vaccination policies have resulted in a situation in which only 46% of the EU population received their first dose of vaccine (Leyen, 2021b). In other words, it is clear that the EU, as a powerful supranational entity, has not created the conditions for the adoption of a clear mechanism for counteracting the spread of the COVID-19 and dealing with its consequences. All this demonstrates the ineffectiveness of the supranational level of the fight against the spread of the COVID-19. The decrease in the level of internationalization of the strengthening role of the state in the Union affects the further predominance of national interests over the interests of communities.

A separate problem of internationalization today is countering disinformation, which is a threat to international and national information security. Thus, information attacks were repeatedly exposed to both the use of individual vaccines (Ministry of Health of Ukraine, 2021) and the vaccination process in general, which ultimately had a negative impact on the perception of vaccination by the population. It should be noted that the first step to counteract the spread of misinformation have already been taken, so recently the European Union adopted the Code of Practice against Disinformation (European Commission, 2021) and the Action Plan against Disinformation (European Commission, 2018). On the basis of these documents, it is necessary to develop international and national acts to counteract direct information threats during the pandemic COVID-19, should contain a system of clear and specific measures to counter disinformation manifestations associated with the pandemic, the organizational and legal status of subjects "objects of the fight against disinformation, the mechanism of liability, etc." It is also necessary to develop and implement state programs to improve information literacy among the population and economic entities in the media sphere. Disseminate information literacy skills by organizing educational events at schools, universities, and government institutions in the form of lectures, roundtables, online meetings, podcasts on Youtube, and social networks, involving journalism experts, government officials, law enforcement officials, scientists, etc.

5. CONCLUSIONS

The COVID-19 pandemic has become a significant challenge for the global community and has shown unpreparedness for a coordinated and effective counteraction to its spread. Among the major problems of the international legal response to the spread of the pandemic are: the recommendatory (non-binding) nature of most international legal acts related to the fight against COVID-19; the lack of interest of states in informing WHO in time about the outbreak of infectious diseases for fear of losing economic benefits; arbitrary interpretation of the provisions of international acts by national governments, threatening to limit and violate human rights; restrictions on human rights of movement imposed by states were not based on scientific evidence or WHO guidance; lack of a clear funding mechanism that would allow the creation of the necessary global and national infrastructures to ensure obligations in accordance with the IHR, including assistance to the least developed countries in building their own

capacity; lack of a clear mechanism to counteract disinformation manifestations associated with the COVID-19 and the like.

These problems characterize the current state of international legal regulation and supranational cooperation in counteracting the spread of COVID-19. Their solution in combination with the strengthening of the role of international institutions over national governments will increase the effectiveness of counteraction to the spread of the pandemic and the prevention of the spread of new strains of infectious diseases.

REFERENCES

Council of Europe (2020). Press freedom must not be undermined by measures to counter disinformation about COVID-19. Commissioner for Human Rights. Retrieved from https://www.coe.int/en/web/media-freedom/-/press-freedom-must-not-be-undermined-by-measures-to-counter-disinformation-about-covid-19 [Accessed 05 April 2021]

Dias, T. S. & Coco, A. (2020). Part III: Due Diligence and COVID-19: States' Duties to Prevent and Halt the Coronavirus Outbreak. *Blog of the European Journal of International Law*, 25 March 2020. Retrieved from https://www.ejiltalk.org/part-iii-due-diligence-and-covid-19-states-duties-to-prevent-and-halt-the-coronavirus-outbreak [Accessed 03 April 2021]

European Commission (2018). Report on the implementation of the Action Plan Against Disinformation. Retrieved from https://op.europa.eu/en/publication-detail/-/publication/8a94fd8f-8e92-11e9-9369-01aa75ed71a1/language-en [Accessed 20 April 2021]

European Commission (2021). Code of Practice on Disinformation. Retrieved from https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation [Accessed 12 July 2021]

European Parliament (2020). The Impact of COVID-19 Measures on Democracy, the Rule of Law and Fundamental Rights in the EU. Monitoring Group on Democracy. Retrieved from https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/651343/IPOL_BRI(2020)651343_EN.pdf [Accessed 20 April 2021]

European Union Agency for Fundamental Rights (2020) Coronavirus pandemic in the EU – Fundamental Rights Implications. Bulletin 1. Retrieved from https://fra.europa.eu/sites/default/files/fra_uploads/fra-2020-coronavirus-pandemic-eu-bulletin-1_en.pdf [Accessed 15 May 2021]

Gallagher, J. (2020). Coronavirus: What it does to the body. BBC News Ukraine. Retrieved from https://www.bbc.com/ukrainian/features-51886721 [Accessed 05 April 2021]

Gostin, L. O. (2004). International infectious disease law: revision of the World Health Organization's International Health Regulations. Jama, 291(21), 2623-2627.

Habibi, R., Burci, G. L., de Campos, T. C., Chirwa, D., Cinà, M., Dagron, S., & Hoffman, S. J. (2020). Do not violate the International Health Regulations during the COVID-19 outbreak. The Lancet, 395(10225), 664-666. https://doi.org/10.1016/S0140-6736(20)30373-1

Kurbatov, S. V., & Rohozha, M. M. (2020). University Mission in Western-European Culture (Ethical and Sociological Aspects) P. II. Filosofiya Osvity. Philosophy of Education, 26(1), 113–130. https://doi.org/10.31874/2309-1606-2020-26-1-7

Leyen, U. (2021a). Nearly half of the population in the EU has received the first dose of COVID vaccine. Word and Action, Analytical Portal. Retrieved from https://www.slovoidilo.ua/2021/05/25/novyna/suspilstvo/yes-pershu-dozu-vakcyny-covid-otrymala-majzhe-polovyna-naselennya [Accessed 20 June 2021]

Leyen, U. (2021b). We must look out for each other; we must pull each other through this. Timeline of EU action. Retrieved from https://ec.europa.eu/info/live-work-travel-eu/coronavirus-response/timeline-eu-action_en [Accessed on 15 May 2021]

Milanovic, M. (2020). Viral Misinformation and the Freedom of Expression: Part III. Ejiltalk. Org, 1-5. Retrieved from https://www.ejiltalk.org/viral-misinformation-and-the-freedom-of-expression-part-iii/ [Accessed 15 May 2021]

Ministry of Health of Ukraine (2021). The most common fakes about vaccination. Retrieved from https://moz.gov.ua/article/health/najposhirenishi-fejki-pro-vakcinaciju-vid-covid-19 [Accessed 14 July 2021]

Pevehouse, J. C. (2020). The COVID-19 Pandemic, International Cooperation, and Populism. International Organization, 74(S1), E191-E212. https://doi.org/10.1017/S0020818320000399

United Nations (2020a). COVID-19 and Human Rights. The UN High Commissioner for Human Rights. Retrieved from https://news. un.org/ru/story/2020/03/1373871 [Accessed 05 April 2021]

United Nations (2020b). Resolution 74/274 entitled "International cooperation to ensure global access to medicines, vaccines and medical equipment to face COVID-19". The General Assembly. Retrieved from https://www.un.org/pga/74/2020/04/15/international-cooperation-to-ensure-global-access-to-medicines-vaccines-and-medical-equipment-to-face-covid-19/ [Accessed 15 April 2021]

United Nations (2020c). COVID-19: States should not abuse emergency measures to suppress human rights. UN experts. Retrieved from https://www.ohchr.org/RU/NewsEvents/Pages/DisplayNews.aspx?NewsID=25722&LangID=R. [Accessed 20 April 2021]

Villarreal, P. (2020). Can They Really Do That? States' Obligations Under the International Health Regulations in Light of COVID-19 (Part I). Opinio Juris. Retrieved from http://opiniojuris.org/2020/03/31/covid-19-symposium-can-they-really-do-that-states-obligations-under-the-international-health-regulations-in-light-of-covid-19-part-i/ [Accessed 10 May 2021]

World Health Organization (2005). International health regulations. Third report of Committee A, 58-th Wealth Assembly, A58/55, 5-60. Retrieved from https://apps.who.int/iris/rest/bitstreams/52146/retrieve [Accessed 15 May 2021]

World Health Organization (2020a). Recommendations for the public on infection with the new coronavirus COVID-19. Retrieved from https://www.who.int/ru/emergencies/diseases/novel-coronavirus-2019/advice-for-public [Accessed 12 May 2021]

World Health Organization (2020b). COVID-19 Strategy Update. Retrieved from https://krphc.org.ua/wp-content/uploads/2020/05/covid19-strategy-update-2020-ru.pdf [Accessed 04 May 2021]

World Health Organization (2020c). Timeline: WHO's COVID-19 response. Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline [Accessed 22 May 2021]

World Health Organization (2020d). WHO Director-General's opening remarks at the media briefing on COVID-19. Retrieved from https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020 [Accessed 22 May 2021]

Worldometers (2021). Covid-19 worldwide distribution statistics. Retrieved from https://www.worldometers.info/coronavirus/ [Accessed on 20 April 2021]

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	Author 1	Author 2	Author 3	Author 4
Conceived and designed the research or analysis	Yes	Yes	Yes	Yes
Collected the data	Yes	Yes	Yes	Yes
Contributed to data analysis & interpretation	Yes	No	No	Yes
Wrote the article/paper	Yes	No	Yes	No
Critical revision of the article/paper	Yes	Yes	No	No
Editing of the article/paper	Yes	No	Yes	No
Supervision	Yes	No	No	Yes
Project Administration	Yes	Yes	No	No
Funding Acquisition	No	No	No	No
Overall Contribution Proportion (%)	40	20	20	20

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Authors have no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00232 | Analytical Article

Comparative Analysis of Ukrainian and Canadian Legislation Regulating the Land Management

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ABSTRACT

Land management activities in Ukraine are at the stage of gradual legislative reform, which takes place through deregulation and simplification of land management procedures. The analysis of Canada's practical experience in regulating land management activities allows Ukraine to create a single organization consisting of committees on certain land management issues, which will contribute to the development and effective work in this area.

Keywords: Land management activities; Land management documentation; Professional liability insurance; Licensing; Certification

Received: 19 July 2021
Reviewed: 30 July 2021
Accepted: 02 August 2021
Published: 10 August 2021

How to cite this paper: Borzenkova, V. (2021). Comparative Analysis of Ukrainian and Canadian Legislation Regulating the Land Management. Journal of Policy & Governance, 01(01), 63-68. https://doi.org/10.33002/jpg010106

1. INTRODUCTION

Land management documentation is a tool for the realization of land rights and is imagined as an integral part of land management. The development of land management documentation, or land management work, is a complex procedural mechanism of actions of the developer, which requires detailed legal regulation. Canada's experience and practice in reference to land management will provide an opportunity to consider possible ways to improve Ukrainian legislation in the field of land management regulation.

The aim of this article is to comparatively analyze the legal regulation of land management in Canada and Ukraine, control over the activities of land surveyors, their professional responsibility, ethical principles and development of recommendations taking into account the positive experience of a foreign country for Ukraine.

2. METHODOLOGY

This scientific study used a special comparative and legal method, which presupposes comparison of legal systems of Canada and Ukraine, to distinguish similarities and differences in the means of legal regulation of land management activities. General logical methods and techniques such as methods of structural analysis and synthesis and analogy are used.

3. RESULTS AND DISCUSSION

The main elements of the professional competence of Canadian land surveyors and the effective implementation of land management activities are the strategic vision of the development of this area, unified management and state control. To compare the Ukrainian models with the Canadian models of land management regulation, it is imperative to trace both the common and distinctive features of the two countries' legislations.

3.1 Models of Regulating Land Management Organization

First of all, it should be noted that the legislation of Canada provides for two types of land surveyors; firstly, it is a land surveyor who has the right to survey land in the province in accordance with the laws of the province and the Surveyor General. This position is directly created under federal system of Canada within the ambit of the Canada Lands Surveys Act, 1985[1]). The Surveyor General monitors the compliance of the land surveyor with accurate and regular records of all his/her surveys. Additionally, on the instructions of the Minister, he/she performs the functions of storing original plans, journals, field notes and other documents related to surveys.

Canada has established a collegial body known as the Association of Canada Lands Surveyors[2] , purpose of which is to establish and maintain standards of qualification, behavior, knowledge and skills of Canadian surveyors and land surveyors, cooperation with other institutions and organizations, and the regulation of land management activities. The governing body of the Association is the Council, which includes president and vice-president of the Association, former President of the Association, members of the Association, who are elected in accordance with by-laws, the Surveyor General, two persons who are not members of the Association and are appointed by the Minister.

The Council is authorized to adopt by-laws relating to any issues necessary for land management. Committees are created at the Council, namely: the Executive Committee, which performs the functions and powers as delegated by the Council, except for the creation of norms and by-laws; the Commission of Experts supervising all issues related to the admission and eligibility of candidates and their test; the Complaints Review Committee whose powers include hearing the complaints received by the Association against the conduct or actions of any member of the Association, Canadian landowner or permit owner; the Disciplinary Committee that hears and determines allegations of unlawful professional actions or incompetence as reported by the Council, an issue of retaining a member of the Association, or issuing a license.

As the Ukraine is reforming the land relations and affairs by improving the management system and deregulation, it would be relevant to create a similar organization on geodesy and land management.

[1] https://laws-lois.justice.gc.ca/eng/acts/L-6/
[2] https://www.acls-aatc.ca/

In Ukraine, similar organizations also exist. Such public organizations are Association of Certified Surveyors of Ukraine, All-Ukrainian Union of Certified Engineers & Land Surveyors, Land Union of Ukraine and many others. However, the creation of a single organization having powers to control and manage the land management activities will contribute to the development of these fields and effective land management.

3.2 Ways of Solving Problematic Issues

In Ukraine, annually more than 800,000 people carry out operations with their land plots as part of their land management process. At the time of registering land plots, up to 57 documents, up to 79 instruments (regulating land relations) and 8 different databases are created by the State to store information about land plots (Pryadka, Tretiak, & Tretiak, 2021, p.16). An important part of such legal actions is the land management documentation, which is aimed at formalizing design decisions, text and graphic materials along with the land management.

For a long time, there is lack of consolidated unified State samples of certain documents on land management and of a detailed approach to the preparation of technical documents. The lack of legal unified prototype leads to the existing incoherence in the land management activities. For example, it is possible to cite a land management project after the allocation of land plots for that. The Law of Ukraine "On Land Management"[3] prescribes the composition of documents that the land management project after the allocation of land should include in case of proposed changes in land use. But the question how land management design is carried out in such cases remains unanswered. Thus, absence of such unambiguous regulation causes practical problems for approval of land management projects, since there are no uniform requirements for the preparation of documentation. Therefore, there are no existing uniform standards for the approval of such documentation.

In 1999, the State Committee of Ukraine on Land Resources approved the "Model of the project of land allocation to legal entities and individuals for any needs", which was mostly intended for the allocation of land for development. The use of this "Model" as a standard of such documentation is impossible, because the projects of allocation of land depending on the purpose of such allocation differ in their complexity and, therefore, cannot be compared. It points to the problem of lack of legal support for the development of a land management project on the allocation of land plots and the need to develop standards for individual documents and approaches to their registration.

A similar problem arises when conducting land inventory in accordance with the Resolution[4] of the Cabinet of Ministers of Ukraine of June 5, 2019. This resolution has determined that land inventory works would include surveying, topographic-geodetic and design-survey work, and preparation and execution of technical documentation. The State Land Cadastre Center[5] provides an example of technical documentation on land management for the inventory of general-purpose land and agricultural land. This is mostly a recommended for such documentation works. The model work is the only sample to create technical documentation on land management for the inventory of land plots. But it cannot be recommended to lands to be used for another purposes.

Creation of a special body that would regulate the work of landowners will allow to unify land management activities. A committee will also be set up for the development of standards to prepare land management documentation. The publication of by-laws and regulations by such a body will detail the requirements of the legislation regarding land management work.

3.3 Licensing and Certification of Land Management Activities

One of the common features of the legislation of Ukraine and Canada is that land management work is licensed. In Canada, this license is issued to the member of the Association of Canada Land Surveyors who has experience and practical training in geodesy for at least 2 years during the past 5 years, and he/she adheres to licensing requirements provided for by regulations and by-laws (Canada Lands Surveyors Act, 1985).

In Ukraine, a person is authorized to carry out land management activities who has higher education and qualifications in the field of land management. Certified land surveyor engineers are the

[3] Law of Ukraine "On Land Management" №36, 2003 https://zakon.rada.gov.ua/laws/show/858-15#Text
[4] "On approval of the Procedure for conducting land inventory and recognizing those that have lost their validity", Resolutions of the Cabinet of Ministers of Ukraine". https://zakon.rada.gov.ua/laws/show/476-2019-%D0%BF#Text
[5] http://dzk.gov.ua/en/home/

persons who have higher education in such speciality and qualifications in the land management. These surveyors should have relevant work experience for at least 1 year, have passed the qualification exam, have received a certificate, and have registered in the State Register of Certified Land Surveyors (Law of Ukraine "On Land Management"[6]).

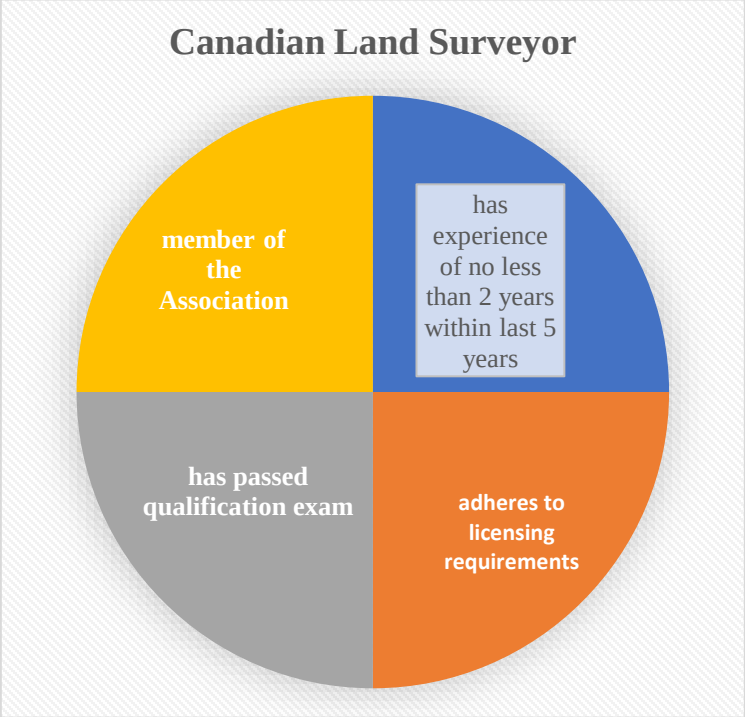

Figure 1: Canadian Land Surveyor

Figure 2: Ukrainian Land Surveyor

[6] https://zakon.rada.gov.ua/laws/show/858-15#Text

The licensing and certification of land management activities are done because such an activity requires special knowledge and sufficient technical skills and technological support of equipment. This also follows the principle of distribution of responsibility, according to which the developers of land management documentation dispose of the job. This technical work also requires legal literacy and quality and safety of the tasks in the documentation process, for which the customer is not responsible.

3.4 Land Surveyors' Professional Liability

The legislation of Canada stipulates a compulsory professional liability assurance by each member of the Association. On 27 May 2021, the Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on Improving the Management System and Deregulation in the Field of Land Relations" (Law No. 2194)[7] came into force, which is to regulate the issues of land management in Ukraine. It has the provisions to solve the problem of liability of land management executors to the customers and third parties if they commit errors in the preparation of land management documentation or in the implementation of land management work. There was a need for such regulatory fixation having provisions of compulsory insurance for such liability. From now on, in case of a damage to the customer or a third party due to negligence, oversight or professional errors made by technician in performing the topographic, geodetic and cartographic works, compensation should be paid to the customer or third party in the form of insurance indemnity, the amount of which is to be ascertained with the consent of the parties but cannot be less than 1,000 minimum wages.

However, the definition of an insured event as circumstances relating to land management works of national purpose does not correspond to the interests of persons who have applied to the developers in order to create land management documentation regarding the land plot that is in their ownership or use. In practice, errors in land management documentation often cause negative legal consequences.

3.5 Ethics of Land Management Activity

The laws of Canada regulate ethical issues of land management activities. Subject to the approval of the Minister, the Council of the Association of Canada Lands Surveyors[8] adopts an ethical code of professional conduct of the land surveyors, and any other person bearing the title "Canadian Land Surveyor", or a contender for such a title. In case, anyone is found guilty of the offense is fined with a severe penalty of not exceeding $10,000, or imprisonment for a term not exceeding 6 months, or to both types of punishment at the same time.

In Ukraine, there is no such regulation for monitoring ethical behavior of persons engaged in land management activities. The requirements for the ethical conduct of the land surveyors' activities are basically the requirements of professionalism from the administrative services. No doubt, development and approval of ethical standards of land management will be the key to the translational development and effective implementation of land management in the future.

4. CONCLUSIONS

Considering lot of common things in legal regulation of land management, the Canadian system is considered to be more developed than Ukrainian. Improving the Ukrainian system of land management will be possible with the creation of a special body authorized not only to license such activities, but also to develop by-laws that will form the legislation. As part of such a body, special committees will exercise control over the assurance of land management activities, compliance with the ethical standards, compliance with the norms of registration of land management documentation and procedures, approval process, and so on.

REFERENCE

Pryadka V., Tretiak A., & Tretiak, V. (2021). Legislative and management problems of the land management process in the registration of rights to land plots. Land Survey Bulletin (in Ukrainian), № 1.С., 15-20.

[7] https://www.rada.gov.ua/en/news/News/207536.html
[8] https://www.acls-aatc.ca/

AUTHORS' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Authors' Contributions (in accordance with ICMJE criteria for authorship)
This article is 100% contributed by the sole author. She conceived and designed the research or analysis, collected the data, contributed to data analysis & interpretation, wrote the article, performed critical revision of the article/paper, edited the article, and supervised and administered the field work.

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Author has no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

RIGHTS AND PERMISSIONS

GRASSROOTS JOURNALS
ISSN 2564-212X
01(01) | August 2021

JOURNAL OF POLICY & GOVERNANCE
Published by The Grassroots Institute, Canada
Website: http://grassrootsjournals.org/jpg

M – 00233 | Analytical Article

West Bengal Assembly Election 2021: An Analysis

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ABSTRACT

West Bengal Assembly election was one of the most keenly watched assembly elections in India in 2021. One of the reasons for this interest was the unexpected rise of the Bhartiya Janata Party in a state mostly known for its contests between the Left parties, the Indian National Congress, and the All-India Trinamool Congress. The Bhartiya Janata Party (BJP) had only 3 seats in the last assembly election of 2016, whereas the ruling All India Trinamool Congress (AITC or TMC) party had 212 seats. The BJP was never a major player in the state except during the last parliamentary election (2019) when BJP bagged 18 out of the 42 parliamentary seats. The analysis presented in this paper analyzes the constituency-wise figures for each of the 294 constituencies spread over 19 districts of the state of West Bengal in India. The TMC emerged victorious with 48% of the total popular votes, while the opposition BJP got 39% of the popular votes. Also, TMC won 213 (73%) of total seats, whereas the BJP came to a distant second with 77 (26%) seats, even though it raised its stock significantly in the West Bengal Assembly from its 2016 tally of a meager 3 seats. After the West Bengal 2021 election results, Mamata Banerjee emerged as one of the main challengers of BJP at the national arena of Indian politics. This paper will benefit and help anyone interested in Indian political analysis and would also provide key insights for the political analysts and the political parties interested in a seat-by-seat deep dive. The analysis was done with the help of Microsoft Excel and R Software.

Keywords: Assembly election; Political parties; Election analysis; Vote share; India

Received: 18 July 2021
Reviewed: 30 July 2021
Accepted: 05 August 2021
Published: 20 August 2021

How to cite this paper: Singh, O. (2021). West Bengal Assembly Election 2021: An Analysis. Journal of Policy & Governance, 01(01), 69-121. https://doi.org/10.33002/jpg010107

1. INTRODUCTION

West Bengal[1] Assembly election was one of the most keenly watched assembly elections in India in 2021. One of the reasons for this interest was the unexpected rise of the Bhartiya Janata Party[2] in a state mostly known for its contests between the Left[3] parties, the Indian National Congress[4] , and the All-India Trinamool Congress[5]. The Bhartiya Janata Party (BJP) had only 3 seats in the last assembly election of 2016, whereas the ruling All India Trinamool Congress (AITC or TMC) party had 212 seats. The BJP was never a major player in the state except during the last parliamentary election (2019) when BJP bagged 18 out of the 42 parliamentary seats. This raised the optimisms in the BJP camp. The party put all its political might in the West Bengal Legislative Assembly election, which was concluded in May 2021, where it was pitted against the ruling TMC led by its supremo Mamata Banerjee. The stakes were so high that BJP made some of its central ministers resign to contest the assembly elections to bolster the party's prospects in the state, traditionally considered home to the non-BJP political forces.

This was coupled with the high decibel election campaign led by Prime Minister Narendra Modi along with the Home Minister Amit Shah and BJP President J.P. Nadda. On the other hand, the two-time chief minister of West Bengal, Mamata Banerjee, led the incumbent party from the front and ran a highly successful campaign leading to her party's victory in the assembly election. This marked the beginning of the third term of the TMC government in the state. The opinion and exit polls were equally divided some predicted edge to the ruling TMC while others giving a slight edge to the BJP. However, the final results, announced on 2nd May 2021, put all speculations to rest with TMC winning 213 seats, whereas BJP managed to win only 77 seats.

The analysis presented in this paper attempts to analyze the constituency-wise figures for each of the 294 constituencies spread over 19 districts of the state of West Bengal in India. This paper will benefit and help anyone interested in Indian political analysis and would also provide key insights for the political analysts and the political parties interested in a seat-by-seat deep dive. The study conducted to prepare this paper aims at synthesizing the political data using visualization for a better understanding of the election results. This would also be helpful for political analysts, political and social scientists, and political parties to further analyze the election results at a granular level. The future scope of this study would entail a demographic extrapolation on

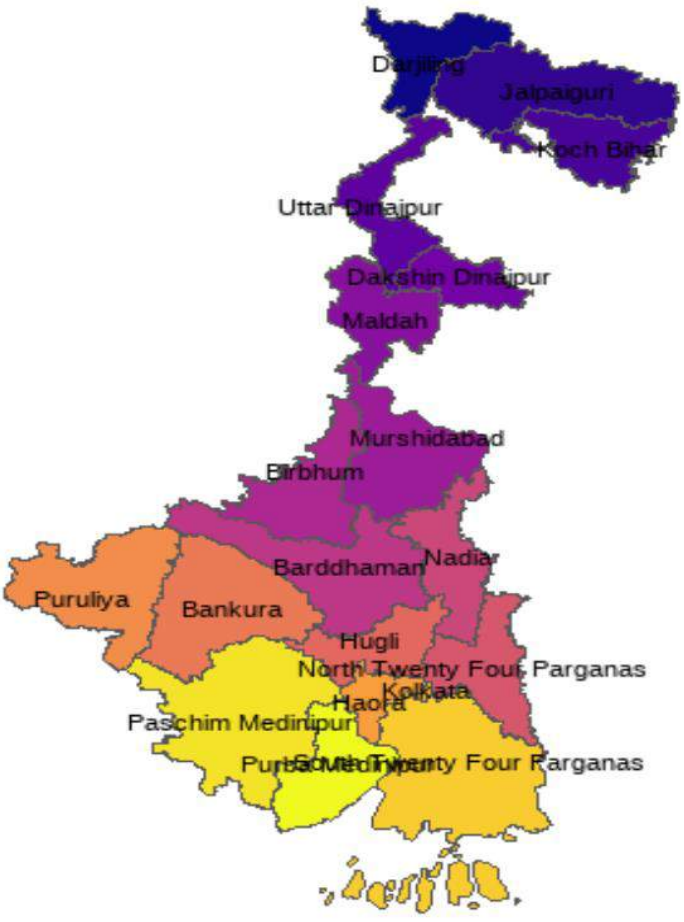

Figure 1: Map of West Bengal Districts

[1] West Bengal is eastern state of India. https://wb.gov.in/; https://en.wikipedia.org/wiki/West_Bengal
[2] Presently the largest political party, which is also ruling in the centre (Union of India). https://www.bjp.org/
[3] Refers to the Communist Party of India (Marxist) (CPM) which rule the state of West Bengal for more than three decades https://en.wikipedia.org/wiki/Communist_Party_of_India_(Marxist)
[4] The oldest political of India having ruled the country for longest period. https://www.inc.in/
[5] https://aitcofficial.org/; https://en.wikipedia.org/wiki/All_India_Trinamool_Congress

the election results to understand various social economic and political contexts that determine the election outcomes in India.

2. METHODOLOGY

The data for the analysis conducted under this study was obtained from the Election Commission of India portal[6] and Trivedi Center for Political Data[7] at the Ashoka University, India. The analysis was done with the help of Microsoft Excel and R Software and its ggplot2 package for Visualization. The various reports and publications were used as a secondary source in the process of this analysis. The analysis covers each of 19 districts of the West Bengal state represented in figure 1 and provides with election results for each of the 294 assembly constituencies in West Bengal.

3. RESULTS AND DISCUSSION

This section and the subsequent sections provide the details of political parties, which participated in the West Bengal election, key election results such as by number and percentage of seats, regional and gender distribution of winning candidates per party, and then follows with a district-wise summary of election outcomes and delves deeper into the election results of all seats in each district of the state of West Bengal.

3.1 Total Number of Political Parties in the Fray

As mentioned in table 1, a large number of independent candidates (611) and a total of 58 political parties took part in the West Bengal assembly election 2021. The main parties include Bhartiya Janata Party (BJP), All India Trinamool Congress (AITC/TMC), Communist Party of India Marxist (CPIM), and Indian National Congress (INC/Congress). The BJP, TMC, CPIM, and Congress contested 291, 288, 138, and 91 seats, respectively (Figure 2).

Table 1: Political parties and number of seats contested

S.No.	*Political Party*	*No. of Contested Seats*
1.	Independents (IND)	611
2.	Bhartiya Janata Party (BJP)	291
3.	All India Trinamool Congress (AITC)	288
4.	Socialist Unity Centre of India (Communist) [SUCI]	188
5.	Bahujan Samaj Party (BSP)	162
6.	Communist Party of India (Marxist)(CPM)	138
7.	Indian National Congress (INC)	91
8.	Bahujan Mukti Party (BMP)	45
9.	Amra Bangalee (AB)	40
10.	Indian Secular Front (ISF/RSSCMJP)	32
11.	All India Forward Bloc (AIFB)	21
12.	Janata Dal (United) [JD(U)]	16
13.	Kamatapur People's Party (United)	15
14.	Communist Party of India (Marxist–Leninist) Liberation [CPI(ML)(L)]	12
15.	Purvanchal Mahapanchayat (PM)	12
16.	Communist Party of India (CPI)	10
17.	Lok Janshakti Party (LJP)	10
18.	Revolutionary Socialist Party (RSP)	10
19.	Bhartiya Nyay-Adhikar Raksha Party (BNARP)	8
20.	Justice and Development Party (JDP)	7
21.	Party for Democratic Socialism (PDS)	7

[6] https://eci.gov.in/
[7] https://tcpd.ashoka.edu.in/

S.No.	*Political Party*	*No. of Contested Seats*
22.	All India Majlis-e-Ittehadul Muslimeen (AIMIM)	6
23.	United Socialist Party (USP)	6
24.	Bahujan Maha Party (BMP)	5
25.	Indian Unity Centre (IUC)	5
26.	Republican Party of India (A) (RPI-A)	5
27.	Ambedkarite Party of India (API)	4
28.	Indian Union Muslim League (IUML)	4
29.	Jan Sangh Party (JSP)	4
30.	National Republic Party of India (NRPI)	4
31.	Republican Party of India (Athawale) (RPI-A)	4
32.	Social Democratic Party of India (SDPI)	4
33.	Socialist Party (India) (SPI)	4
34.	Welfare Party of India (WPI)	4
35.	Communist Party of India (Marxist-Leninist) Red Star	3
36.	Democratic Socialist Party of India (DSPI)	3
37.	Hindustani Awam Morcha (HAM)	3
38.	Humanity Universal Motion Party (HUMP)	3
39.	National People's Party (NPP)	3
40.	Akhil Bharat Hindu Mahasabha (ABHM)	2
41.	All India Minorities Front (AIMF)	2
42.	Bhartiya Momin Front (BMF)	2
43.	Bhartiya Tribal Party (BTP)	2
44.	Guru Chand Mukti Morcha (GCMM)	2
45.	Mulnibasi Party of India (MPI)	2
46.	Right to Recall Party (RRP)	2
47.	West Bengal Socialist Party (WBSP)	2
48.	All Jharkhand Students Union (AJSUP)	1
49.	Bharateeya Manavadhikar Party (BMP)	1
50.	Jamat-E-Seratul Mustakim (JSM)	1
51.	Lok Samya Party (LSP)	1
52.	New Democratic Party of India (NDPI)	1
53.	Paradise Party (PP)	1
54.	Progressive People's Party (PPP)	1
55.	Rashtravadi Janata Party (RJP)	1
56.	Revolutionary Socialist Party of India (Marxist) (RSPI-M)	1
57.	Sajag Samaj Party (SSP)	1
58.	Samajwadi Jan Parishad (SJP)	1
59.	Vikas India Party (VIP)	1

3.2 Main Political Parties by Number of Seats Contested

Both TMC and BJP contested almost all of the seats, whereas other main parties in the state like CPM and Congress, had an alliance with Indian Secular Front[8] (ISF), a newly formed party led by Abbas Siddiqui, as mentioned in table 1.

[8] ISF fought the election on the Rashtriya Secular Majlis Party (RSMP) of Bihar which has the 'envelope' symbol. http://www.millenniumpost.in/kolkata/isf-to-fight-polls-on-borrowed-symbol-434695

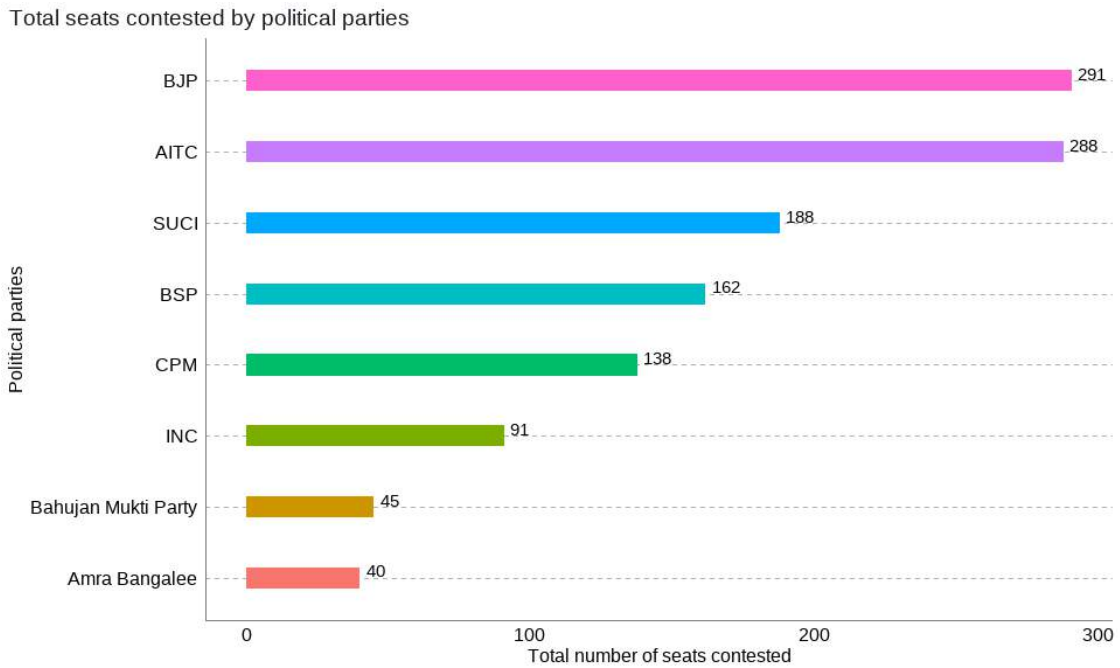

Figure 2: Main Political parties by number of seats contested

3.3 Total Number of Repeat vs. New Candidates

In figure 3, it is depicted that a larger number of repeat candidates were fielded by the TMC, because it had the largest number of members of legislative assembly (MLAs) in the outgoing assembly, and it is not common that parties replace their seating candidates. The BJP fielded the largest number of new candidates. Since all other political parties had fewer MLAs in the assembly, they likely bet on the newer candidates than those who lost the election on their ticket last time.

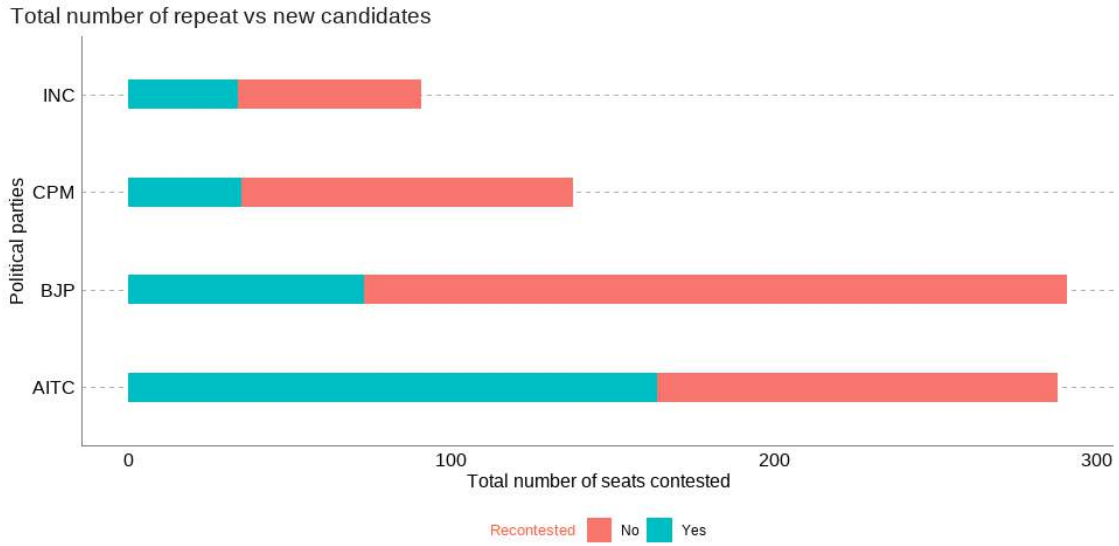

Figure 3: Total number of repeat vs new candidates

3.4 Total Number of Votes Secured by Each Political Party

As shown in figure 4 below, while the ruling party TMC bagged 28.6 million votes, the BJP got 22.7 million votes. The difference in votes between the two main parties is of 5.9 million votes. CPM bagged 2.8 million votes, whereas the Congress could manage to get over 1.7 million votes.

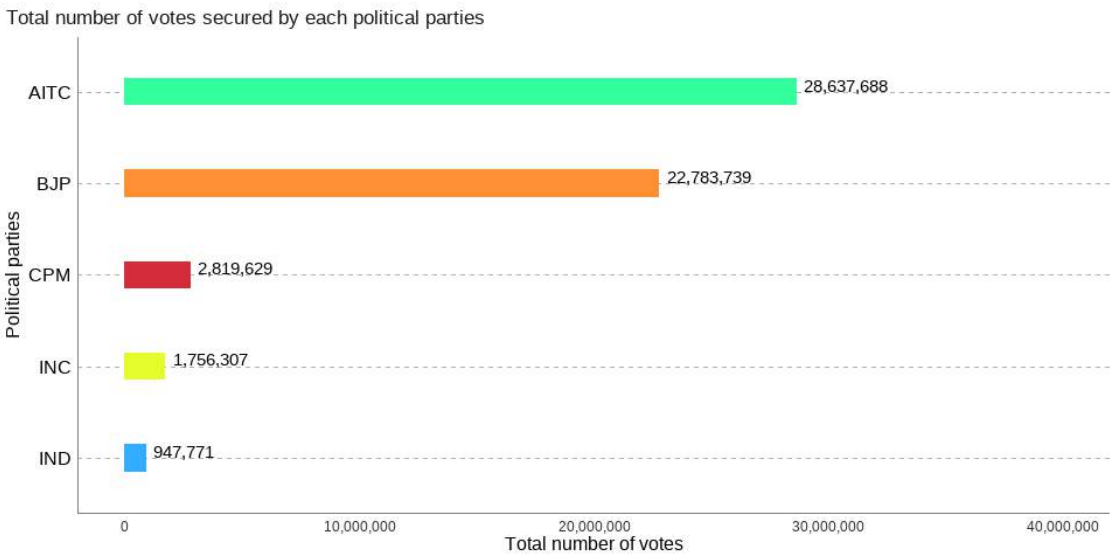

Figure 4: Total number of votes secured by each political party

3.5 Total Percentage of Votes and the Total Number of Seats won by Parties

The analysis in figure 5 indicates that TMC emerged victorious with 48% of the total popular votes, while the opposition BJP got 39% of the popular votes. The CPM managed to win 5% of the votes followed by the Congress and Independents with 3% and 2% of the popular votes, respectively. This shows that the contest was highly polarized and bipolar between the incumbent Trinamool Congress (AITC) and

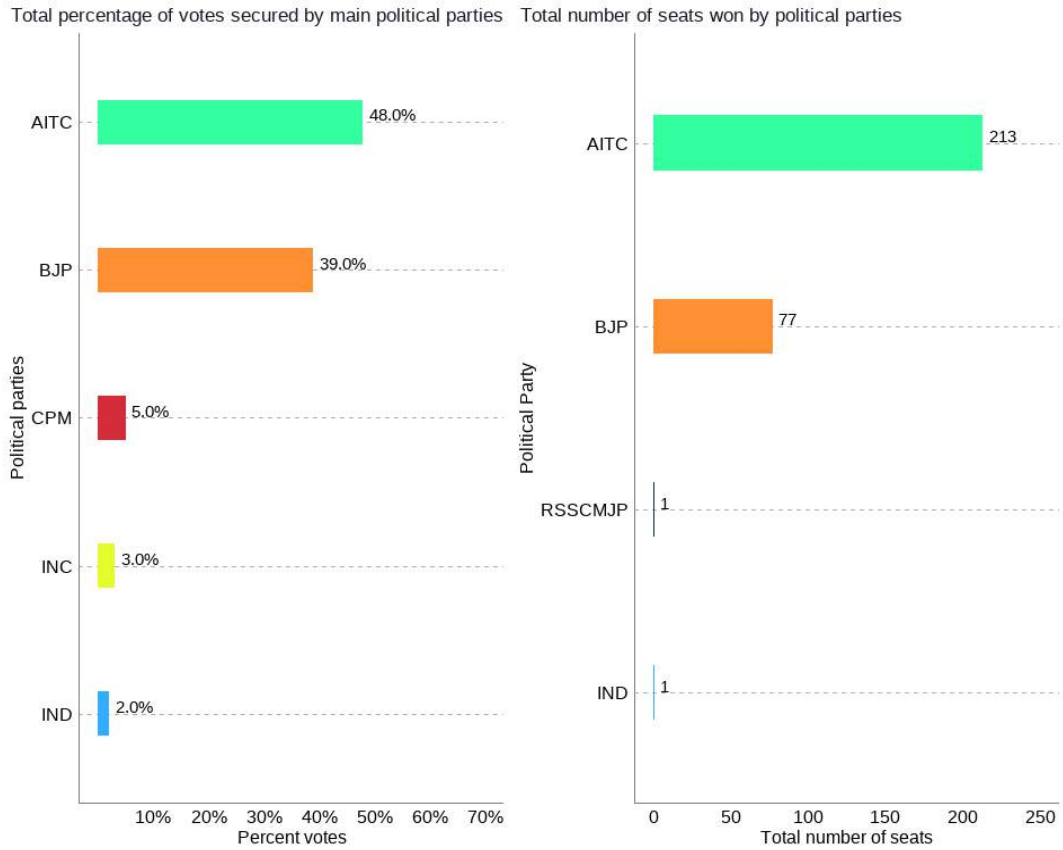

Figure 5 (left): Total percentage of votes secured by each political party
Figure 6 (right): Total number of seats secured by each political party

the opposition Bhartiya Janata Party (BJP). As indicated in figure 6 below, TMC won 213 (73% of total seats), whereas the BJP came to a distant second with 77 (26%) seats, even though it raised its stock significantly in the West Bengal Assembly from its 2016 tally of a meager 3 seats.

3.6 Total Number of Seats Secured by Each Political Party Per Region

As per figure 7 below, TMC won the largest proportions of seats in the Presidency (TMC: 111 vs. BJP: 16) and Burdwan (TMC: 79 vs. BJP: 31) divisions whereas BJP emerged as a dominant force in the Jalpaiguri division (BJP 30 vs. TMC 23).

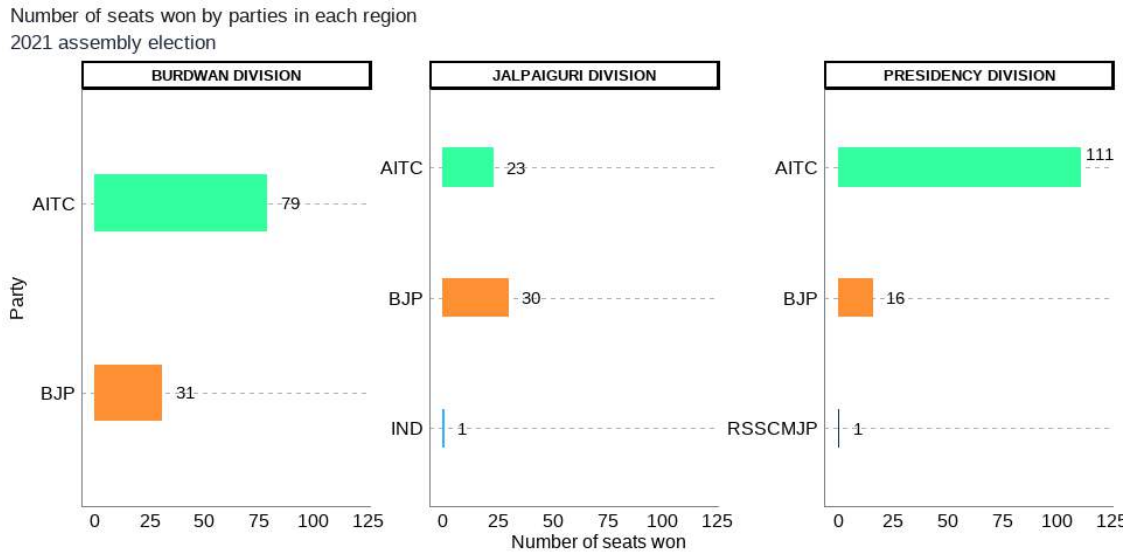

Figure 7: Total number of seats secured by each political party per region

3.7 Seats by Constituency Type

As per the figure 8 below, TMC won 82% of the General (or non-reserved) (168 out of 206) seats, and it won 53% (36 out of 68) of the SC and 56% of the ST (9 out of 16) reserved seats.[9] TMC had done

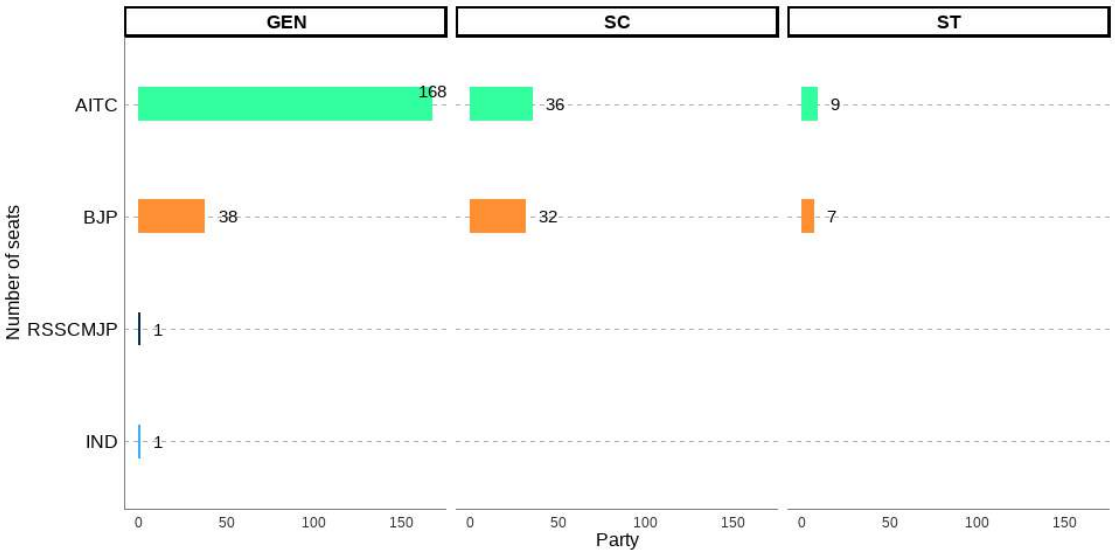

Figure 8: Winner by constituency type

[9] Reservation is a system of affirmative action in India that provides historically disadvantaged groups representation in education, employment and politics. https://en.wikipedia.org/wiki/Reservation_in_India

better electorally in General seats compared to SC and ST reserved seats. BJP won 18% of the total General or non-reserved (18 out of 206) seats and 47% of the SC (32 out of 68) and 44% of the ST (7 out of 16) reserved seats. The BJP had done better electorally in SC and ST seats compared to the General seats.

3.8 Seats with a Victory Margin of 5000 or Below

The total number of candidates who won by a margin of 5000 or less was 35 or around 12% of the total assembly seats. Out of the total 35, 63% or 22 were won by BJP and 37% or 13 were won by TMC. This indicates that more candidates from BJP won by a lower margin than TMC.

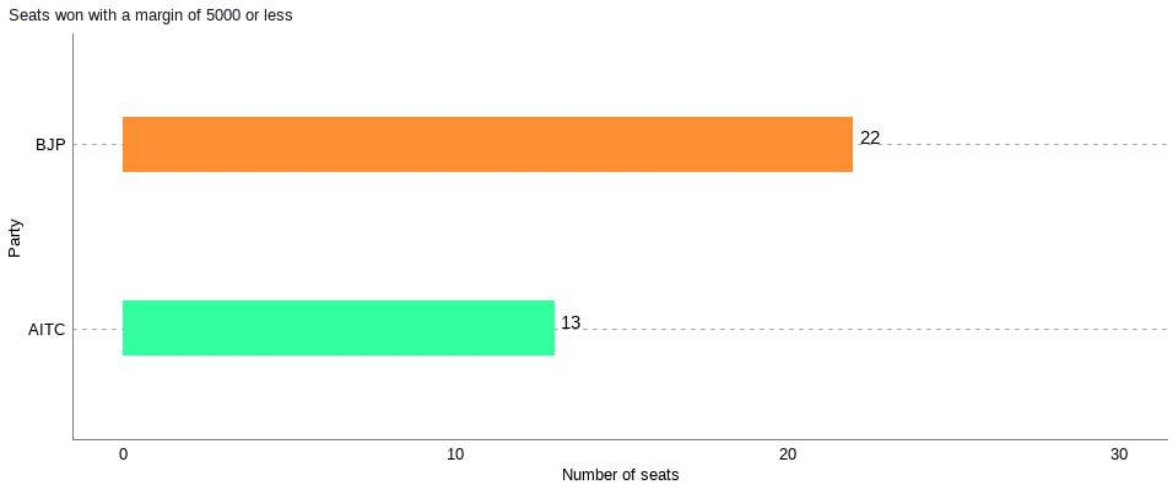

Figure 9: Winner by a margin of 5000 or less

3.9 Constituencies with Lower Voter Turnout

As depicted in figure 10 below, there were 5 constituencies with a turnout of 60% and below; in all these five constituencies the winning candidates were from the ruling TMC. However, since the seats with lower turnouts were just 5, this could just be a mere coincidence or some underlying factors that need to be further investigated if lower voter turnout favored one party over another in this state election.

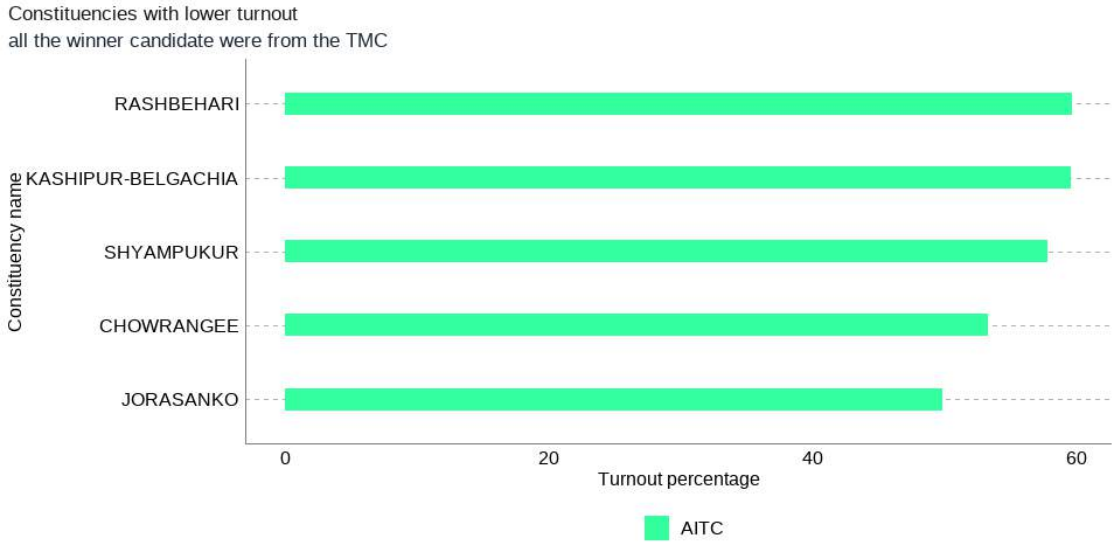

Figure 10: Constituencies with lower voter turnout

3.10 Constituencies with Higher Voter Turnout

As per the figure 11 below, there were 10 constituencies with a turnout of 85 percent and above, and in these 10 constituencies, 7 were won by TMC, 2 by BJP, and 1 by Independents. Higher or lower voter turnout seems to be benefiting TMC. However, this could be a coincidental outcome as well, given TMC has a higher number of seats across the state when compared to BJP and these higher or lower turnout constituencies could be a reflection of the results across the state. This is something that needs to be investigated further.

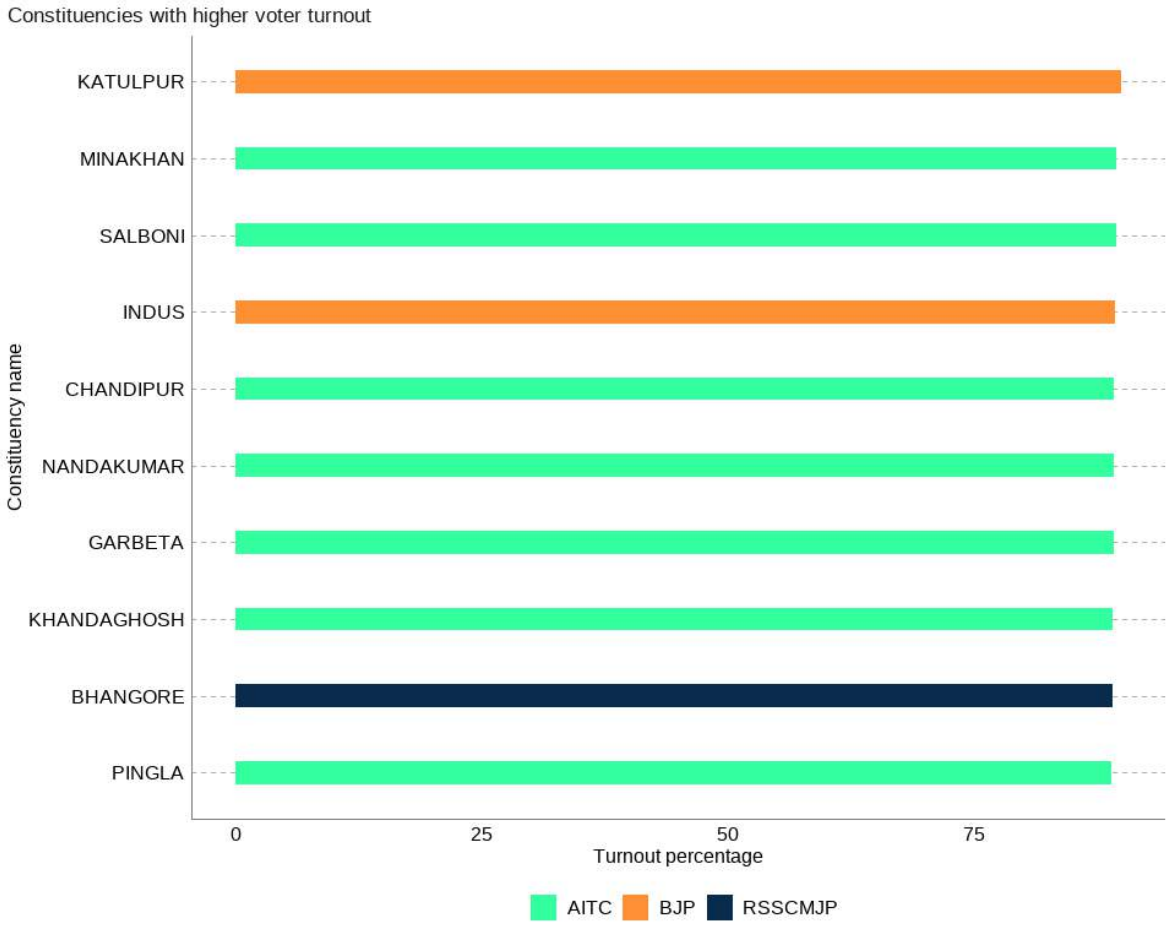

Figure 11: Constituencies with higher voter turnout

3.11 The Chief Minister's Constituency

The Chief Minister Mamata Banerjee left her traditional safe seat and challenged her one-time confidante turned rival, Suvendu Adhikari, at his home turf in Nandigram. This contest was fierce and very close in which Suvendhu Adhikari of the BJP emerged victorious with a narrow margin of 1,956. Mamata Banerjee lost her seat, but her party, TMC, secured two-thirds of the majority in a fiercely fought West Bengal election. Eventually, she was elected Chief Minister of West Bengal for a straight third term.

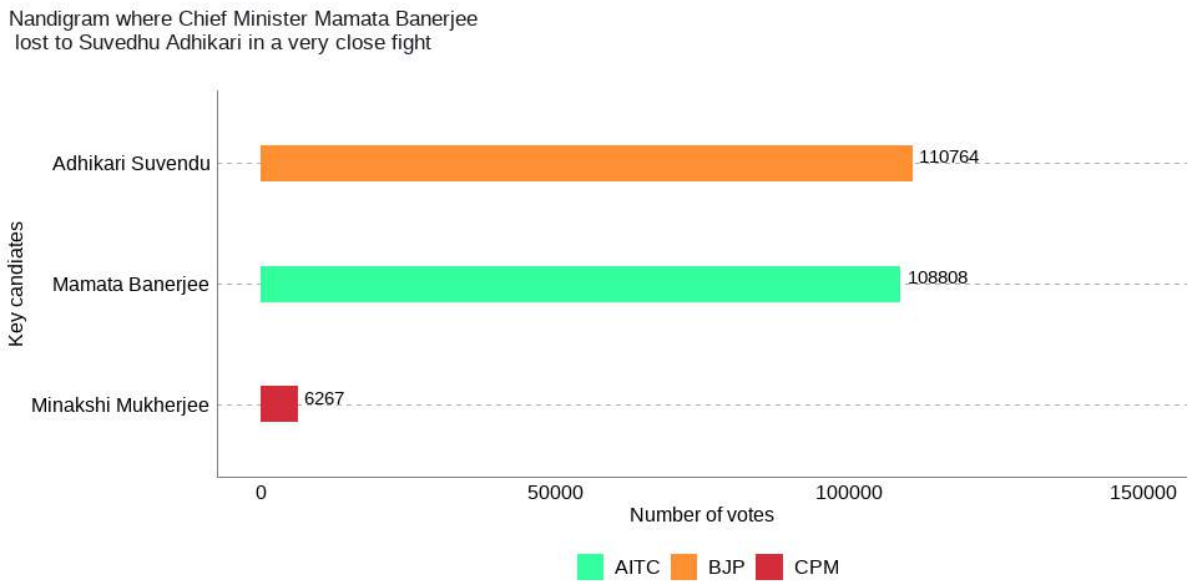

Figure 12: The Chief Minister's Constituency

3.12 The Gender Split of Winners by Party

Mamata Banerjee is the first woman Chief Minister of West Bengal and today is the most prominent leader of not only Bengal but also in India. Let us look at the gender splits of MLAs in her party versus the opposition BJP. As per the figure 13 below, out of the total seats won by TMC, the seats won by women were 33 or 15.5% of the total seats of 213, whereas for the BJP it was 7 seats or 9% of the total seats of 77. The proportion of women who got elected as members of the legislative assembly (MLAs) on TMC tickets is higher than that of the BJP.

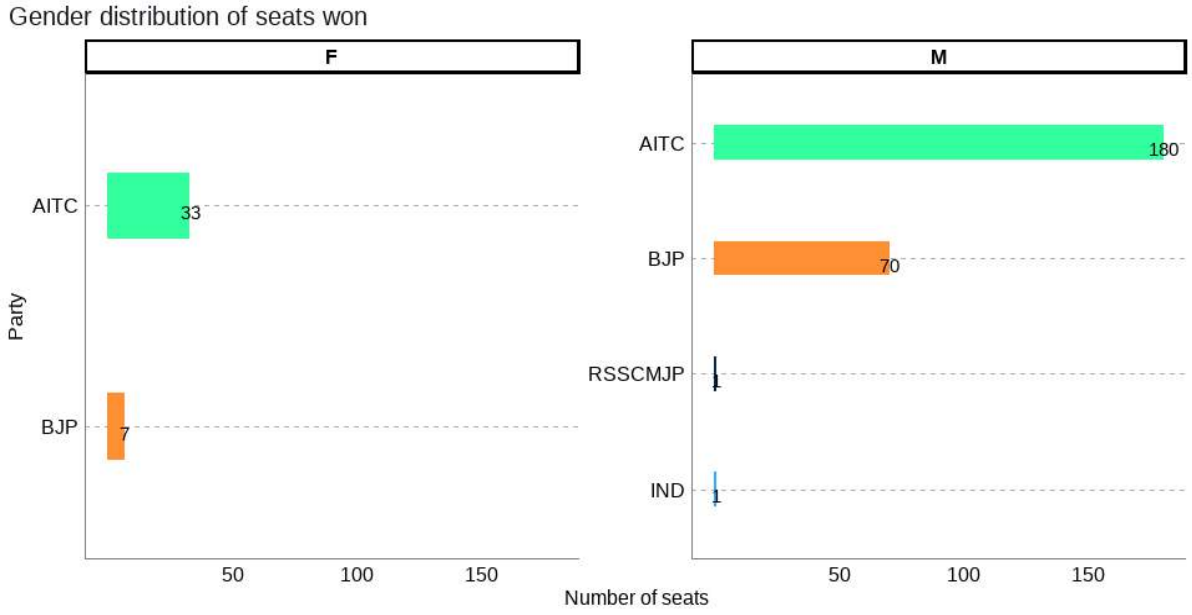

Figure 13: The gender split of winners by party

4. ANALYSIS OF RESULTS: DISTRICT-WISE

4.1 Results Summary Per District: Total number of seats secured by each political party by district

As illustrated in table 2 and figure 14 below, out of the total 19 districts, TMC bagged more seats than BJP in 12 districts (Bardhaman, Birbhum, Hooghly, Howrah, Kolkata Corporation, Maldah, Murshidabad, North 24 Parganas, Paschim Medinipur, Purba Medinipur, South 24 Parganas, and Uttar Dinajpur), whereas BJP had a bigger share of seats in only 6 districts (Bankura, Cooch Behar, Darjeeling, Jalpaiguri, Nadia, and Purulia). BJP did not win any seat in Howrah (16 seats), Kolkata Corporation (11 seats), and South 24 Parganas (30 seats) districts, whereas TMC did not win any seat in Darjeeling (6 seats).

Table 2: Total number of seats secured by each political party by district

S.No.	*District Name*	*Party*	*Total Number of Seats*
1.	Bankura	BJP	8
2.	Bankura	AITC	4
3.	Bardhaman	AITC	22
4.	Bardhaman	BJP	3
5.	Birbhum	AITC	10
6.	Birbhum	BJP	1
7.	Cooch Behar	BJP	7
8.	Cooch Behar	AITC	2
9.	Dakshin Dinajpur	AITC	3
10.	Dakshin Dinajpur	BJP	3
11.	Darjeeling	BJP	5
12.	Darjeeling	IND	1
13.	Hooghly	AITC	14
14.	Hooghly	BJP	4
15.	Howrah	AITC	16
16.	Jalpaiguri	BJP	9
17.	Jalpaiguri	AITC	3
18.	Kolkata Corporation	AITC	11
19.	Maldah	AITC	8
20.	Maldah	BJP	4
21.	Murshidabad	AITC	18
22.	Murshidabad	BJP	2
23.	Nadia	BJP	9
24.	Nadia	AITC	8
25.	North 24 Parganas	AITC	28
26.	North 24 Parganas	BJP	5
27.	Paschim Medinipur	AITC	17
28.	Paschim Medinipur	BJP	2
29.	Purba Medinipur	AITC	9
30.	Purba Medinipur	BJP	7
31.	Purulia	BJP	6
32.	Purulia	AITC	3
33.	South 24 Parganas	AITC	30
34.	South 24 Parganas	RSSCMJP	1
35.	Uttar Dinajpur	AITC	7
36.	Uttar Dinajpur	BJP	2

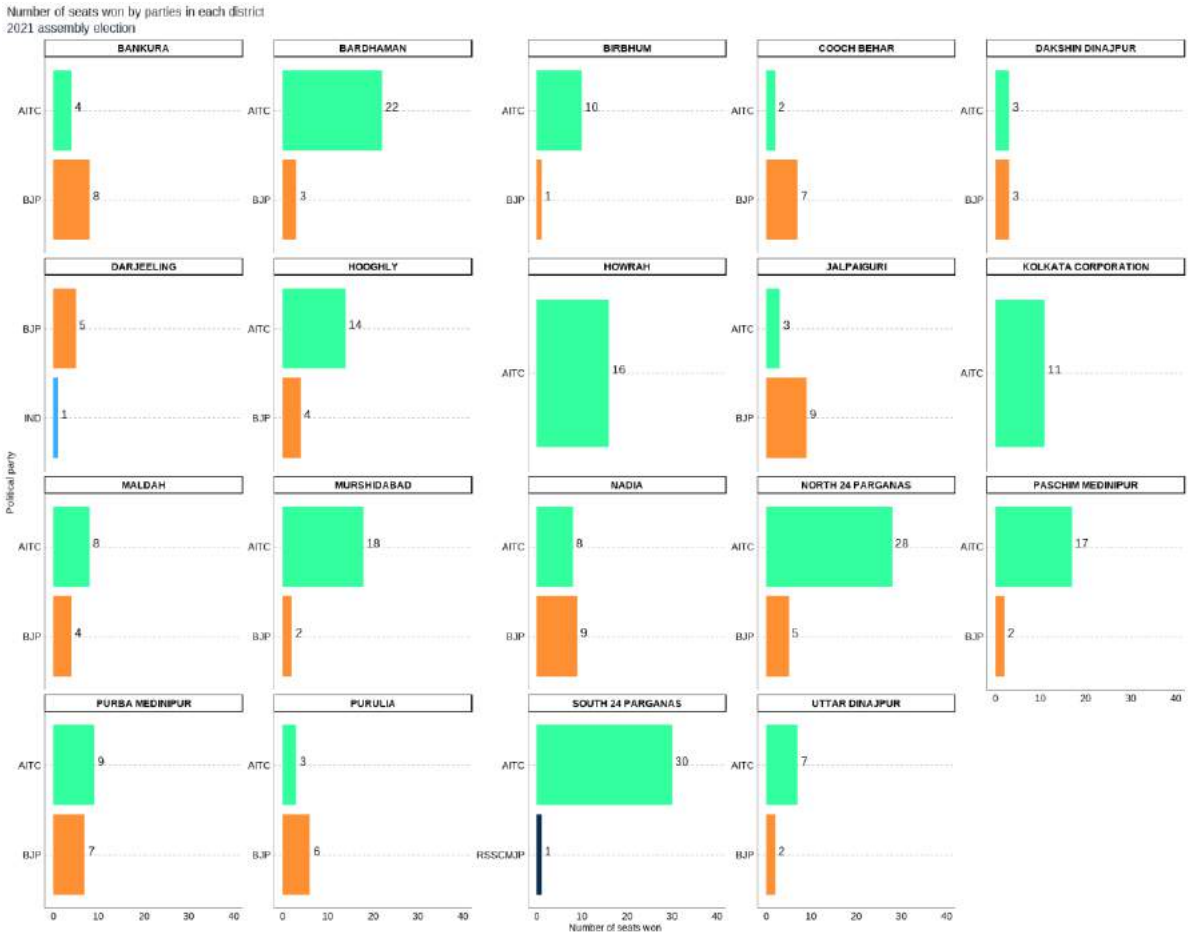

Figure 14: Total number of seats secured by each political party by district

District-wise analysis of seats earned by each political party has been given below.

4.2 Bankura District

In accordance with the analysis in figure 15 below and Annex 1, the district of Bankura has a total of 12 legislative constituencies. The district has 6 reserved constituencies out of which 4 seats are reserved for the Scheduled Castes[10] (SC) community and 2 seats are reserved for the Scheduled Tribes[11] (ST) community. Seats reserved for SC include Saltora, Katulpur, Indus and Sonamukhi, and the seats reserved for ST include Ranibundh, and Raipur.

Out of the total 12 seats in the Bankura district, the largest number of seats i.e., 8 were won by the BJP while the AITC won 4 seats. The seats won by BJP were Saltora, Chhatna, Bankura, Onda, Bishnupur, Katulpur, Indus and Sonamukhi, and the seats won by AITC include Ranibundh, Raipur, Taldangra and Barjora.

Out of the total polled votes of 2,470,633, BJP secured a total of 1,119,399 (45%) votes, while the AITC secured 1,092,741 (44%) votes. The CPM with a vote share of 110,909 (4%) was on third place, while the INC was on the fourth position after securing 47,335 (2%) of the total votes in the district.

[10] https://en.wikipedia.org/wiki/Scheduled_Castes_and_Scheduled_Tribes
[11] https://en.wikipedia.org/wiki/Scheduled_Castes_and_Scheduled_Tribes

Figure 15: Bankura District: Winners per constituency and top 3 candidates

4.3. Bardhaman District

As the analysis in figure 16 below and Annex 2, district of Bardhaman has a total of 25 legislative constituencies. The district has 7 reserved constituencies, and all 7 seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC include Khandaghosh, Raina, Jamalpur, Kalna, Bardhaman Uttar, Ausgram and Galsi.

Out of the total 25 seats in the Bardhaman district, the largest number of seats i.e., 22 were won by the AITC, while the BJP won 3 seats. The seats won by AITC were Khandaghosh, Bardhaman Dakshin, Raina, Jamalpur, Monteswar, Kalna, Memari, Bardhaman Uttar, Bhatar, Purbasthali Dakshin, Purbasthali Uttar, Katwa, Ketugram, Mangalkot, Ausgram, Galsi, Pandabeswar, Durgapur Purba, Raniganj, Jamuria, Asansol Uttar and Barbani, and the seats won by BJP were Durgapur Paschim, Asansol Dakshin and Kulti.

Out of total polled votes of 5,044,003, AITC secured a total of 2,382,485 (47%) votes, while the BJP secured 2,062,687 (41%) votes. The CPM with a vote share of 404,042 (8%) was on third place, while the INC was on the fourth position after securing 60,824 (1%) of the total votes in the district.

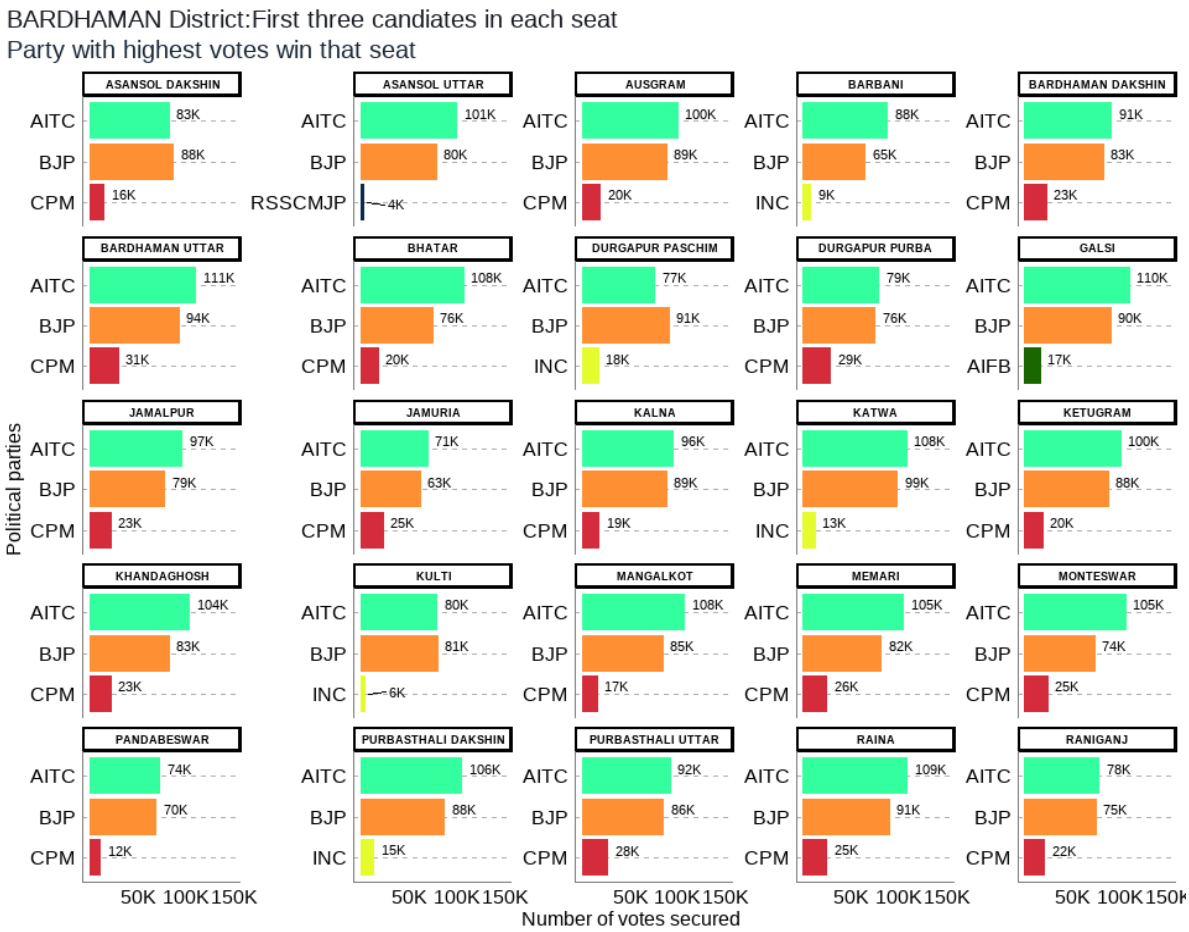

Figure 16: Bardhaman District: Winners per constituency and top 3 candidates

4.4. Birbhum District

The figure 17 below and Annex 3 indicate that the district of Birbhum has 11 legislative constituencies. The district has 3 reserved constituencies, and all 3 seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC include Dubrajpur, Nanoor and Sainthia.

From total 11 seats in the Birbhum district, the largest number of seats i.e., 10 were won by the AITC, while the BJP won only 1 seat. The seats won by AITC were Suri, Bolpur, Nanoor, Labhpur, Sainthia, Mayureswar, Rampurhat, Hansan, Nalhati and Murarai, and the seat won by BJP was Dubrajpur.

Of total polled votes of 2,348,347, AITC secured 1,223,569 (52%) votes, while the BJP secured 931,633 (40%) of the total votes. The INC with a vote share of 65,369 (3%) was on third place, while the CPM was on the fourth position after securing 41,433 (2%) of the total votes in the district.

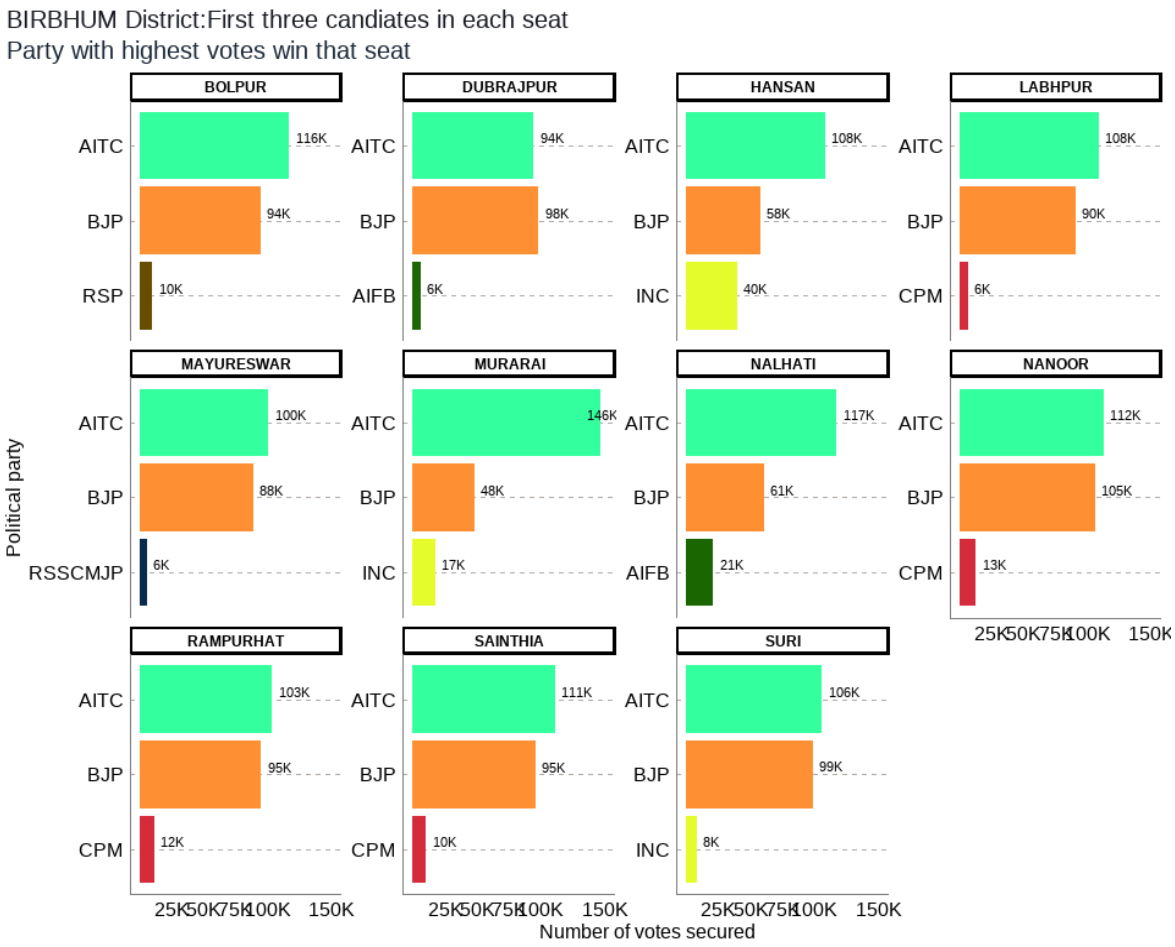

Figure 17: Birbhum District: Winners per constituency and top 3 candidates

4.5. Cooch Behar District

The analysis presented in figure 18 below and Annex 4 highlights that the district of Cooch Behar has a total of 9 legislative constituencies. The district consists of 5 reserved constituencies and all 5 seats are reserved for the Scheduled Castes (SC) community. The seats reserved for SC include Mekliganj, Mathabhanga, Cooch Behar Uttar, Sitalkuchi and Sitai.

From total 9 seats in Cooch Behar district, the largest number of seats, i.e. 7, were won by the BJP, while the AITC won 2 seats. The seats won by BJP were Mathabhanga, Cooch Behar Uttar, Cooch Behar Dakshin, Sitalkuchi, Dinhata, Natabari and Tufanganj, and the seats won by AITC were Mekliganj and Sitai.

Out of the total polled votes of 1,991,218, the BJP secured a total of 984,977 (49%) votes, while the AITC secured 891,584 (45%) of the votes. The AIFB with a vote share of 34,643 (2%) was on third place, while the CPM was on the fourth position after securing 26,277 (1%) of the total votes in the district.

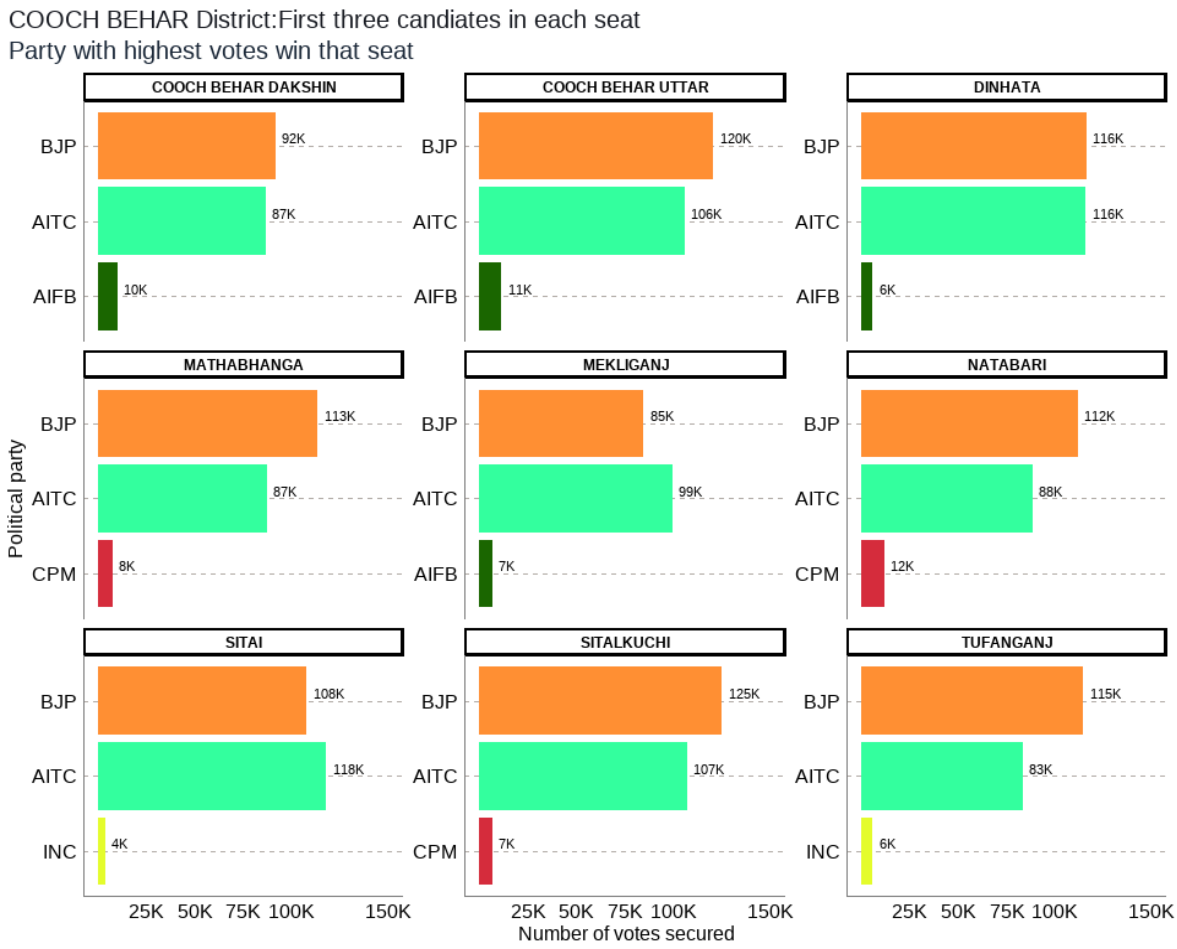

Figure 18: Cooch Bihar District: Winners per constituency and top 3 candidates

4.6. Dakshin Dinajpur District

The analysis depicted in figure 19 below and Annex 5 tells that the district of Dakshin Dinajpur has a total of 6 legislative constituencies. The district comprises 3 reserved constituencies out of which 2 seats are reserved for the Scheduled Castes (SC) community, whereas 1 seat is reserved for the Scheduled Tribes (ST) community. The seats reserved for SC community include Kushmandi and Gangarampur, and the seat reserved for ST includes Tapan.

Viewing the results, out of the total 6 seats in the Dakshin Dinajpur district, 3 seats each were won by the AITC and the BJP, respectively. The seats won by AITC were Kushmandi, Kumarganj and Harirampur, and the seats won by BJP include Balurghat, Tapan and Gangarampur.

Coming to the total polled votes of 1,061,300, AITC secured a total of 501,418 (47%) votes, while the BJP secured 456,473 (43%) of the votes. The RSP with a vote share of 40,812 (4%) was on third place, while the CPM was on the fourth position having secured 24,717 (2%) of the total votes in the district.

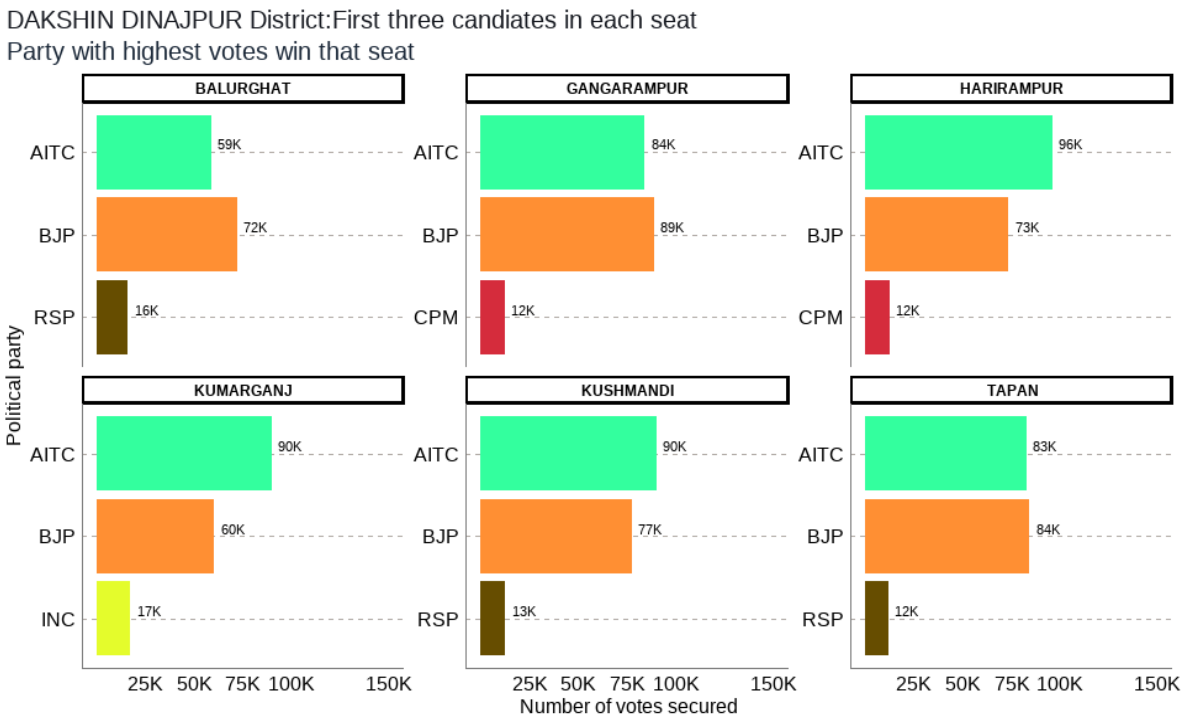

Figure 19: Dakshin Dinajpur District: Winners per constituency and top 3 candidates

4.7. Darjeeling District

Figure 20 below and Annex 6 reflect that the district of Darjeeling bears a total of 6 legislative constituencies. The district has 2 reserved constituencies out of which 1 seat is reserved for the Scheduled Castes (SC) community, whereas 1 seat is reserved for the Scheduled Tribes (ST) community. The seats reserved for SC include Matigara-Naxalbari, and the seat reserved for ST includes Phansidewa.

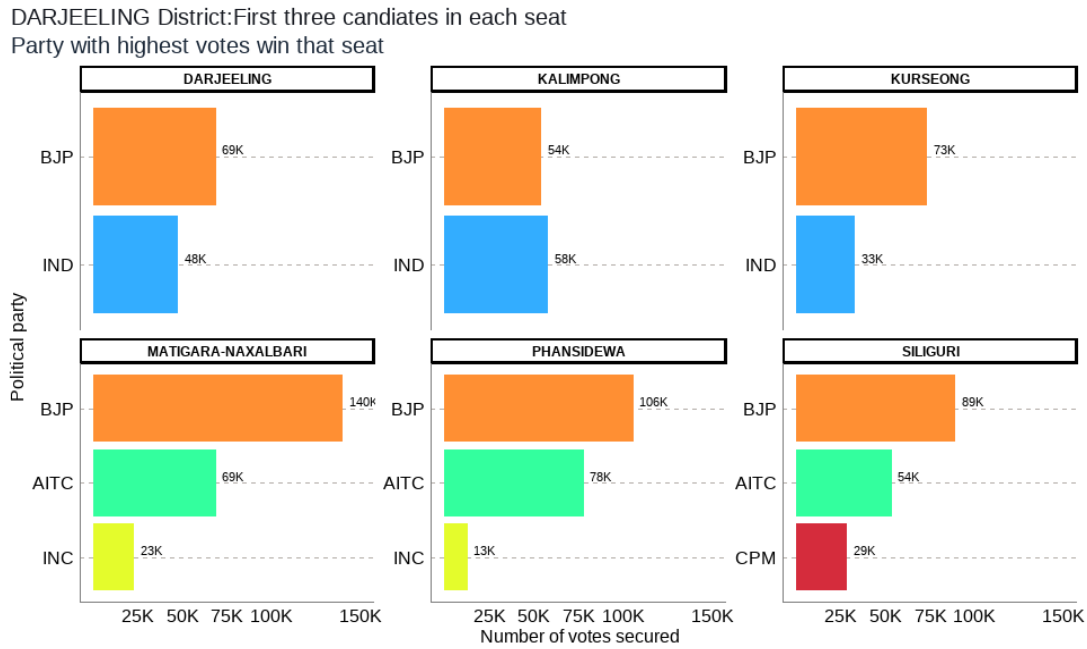

Figure 20: Darjeeling District: Winners per constituency and top 3 candidates

In Darjeeling district, the largest number of seats, i.e. 5, out of total 6, were won by the BJP, while the Independent candidate won 1 seat. The seats won by BJP were Darjeeling, Kurseong, Matigara-Naxalbari, Siliguri and Phansidewa, and the seat won by the Independent candidate was Kalimpong.

Looking at the vote distribution, BJP secured a total of 531,524 (48%) votes from total polled votes of 1,110,136, while the Independents secured 290,173 (26%) of the votes. The AITC with a vote share of 200,661 (18%) was on third place, while the INC was on the fourth position with a share of 37,590 (3%).

4.8. Hooghly District

According to the analysis portrayed in figure 21 below and Annex 7, the district of Hooghly comprises a total of 18 legislative constituencies. The district has 4 reserved constituencies, and all 4 seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC include Balagarh, Dhanekhali, Arambag and Goghat.

From total 18 seats in the Hooghly district, the largest number of seats, i.e. 14, were won by the AITC, while 4 seats were won by the BJP. The seats won by AITC were Uttarpara, Sreerampur, Champdani, Singur, Chandannagore, Chunchura, Balagarh, Pandua, Saptagram, Chanditala, Jangipara, Haripal, Dhanekhali and Tarakeswar, and the seats won by BJP were Pursurah, Arambag, Goghat and Khanakul.

Out of the total polled votes of 3,778,058, AITC secured a total of 1,805,779 (48%) votes while the BJP secured 1,525,889 (40%) of the votes. The CPM with a vote share of 234,397 (6%) was on third place, while the INC was on the fourth position having secured 67,866 (2%) of the total votes in the district.

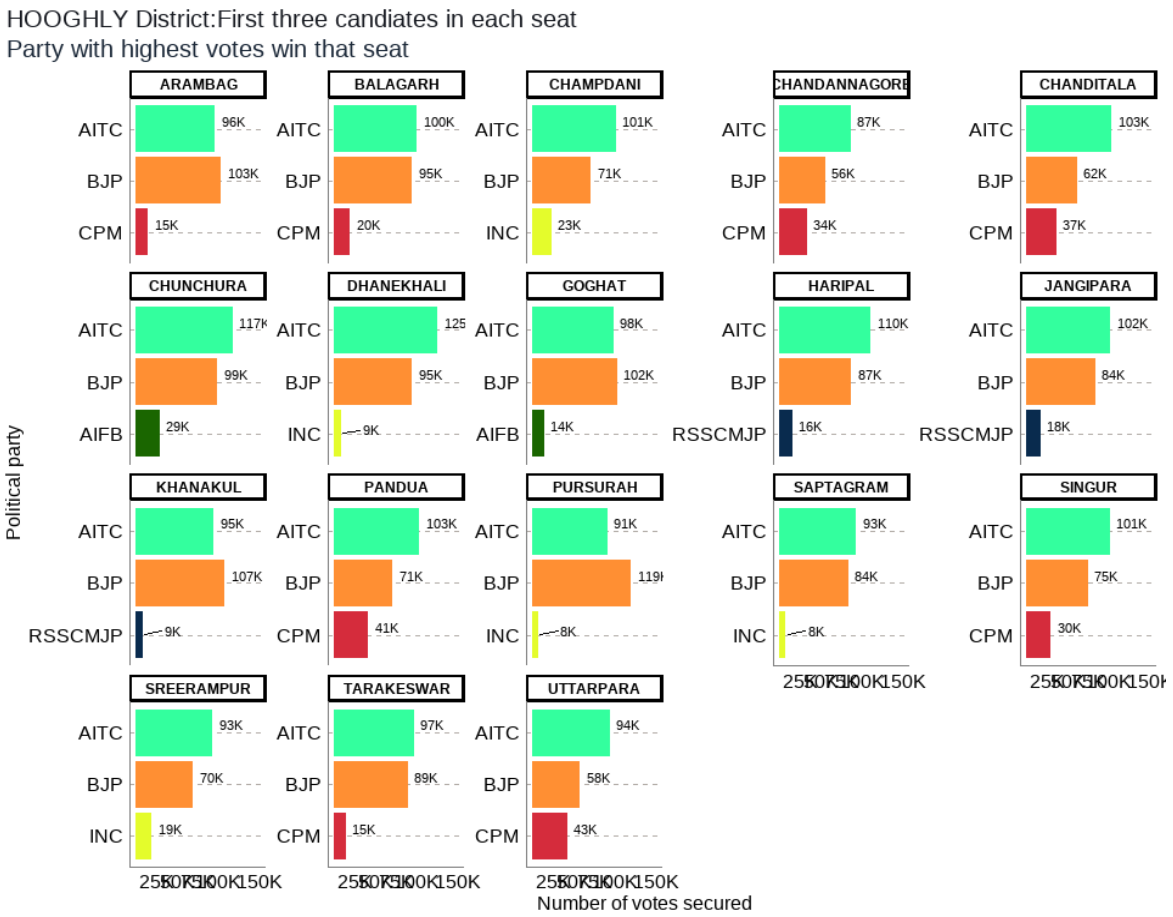

Figure 21: Hooghly District: Winners per constituency and top 3 candidates

4.9. Howrah District

With regard to the analysis given in figure 22 below and Annex 8, the district of Howrah possesses a total of 16 legislative constituencies. The district comprises 2 reserved constituencies and both the seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC are Sankrail and Uluberia Uttar.

Out of the total 16 seats in the Howrah district, all seats, i.e. 16, were won by the AITC. The seats won by AITC were Bally, Howrah Uttar, Howrah Madhya, Shibpur, Howrah Dakshin, Sankrail, Panchla, Uluberia Purba, Uluberia Uttar, Uluberia Dakshin, Shyampur, Bagnan, Amta, Udaynarayanpur, Jagatballavpur and Domjur.

What was the distribution of polled votes of 3,176,015? The AITC secured a total of 1,613,916 (51%) votes, while the BJP secured 1,159,043 (36%) of the votes. The CPM with a vote share of 148,219 (5%) remained on third place, while the RSSCMJP came on to the fourth position with the vote share of 91,396 (3%) in the district.

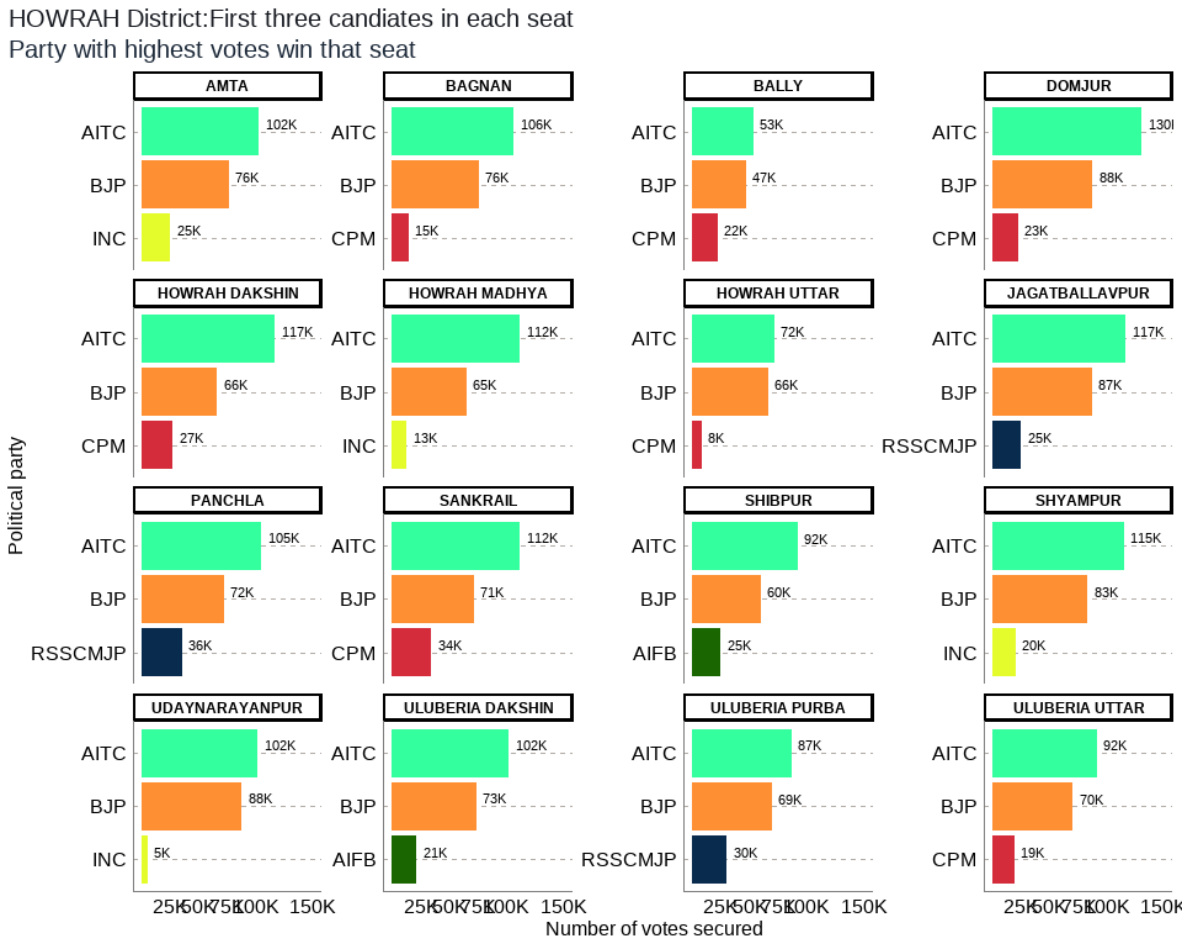

Figure 22: Howrah District: Winners per constituency and top 3 candidates

4.10. Jalpaiguri District

The analysis in figure 23 below and Annex 9 reveals that the district of Jalpaiguri has a total of 12 legislative constituencies. The district has 10 reserved constituencies out of which 5 seats are reserved for the Scheduled Castes (SC) community and 5 seats reserved for the Scheduled Tribes (ST) community. The seats reserved for SC are Falakata, Dhupguri, Maynaguri, Jalpaiguri and Rajganj, whereas the seats reserved for ST include Kumargram, Kalchini, Madarihat, Mal and Nagrakata.

Of the total 12 seats in the Jalpaiguri district, the largest number of seats, i.e. 9, were won by the BJP, while the AITC won 3 seats. The seats won by BJP were Kumargram, Kalchini, Alipurduars, Falakata, Madarihat, Dhupguri, Maynaguri, Dabgram-Phulbari and Nagrakata, and the seats won by AITC were Jalpaiguri, Rajganj and Mal.

Analysis of the total polled votes of 2,553,048 suggests that BJP secured a total of 1,226,127 (48%) votes, while the AITC secured 1,096,150 (43%) of the votes. The CPM having a vote share of 64,914 (3%) was on third place, while the INC was on the fourth place after obtaining 56,962 (2%) of the total votes in the district.

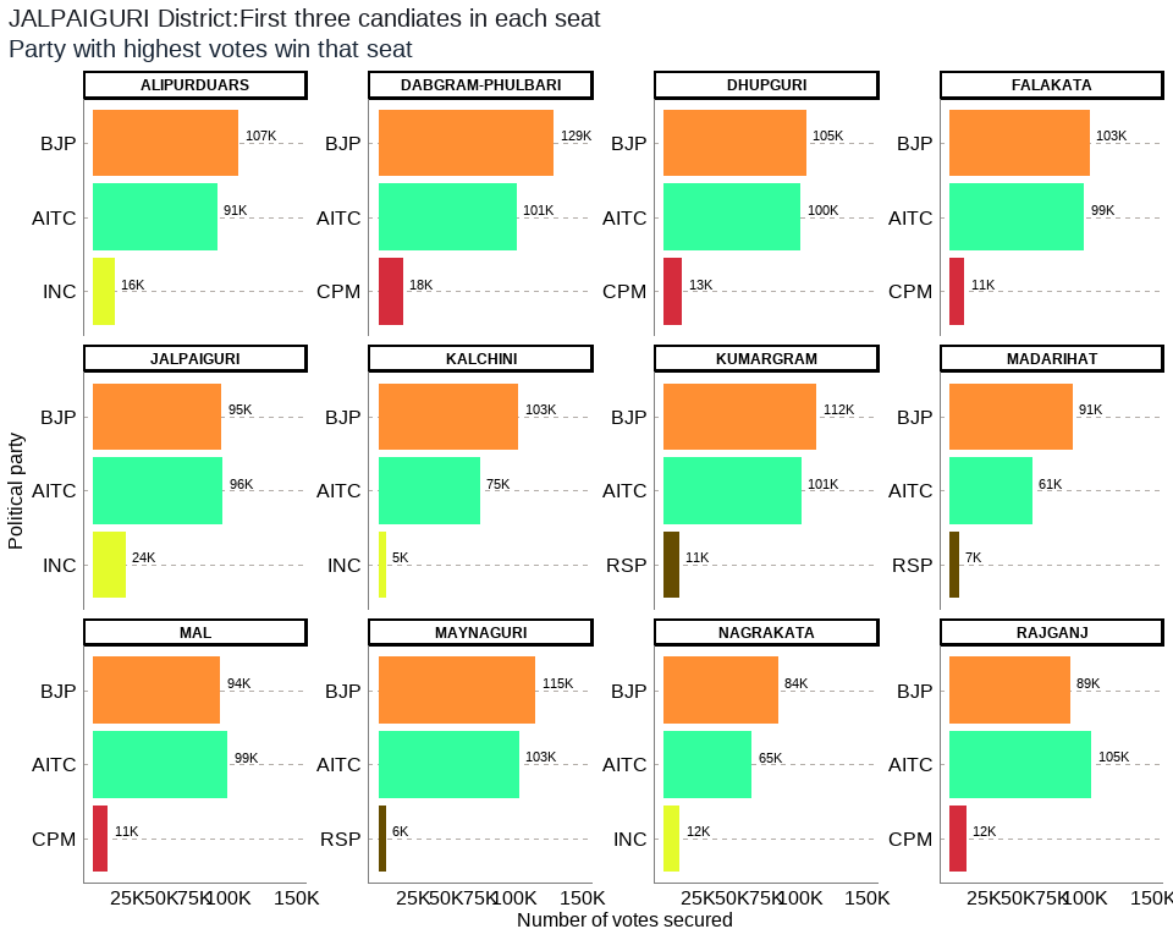

Figure 23: Jalpaiguri District: Winners per constituency and top 3 candidates

4.11. Kolkata Corporation District

As per the analysis in figure 24 below and Annex 10, the district of Kolkata Corporation comprises a total of 11 legislative constituencies. The district has no reserved constituency.

From total 11 seats in the Kolkata Corporation district, all seats, i.e. 11, were won by the AITC. The seats won by AITC were Kolkata Port, Bhabanipur, Rashbehari, Ballygunge, Chowrangee, Entally, Beleghata, Jorasanko, Shyampukur, Maniktala and Kashipur-Belgachia.

Break up of total polled votes of 1,269,450 indicates that AITC secured a total of 787,308 (62%) votes, while the BJP secured 365,982 (29%) of the votes. The INC having a vote share of 40,150 (3%) reached on third place, while the CPM was on the fourth position after securing 33,142 (3%) of the total votes in the district.

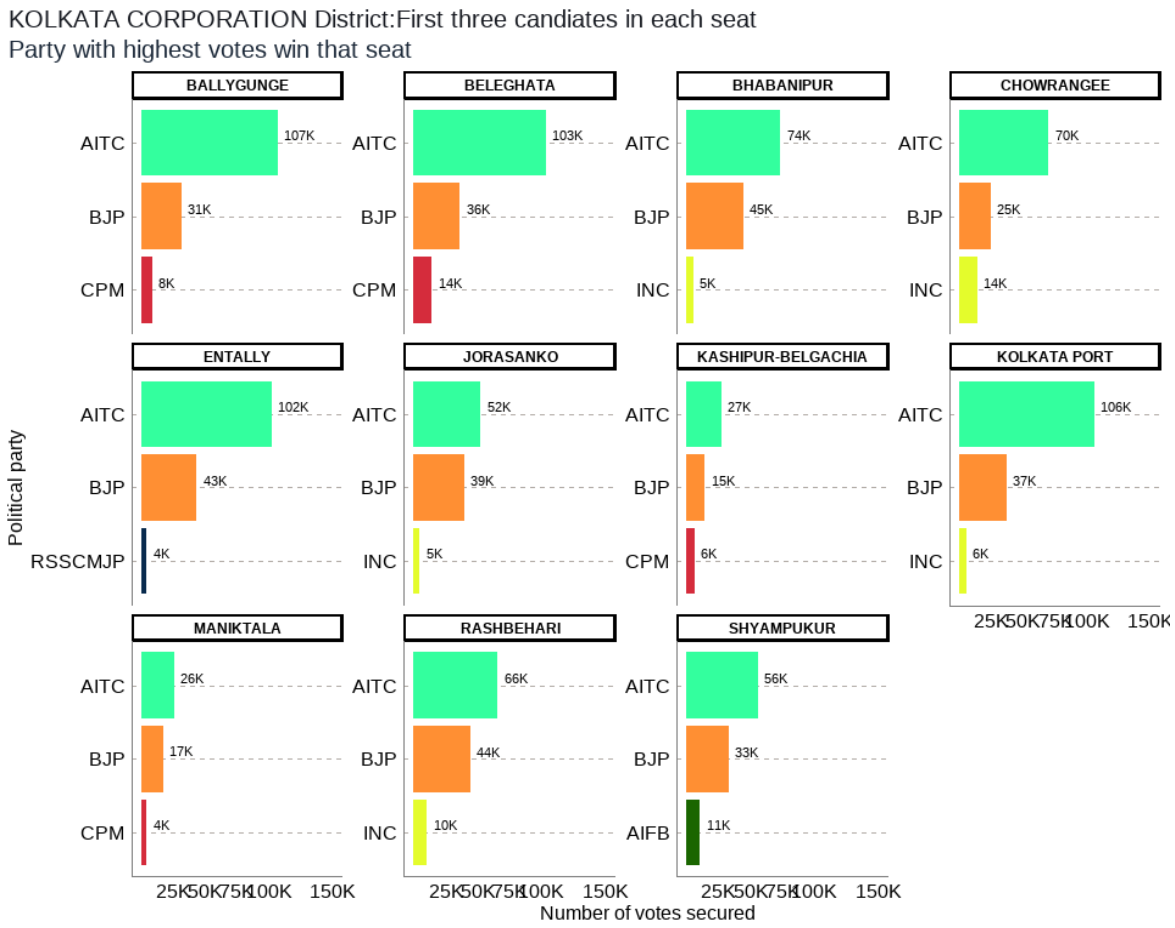

Figure 24: Kolkata Corporation District: Winners per constituency and top 3 candidates

4.12. Maldah District

The analysis in figure 25 below and Annex 11 shows that the district of Maldah has a total of 12 legislative constituencies. The district has 3 reserved constituencies out of which 2 seats are reserved for the Scheduled Castes (SC) community and 1 seat reserved for the Scheduled Tribes (ST) community. The seats reserved for SC include Gazole and Maldaha and the seat reserved for ST includes Habibpur.

The results of total 12 seats in the Maldah district indicate that the largest number of seats, i.e. 8, were won by the AITC with the BJP having won 4 seats. The seats won by AITC were Chanchal, Harischandrapur, Malatipur, Ratua, Manickchak, Mothabari, Sujapur and Baishnab Nagar, while the seats won by BJP were Habibpur, Gazole, Maldaha and Englishbazar.

Out of the total polled votes of 2,412,438, AITC attained a total of 1,277,474 (53%) votes, while the BJP secured 791,356 (33%) of the votes. The INC with a vote share of 211,488 (9%) came on third place, with the CPM at the fourth place having secured 38,708 (2%) in the total votes in the district.

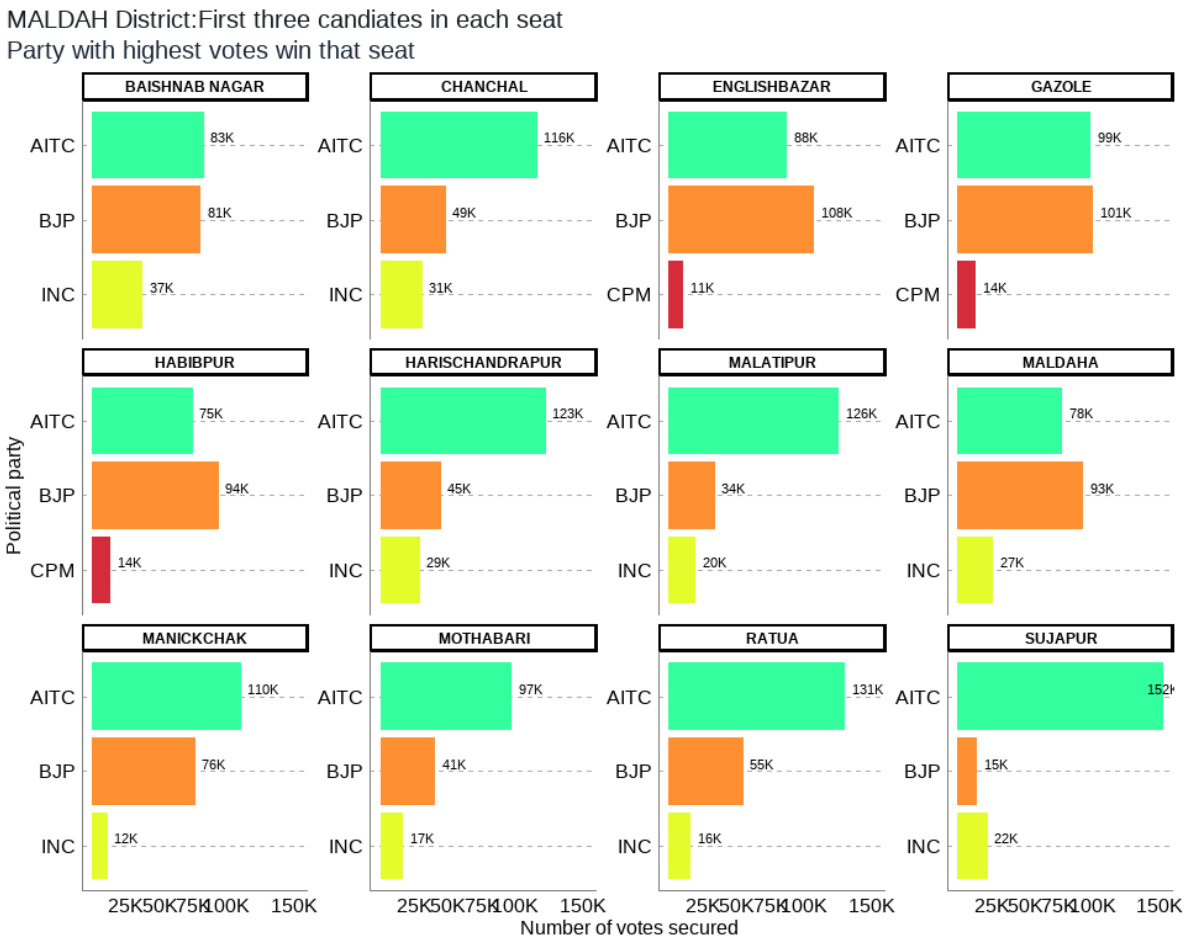

Figure 25: Maldah District: Winners per constituency and top 3 candidates

4.13. Murshidabad District

As per the analysis shown in figure 26 below and Annex 12, the district of Murshidabad consists of a total of 20 legislative constituencies. The district has 3 reserved constituencies, and all 3 seats are reserved for the Scheduled Castes (SC) community. The seats reserved for SC include Nabagram, Khargram and Burwan.

From the total 20 seats in the Murshidabad district, the largest number of seats, i.e. 18, were secured by the AITC, with the BJP securing 2 seats. The seats won by AITC were Farakka, Suti, Raghunathganj, Sagardighi, Lalgola, Bhagabangola, Raninagar, Nabagram, Khargram, Burwan, Kandi, Bharatpur, Rejinagar, Beldanga, Hariharpara, Naoda, Domkal and Jalangi. The seats won by BJP were Murshidabad and Baharampur.

Seeing the distribution of total polled votes of 4,029,623, AITC had secured a total of 2,174,705 (54%) votes, while the BJP got 967,637 (24%) of the votes. The INC received 557,285 (14%) reaching the third place, and the CPM came on the fourth position having secured 211,922 (5%) of the total votes during the election.

Figure 26: Murshidabad District: Winners per constituency and top 3 candidates

4.14. Nadia District

Data in figure 27 below and Annex 13 reveals that the district of Nadia has a total of 17 legislative constituencies. The district comprises 5 reserved constituencies and all 5 seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC include Krishnaganj, Ranaghat Uttar Purba, Ranaghat Dakshin, Kalyani and Haringhata.

The largest number of seats (i.e., 9 out of the total 17 seats) were won by the BJP, while the AITC got 8 seats. The seats won by BJP were Krishnanagar Uttar, Santipur, Ranaghat Uttar Paschim, Krishnaganj, Ranaghat Uttar Purba, Ranaghat Dakshin, Chakdaha, Kalyani and Haringhata. On the other hand, the seats won by AITC were Karimpur, Tehatta, Palashipara, Kaliganj, Nakashipara, Chapra, Nabadwip and Krishnanagar Dakshin.

AITC secured a total of 1,611,050 (44%) votes out of total polled votes of 3,625,258, while the BJP secured 1,590,147 (44%) of the votes. The CPM with a vote share of 208,699 (6%) was on third place, while the Independents were on the fourth position after securing 99,485 (3%) of the total votes.

Figure 27: Nadia District: Winners per constituency and top 3 candidates

4.15. North 24 Parganas

As per the analysis given in figure 28 below and Annex 14, the district of North 24 Parganas is divided into total of 33 legislative constituencies. The district has 8 reserved constituencies out of which 7 seats are reserved for the Scheduled Castes (SC) community and 1 seat reserved for the Scheduled Tribes (ST) community. The seats reserved for SC include Bagdah, Bongaon Uttar, Bongaon Dakshin, Gaighata, Swarupnagar, Minakhan and Hingalganj, whereas the seat reserved for ST includes Sandeshkhali.

Total 33 seats in the North 24 Parganas district were analyzed. The largest number of seats, i.e. 28, were secured by the AITC, while the BJP got 5 seats. The seats won by AITC were Swarupnagar, Baduria, Habra, Ashoknagar, Amdanga, Bijpur, Naihati, Jagatdal, Noapara, Barrackpur, Khardaha, Dum Dum Uttar, Panihati, Kamarhati, Baranagar, Dum Dum, Rajarhat New Town, Bidhannagar, Rajarhat Gopalpur, Madhyamgram, Barasat, Deganga, Haroa, Minakhan, Sandeshkhali, Basirhat Dakshin, Basirhat Uttar and Hingalganj. On the other side, the seats secured by BJP were Bagdah, Bongaon Uttar, Bongaon Dakshin, Gaighata and Bhatpara.

The total polled votes of 6,380,727 were analyzed. The AITC secured a total of 3,131,141 (49%) votes, whereas the BJP secured 2,217,198 (35%) of the votes. The CPM having 368,123 (6%) votes was on third place, with the RSSCMJP on the fourth position after securing 322,688 (5%) of the total votes.

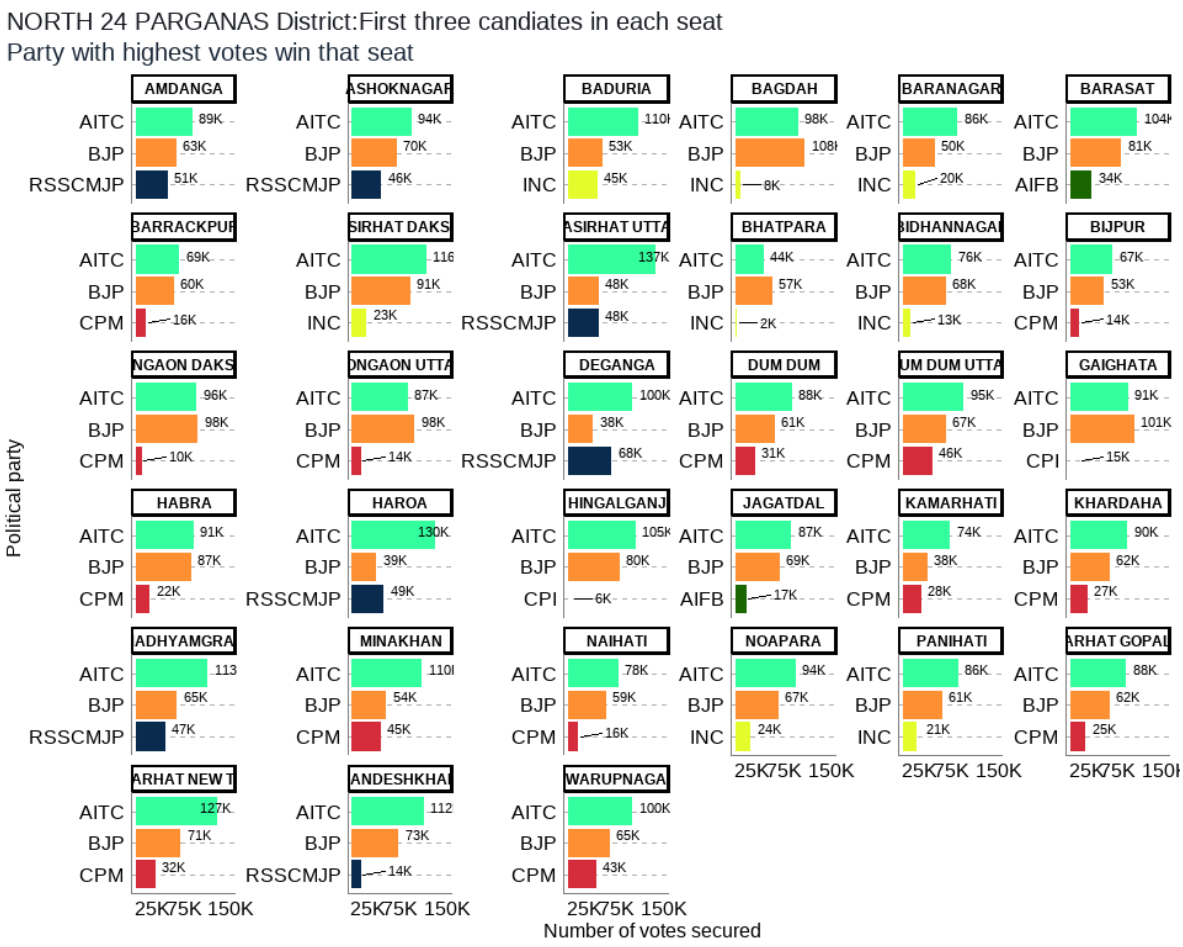

Figure 28: North 24 Parganas: Winners per constituency and top 3 candidates

4.16. Paschim Medinipur District

In accordance with the data shown in figure 29 below and Annex 15, the district of Paschim Medinipur has a total of 19 legislative constituencies. The district has 6 reserved constituencies out of which 3 seats are reserved for the Scheduled Castes (SC) community and another 3 seats are reserved for the Scheduled Tribes (ST) community. The seats reserved for SC include Ghatal, Chandrakona and Keshpur, and the seats reserved for ST include Nayagram, Keshiary and Binpur.

Of 19 seats in the Paschim Medinipur district, the largest number of seats (i.e., 17) were occupied by the AITC, with the BJP secured 2 seats. The seats won by AITC were Dantan, Nayagram, Gopiballavpur, Jhargram, Keshiary, Narayangarh, Sabang, Pingla, Kharagpur, Debra, Daspur, Chandrakona, Garbeta, Salboni, Keshpur, Medinipur and Binpur. Likewise, the seats won by BJP were Kharagpur Sadar and Ghatal.

From the total polled votes of 4,028,773, AITC secured a total of 2,023,763 (50%) votes with the BJP having secured 1,695,443 (42%) votes. The CPM having vote share of 168,713 (4%) was on third place, while the INC was on the fourth place with 35,337 (1%) of the total votes in the district.

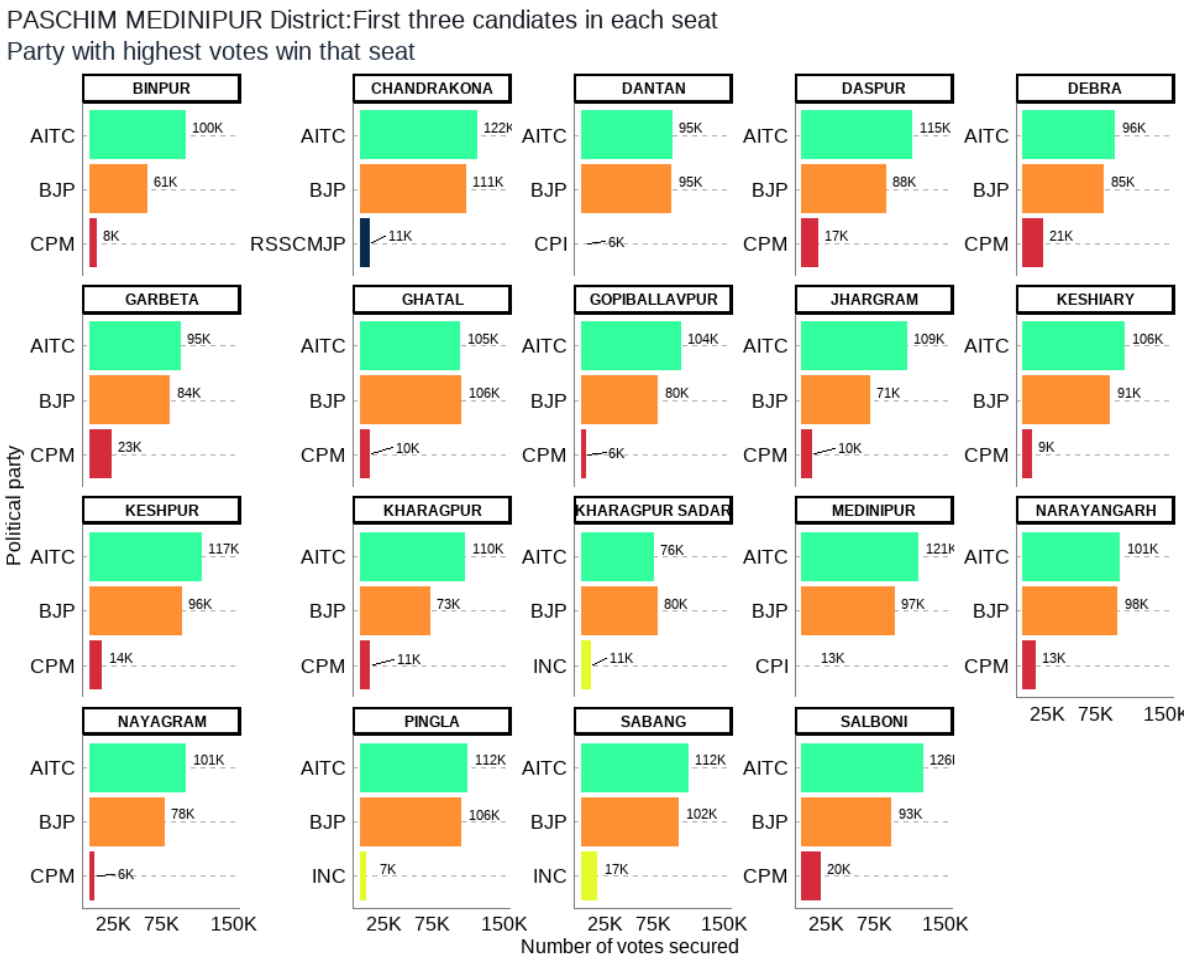

Figure 29: Paschim Medinipur: Winners per constituency and top 3 candidates

4.17. Purba Medinipur District

As per the analysis contained in the figure 30 below and Annex 16, the district of Purba Medinipur has a total of 16 legislative constituencies. The district comprises 2 reserved constituencies and both the seats are reserved for the Scheduled Castes (SC) community. Seats reserved for SC include Haldia and Khejuri.

Out of the total 16 seats in the Purba Medinipur district, the largest number of seats (i.e. 9) were won by the AITC while the BJP won 7 seats. The seats secured by AITC were Tamluk, Panskura Purba, Panskura Paschim, Nandakumar, Mahisadal, Chandipur, Patashpur, Ramnagar and Egra. BJP won the seats of Moyna, Haldia, Nandigram, Kanthi Uttar, Bhagabanpur, Khejuri and Kanthi Dakshin.

The distribution of polled votes of 3,519,791 shows that BJP secured a total of 1,660,061 (47%) votes while the AITC secured 1,658,308 (47%) of the votes. On the third position was the CPM having a vote share of 93,358 (3%), while the CPI was at the fourth position after securing 42,487 (1%) in the total votes in the district.

Figure 30: Purba Medinipur: Winners per constituency and top 3 candidates

4.18. Purulia District

As per the analysis depicted in the figure 31 below and Annex 17 data, the district of Purulia comprises a total of 9 legislative constituencies, from which 4 are reserved constituencies. Out of those 4, 2 seats are reserved for the Scheduled Castes (SC) community, whereas 2 seats are reserved for the Scheduled Tribes (ST) community. The seats reserved for SC include Para and Raghunathpur, and the seats reserved for ST include Bandwan and Manbazar.

Out of the 9 seats in the Purulia district, the largest number of seats (i.e., 6) were received by the BJP, while the AITC got 3 seats. The seats won by BJP were Balarampur, Joypur, Purulia, Kashipur, Para and Raghunathpur, and the seats won by AITC include Bandwan, Baghmundi and Manbazar.

Of the total polled votes of 1,847,059, the AITC obtained a total of 723,576 (39%) votes, with the BJP securing 711,977 (39%) votes. The INC came on third position with a vote share of 147,117 (8%), when the CPM was on the fourth position with 78,399 (4%) votes.

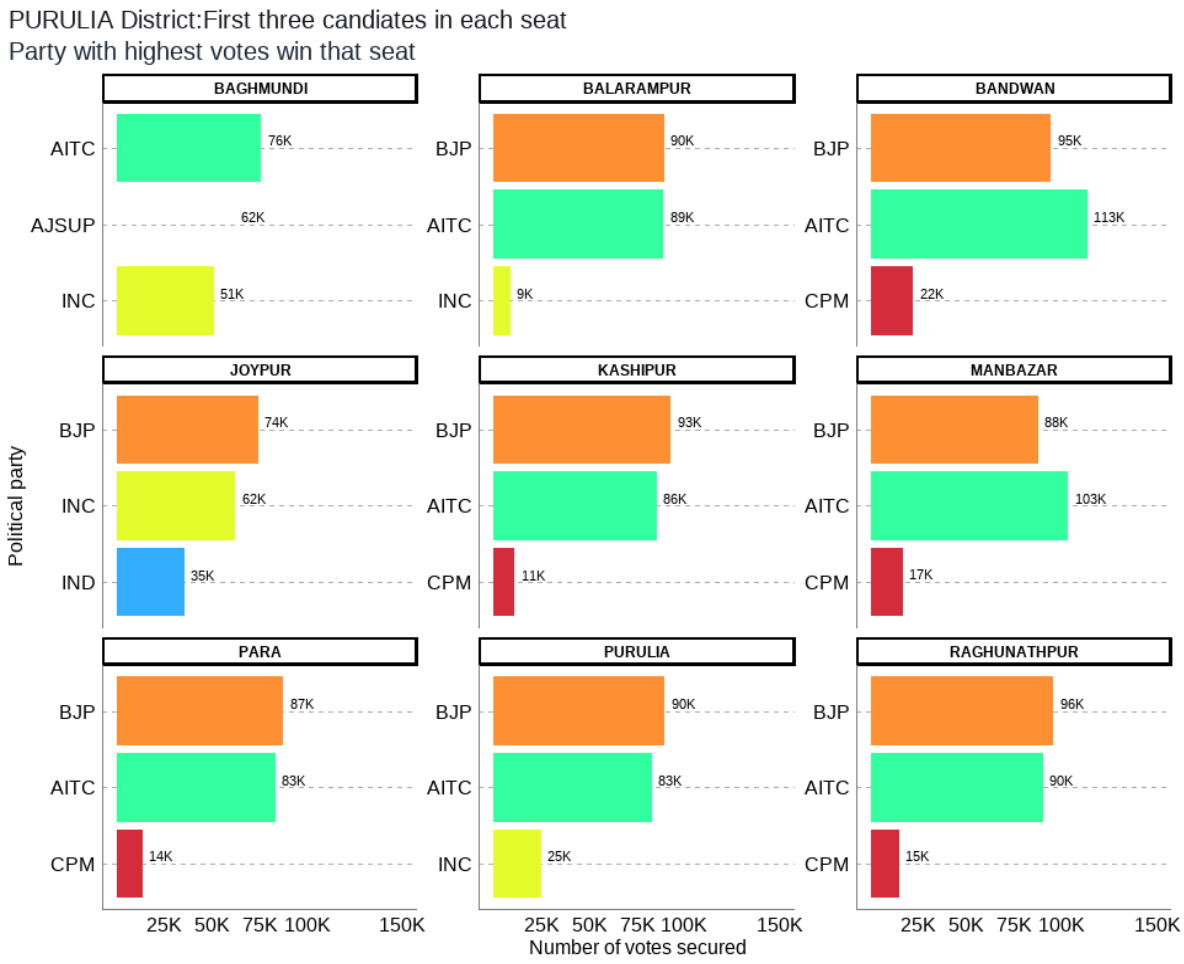

Figure 31: Purulia District: Winners per constituency and top 3 candidates

4.19. South 24 Parganas District

According to the data in figure 32 below and Annex 18, the district of South 24 Parganas comprises a total of 31 legislative constituencies, from which 9 are reserved constituencies, and all 9 seats are reserved for the Scheduled Castes (SC) community. The seats reserved for SC include Gosaba, Basanti, Kultali, Mandirbazar, Jaqynagar, Baruipur Purba, Canning Paschim, Magrahat Purba and Bishnupur (SC).

Out of the total 31 seats in the South 24 Parganas district, the largest number of seats (i.e. 30) were obtained by the AITC, while the RSSCMJP got only 1 seat. The seats won by AITC were Gosaba, Basanti, Kultali, Patharpratima, Kakdwip, Sagar, Kulpi, Raidighi, Mandirbazar, Jaqynagar, Baruipur Purba, Canning Paschim, Canning Purba, Baruipur Paschim, Magrahat Purba, Magrahat Paschim, Diamond Harbour, Falta, Satgachia, Bishnupur (SC), Sonarpur Dakshin, Kasba, Jadavpur, Sonarpur Uttar, Tollygunj, Behala Purba, Behala Paschim, Maheshtala, Budge Budge and Metiaburuz. The seats secured by RSSCMJP included Bhangore.

From total polled votes of 6,734,075, AITC secured a total of 3,523,407 (52%) votes, while the BJP secured 2,142,477 (32%) of the votes. The CPM with a vote share of 508,632 (8%) was on third place, while the RSSCMJP was on the fourth position with 281,963 (4%) votes in the district.

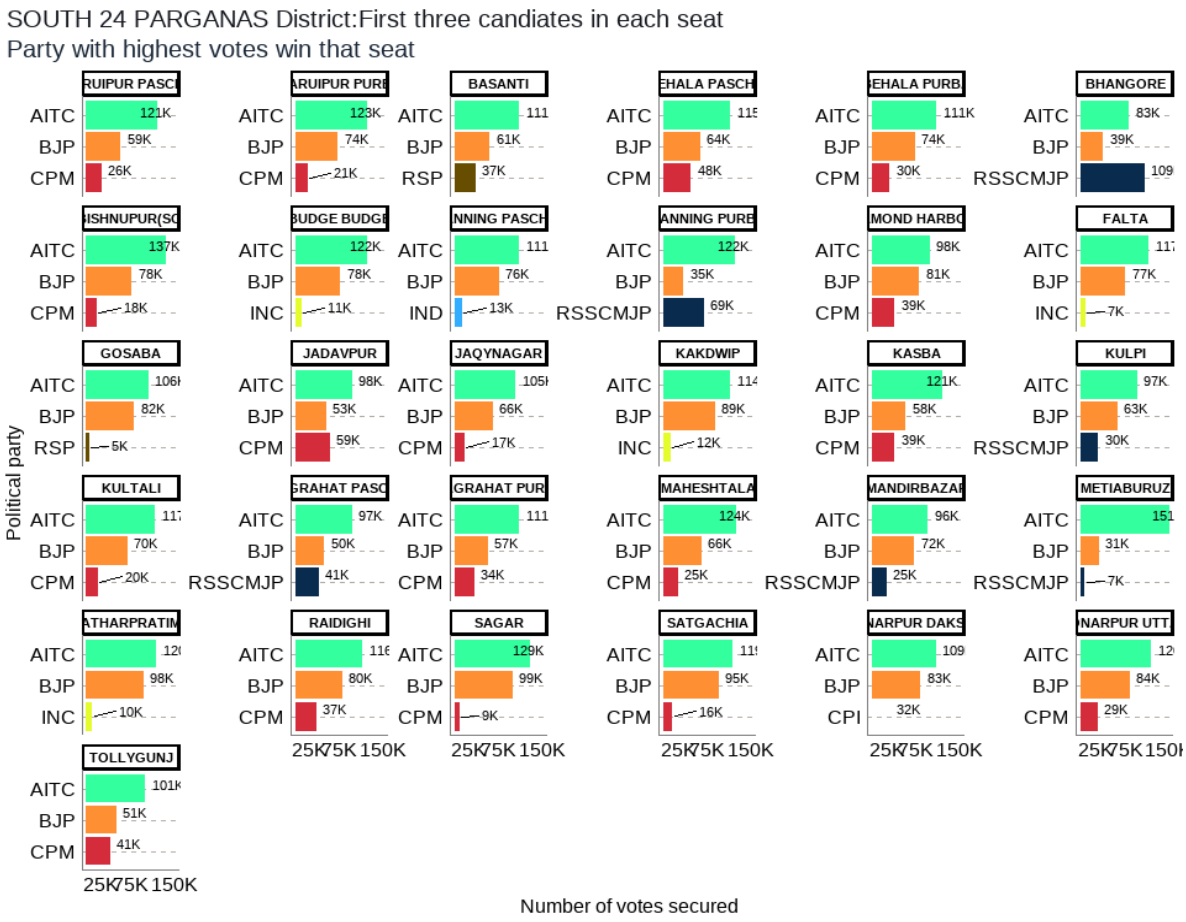

Figure 32: South 24 Parganas District: Winners per constituency and top 3 candidates

4.20. Uttar Dinajpur District

Figure 33 below and Annex 19 demonstrate that the district of Uttar Dinajpur has a total of 9 legislative constituencies, with 2 reserved constituencies for the Scheduled Castes (SC) community. These seats reserved for SC include Hemtabad and Kaliaganj.

Who secured what out of the total 9 seats in the Uttar Dinajpur district? The largest number of seats (i.e. 7) went to AITC, while the BJP got 2 seats. The seats won by AITC were Chopra, Islampur, Goalpokhar, Chakulia, Karandighi, Hemtabad and Itahar, while the seats obtained by BJP included Kaliaganj and Raiganj.

Out of the total polled votes of 1,722,482, AITC secured a total of 918,653 (53%) votes while the BJP secured 643,709 (37%) of the votes. The INC having a vote share of 56,820 (3%) remained on third place, whereas the AIFB reached to the fourth position after securing 37,850 (2%) votes in the district.

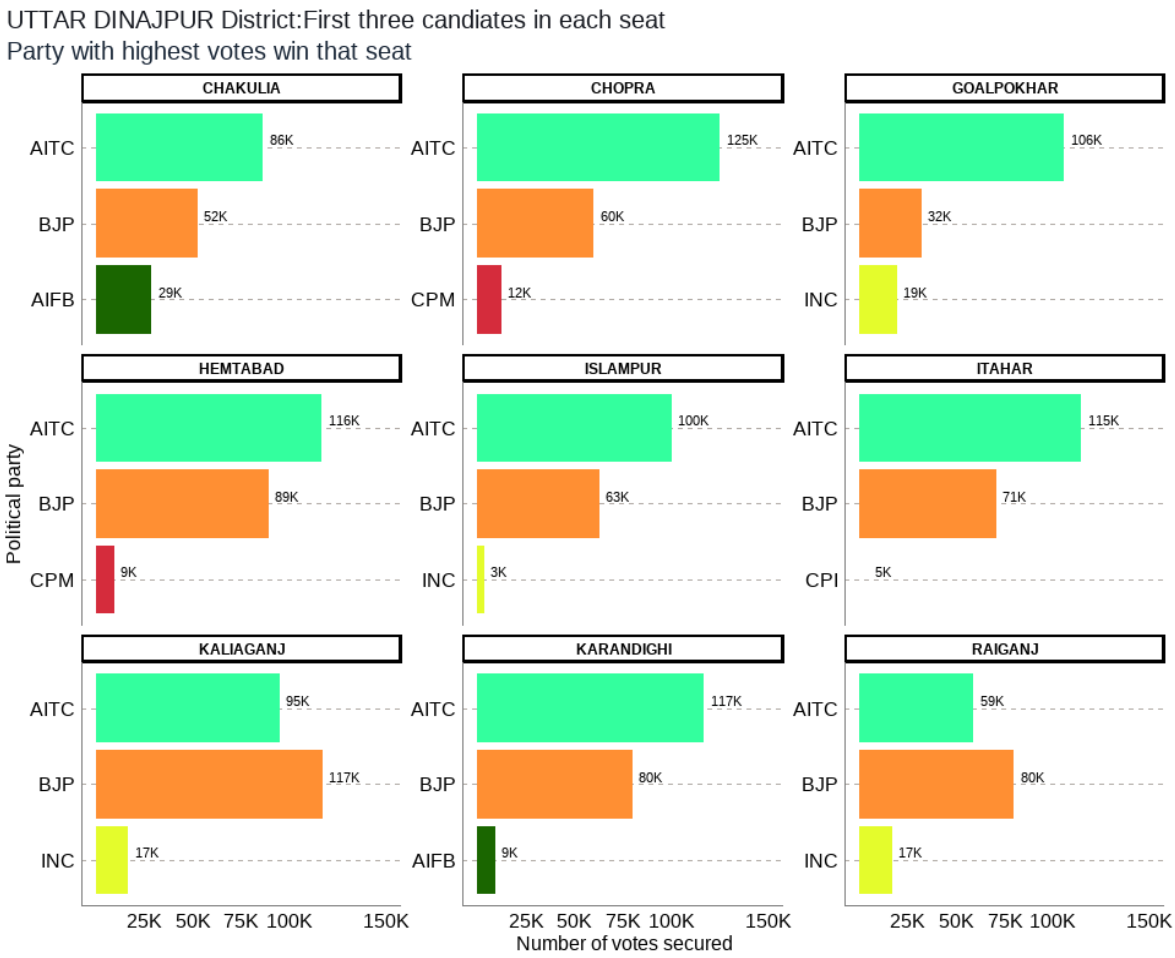

Figure 33: Uttar Dinajpur District: Winners per constituency and top 3 candidates

4. CONCLUSIONS

The AITC won the election comprehensively, while the BJP consolidated its position as the main opposition party in West Bengal relegating the Left parties and Congress to an insignificant player in the politics of West Bengal. After the West Bengal 2021 election results, Mamata Banerjee emerged as one of the main challengers of BJP at the national arena of Indian politics. What lessons Bengal election offers to the country remains to be seen yet, but the state and central government's handling of the second wave of Covid-19 crisis (in which many Indians lost lives) and associated social and economic crisis has kept the political battle open for the forthcoming Uttar Pradish election in 2022 and the India's general election in 2024. It has also infused fresh energy in opposition parties to challenge the election machinery and public image of Prime Minister Narendra Modi. With the global and national uncertainties looming large due to the Covid-19 crisis and a prediction of the third wave of the virus in the country, governments both at the state and the central level need to do much more than business as usual to win the trust of the people, if they want to acquire significant position in elections

Annex 1: Bankura District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Bankura	GEN	BJP	Niladri Sekhar Dana	1	95,466	1,468
Bankura	GEN	AITC	Sayantika Banerjee	2	93,998	80,234
Bankura	GEN	INC	Radharani Banerjee	3	13,764	9,257
Barjora	GEN	AITC	Alok Mukherjee	1	93,290	3,269
Barjora	GEN	BJP	Supriti Chatterjee	2	90,021	64,786
Barjora	GEN	CPM	Sujit Chakraborty	3	25,235	20,332
Bishnupur	GEN	BJP	Tanmay Ghosh (Bumba)	1	89,689	11,420
Bishnupur	GEN	AITC	Archita Bid	2	78,269	62,455
Bishnupur	GEN	INC	Debu Chatterjee	3	15,814	12,395
Chhatna	GEN	BJP	Satyanarayan Mukhopadhyay	1	90,233	7,164
Chhatna	GEN	AITC	Subasish Batabyal	2	83,069	73,369
Chhatna	GEN	RSP	Falguni Mukherjee	3	9,700	6,186
Indus	SC	BJP	Nirmal Kumar Dhara	1	104,936	7,220
Indus	SC	AITC	Runu Mete	2	97,716	85,097
Indus	SC	CPM	Nayan Kumar Shill (Bagdi)	3	12,619	9,437
Katulpur	SC	BJP	Harakali Protiher	1	106,022	11,785
Katulpur	SC	AITC	Sangeeta Malik	2	94,237	76,480
Katulpur	SC	INC	Akshay Santra	3	17,757	15,238
Onda	GEN	BJP	Amarnath Shakha	1	104,940	11,551
Onda	GEN	AITC	Arup Kumar Khan	2	93,389	77,776
Onda	GEN	AIFB	Tarapada Chakrabarti	3	15,613	10,734
Raipur	ST	AITC	Mrityunjoy Murmu	1	101,043	19,398
Raipur	ST	BJP	Sudhanshu Hansda	2	81,645	75,052
Raipur	ST	RSSCMJP	Milan Mandi	3	6,593	3,607
Ranibundh	ST	AITC	Jyotsna Mandi	1	90,928	3,939
Ranibundh	ST	BJP	Kshudiram Tudu	2	86,989	66,932
Ranibundh	ST	CPM	Deblina Hembram	3	20,057	15,250
Saltora	SC	BJP	Bauri Chandana	1	91,648	4,145
Saltora	SC	AITC	Sontosh Kumar Mondal	2	87,503	73,419
Saltora	SC	CPM	Nandadulal Bauri	3	14,084	10,530
Sonamukhi	SC	BJP	Dibakar Gharami	1	98,161	10,888
Sonamukhi	SC	AITC	Dr. Shyamal Santra	2	87,273	71,548
Sonamukhi	SC	CPM	Ajit Ray	3	15,725	12,953
Taldangra	GEN	AITC	Arup Chakraborty	1	92,026	12,377
Taldangra	GEN	BJP	Shyamal Kumar Sarkar (Benu)	2	79,649	56,460
Taldangra	GEN	CPM	Manoranjan Patra	3	23,189	19,671

Annex 2: Bardhaman District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Asansol Dakshin	GEN	BJP	Agnimitra Paul	1	87,881	4,487
Asansol Dakshin	GEN	AITC	Sayani Ghosh	2	83,394	67,422
Asansol Dakshin	GEN	CPM	Prasanta Ghosh	3	15,972	12,506
Asansol Uttar	GEN	AITC	Ghatak Moloy	1	100,931	21,110
Asansol Uttar	GEN	BJP	Krishnendu Mukherjee	2	79,821	75,350
Asansol Uttar	GEN	RSSCMJP	Mohammad Mustaqim	3	4,471	1,123
Ausgram	SC	AITC	Abhedananda Thander	1	100,392	11,815
Ausgram	SC	BJP	Kalita Maji	2	88,577	68,178
Ausgram	SC	CPM	Chanchal Kumar Majhi	3	20,399	16,360
Barbani	GEN	AITC	Bidhan Upadhyay	1	88,430	23,457
Barbani	GEN	BJP	Arijit Roy	2	64,973	56,011
Barbani	GEN	INC	Ranendra Nath Bagchi	3	8,962	5,923
Bardhaman Dakshin	GEN	AITC	Khokan Das	1	91,015	8,105
Bardhaman Dakshin	GEN	BJP	Sandip Nandi	2	82,910	59,564
Bardhaman Dakshin	GEN	CPM	Pritha Tah	3	23,346	19,639
Bardhaman Uttar	SC	AITC	Nisith Kumar Malik	1	111,211	17,268
Bardhaman Uttar	SC	BJP	Radha Kanta Roy	2	93,943	62,915
Bardhaman Uttar	SC	CPM	Chandi Choran Let	3	31,028	27,681
Bhatar	GEN	AITC	Adhikari Mangobinda	1	108,028	31,741
Bhatar	GEN	BJP	Mahendranath Kowar	2	76,287	56,680
Bhatar	GEN	CPM	Nazrul Haque	3	19,607	15,261
Durgapur Paschim	GEN	BJP	Lakshman Chandra Ghorui	1	91,186	14,664
Durgapur Paschim	GEN	AITC	Biswanath Parial	2	76,522	58,492
Durgapur Paschim	GEN	INC	Debesh Chakraborty	3	18,030	15,406
Durgapur Purba	GEN	AITC	Pradip Mazumdar	1	79,303	3,746
Durgapur Purba	GEN	BJP	Colonel Diptansu Chaudhury	2	75,557	46,494
Durgapur Purba	GEN	CPM	Abhas Ray Chaudhuri	3	29,063	26,435
Galsi	SC	AITC	Nepal Ghorui	1	109,504	19,262
Galsi	SC	BJP	Bikash Biswas	2	90,242	73,222
Galsi	SC	AIFB	Nandalal Pondit	3	17,020	13,502
Jamalpur	SC	AITC	Alok Kumar Majhi	1	96,999	17,971
Jamalpur	SC	BJP	Balaram Bapari	2	79,028	55,730
Jamalpur	SC	CPM	Samar Hazra	3	23,298	20,433
Jamuria	GEN	AITC	Hareram Singh	1	71,002	8,051
Jamuria	GEN	BJP	Tapas Kumar Roy	2	62,951	38,133
Jamuria	GEN	CPM	Aishe Ghosh	3	24,818	22,409
Kalna	SC	AITC	Deboprasad Bag (Poltu)	1	96,073	7,478
Kalna	SC	BJP	Biswajit Kundu	2	88,595	69,590
Kalna	SC	CPM	Nirab Khan	3	19,005	16,498
Katwa	GEN	AITC	Rabindranath Chatterjee	1	107,894	9,155
Katwa	GEN	BJP	Shyama Majumdar	2	98,739	85,763

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Katwa	GEN	INC	Prabir Ganguli	3	12,976	11,196
Ketugram	GEN	AITC	Sekh Sahonawez	1	100,226	12,683
Ketugram	GEN	BJP	Anadi Ghosh (Mathura)	2	87,543	67,451
Ketugram	GEN	CPM	Mizanul Kabir (Dhiraj)	3	20,092	16,472
Khandaghosh	SC	AITC	Nabin Chandra Bag	1	104,264	20,886
Khandaghosh	SC	BJP	Bijan Mandal	2	83,378	60,455
Khandaghosh	SC	CPM	Asima Roy	3	22,923	19,458
Kulti	GEN	BJP	Ajay Kumar Poddar	1	81,112	679
Kulti	GEN	AITC	Ujjal Chatterjee	2	80,433	74,638
Kulti	GEN	INC	Chandi Das Chatterjee	3	5,795	2,242
Mangalkot	GEN	AITC	Apurba Chowdhury (Achal)	1	107,596	22,337
Mangalkot	GEN	BJP	Rana Protap Goswami	2	85,259	68,476
Mangalkot	GEN	CPM	Choudhury Sahajahan	3	16,783	12,957
Memari	GEN	AITC	Madhusudan Bhattacharya	1	104,851	23,078
Memari	GEN	BJP	Bhismadeb Bhattacharya	2	81,773	56,155
Memari	GEN	CPM	Sanat Banerjee	3	25,618	23,497
Monteswar	GEN	AITC	Chowdhury Siddiqullah	1	105,460	31,805
Monteswar	GEN	BJP	Saikat Panja	2	73,655	48,915
Monteswar	GEN	CPM	Anupam Ghosh	3	24,740	22,863
Pandabeswar	GEN	AITC	Narendranath Chakraborty	1	73,922	3,803
Pandabeswar	GEN	BJP	Kumar Jitendra Tewari	2	70,119	57,923
Pandabeswar	GEN	CPM	Subhas Bauri	3	12,196	9,461
Purbasthali Dakshin	GEN	AITC	Swapan Debnath	1	105,698	17,410
Purbasthali Dakshin	GEN	BJP	Rajib Kumar Bhowmick	2	88,288	73,227
Purbasthali Dakshin	GEN	INC	Abhijit Bhattacharyya	3	15,061	11,956
Purbasthali Uttar	GEN	AITC	Tapan Chatterjee	1	92,421	6,706
Purbasthali Uttar	GEN	BJP	Gobardhan Das	2	85,715	57,581
Purbasthali Uttar	GEN	CPM	Pradip Kumar Saha	3	28,134	26,227
Raina	SC	AITC	Shampa Dhara	1	108,752	18,205
Raina	SC	BJP	Manik Roy	2	90,547	65,215
Raina	SC	CPM	Basudeb Khan	3	25,332	23,461
Raniganj	GEN	AITC	Tapas Banerjee	1	78,164	3,556
Raniganj	GEN	BJP	Dr. Bijan Mukherjee	2	74,608	52,920
Raniganj	GEN	CPM	Hemant Kumar Prabhakar	3	21,688	19,682

Annex 3: Birbhum District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Bolpur	GEN	AITC	Sinha Chandranath	1	116,443	22,280
Bolpur	GEN	BJP	Anirban Ganguly	2	94,163	84,198
Bolpur	GEN	RSP	Tapan Hore	3	9,965	6,628
Dubrajpur	SC	BJP	Anup Kumar Saha	1	98,083	3,863
Dubrajpur	SC	AITC	Debabrata Saha	2	94,220	88,206
Dubrajpur	SC	AIFB	Bijoy Bagdi	3	6,014	2,857
Hansan	GEN	AITC	Dr. Asok Kumar Chattopadhyay	1	108,289	50,613
Hansan	GEN	BJP	Nikhil Banerjee	2	57,676	17,861
Hansan	GEN	INC	Miltan Rasid	3	39,815	37,395
Labhpur	GEN	AITC	Abhijit Sinha (Rana)	1	108,423	17,975
Labhpur	GEN	BJP	Biswajit Mondal	2	90,448	83,969
Labhpur	GEN	CPM	Syed Mahfuzul Karim	3	6,479	3,422
Mayureswar	GEN	AITC	Abhijit Roy	1	100,425	12,075
Mayureswar	GEN	BJP	Shyamapada Mondal	2	88,350	82,788
Mayureswar	GEN	RSSCMJP	Kashinath Pal	3	5,562	2,759
Murarai	GEN	AITC	Dr Mosarraf Hossain	1	146,496	98,246
Murarai	GEN	BJP	Debasish Roy	2	48,250	30,963
Murarai	GEN	INC	Asif Ekbal	3	17,287	15,430
Nalhati	GEN	AITC	Rajendra Prasad Singh (Raju Singh)	1	117,438	56,905
Nalhati	GEN	BJP	Tapas Kumar Yadav(Ananda Yadav)	2	60,533	39,205
Nalhati	GEN	AIFB	Dipak Chatterjee	3	21,328	19,428
Nanoor	SC	AITC	Bidhan Chandra Majhi	1	112,116	6,670
Nanoor	SC	BJP	Tarakeswar Saha	2	105,446	92,568
Nanoor	SC	CPM	Shyamali Pradhan	3	12,878	10,139
Rampurhat	GEN	AITC	Asish Banerjee	1	103,276	8,472
Rampurhat	GEN	BJP	Subhasis Choudhury (Khokan)	2	94,804	83,097
Rampurhat	GEN	CPM	Sanjib Barman (Gopi)	3	11,707	8,326
Sainthia	SC	AITC	Nilabati Saha	1	110,572	15,243
Sainthia	SC	BJP	Piya Saha	2	95,329	84,960
Sainthia	SC	CPM	Mausumi Konai	3	10,369	8,271
Suri	GEN	AITC	Bikash Roychoudhury	1	105,871	7,320
Suri	GEN	BJP	Chattopadhyay Jagannath	2	98,551	90,284
Suri	GEN	INC	Chanchal Chatterjee	3	8,267	6,183

Annex 4: Cooch Behar District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Cooch Behar Dakshin	GEN	BJP	Nikhil Ranjan Dey	1	91,560	4,931
Cooch Behar Dakshin	GEN	AITC	Avijit De Bhowmik	2	86,629	76,383
Cooch Behar Dakshin	GEN	AIFB	Akshay Thakur	3	10,246	8,761
Cooch Behar Uttar	SC	BJP	Sukumar Roy	1	120,483	14,615
Cooch Behar Uttar	SC	AITC	Binay Krishna Barman	2	105,868	94,393
Cooch Behar Uttar	SC	AIFB	Nagendra Nath Roy	3	11,475	9,905
Dinhata	GEN	BJP	Nisith Pramanik	1	116,035	57
Dinhata	GEN	AITC	Udayan Guha	2	115,978	109,909
Dinhata	GEN	AIFB	Abdur Rouf	3	6,069	4,532
Mathabhanga	SC	BJP	Sushil Barman	1	113,249	26,134
Mathabhanga	SC	AITC	Girindra Nath Barman	2	87,115	79,397
Mathabhanga	SC	CPM	Ashok Barman	3	7,718	6,275
Mekliganj	SC	AITC	Adhikary Paresh Chandra	1	99,338	14,685
Mekliganj	SC	BJP	Dadhiram Ray	2	84,653	77,800
Mekliganj	SC	AIFB	Gobinda Chandra Roy	3	6,853	4,406
Natabari	GEN	BJP	Mihir Goswami	1	111,743	23,440
Natabari	GEN	AITC	Rabindra Nath Ghosh	2	88,303	76,464
Natabari	GEN	CPM	Akik Hassan	3	11,839	10,498
Sitai	SC	AITC	Jagadish Chandra Barma Basunia	1	117,908	10,112
Sitai	SC	BJP	Dipak Kumar Roy	2	107,796	103,832
Sitai	SC	INC	Keshab Chandra Ray	3	3,964	1,573
Sitalkuchi	SC	BJP	Baren Chandra Barman	1	124,955	17,815
Sitalkuchi	SC	AITC	Partha Pratim Ray	2	107,140	100,420
Sitalkuchi	SC	CPM	Sudhangshu Pramanik	3	6,720	3,977
Tufanganj	GEN	BJP	Malati Rava Roy	1	114,503	31,198
Tufanganj	GEN	AITC	Pranab Kumar Dey	2	83,305	77,332
Tufanganj	GEN	INC	Rabin Roy	3	5,973	3,904

Annex 5: Dakshin Dinajpur District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Balurghat	GEN	BJP	Ashok Kumar Lahiri	1	72,129	13,436
Balurghat	GEN	AITC	Sekhar Dasgupta	2	58,693	42,540
Balurghat	GEN	RSP	Sucheta Biswas	3	16,153	14,323
Gangarampur	SC	BJP	Satyendra Nath Ray	1	88,724	4,592
Gangarampur	SC	AITC	Goutam Das	2	84,132	71,859
Gangarampur	SC	CPM	Nanda Lal Hazra	3	12,273	11,104
Harirampur	GEN	AITC	Biplab Mitra	1	96,131	22,672
Harirampur	GEN	BJP	Nilanjan Roy	2	73,459	61,015
Harirampur	GEN	CPM	Rafikul Islam	3	12,444	10,613
Kumarganj	GEN	AITC	Toraf Hossain Mandal	1	89,763	29,367
Kumarganj	GEN	BJP	Manas Sarkar	2	60,396	42,918
Kumarganj	GEN	INC	Chaudhuri Nargis Banu	3	17,478	16,263
Kushmandi	SC	AITC	Rekha Roy	1	89,968	12,584
Kushmandi	SC	BJP	Ranjit Kumar Roy	2	77,384	64,813
Kushmandi	SC	RSP	Narmada Chandra Roy	3	12,571	10,973
Tapan	ST	BJP	Budhrai Tudu	1	84,381	1,650
Tapan	ST	AITC	Kalpana Kisku	2	82,731	70,643
Tapan	ST	RSP	Raghu Urow	3	12,088	9,942

Annex 6: Darjeeling District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Darjeeling	GEN	BJP	Neeraj Tamang Zimba	1	68,907	21,276
Darjeeling	GEN	IND	Keshav Raj Sharma	2	47,631	9,391
Darjeeling	GEN	IND	Pemba Tshering	3	38,240	35,385
Kalimpong	GEN	IND	Ruden Sada Lepcha	1	58,206	3,870
Kalimpong	GEN	BJP	Suva Pradhan	2	54,336	22,480
Kalimpong	GEN	IND	Dr. R.b. Bhujel	3	31,856	29,696
Kurseong	GEN	BJP	Bishnu Prasad Sharma (Alias B.p. Bajgain)	1	73,475	15,515
Kurseong	GEN	IND	Tshering Lama	2	57,960	24,866
Kurseong	GEN	IND	Narbu Lama	3	33,094	30,549
Matigara-Naxalbari	SC	BJP	Anandamay Barman	1	139,785	70,848
Matigara-Naxalbari	SC	AITC	Rajen Sundas	2	68,937	45,877
Matigara-Naxalbari	SC	INC	Sankar Malakar	3	23,060	19,148
Phansidewa	ST	BJP	Durga Murmu	1	105,651	27,711
Phansidewa	ST	AITC	Chhotan Kisku	2	77,940	65,125
Phansidewa	ST	INC	Sunil Chandra Tirkey	3	12,815	10,028
Siliguri	GEN	BJP	Sankar Ghosh	1	89,370	35,586
Siliguri	GEN	AITC	Dr. Omprakash Mishra	2	53,784	24,949
Siliguri	GEN	CPM	Asok Bhattacharya	3	28,835	26,761

Annex 7: Hooghly District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Arambag	SC	BJP	Madhusudan Bag	1	103,108	7,172
Arambag	SC	AITC	Sujata Mondal	2	95,936	80,971
Arambag	SC	CPM	Sakti Mohon Malik	3	14,965	11,794
Balagarh	SC	AITC	Manoranjan Bapari	1	100,364	5,784
Balagarh	SC	BJP	Subhas Chandra Haldar	2	94,580	74,814
Balagarh	SC	CPM	Mahamaya Mondal	3	19,766	16,661
Champdani	GEN	AITC	Arindam Guin (Bubai)	1	100,972	30,078
Champdani	GEN	BJP	Dilip Singh	2	70,894	47,622
Champdani	GEN	INC	Abdul Mannan	3	23,272	19,925
Chandannagore	GEN	AITC	Indranil Sen	1	86,778	31,029
Chandannagore	GEN	BJP	Deepanjan Kumar Guha	2	55,749	22,047
Chandannagore	GEN	CPM	Gautam Sarkar	3	33,702	30,679
Chanditala	GEN	AITC	Swati Khandoker	1	103,118	41,347
Chanditala	GEN	BJP	Debashish Dasgupta(Yash D Guptaa)	2	61,771	24,610
Chanditala	GEN	CPM	Md. Salim	3	37,161	35,005
Chunchura	GEN	AITC	Asit Mazumder (Tapan)	1	117,104	18,417
Chunchura	GEN	BJP	Locket Chatterjee	2	98,687	69,910
Chunchura	GEN	AIFB	Pranab Kumar Ghosh	3	28,777	24,439
Dhanekhali	SC	AITC	Asima Patra	1	124,776	30,159
Dhanekhali	SC	BJP	Tusar Kumar Majumdar	2	94,617	85,584
Dhanekhali	SC	INC	Anirban Saha	3	9,033	5,803
Goghat	SC	BJP	Biswanath Karak	1	102,227	4,147
Goghat	SC	AITC	Manas Majumdar	2	98,080	83,702
Goghat	SC	AIFB	Shiba Prasad Malick	3	14,378	11,896
Haripal	GEN	AITC	Dr. Karabi Manna	1	110,215	23,072
Haripal	GEN	BJP	Samiran Mitra	2	87,143	71,348
Haripal	GEN	RSSCMJP	Simal Saren	3	15,795	12,428
Jangipara	GEN	AITC	Snehasis Chakraborty	1	101,885	17,926
Jangipara	GEN	BJP	Debjit Sarkar	2	83,959	66,203
Jangipara	GEN	RSSCMJP	Sk. Mainuddin	3	17,756	14,716
Khanakul	GEN	BJP	Susanta Ghosh	1	107,403	12,884
Khanakul	GEN	AITC	Munsi Nazbul Karim	2	94,519	85,787
Khanakul	GEN	RSSCMJP	Faisal Khan	3	8,732	5,454
Pandua	GEN	AITC	Dr. Ratna De Nag	1	102,874	31,858
Pandua	GEN	BJP	Partha Sharma	2	71,016	29,542
Pandua	GEN	CPM	Amjad Hossain Sk.	3	41,474	39,310
Pursurah	GEN	BJP	Biman Ghosh	1	119,334	28,178
Pursurah	GEN	AITC	Dilip Yadav	2	91,156	83,328
Pursurah	GEN	INC	Monika Malik Ghosh	3	7,828	5,040
Saptagram	GEN	AITC	Tapan Dasgupta	1	93,328	9,772
Saptagram	GEN	BJP	Debabrata Biswas	2	83,556	75,224
Saptagram	GEN	INC	Pabitra Deb	3	8,332	5,295

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Singur	GEN	AITC	Becharam Manna	1	101,077	25,923
Singur	GEN	BJP	Rabindranath Bhattacharya	2	75,154	45,138
Singur	GEN	CPM	Srijan Bhattacharyya	3	30,016	27,671
Sreerampur	GEN	AITC	Dr. Sudipto Roy	1	93,021	23,433
Sreerampur	GEN	BJP	Kabir Shankar Bose	2	69,588	50,187
Sreerampur	GEN	INC	Alok Ranjan Banerjee	3	19,401	17,001
Tarakeswar	GEN	AITC	Ramendu Sinharay	1	96,698	7,484
Tarakeswar	GEN	BJP	Dr. Swapan Dasgupta	2	89,214	74,619
Tarakeswar	GEN	CPM	Surajit Ghosh	3	14,595	11,843
Uttarpara	GEN	AITC	Kanchan Mullick	1	93,878	35,989
Uttarpara	GEN	BJP	Prabir Kumar Ghosal	2	57,889	15,171
Uttarpara	GEN	CPM	Rajat Banerjee (Bappa)	3	42,718	39,365

Annex 8: Howrah District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Amta	GEN	AITC	Sukanta Kumar Paul	1	102,445	26,205
Amta	GEN	BJP	Debtanu Bhattacharya	2	76,240	51,131
Amta	GEN	INC	Asit Mitra	3	25,109	23,807
Bagnan	GEN	AITC	Arunava Sen (Raja)	1	106,042	30,120
Bagnan	GEN	BJP	Anupam Mallik	2	75,922	61,367
Bagnan	GEN	CPM	Sk Bosir Ahmed	3	14,555	13,007
Bally	GEN	AITC	Rana Chatterjee	1	53,347	6,237
Bally	GEN	BJP	Baishali Dalmiya	2	47,110	25,070
Bally	GEN	CPM	Dipsita Dhar	3	22,040	20,835
Domjur	GEN	AITC	Kalyan Ghosh	1	130,499	42,620
Domjur	GEN	BJP	Rajib Banerjee S/O-Late Dhananjoy Banerjee	2	87,879	65,111
Domjur	GEN	CPM	Uttam Bera	3	22,768	19,913
Howrah Dakshin	GEN	AITC	Nandita Chowdhury	1	116,839	50,569
Howrah Dakshin	GEN	BJP	Rantidev Sengupta	2	66,270	38,983
Howrah Dakshin	GEN	CPM	Sumitro Adhikary	3	27,287	24,339
Howrah Madhya	GEN	AITC	Arup Roy, S/O Late Prabhat Roy	1	111,554	46,547
Howrah Madhya	GEN	BJP	Sanjay Singh	2	65,007	52,065
Howrah Madhya	GEN	INC	Palash Bhandari	3	12,942	10,207
Howrah Uttar	GEN	AITC	Gautam Chowdhuri	1	71,575	5,522
Howrah Uttar	GEN	BJP	Umesh Rai	2	66,053	57,920
Howrah Uttar	GEN	CPM	Pawan Kumar Singh	3	8,133	6,463
Jagatballavpur	GEN	AITC	Sitanath Ghosh	1	116,562	29,196
Jagatballavpur	GEN	BJP	Anupam Ghosh	2	87,366	62,004
Jagatballavpur	GEN	RSSC MJP	Sk Sabbir Ahmed	3	25,362	22,593
Panchla	GEN	AITC	Gulsan Mullick	1	104,572	32,751
Panchla	GEN	BJP	Mohit Lal Ghanti	2	71,821	36,245
Panchla	GEN	RSSC MJP	Abdul Jalil Sk	3	35,576	33,165
Sankrail	SC	AITC	Priya Paul	1	111,888	40,427
Sankrail	SC	BJP	Probhakar Pandit	2	71,461	37,317

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Sankrail	SC	CPM	Samir Malick	3	34,144	32,294
Shibpur	GEN	AITC	Manoj Tiwary	1	92,372	32,603
Shibpur	GEN	BJP	Rathin Chakrabarty	2	59,769	34,799
Shibpur	GEN	AIFB	Jagannath Bhattacharyya	3	24,970	23,058
Shyampur	GEN	AITC	Kalipada Mandal	1	114,804	31,511
Shyampur	GEN	BJP	Tnusree Chakraborty	2	83,293	62,885
Shyampur	GEN	INC	Amitabha Chakraborti	3	20,408	19,266
Udaynarayanpur	GEN	AITC	Samir Kumar Panja	1	101,510	13,998
Udaynarayanpur	GEN	BJP	Sumit Ranjan Karar	2	87,512	82,334
Udaynarayanpur	GEN	INC	Aloke Koley	3	5,178	3,460
Uluberia Dakshin	GEN	AITC	Pulak Roy	1	101,880	28,438
Uluberia Dakshin	GEN	BJP	Papia Dey (Adhikary)	2	73,442	52,332
Uluberia Dakshin	GEN	AIFB	Sk Kutub Uddin Ahmed	3	21,110	19,636
Uluberia Purba	GEN	AITC	Bidesh Ranjan Bose	1	86,526	17,126
Uluberia Purba	GEN	BJP	Pratyush Mandal	2	69,400	38,942
Uluberia Purba	GEN	RSSC MJP	Abbas Uddin Khan	3	30,458	28,347
Uluberia Uttar	SC	AITC	Dr. Nirmal Maji	1	91,501	21,003
Uluberia Uttar	SC	BJP	Chiran Bera	2	70,498	51,206
Uluberia Uttar	SC	CPM	Ashok Dalui	3	19,292	18,044

Annex 9: Jalpaiguri District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Alipurduars	GEN	BJP	Suman Kanjilal	1	107,333	16,007
Alipurduars	GEN	AITC	Sourav Chakraborty (Ghutis)	2	91,326	75,675
Alipurduars	GEN	INC	Deba Prasad Roy	3	15,651	13,300
Dabgram-Phulbari	GEN	BJP	Sikha Chatterjee	1	129,088	27,593
Dabgram-Phulbari	GEN	AITC	Goutam Deb	2	101,495	83,497
Dabgram-Phulbari	GEN	CPM	Dilip Singh	3	17,998	14,619
Dhupguri	SC	BJP	Bishnu Pada Ray	1	104,688	4,355
Dhupguri	SC	AITC	Mitali Roy	2	100,333	87,226
Dhupguri	SC	CPM	Pradip Kumar Roy	3	13,107	10,929
Falakata	SC	BJP	Dipak Barman	1	102,993	3,990
Falakata	SC	AITC	Subhash Chandra Roy	2	99,003	88,231
Falakata	SC	CPM	Kshitish Chandra Ray	3	10,772	8,802
Jalpaiguri	SC	AITC	Dr. Pradip Kumar Barma	1	95,668	941
Jalpaiguri	SC	BJP	Soujit Singha (Piku)	2	94,727	70,499
Jalpaiguri	SC	INC	Sukhbilas Barma	3	24,228	20,847
Kalchini	ST	BJP	Bishal Lama	1	103,104	28,576
Kalchini	ST	AITC	Passang Lama	2	74,528	69,046
Kalchini	ST	INC	Avijit Narjinary	3	5,482	3,057
Kumargram	ST	BJP	Manoj Kumar Oraon	1	111,974	11,001
Kumargram	ST	AITC	Leos Kujur (Urao)	2	100,973	89,720
Kumargram	ST	RSP	Kishor Minj	3	11,253	8,535
Madarihat	ST	BJP	Manoj Tigga	1	90,718	29,685
Madarihat	ST	AITC	Rajesh Lakra	2	61,033	53,961

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Madarihat	ST	RSP	Subhash Lohar	3	7,072	4,450
Mal	ST	AITC	Bulu Chik Baraik	1	99,086	5,465
Mal	ST	BJP	Mahesh Bagey	2	93,621	82,692
Mal	ST	CPM	Manu Oraon	3	10,929	6,230
Maynaguri	SC	BJP	Kaushik Roy	1	115,306	11,911
Maynaguri	SC	AITC	Manoj Roy	2	103,395	97,635
Maynaguri	SC	RSP	Naresh Chandra Roy	3	5,760	2,665
Nagrakata	ST	BJP	Puna Bhengra	1	83,707	19,038
Nagrakata	ST	AITC	Joseph Munda	2	64,669	53,068
Nagrakata	ST	INC	Sukbir Subba	3	11,601	6,675
Rajganj	SC	AITC	Khageswar Roy	1	104,641	15,773
Rajganj	SC	BJP	Supen Roy	2	88,868	76,760
Rajganj	SC	CPM	Ratan Kumar Roy	3	12,108	8,933

Annex 10: Kolkata Corporation District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Ballygunge	GEN	AITC	Subrata Mukherjee	1	106,585	75,359
Ballygunge	GEN	BJP	Lokenath Chatterjee	2	31,226	22,752
Ballygunge	GEN	CPM	Dr. Fuad Halim	3	8,474	7,157
Beleghata	GEN	AITC	Paresh Paul	1	103,182	67,140
Beleghata	GEN	BJP	Kashinath Biswas	2	36,042	21,997
Beleghata	GEN	CPM	Rajib Biswas	3	14,045	12,481
Bhabanipur	GEN	AITC	Sobhandeb Chattopadhyay	1	73,505	28,719
Bhabanipur	GEN	BJP	Rudranil Ghosh	2	44,786	39,575
Bhabanipur	GEN	INC	Md. Shadab Khan	3	5,211	3,641
Chowrangee	GEN	AITC	Bandyopadhyay Nayna	1	70,101	45,344
Chowrangee	GEN	BJP	Devdutta Maji	2	24,757	10,491
Chowrangee	GEN	INC	Santosh Kumar Pathak	3	14,266	13,054
Entally	GEN	AITC	Swarna Kamal Saha	1	101,709	58,257
Entally	GEN	BJP	Priyanka Tibrewal	2	43,452	39,098
Entally	GEN	RSSCMJP	Md. Iqbal Alam	3	4,354	2,420
Jorasanko	GEN	AITC	Vivek Gupta	1	52,123	12,743
Jorasanko	GEN	BJP	Meena Devi Purohit	2	39,380	34,611
Jorasanko	GEN	INC	Ajmal Khan	3	4,769	3,741
Kashipur-Belgachia	GEN	AITC	Atin Ghosh	1	27,482	12,786
Kashipur-Belgachia	GEN	BJP	Sibaji Sinha Roy	2	14,696	8,495
Kashipur-Belgachia	GEN	CPM	Pratip Dasgupta	3	6,201	5,649
Kolkata Port	GEN	AITC	Firhad Hakim	1	105,543	68,554
Kolkata Port	GEN	BJP	Awadh Kishore Gupta	2	36,989	31,399
Kolkata Port	GEN	INC	Md Mukhtar	3	5,590	4,230
Maniktala	GEN	AITC	Sadhan Pande	1	25,589	8,490
Maniktala	GEN	BJP	Kalyan Chaubey	2	17,099	12,677
Maniktala	GEN	CPM	Rupa Bagchi	3	4,422	3,874
Rashbehari	GEN	AITC	Debasish Kumar	1	65,704	21,414
Rashbehari	GEN	BJP	Lt. Gen. (Dr.) Subrata Saha	2	44,290	33,976

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Rashbehari	GEN	INC	Ashutosh Chatterjee	3	10,314	8,652
Shyampukur	GEN	AITC	Dr. Shashi Panja	1	55,785	22,520
Shyampukur	GEN	BJP	Sandipan Biswas	2	33,265	22,437
Shyampukur	GEN	AIFB	Jiban Prakash Saha	3	10,828	9,765

Annex 11: Maldah District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Baishnab Nagar	GEN	AITC	Chandana Sarkar	1	83,061	2,471
Baishnab Nagar	GEN	BJP	Swadhin Kumar Sarkar	2	80,590	43,147
Baishnab Nagar	GEN	INC	Azizul Hoque	3	37,443	35,161
Chanchal	GEN	AITC	Nihar Ranjan Ghosh	1	115,966	67,338
Chanchal	GEN	BJP	Dipankar Ram (Bankat)	2	48,628	17,282
Chanchal	GEN	INC	Asif Mehbub	3	31,346	30,132
Englishbazar	GEN	BJP	Sreerupa Mitra Chaudhury(Nirbhoy Didi)	1	107,755	20,099
Englishbazar	GEN	AITC	Krishnendu Narayan Choudhury	2	87,656	76,703
Englishbazar	GEN	CPM	Koushik Misra(Saheb)	3	10,953	7,757
Gazole	SC	BJP	Chinmoy Deb Barman	1	100,655	1,798
Gazole	SC	AITC	Basanti Barman	2	98,857	84,907
Gazole	SC	CPM	Arun Kumar Biswas	3	13,950	12,007
Habibpur	ST	BJP	Joyel Murmu	1	94,075	19,517
Habibpur	ST	AITC	Prodip Baskey	2	74,558	60,753
Habibpur	ST	CPM	Thakur Tudu	3	13,805	7,909
Harischandrapur	GEN	AITC	Tajmul Hossain	1	122,527	77,473
Harischandrapur	GEN	BJP	Md. Matibur Rahaman	2	45,054	15,658
Harischandrapur	GEN	INC	Alam Mostaque	3	29,396	27,923
Malatipur	GEN	AITC	Abdur Rahim Boxi	1	126,157	91,949
Malatipur	GEN	BJP	Mousumi Das	2	34,208	14,381
Malatipur	GEN	INC	Alberuni Zulkarnain	3	19,827	17,793
Maldaha	SC	BJP	Gopal Chandra Saha	1	93,398	15,456
Maldaha	SC	AITC	Ujjwal Kumar Chowdhury	2	77,942	51,379
Maldaha	SC	INC	Bhupendra Nath Halder (Arjun)	3	26,563	23,745
Manickchak	GEN	AITC	Sabitri Mitra	1	110,234	33,878
Manickchak	GEN	BJP	Gour Chandra Mandal	2	76,356	64,801
Manickchak	GEN	INC	Alam Mottakin	3	11,555	8,812
Mothabari	GEN	AITC	Yeasmin Sabina	1	97,397	56,573
Mothabari	GEN	BJP	Shyamchand Ghosh	2	40,824	23,921
Mothabari	GEN	INC	Dulal Sk	3	16,903	13,318
Ratua	GEN	AITC	Samar Mukherjee	1	130,674	75,650
Ratua	GEN	BJP	Abishek Singhania	2	55,024	38,851
Ratua	GEN	INC	Khatun Najema	3	16,173	7,545
Sujapur	GEN	AITC	Md Abdul Ghani	1	152,445	130,163
Sujapur	GEN	INC	Isha Khan Choudhury	2	22,282	7,493
Sujapur	GEN	BJP	Sk Ziauddin	3	14,789	3,616

Annex 12: Murshidabad District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Baharampur	GEN	BJP	Subrata Maitra (Kanchan)	1	89,340	26,852
Baharampur	GEN	AITC	Naru Gopal Mukherjee	2	62,488	22,321
Baharampur	GEN	INC	Manoj Chakraborty	3	40,167	37,642
Beldanga	GEN	AITC	Hasanuzzaman Sk	1	112,862	53,832
Beldanga	GEN	BJP	Sumit Ghosh	2	59,030	32,081
Beldanga	GEN	INC	Safiujjaman Seikh	3	26,949	24,981
Bhagabangola	GEN	AITC	Idris Ali	1	153,795	106,008
Bhagabangola	GEN	CPM	Md. Kamal Hossain	2	47,787	31,080
Bhagabangola	GEN	BJP	Mehebub Alam	3	16,707	13,311
Bharatpur	GEN	AITC	Humayun Kabir	1	96,226	43,083
Bharatpur	GEN	BJP	Iman Kalyan Mukherjee	2	53,143	23,027
Bharatpur	GEN	INC	Kamalesh Chatterjee (Gopal)	3	30,116	27,535
Burwan	SC	AITC	Jiban Krishna Saha	1	81,890	2,749
Burwan	SC	BJP	Amiya Kumar Das	2	79,141	66,881
Burwan	SC	INC	Shiladitya Haldar	3	12,260	10,252
Domkal	GEN	AITC	Jafikul Islam	1	127,671	47,229
Domkal	GEN	CPM	Md. Mostafijur Rahaman (Rana)	2	80,442	68,094
Domkal	GEN	BJP	Biyamma Mondal (Rubia)	3	12,348	9,929
Farakka	GEN	AITC	Manirul Islam	1	102,319	59,945
Farakka	GEN	BJP	Ghosh Hemanta	2	42,374	6,169
Farakka	GEN	INC	Mainul Haque	3	36,205	34,558
Hariharpara	GEN	AITC	Niamot Sheikh	1	102,660	14,066
Hariharpara	GEN	INC	Mir Alamgir (Palash)	2	88,594	70,216
Hariharpara	GEN	BJP	Tanmoy Biswas	3	18,378	16,653
Jalangi	GEN	AITC	Abdur Razzak	1	123,840	79,276
Jalangi	GEN	CPM	Saiful Islam Molla	2	44,564	791
Jalangi	GEN	BJP	Chandan Mandal	3	43,773	39,584
Kandi	GEN	AITC	Apurba Sarkar (David)	1	95,399	38,080
Kandi	GEN	BJP	Goutam Roy	2	57,319	29,764
Kandi	GEN	INC	Shafiul Alam Khan (Bonu)	3	27,555	24,424
Khargram	SC	AITC	Ashis Marjit	1	93,255	32,573
Khargram	SC	BJP	Aditya Moulik	2	60,682	33,259
Khargram	SC	INC	Bipad Taran Bagdi	3	27,423	25,738
Lalgola	GEN	AITC	Ali Mohammad	1	107,860	60,707
Lalgola	GEN	INC	Abu Hena	2	47,153	17,689
Lalgola	GEN	BJP	Kalpana Ghosh	3	29,464	27,773
Murshidabad	GEN	BJP	Gouri Sankar Ghosh	1	95,967	2,491
Murshidabad	GEN	AITC	Shaoni Singha Roy	2	93,476	64,641
Murshidabad	GEN	INC	Neajuddin Sk	3	28,835	25,931
Nabagram	SC	AITC	Kanai Chandra Mondal	1	100,455	35,533
Nabagram	SC	BJP	Mohan Halder	2	64,922	25,793
Nabagram	SC	CPM	Kripalini Ghosh	3	39,129	36,500
Naoda	GEN	AITC	Sahina Momtaz Khan	1	117,684	74,153
Naoda	GEN	BJP	Anupam Mandal	2	43,531	11,943
Naoda	GEN	INC	Mosaraf Hossain Mondal (Madhu)	3	31,588	27,195
Raghunathganj	GEN	AITC	Akhruzzaman	1	126,834	98,313

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Raghunathganj	GEN	BJP	Golam Modaswer	2	28,521	12,277
Raghunathganj	GEN	IND	Nasir Saikh	3	16,244	3,445
Raninagar	GEN	AITC	Abdul Soumik Hossain	1	134,957	79,702
Raninagar	GEN	INC	Firoza Begam	2	55,255	34,117
Raninagar	GEN	BJP	Mst Masuara Khatun	3	21,138	18,364
Rejinagar	GEN	AITC	Rabiul Alam Chowdhury	1	118,494	68,268
Rejinagar	GEN	BJP	Arabinda Biswas	2	50,226	12,944
Rejinagar	GEN	INC	Kafiruddin Sk	3	37,282	35,722
Sagardighi	GEN	AITC	Subrata Saha	1	95,189	50,206
Sagardighi	GEN	BJP	Khatun Mafuja	2	44,983	8,639
Sagardighi	GEN	INC	Sk M Hasanuzzaman (Bappa)	3	36,344	32,894
Suti	GEN	AITC	Emani Biswas	1	127,351	70,701
Suti	GEN	BJP	Koushik Das	2	56,650	37,890
Suti	GEN	INC	Humayun Reza	3	18,760	10,754

Annex 13: Nadia District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Chakdaha	GEN	BJP	Bankim Chandra Ghosh	1	99,368	11,680
Chakdaha	GEN	AITC	Subhankar Singha (Jishu)	2	87,688	69,876
Chakdaha	GEN	CPM	Narayan Das Gupta	3	17,812	16,129
Chapra	GEN	AITC	Rukbanur Rahman	1	73,866	12,118
Chapra	GEN	IND	Jeber Sekh	2	61,748	3,580
Chapra	GEN	BJP	Kalyan Kumar Nandi	3	58,168	46,446
Haringhata	SC	BJP	Asim Kumar Sarkar	1	97,666	15,200
Haringhata	SC	AITC	Nilima Nag (Mallick)	2	82,466	57,666
Haringhata	SC	CPM	Alakesh Das	3	24,800	23,373
Kaliganj	GEN	AITC	Nasiruddin Ahamed (Lal)	1	111,696	46,987
Kaliganj	GEN	BJP	Abhijit Ghosh	2	64,709	39,633
Kaliganj	GEN	INC	Abul Kashem	3	25,076	23,025
Kalyani	SC	BJP	Ambika Roy	1	97,026	2,206
Kalyani	SC	AITC	Aniruddha Biswas	2	94,820	72,655
Kalyani	SC	CPM	Sabuj Das	3	22,165	19,588
Karimpur	GEN	AITC	Bimalendu Sinha Roy	1	110,911	23,575
Karimpur	GEN	BJP	Samarendranath Ghosh	2	87,336	70,151
Karimpur	GEN	CPM	Prabhas Majumdar	3	17,185	15,716
Krishnaganj	SC	BJP	Ashis Kumar Biswas	1	117,668	21,277
Krishnaganj	SC	AITC	Dr. Tapas Mandal	2	96,391	85,478
Krishnaganj	SC	CPM	Jhunu Baidya	3	10,913	8,814
Krishnanagar Dakshin	GEN	AITC	Ujjal Biswas	1	91,738	9,305
Krishnanagar Dakshin	GEN	BJP	Mahadev Sarkar	2	82,433	66,827
Krishnanagar Dakshin	GEN	CPM	Biswas Sumit	3	15,606	13,441
Krishnanagar Uttar	GEN	BJP	Mukul Roy	1	109,357	35,089
Krishnanagar Uttar	GEN	AITC	Koushani Mukherjee	2	74,268	62,861
Krishnanagar Uttar	GEN	INC	Silvi Saha	3	11,407	9,556
Nabadwip	GEN	AITC	Pundarikakshya Saha	1	102,170	18,571
Nabadwip	GEN	BJP	Sidhartha Shankar Naskar	2	83,599	65,059
Nabadwip	GEN	CPM	Swarnendu Sinha	3	18,540	16,196

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Nakashipara	GEN	AITC	Kallol Khan	1	104,812	21,271
Nakashipara	GEN	BJP	Santanu Dey	2	83,541	72,264
Nakashipara	GEN	IND	Tanmay Ganguli	3	11,277	5,912
Palashipara	GEN	AITC	Dr. Manik Bhattacharya	1	110,274	51,336
Palashipara	GEN	BJP	Bibhash Chandra Mandal	2	58,938	32,710
Palashipara	GEN	CPM	S.m. Sadi	3	26,228	24,532
Ranaghat Dakshin	SC	BJP	Mukut Mani Adhikari	1	119,260	16,515
Ranaghat Dakshin	SC	AITC	Barnali Dey Roy	2	102,745	87,621
Ranaghat Dakshin	SC	CPM	Rama Biswas	3	15,124	13,458
Ranaghat Uttar Paschim	GEN	BJP	Parthasarathi Chatterjee	1	113,637	23,128
Ranaghat Uttar Paschim	GEN	AITC	Sankar Singha	2	90,509	80,164
Ranaghat Uttar Paschim	GEN	INC	Bijayendu Biswas (Habu)	3	10,345	8,087
Ranaghat Uttar Purba	SC	BJP	Ashim Biswas	1	116,786	31,782
Ranaghat Uttar Purba	SC	AITC	Samir Kumar Poddar	2	85,004	79,800
Ranaghat Uttar Purba	SC	RSSCMJP	Dinesh Chandra Biswas	3	5,204	2,845
Santipur	GEN	BJP	Jagannath Sarkar	1	109,722	15,878
Santipur	GEN	AITC	Ajoy Dey	2	93,844	83,996
Santipur	GEN	INC	Ritzu Ghosal	3	9,848	7,463
Tehatta	GEN	AITC	Tapas Kumar Saha	1	97,848	6,915
Tehatta	GEN	BJP	Ashutosh Paul	2	90,933	67,694
Tehatta	GEN	CPM	Subodh Chandra Biswas	3	23,239	21,363

Annex 14: North 24 Parganas District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Amdanga	GEN	AITC	Rafiqur Rahaman	1	88,935	25,480
Amdanga	GEN	BJP	Joydev Manna	2	63,455	12,550
Amdanga	GEN	RSSCMJP	Jamal Uddin	3	50,905	48,581
Ashoknagar	GEN	AITC	Narayan Goswami	1	93,587	23,532
Ashoknagar	GEN	BJP	Tanuja Chakraborty	2	70,055	24,260
Ashoknagar	GEN	RSSCMJP	Tapas Banerjee	3	45,795	44,184
Baduria	GEN	AITC	Abdur Rahim Quazi	1	109,701	56,444
Baduria	GEN	BJP	Sukalyan Baidya	2	53,257	8,026
Baduria	GEN	INC	Abdus Sattar	3	45,231	43,278
Bagdah	SC	BJP	Biswajit Das	1	108,111	9,792
Bagdah	SC	AITC	Paritosh Kumar Saha	2	98,319	90,069
Bagdah	SC	INC	Kirttaniya Prabir (Bapi)	3	8,250	6,010
Baranagar	GEN	AITC	Tapas Roy	1	85,615	35,147
Baranagar	GEN	BJP	Parno Mittra	2	50,468	30,333
Baranagar	GEN	INC	Amal Kumar Mukhopadhyay	3	20,135	17,757
Barasat	GEN	AITC	Chiranjeet Chakrabarti	1	104,431	23,783
Barasat	GEN	BJP	Sankar Chatterjee	2	80,648	46,477
Barasat	GEN	AIFB	Sanjib Chattopadhyay	3	34,171	31,483
Barrackpur	GEN	AITC	Raju Chakraborty (Raj)	1	68,887	9,222
Barrackpur	GEN	BJP	Chandramani Shukla	2	59,665	43,520
Barrackpur	GEN	CPM	Debasish Bhowmick	3	16,145	14,215

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Basirhat Dakshin	GEN	AITC	Dr. Saptarshi Banerjee	1	115,873	24,468
Basirhat Dakshin	GEN	BJP	Tarak Nath Ghosh	2	91,405	68,316
Basirhat Dakshin	GEN	INC	Amit Majumdar	3	23,089	21,400
Basirhat Uttar	GEN	AITC	Rafikul Islam Mondal	1	137,216	89,351
Basirhat Uttar	GEN	RSSCMJP	Md Baijid Amin	2	47,865	360
Basirhat Uttar	GEN	BJP	Narayan Chandra Mondal	3	47,505	45,491
Bhatpara	GEN	BJP	Pawan Kumar Singh	1	57,244	13,687
Bhatpara	GEN	AITC	Jitendra Shaw (Jitu)	2	43,557	41,388
Bhatpara	GEN	INC	Dharmendra Shaw	3	2,169	1,009
Bidhannagar	GEN	AITC	Sujit Bose	1	75,912	7,997
Bidhannagar	GEN	BJP	Sabya Sachi Dutta	2	67,915	55,094
Bidhannagar	GEN	INC	Abhisek Banerjee	3	12,821	10,608
Bijpur	GEN	AITC	Subodh Adhikary	1	66,625	13,347
Bijpur	GEN	BJP	Subhranshu Roy	2	53,278	38,788
Bijpur	GEN	CPM	Sukanta Rakshit (Babin)	3	14,490	12,948
Bongaon Dakshin	SC	BJP	Swapan Majumder	1	97,828	2,004
Bongaon Dakshin	SC	AITC	Alo Rani Sarkar	2	95,824	85,755
Bongaon Dakshin	SC	CPM	Tapas Kumar Biswas	3	10,069	8,527
Bongaon Uttar	SC	BJP	Ashok Kirtania	1	97,761	10,488
Bongaon Uttar	SC	AITC	Shyamal Roy	2	87,273	73,222
Bongaon Uttar	SC	CPM	Pijush Kanti Saha	3	14,051	12,218
Deganga	GEN	AITC	Rahima Mondal	1	100,105	32,537
Deganga	GEN	RSSCMJP	Karim Ali	2	67,568	29,122
Deganga	GEN	BJP	Dipika Chattarjee	3	38,446	35,504
Dum Dum	GEN	AITC	Brtya Basu	1	87,999	26,731
Dum Dum	GEN	BJP	Bimalshankar Nanda	2	61,268	30,615
Dum Dum	GEN	CPM	Palash Das	3	30,653	28,614
Dum Dum Uttar	GEN	AITC	Chandrima Bhattacharya	1	95,465	28,499
Dum Dum Uttar	GEN	BJP	Dr. Archana Majumdar	2	66,966	21,238
Dum Dum Uttar	GEN	CPM	Tanmoy Bhattacharya	3	45,728	43,617
Gaighata	SC	BJP	Subrata Thakur	1	100,808	9,578
Gaighata	SC	AITC	Narottam Biswas	2	91,230	76,392
Gaighata	SC	CPI	Kapil Krishna Thakur	3	14,838	13,312
Habra	GEN	AITC	Jyoti Priya Mallick	1	90,533	3,841
Habra	GEN	BJP	Biswajit Sinha	2	86,692	64,698
Habra	GEN	CPM	Rijinandan Biswas	3	21,994	20,704
Haroa	GEN	AITC	Islam Sk Nurul (Haji)	1	130,398	80,978
Haroa	GEN	RSSCMJP	Kutubuddin Fathe	2	49,420	10,914
Haroa	GEN	BJP	Rajendra Saha (Somu)	3	38,506	35,576
Hingalganj	SC	AITC	Debes Mandal	1	104,706	24,916
Hingalganj	SC	BJP	Nemai Das	2	79,790	73,782
Hingalganj	SC	CPI	Ranjan Kumar Mondal	3	6,008	4,272
Jagatdal	GEN	AITC	Somenath Shyam Ichini	1	87,030	18,364
Jagatdal	GEN	BJP	Arindam Bhattacharya	2	68,666	51,918
Jagatdal	GEN	AIFB	Nemai Saha	3	16,748	14,180
Kamarhati	GEN	AITC	Madan Mitra	1	73,845	35,408
Kamarhati	GEN	BJP	Anindya Banerjee	2	38,437	10,127
Kamarhati	GEN	CPM	Sayandeep Mitra	3	28,310	26,757

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Khardaha	GEN	AITC	Kajal Sinha	1	89,807	28,140
Khardaha	GEN	BJP	Silbhadra Datta	2	61,667	34,751
Khardaha	GEN	CPM	Debajyoti Das (Subho)	3	26,916	24,501
Madhyamgram	GEN	AITC	Rathin Ghosh	1	112,741	48,126
Madhyamgram	GEN	BJP	Rajasree Rajbanshi	2	64,615	17,867
Madhyamgram	GEN	RSSCMJP	Biswajit Maity	3	46,748	43,596
Minakhan	SC	AITC	Usha Rani Mondal	1	109,818	55,830
Minakhan	SC	BJP	Jayanta Mondal	2	53,988	9,382
Minakhan	SC	CPM	Pradyut Roy	3	44,606	40,666
Naihati	GEN	AITC	Partha Bhowmick	1	77,753	18,855
Naihati	GEN	BJP	Phalguni Patra	2	58,898	43,073
Naihati	GEN	CPM	Indrani Kundu Mukherjee	3	15,825	14,124
Noapara	GEN	AITC	Manju Basu	1	94,203	26,710
Noapara	GEN	BJP	Sunil Singh	2	67,493	43,991
Noapara	GEN	INC	Subhankar Sarkar	3	23,502	20,616
Panihati	GEN	AITC	Nirmal Ghosh	1	86,495	25,177
Panihati	GEN	BJP	Sanmoy Bandyopadhyay	2	61,318	40,149
Panihati	GEN	INC	Tapas Majumder	3	21,169	18,835
Rajarhat Gopalpur	GEN	AITC	Aditi Munshi	1	87,650	25,296
Rajarhat Gopalpur	GEN	BJP	Samik Bhattacharya	2	62,354	37,843
Rajarhat Gopalpur	GEN	CPM	Subhajit Dasgupta	3	24,511	22,253
Rajarhat New Town	GEN	AITC	Tapash Chatterjee	1	127,374	56,432
Rajarhat New Town	GEN	BJP	Bhaskar Roy	2	70,942	39,399
Rajarhat New Town	GEN	CPM	Saptarshi Deb	3	31,543	29,511
Sandeshkhali	ST	AITC	Sukumar Mahata	1	112,450	39,685
Sandeshkhali	ST	BJP	Dr. Bhaskar Sardar	2	72,765	58,378
Sandeshkhali	ST	RSSCMJP	Barun Mahato	3	14,387	11,931
Swarupnagar	SC	AITC	Bina Mondal	1	99,784	34,800
Swarupnagar	SC	BJP	Brindaban Sarkar	2	64,984	21,702
Swarupnagar	SC	CPM	Biswajit Mandal	3	43,282	42,026

Annex 15: Paschim Medinipur District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Binpur	ST	AITC	Debnath Hansda	1	100,277	39,494
Binpur	ST	BJP	Palan Saren	2	60,783	52,430
Binpur	ST	CPM	Dibakar Hansda	3	8,353	2,035
Chandrakona	SC	AITC	Arup Dhara	1	121,846	11,281
Chandrakona	SC	BJP	Sibaram Das	2	110,565	99,764
Chandrakona	SC	RSSCMJP	Gouranga Das	3	10,801	7,895
Dantan	GEN	AITC	Bikram Chandra Pradhan	1	95,209	623
Dantan	GEN	BJP	Saktipada Nayak	2	94,586	88,934
Dantan	GEN	CPI	Sisir Kumar Patra	3	5,652	4,402
Daspur	GEN	AITC	Mamata Bhunia	1	114,753	26,842
Daspur	GEN	BJP	Prasanta Bera	2	87,911	70,866
Daspur	GEN	CPM	Dhruba Sekhar Mandal	3	17,045	15,658
Debra	GEN	AITC	Humayun Kabir	1	95,850	11,226
Debra	GEN	BJP	Bharati Ghosh	2	84,624	63,901
Debra	GEN	CPM	Prankrishna Mondal	3	20,723	19,214

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Garbeta	GEN	AITC	Uttara Singha (Hazra)	1	94,928	10,572
Garbeta	GEN	BJP	Madan Ruidas	2	84,356	61,314
Garbeta	GEN	CPM	Ghosh Kumar Tapan	3	23,042	20,323
Ghatal	SC	BJP	Sital Kapat	1	105,812	966
Ghatal	SC	AITC	Shankar Dolai	2	104,846	94,681
Ghatal	SC	CPM	Kamal Chandra Dolui	3	10,165	8,157
Gopiballavpur	GEN	AITC	Dr. Khagendra Nath Mahata	1	104,115	23,768
Gopiballavpur	GEN	BJP	Sanjit Mahata	2	80,347	74,528
Gopiballavpur	GEN	CPM	Prasanta Kumar Das	3	5,819	3,028
Jhargram	GEN	AITC	Birbaha Hansda	1	109,493	38,240
Jhargram	GEN	BJP	Sukhamay Satpathy (Jahar)	2	71,253	60,823
Jhargram	GEN	CPM	Madhuja Sen Roy	3	10,430	6,794
Keshiary	ST	AITC	Paresh Murmu	1	106,366	15,330
Keshiary	ST	BJP	Sonali Murmu Soren	2	91,036	81,766
Keshiary	ST	CPM	Dr. Pulin Bihari Baske	3	9,270	6,700
Keshpur	SC	AITC	Seuli Saha	1	116,992	20,720
Keshpur	SC	BJP	Pritish Ranjan Kuar	2	96,272	82,602
Keshpur	SC	CPM	Rameswar Doloi	3	13,670	10,372
Kharagpur	GEN	AITC	Dinen Roy	1	109,727	36,230
Kharagpur	GEN	BJP	Tapan Bhuya	2	73,497	62,252
Kharagpur	GEN	CPM	Syed Saddam Ali	3	11,245	8,931
Kharagpur Sadar	GEN	BJP	Hiranmoy Chattopadhyaya	1	79,607	3,771
Kharagpur Sadar	GEN	AITC	Pradip Sarkar	2	75,836	65,045
Kharagpur Sadar	GEN	INC	Reeta Sharma	3	10,791	8,148
Medinipur	GEN	AITC	June Maliah	1	121,175	24,397
Medinipur	GEN	BJP	Samit Kumar Dash	2	96,778	83,794
Medinipur	GEN	CPI	Tarun Kumar Ghosh	3	12,984	9,056
Narayangarh	GEN	AITC	Atta Surja Kanta	1	100,894	2,416
Narayangarh	GEN	BJP	Rama Prasad Giri	2	98,478	85,249
Narayangarh	GEN	CPM	Tapas Sinha	3	13,229	10,396
Nayagram	ST	AITC	Dulal Murmu	1	100,903	22,754
Nayagram	ST	BJP	Bakul Murmu	2	78,149	72,286
Nayagram	ST	CPM	Haripada Saren	3	5,863	2,777
Pingla	GEN	AITC	Ajit Maity	1	112,435	6,656
Pingla	GEN	BJP	Antara Bhattacharyya	2	105,779	98,676
Pingla	GEN	INC	Samir Roy	3	7,103	5,030
Sabang	GEN	AITC	Manas Ranjan Bhunia	1	112,098	9,864
Sabang	GEN	BJP	Amulya Maity	2	102,234	84,791
Sabang	GEN	INC	Chiranjib Bhowmik	3	17,443	15,909
Salboni	GEN	AITC	Srikanta Mahata	1	126,020	32,644
Salboni	GEN	BJP	Rajib Kundu	2	93,376	73,517
Salboni	GEN	CPM	Ghosh Susanta	3	19,859	17,216

Annex 16: Purba Medinipur District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Bhagabanpur	GEN	BJP	Rabindranath Maity	1	121,480	27,549
Bhagabanpur	GEN	AITC	Ardhendu Maity	2	93,931	88,657
Bhagabanpur	GEN	INC	Shiu Maiti	3	5,274	4,255
Chandipur	GEN	AITC	Soham Chakraborty	1	109,770	13,472
Chandipur	GEN	BJP	Pulak Kanti Guria	2	96,298	86,461
Chandipur	GEN	CPM	Ashis Kumar Guchhait	3	9,837	8,472
Egra	GEN	AITC	Tarun Kumar Maity	1	125,763	18,491
Egra	GEN	BJP	Arup Dash	2	107,272	102,186
Egra	GEN	INC	Manas K. Karmahapatra	3	5,086	3,693
Haldia	SC	BJP	Tapasi Mondal	1	104,126	15,008
Haldia	SC	AITC	Swapan Naskar	2	89,118	66,430
Haldia	SC	CPM	Kar Paik Manika	3	22,688	20,766
Kanthi Dakshin	GEN	BJP	Arup Kumar Das	1	98,477	10,293
Kanthi Dakshin	GEN	AITC	Jyotirmoy Kar	2	88,184	82,170
Kanthi Dakshin	GEN	CPI	Anurup Panda	3	6,014	4,878
Kanthi Uttar	GEN	BJP	Sumita Sinha	1	113,524	9,330
Kanthi Uttar	GEN	AITC	Tarun Kumar Jana	2	104,194	97,690
Kanthi Uttar	GEN	CPM	Sutanu Maity	3	6,504	5,012
Khejuri	SC	BJP	Santanu Pramanik	1	110,407	17,965
Khejuri	SC	AITC	Partha Pratim Das	2	92,442	84,630
Khejuri	SC	CPM	Himangshu Das	3	7,812	6,676
Mahisadal	GEN	AITC	Tilak Kumar Chakraborty	1	101,986	2,386
Mahisadal	GEN	BJP	Biswanath Banerjee	2	99,600	85,804
Mahisadal	GEN	RSSCMJP	Bikram Chatterjee	3	13,796	12,031
Moyna	GEN	BJP	Ashoke Dinda	1	108,109	1,260
Moyna	GEN	AITC	Sangram Kumar Dolai	2	106,849	101,741
Moyna	GEN	INC	Manik Bhaumik	3	5,108	3,434
Nandakumar	GEN	AITC	Sukumar De	1	108,181	5,406
Nandakumar	GEN	BJP	Adhikary Nilanjan	2	102,775	89,993
Nandakumar	GEN	CPM	Karuna Sankar Bhowmik	3	12,782	11,309
Nandigram	GEN	BJP	Adhikari Suvendu	1	110,764	1,956
Nandigram	GEN	AITC	Mamata Banerjee	2	108,808	102,541
Nandigram	GEN	CPM	Minakshi Mukherjee	3	6,267	5,177
Panskura Paschim	GEN	AITC	Phiroja Bibi	1	111,705	8,889
Panskura Paschim	GEN	BJP	Sintu Senapati	2	102,816	87,692
Panskura Paschim	GEN	CPI	Chittaranjan Dasthakur	3	15,124	13,787
Panskura Purba	GEN	AITC	Biplab Roy Chowdhury	1	91,213	9,660
Panskura Purba	GEN	BJP	Debabrata Pattanayek	2	81,553	60,836
Panskura Purba	GEN	CPM	Ibrahim Ali Sk	3	20,717	19,259
Patashpur	GEN	AITC	Uttam Barik	1	105,299	9,994
Patashpur	GEN	BJP	Ambujaksha Mahanti	2	95,305	88,674
Patashpur	GEN	CPI	Saikat Giri	3	6,631	5,770
Ramnagar	GEN	AITC	Akhil Giri	1	112,622	12,517
Ramnagar	GEN	BJP	Swadesh Ranjan Nayak	2	100,105	93,354
Ramnagar	GEN	CPM	Sabyasachi Jana	3	6,751	5,518
Tamluk	GEN	AITC	Saumen K. Mahapatra	1	108,243	793
Tamluk	GEN	BJP	Hare Krishna Bera	2	107,450	92,732
Tamluk	GEN	CPI	Goutam Panda	3	14,718	11,962

Annex 17: Purulia District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Baghmundi	GEN	AITC	Sushanta Mahato	1	75,905	13,969
Baghmundi	GEN	AJSUP	Ashutosh Mahato	2	61,936	10,890
Baghmundi	GEN	INC	Nepal Chandra Mahato	3	51,046	39,204
Balarampur	GEN	BJP	Baneswar Mahato	1	89,521	423
Balarampur	GEN	AITC	Shantiram Mahato	2	89,098	80,203
Balarampur	GEN	INC	Uttam Kumar Bandyopadhyay	3	8,895	6,454
Bandwan	ST	AITC	Rajib Lochan Saren	1	113,337	18,831
Bandwan	ST	BJP	Parcy Murmu	2	94,506	72,302
Bandwan	ST	CPM	Besra Susanta Kumar	3	22,204	17,137
Joypur	GEN	BJP	Nara Hari Mahato	1	74,380	12,200
Joypur	GEN	INC	Phanibhushan Kumar	2	62,180	26,751
Joypur	GEN	IND	Dibyajoti Singh Deo	3	35,429	16,016
Kashipur	GEN	BJP	Kamalakanta Hansda	1	92,938	7,387
Kashipur	GEN	AITC	Swapan Kumar Beltharia	2	85,551	74,624
Kashipur	GEN	CPM	Mallika Mahata	3	10,927	8,526
Manbazar	ST	AITC	Sandhyarani Tudu	1	103,298	15,516
Manbazar	ST	BJP	Gouri Singh Sardar	2	87,782	70,933
Manbazar	ST	CPM	Yaminikanta Mandi	3	16,849	14,558
Para	SC	BJP	Nadiar Chand Bouri	1	87,347	4,007
Para	SC	AITC	Umapada Bauri	2	83,340	69,659
Para	SC	CPM	Swapan Kumar Bauri	3	13,681	10,024
Purulia	GEN	BJP	Sudip Kumar Mukherjee	1	89,733	7,018
Purulia	GEN	AITC	Sujoy Banerjee	2	82,715	57,719
Purulia	GEN	INC	Partha Pratim Banerjee	3	24,996	22,408
Raghunathpur	SC	BJP	Vivekananda Bauri	1	95,770	5,438
Raghunathpur	SC	AITC	Bouri Hazari	2	90,332	75,594
Raghunathpur	SC	CPM	Ganesh Bouri	3	14,738	10,909

Annex 18: South 24 Parganas District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Baruipur Paschim	GEN	AITC	Biman Banerjee	1	121,006	61,910
Baruipur Paschim	GEN	BJP	Debopam Chattopadhyaya (Babu)	2	59,096	33,457
Baruipur Paschim	GEN	CPM	Md Lahek Ali	3	25,639	23,870
Baruipur Purba	SC	AITC	Bivas Sardar (Vobo)	1	123,243	49,641
Baruipur Purba	SC	BJP	Chandan Mondal	2	73,602	52,135
Baruipur Purba	SC	CPM	Swapan Naskar	3	21,467	19,612
Basanti	SC	AITC	Shyamal Mondal	1	111,453	50,642
Basanti	SC	BJP	Ramesh Majhi	2	60,811	24,123
Basanti	SC	RSP	Subhas Naskar	3	36,688	34,781
Behala Paschim	GEN	AITC	Partha Chatterjee	1	114,778	50,884
Behala Paschim	GEN	BJP	Srabanti Chatterjee	2	63,894	16,385
Behala Paschim	GEN	CPM	Nihar Bhakta	3	47,509	45,076
Behala Purba	GEN	AITC	Ratna Chatterjee	1	110,968	37,428
Behala Purba	GEN	BJP	Payel Sarkar	2	73,540	43,368

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Behala Purba	GEN	CPM	Samita Har Chowdhury	3	30,172	27,337
Bhangore	GEN	RSSCMJP	Md. Nawsad Siddique	1	109,237	26,151
Bhangore	GEN	AITC	Karim Rezaul	2	83,086	44,360
Bhangore	GEN	BJP	Soumi Hati	3	38,726	33,796
Bishnupur(Sc)	SC	AITC	Dilip Mondal	1	136,509	58,832
Bishnupur(Sc)	SC	BJP	Agniswar Naskar	2	77,677	59,682
Bishnupur(Sc)	SC	CPM	Jhuma Kayal	3	17,995	15,286
Budge Budge	GEN	AITC	Ashok Kumar Deb	1	122,357	44,714
Budge Budge	GEN	BJP	Dr. Tarun Kumar Adak	2	77,643	66,834
Budge Budge	GEN	INC	Sk Mujibar Rahaman	3	10,809	8,074
Canning Paschim	SC	AITC	Paresh Ram Das	1	111,059	35,243
Canning Paschim	SC	BJP	Arnab Roy	2	75,816	62,426
Canning Paschim	SC	IND	Meghnath Halder	3	13,390	1,482
Canning Purba	GEN	AITC	Saokat Molla	1	122,301	53,007
Canning Purba	GEN	RSSCMJP	Gazi Shahabuddin Siraji	2	69,294	34,791
Canning Purba	GEN	BJP	Kalipada Naskar	3	34,503	31,817
Diamond Harbour	GEN	AITC	Pannalal Halder	1	98,478	16,996
Diamond Harbour	GEN	BJP	Dipak Kumar Halder	2	81,482	42,763
Diamond Harbour	GEN	CPM	Pratik Ur Rahaman	3	38,719	37,134
Falta	GEN	AITC	Sankar Kumar Naskar	1	116,713	39,928
Falta	GEN	BJP	Bidhan Parui	2	76,785	69,316
Falta	GEN	INC	Abdur Razzak Molla	3	7,469	5,793
Gosaba	SC	AITC	Jayanta Naskar	1	105,723	23,709
Gosaba	SC	BJP	Barun Pramanik (Chitta)	2	82,014	77,143
Gosaba	SC	RSP	Anil Chandra Mondal	3	4,871	3,600
Jadavpur	GEN	AITC	Debabrata Majumdar (Malay)	1	98,100	38,869
Jadavpur	GEN	CPM	Dr. Sujan Chakraborty	2	59,231	6,092
Jadavpur	GEN	BJP	Rinku Naskar	3	53,139	50,409
Jaqynagar	SC	AITC	Biswanath Das	1	104,952	38,683
Jaqynagar	SC	BJP	Rabin Sardar	2	66,269	48,901
Jaqynagar	SC	CPM	Apurba Pramanik (Apu)	3	17,368	7,945
Kakdwip	GEN	AITC	Manturam Pakhira	1	114,493	25,302
Kakdwip	GEN	BJP	Dipankar Jana	2	89,191	76,957
Kakdwip	GEN	INC	Indranil Rout	3	12,234	10,604
Kasba	GEN	AITC	Ahmed Javed Khan	1	121,372	63,622
Kasba	GEN	BJP	Dr. Indranil Khan	2	57,750	18,570
Kasba	GEN	CPM	Shatarup Ghosh	3	39,180	36,704
Kulpi	GEN	AITC	Jogaranjan Halder	1	96,577	33,818
Kulpi	GEN	BJP	Pranab Kumar Mallik	2	62,759	32,798
Kulpi	GEN	RSSCMJP	Siraj Uddin Gazi	3	29,961	28,276
Kultali	SC	AITC	Ganesh Chandra Mondal	1	117,238	47,177
Kultali	SC	BJP	Mintu Halder	2	70,061	50,051
Kultali	SC	CPM	Ram Sankar Halder	3	20,010	4,704

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Magrahat Paschim	GEN	AITC	Gias Uddin Molla	1	97,006	46,941
Magrahat Paschim	GEN	BJP	Dhurjati Saha (Manas)	2	50,065	9,380
Magrahat Paschim	GEN	RSSCMJP	Maidul Islam Molla	3	40,685	38,399
Magrahat Purba	SC	AITC	Namita Saha	1	110,945	54,079
Magrahat Purba	SC	BJP	Chandan Kumar Naskar	2	56,866	23,044
Magrahat Purba	SC	CPM	Chandan Saha	3	33,822	32,342
Maheshtala	GEN	AITC	Dulal Chandra Das	1	124,008	57,949
Maheshtala	GEN	BJP	Umesh Das	2	66,059	40,783
Maheshtala	GEN	CPM	Pravat Chowdhury	3	25,276	23,227
Mandirbazar	SC	AITC	Joydeb Halder	1	95,834	23,492
Mandirbazar	SC	BJP	Dilip Kumar Jatua	2	72,342	46,945
Mandirbazar	SC	RSSCMJP	Sanchay Kumar Sarkar	3	25,397	23,575
Metiaburuz	GEN	AITC	Abdul Khaleque Molla	1	151,066	119,604
Metiaburuz	GEN	BJP	Ramjit Prasad	2	31,462	24,073
Metiaburuz	GEN	RSSCMJP	Nuruzaman Molla	3	7,389	4,381
Patharpratima	GEN	AITC	Samir Kumar Jana	1	120,181	22,134
Patharpratima	GEN	BJP	Asit Kumar Haldar	2	98,047	87,865
Patharpratima	GEN	INC	Shukdeb Bera	3	10,182	8,518
Raidighi	GEN	AITC	Aloke Jaldata	1	115,707	35,568
Raidighi	GEN	BJP	Santanu Bapuli	2	80,139	43,208
Raidighi	GEN	CPM	Kanti Ganguly	3	36,931	34,069
Sagar	GEN	AITC	Bankim Chandra Hazra	1	129,000	29,846
Sagar	GEN	BJP	Kamila Bikash	2	99,154	90,058
Sagar	GEN	CPM	Sk Muklesur Rahaman	3	9,096	8,071
Satgachia	GEN	AITC	Mohan Chandra Naskar	1	118,635	23,318
Satgachia	GEN	BJP	Chandan Pal	2	95,317	79,097
Satgachia	GEN	CPM	Goutam Pal	3	16,220	14,595
Sonarpur Dakshin	GEN	AITC	Arundhuti Maitra (Lovely)	1	109,222	26,181
Sonarpur Dakshin	GEN	BJP	Anjana Basu	2	83,041	51,263
Sonarpur Dakshin	GEN	CPI	Shuvam Banerjee	3	31,778	29,228
Sonarpur Uttar	GEN	AITC	Firdousi Begum	1	119,957	36,090
Sonarpur Uttar	GEN	BJP	Ranjan Baidya	2	83,867	54,467
Sonarpur Uttar	GEN	CPM	Monalisa Sinha	3	29,400	27,286
Tollygunj	GEN	AITC	Aroop Biswas	1	101,440	50,080
Tollygunj	GEN	BJP	Babul Supriyo	2	51,360	10,763
Tollygunj	GEN	CPM	Debdut Ghosh	3	40,597	38,287

Annex 19: Uttar Dinajpur District Election Results: Top 3 Candidates by Votes in Each Constituency

Constituency	*Type*	*Party*	*Candidate*	*Position*	*Votes*	*Margin*
Chakulia	GEN	AITC	Azad Minhajul Arfin	1	86,311	33,837
Chakulia	GEN	BJP	Sachin Prasad	2	52,474	23,770
Chakulia	GEN	AIFB	Ali Imran Ramz	3	28,704	25,979
Chopra	GEN	AITC	Hamidul Rahaman	1	124,923	64,905
Chopra	GEN	BJP	Md. Shahin Akhter	2	60,018	47,739
Chopra	GEN	CPM	Anwarul Haque	3	12,279	9,113
Goalpokhar	GEN	AITC	Md. Ghulam Rabbani	1	105,649	73,514
Goalpokhar	GEN	BJP	Md. Ghulam Sarwar	2	32,135	12,744
Goalpokhar	GEN	INC	Masood Md. Naseem Ahsen	3	19,391	17,375
Hemtabad	SC	AITC	Satyajit Barman	1	116,425	27,215
Hemtabad	SC	BJP	Chandima Roy	2	89,210	79,757
Hemtabad	SC	CPM	Bhupen Barman	3	9,453	7,293
Islampur	GEN	AITC	Abdul Karim Chowdhary	1	100,131	37,440
Islampur	GEN	BJP	Saumyaroop Mandal	2	62,691	59,230
Islampur	GEN	INC	Sadiqul Islam	3	3,461	1,485
Itahar	GEN	AITC	Mosaraf Hussen	1	114,645	43,975
Itahar	GEN	BJP	Amit Kumar Kundu	2	70,670	65,762
Itahar	GEN	CPI	Srikumar Mukherjee	3	4,908	3,668
Kaliaganj	SC	BJP	Soumen Roy	1	116,768	21,820
Kaliaganj	SC	AITC	Tapan Deb Singha	2	94,948	78,178
Kaliaganj	SC	INC	Pravash Sarkar	3	16,770	12,766
Karandighi	GEN	AITC	Goutam Paul	1	116,594	36,626
Karandighi	GEN	BJP	Subhas Chandra Sinha S/O: Haranarayan Sinha	2	79,968	70,822
Karandighi	GEN	AIFB	Md. Hafizul Iqbal	3	9,146	6,697
Raiganj	GEN	BJP	Krishna Kalyani	1	79,775	20,748
Raiganj	GEN	AITC	Agarwal Kanaia Lal	2	59,027	41,829
Raiganj	GEN	INC	Mohit Sengupta	3	17,198	14,730

AUTHOR' DECLARATIONS AND ESSENTIAL ETHICAL COMPLIANCES

Author' Contributions (in accordance with ICMJE criteria for authorship)
This article is 100% contributed by the sole author. She conceived and designed the research or analysis, collected the data, contributed to data analysis & interpretation, wrote the article, performed critical revision of the article/paper, edited the article, and supervised and administered the field work.

Funding
No funding was available for the research conducted for and writing of this paper.

Research involving human bodies (Helsinki Declaration)
Has this research used human subjects for experimentation? No

Research involving animals (ARRIVE Checklist)
Has this research involved animal subjects for experimentation? No

Research involving Plants
No plant was used to conduct this research.

Research on Indigenous Peoples and/or Traditional Knowledge
Has this research involved Indigenous Peoples as participants or respondents? No

(Optional) PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
Have authors complied with PRISMA standards? No

Competing Interests/Conflict of Interest
Author has no competing financial, professional, or personal interests from other parties or in publishing this manuscript.

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