

**GEOGRAPHICAL INSIGHTS INTO THE SOCIO-ECONOMIC
DEVELOPMENT OF PURBA BARDHAMAN DISTRICT, WEST
BENGAL**

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Subject: Geography

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ABSTRACT

This research carries the exciting theme of the interlinkage between geography and the socio-economic development on Purba Bardhaman district in West Bengal. On the basis of secondary data collection and qualitative observation, it points out the influence of spatial differences in the physical geography on the developmental outcomes e.g. irrigation infrastructure, agricultural fertility of the soil and settlement patterns. A model of 110 administrative units was applied in the evaluation of housing, educational, health access and irrigation source disparities. The results show that regardless of the predominance of canal irrigation and pucca housing in a number of geographical regions, there remains a profound divide in health services and secondary-level skills development. The analysis highlights the disparity in the rate of the growth of the infrastructural systems and the indicative role of geography in determining the developmental patterns at a local level. The paper may offer a spatial analysis of the district-wide scale; therefore, it may contribute to the greater knowledge about geographically framed planning and access equality to resources in semi-urban and rural India.

Keywords: Purba Bardhaman, socio-economic development, geography, spatial disparity, irrigation infrastructure.

1. INTRODUCTION

Purba Bardhaman district is strategically situated in central alluvial plains of West Bengal and the geography contributes to the central concern of the socio-economic pattern of the region. The theme of the paper, i.e. Geographical Insights into Socio-Economic Development, has a direct correlation to the interaction of the physical environment in terms of its soil fertility, river system, climate, and the distribution of its infrastructure with human development results in the district. Purba Bardhaman, which was once an important part of the notional undivided

Bardhaman district is a region that has been known to be agrarian dominant. The fertile alluvial soil, abundant irrigation of the canals by 8 river systems of Damodar and Ajay rivers, and a suitable climate have allowed the grown rice intensively thus earning the territory as the rice bowl of Bengal.

The socio-economic development in the district, however, is not randomly distributed across the geography of the district, its development in terms of education, health, diversification of employment, housing infrastructure, etc. do not generate at random. Whereas certain blocks and villages are relatively better with road accessibility, schools, health centres and are close to the cities, others appear to be quite marginalized, and this contributes to regional imbalances. This paper seeks to present a geographically based assessment of these developmental trends by exploring spatial distributions of livelihoods, access to infrastructure and service provision among various others.

2. LITERATURE REVIEW

Ahamed (2020) carried out a geographical study of the deprivation of the Scheduled Castes (SCs) and Scheduled Tribes (STs) in West Bengal. His work demonstrated their long-time marginalization because of social alienation on one hand and the lack of equal access to education, healthcare, housing and employment based on geographical location on the other. The study stressed that, there is a concentration of socio-economic deprivation in some pockets in the state, geographically speaking, there occurs a concentration in some areas, and most often in infrastructural negligence. This paper opened to the significance of spatial analysis in pin pointing gaps in the development and there was potential need to de-aggregate data by micro-regions, e.g. gram panchayats or blocks to make policies effective.

Basu et al. (2023) Gazed at the socio-economic vulnerabilities that formed as a result of COVID-19. In their research, the researchers have used quantitative methodology to quantify how the shortage of infrastructure, computer access, and institutional readiness increased urban strain amid the health crisis. Even though concerning an urban setting, the study provided a stinging study into the role of localized infrastructure in the determinant approach to community resilience. The results of their study influence this one as an indirect source, having a comparison-urban perspective which allows us to present the situation in the rural and semi-urban aspects of the interior district of a region in a better way.

Dey and Mistri (2018) examined the positive relationship between the development of infrastructures and output of agriculture in the district of Purba Bardhaman by making a block comparison. According to their results, blocks characterized by the superior supply of irrigation systems, access and connection to roads and financial services in agriculture showed a high degree of enhanced production of crops and economic prosperity. The study was a pioneer in quantitatively associating physical infrastructure and livelihoods in the district and provides credence to the claim that geography and infrastructure act mutually into the mediating process of development processes. Their results give a valuable analytical credence to the current study especially in the interpretation of spatial distribution of irrigation trends and the socio-economic implication of such patterns.

Dutta and Bagli (2022) expand the level of analysis by studying multidimensional deprivation in West Bengal covering all the districts in the state. They demonstrated how concentrating on aggregate data of different districts could frequently hide internal inequalities using composite indices that comprised education, housing, health and livelihood indicators. Their findings yielded the conclusion that although general indicators of human development had been found satisfactory at the state scale, intra-district inequalities were still being highly rooted. This fact goes to support the manner in which the present study has approached the topic of study by specifically targeting units in a village and block level of a single district in the hopes of unravelling these latent disparities and thus providing a more detailed and location-specific standpoint on the topic of study.

3. METHODOLOGY

The given study lies within a quantitative, geographically interpretive approach and makes use only of secondary sources of data and on-site observation with no use of the surveys or primary questions. The methodological strategies accentuate on unravelling the spatial pattern and infrastructural aspects of the socio-economic development in Purba Bardhaman followed by a geographical perspective.

3.1 Research Design

The study adopts the descriptive-analytical research design, which would suit, based on the measure to be taken in capturing the interplay of the physical geography and socio-economic indicators within the administrative regions. The study is non-survey-based, this avoids

subjective self-reported information but focuses primarily on institutional and spatial datasets; hence being more consistent, reliable, and objective in results.

3.2 Analytical Techniques

Data collected was tabulated and analysed with the help of the descriptive statistics with most of the answers being the frequency counts and the percentage distribution to show the trends across the district. This way of doing has an obvious comparative bias but does not mean any connection in cause and effect, it remains consistent with the non-survey, regionally based approach.

3.3 Sample Size

The 110 administrative units (villages or gram panchayat) comprise the total sample size of the study. The choice of these units was such that they would cover all the regions of the Purba Bardhaman district in terms of spatial coverage, variation of geographical settings, infrastructural development, and social economic situation. It is because of this consistency in sample frame that even data presented on different topic areas can be compared and interpreted comparatively on areas of housing, health, education and irrigation.

4. RESULT AND DISCUSSION

This section provides description of analysis of major socio-economic as well as infrastructural indicators of 110 administrative units of Purba Bardhaman district. The data have been well organized in to frequency and percentage tables with the aid of bar charts to provide easy visualization of patterns. Disparities and development concentrations have been cited in all the subsections to provide an idea of the geographical aspects of socio-economic advancement in the district.

4.1 Housing Infrastructure in Rural and Semi-Urban Areas

This table shows allocation of Puccas, Semi-pucca, and Kutcha type of housings in 110 units in Purba Bardhaman district. It gives an impression of quality structure of the housing units and also gives a lead of socio-economic status of the household staying in various areas. A very important indicator of infrastructure and the security of livelihoods, especially in semi-urban and rural areas, is the type of housing.

Table 1: Housing Type

Housing Condition	Frequency	Percentage (%)
Pucca	49	44.5%
Semi-pucca	36	32.7%
Kutcha	25	22.7%

The table reveals that pucca houses form the biggest percentage (44.5%) of housing in the district and is thus a signifier that a good number of administrative units have comparatively high standards of living. Nevertheless, 32.7 % of the units continue to report Semi-pucca structures that are intermediate indicating at some level of improvement. It is worth mentioning that 22.7 % of the regions have Kutcha houses, which indicates the low quality of housing and a well-focused policy of housing development at those areas.

In the following bar chart, it will appear graphically the percentage of types of housing among which the 110 sampled units are represented. It gives a clearer comparative perspective as to the extent of each category of housing in the district.

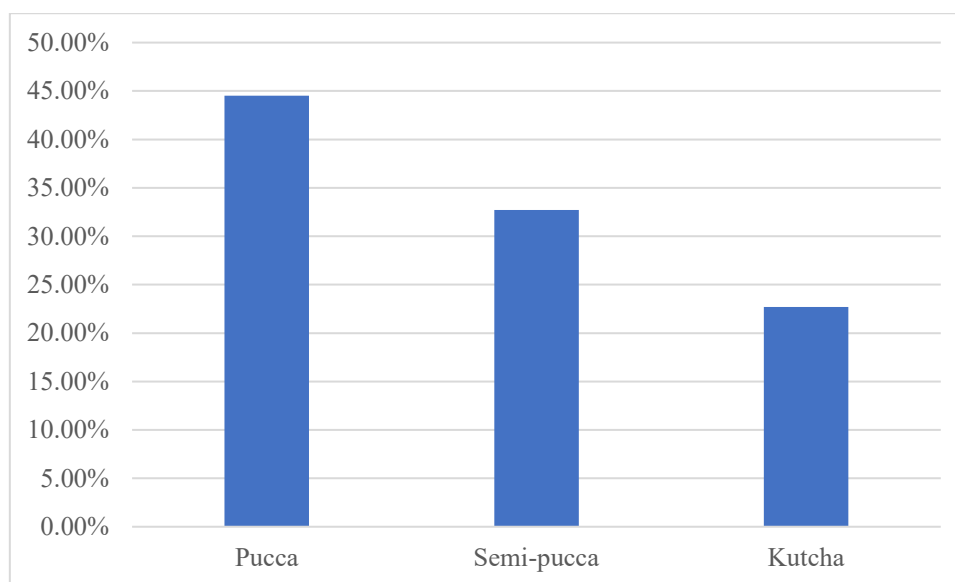


Figure 1: Graphical Representation of the Percentage of Housing Type

The figure bears out the numerical trend given in the table-Pucca housing takes the lead followed by Semi-pucca, then the Kutcha. The visual form reveals at a glance that even though housing quality is being enhanced, almost a quarter of the units is still using poorly established housing buildings thus showing an unequal infrastructural development within the district.

4.2 Educational Infrastructure Availability

Access to educational institutions of various levels is an essential part of the regional human development. The table shows the number and the percentage of units of administration (out of 110) of Purba Bardhaman district those have access to Primary Schools, Secondary Schools, Higher Secondary Schools and Colleges/Terminal Institutes. It determines the dissemination of the education infrastructure and gives access to the learning flaw in higher education and vocational education infrastructures in the region.

Table 2: Access to Education

Education Facility Available	Frequency	Percentage (%)
Primary School	20	18.0%
Secondary School	7	6.3%
Higher Secondary School	28	25.4%
College/Technical Institute	55	50.0%

The table demonstrates the fact that, Colleges and Technical Institutes have acquired presence in half of the administrative units which is a recent development as concerns the access to higher education and vocational training. Nevertheless, there is a great infrastructural bottleneck in the education chain, with Secondary Schools only being available in 6.3 % of the units. To the surprise, the Primary Schools, which tend to be the most prevalent, exist in just 18 % of areas registered in this instance, perhaps an aggregation of data on a wider level of the village clustering. The access density of the Higher Secondary Schools is somewhat moderate standing at 25.4%.

The result of the percentage availability of various levels of educational facilities was compared in detail with the administration of the 110 administrative units in Purba Bardhaman through the following bar chart representation. It also brings out disparity in access to institutions, especially basic and higher education institutions.

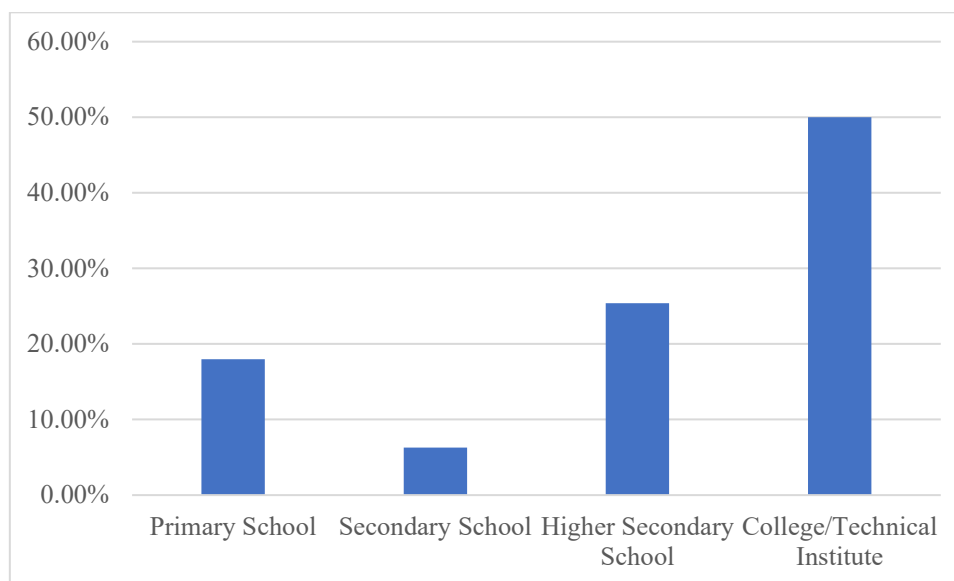


Figure 2: Graphical Representation of the Percentage of Access to Education

Colleges/Technical Institutes also dominate on availability as indicated in the figure, Higher Secondary Schools come second. The drastic decline in the number of students getting access to Secondary Schools stands out visually, proving the presence of a structural barrier in the progression of education. The component of Primary Schools also surprisingly takes the form of a low bar, further validating the suggestion of the previous table on the possibility of basic infrastructure to be carried out in less but bigger aggregations or catchment areas.

4.3 Distribution of Health Infrastructure

The parameters affecting health that determine the health and resilience of the rural people include health infrastructure. In this table, different types of health facilities across 110 administrative units of Purba Bardhaman district were shown in distribution. The categorization is exclusive of each other, i.e. each unit is counted in only one dominant level of a health facility which is either a Sub-Centre, Primary Health Centre, Community Health Centre and Hospital (Government or Private).

Table 3: Health Infrastructure Availability

Health Facility Type	Frequency	Percentage (%)
Sub-Centres (only)	56	50.9%
Primary Health Centres (only)	28	25.5%
Community Health Centres (only)	16	14.5%

Hospitals (Govt./Private only)	10	9.1%
Total	110	100.0%

The statistics indicate that Sub-Centres are the most commonly available healthcare infrastructure with 50.9 % figure in the sample population. The main services that are provided in these centres are basic health services and preventive care. The next are the Primary Health Centres (PHCs) that have a 25.5 % representation and normally to them you go as a first point of contact with regards to curative care. Only 14.5 % of the administrative units are encompassing Community Health Centres (CHCs) that offer more specialized services. Hospitals, are the least available facilities with the presence of 9.1 % in the units stately indicating the absence of early or inpatient care.

The percentage distribution of the four categories of health facilities (Sub-Centre, PHC, CHCs and Hospitals) in the 110 administrative units is graphically given in the following bar chart. It offers a fast comparison of occurrence of each level of care.

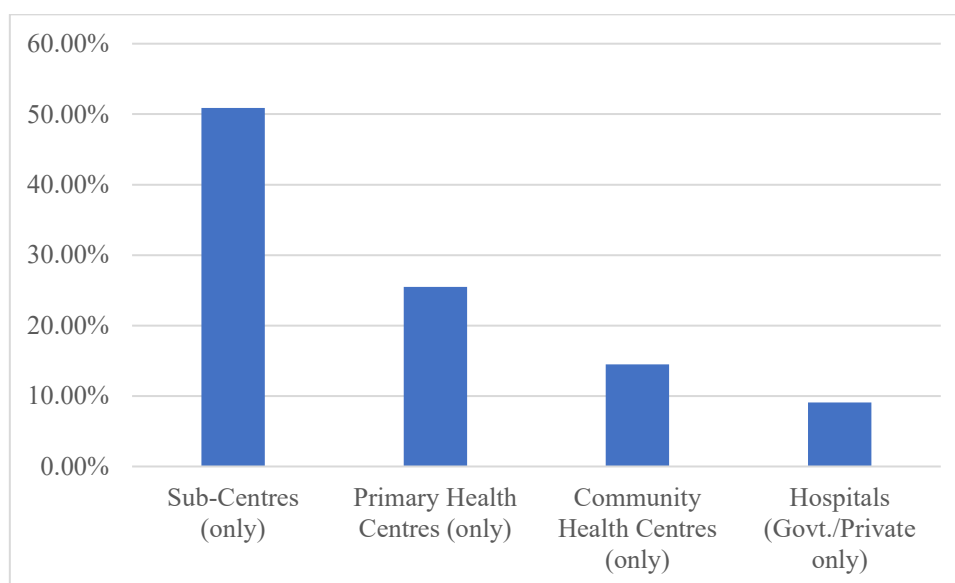


Figure 3: Graphical Representation of the Percentage of Health Infrastructure Availability

The absolute dominance of Sub-Centres in Purba Bardhaman rural health system is well illustrated in the figure. The pictorial contrast between the Sub-Centres and the rest of the categories establishes the great reliance on the primary level of care. The narrower bars surrounding CHCs and Hospitals underline how few mid-level and advanced medical services are available in most of the administrative areas.

4.4 Irrigation Patterns and Agricultural Support

Irrigation systems are central in the production of agriculture and household survival especially among the locals residing in rural areas. The tabular summary given below shows the percentage distribution, as well as the frequency of four significant irrigation sources applied in 110 administrative units in Purba Bardhaman namely Canal Irrigation, Tube Well / Bore Well, Tanky/Pond, and Rain fed Only.

Table 4: Irrigation Sources

Irrigation Source	Frequency	Percentage (%)
Canal Irrigation	64	58.2%
Tube Well/Bore Well	28	25.5%
Tank/Pond	12	10.9%
Rainfed Only	6	5.4%

It can be seen in the data that Canal Irrigation has the largest proportion of agricultural water supply with 58.2 % of the units showing such supply, a feature that can be attributed to the well laid out canals and the general infrastructure development in the district under state-sponsored irrigation projects. Tube Wells and Bore Well comes next with 25.5% which means their reliance on ground water extraction with lesser availability of canals may be very high. Tank and Pond-based irrigation is found in 10.9% of the units and have remained in an area where there has been community or historical water storage systems. Majority i.e. 5.4 % of the areas are only based on rainfed agriculture and this shows that agricultural vulnerability to rainfall variability is not too high.

The next bar graph represents the proportionate composition of different sources of irrigation amongst the 110 districts in Purba Bardhaman. It gives a direct contrast of the superiority and regional distribution of every irrigation technique.

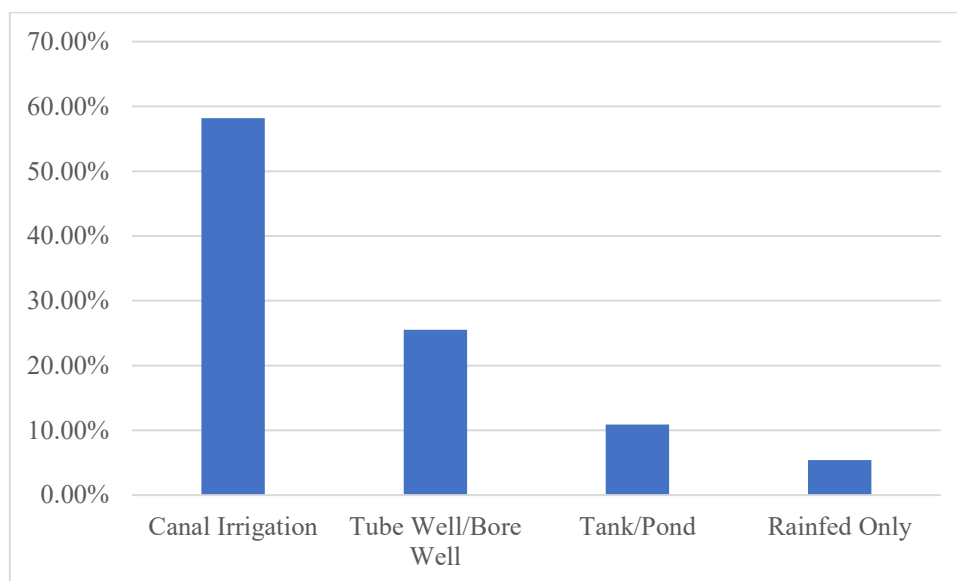


Figure 4: Graphical Representation of the Percentage of Irrigation Sources

The graphic shows that Canal Irrigation completely dominates the irrigation profile of this district. It towers over the other sources of irrigation. Tube Well/Bore Well use is the second most common source, as it plays a complementary role in the provision of water. Tank/Pond and Rainfed methods were represented by bars that were considerably shorter in length than the first two sources, thereby confirming the significant marginal role of these technologies in the district-wide irrigation strategy.

5. CONCLUSION

The geographical pattern of social economic development provides a geographically sensitive pattern of the district Purba Bardhaman which is defined by both natural and infrastructural similarities. The rich plains and the large network of canals have made agriculture very productive which has added further to the reputation of the region as the rice bowl of Bengal. Nonetheless, severe gaps remain in the supply of social infrastructure especially on secondary education and healthcare. Although 50 percent of the management units state that they have pucca houses and are reaching higher educational facilities or those related to technical colleges and educational sectors, nevertheless, most of them still have to count on kutchra houses and are not getting adequately covered in terms of secondary schools, hospitals and other required facilities. The popularity of having Sub-Centres implies primary medical care, and the low supply of Community Health Centres and hospitals reflects the lack of advanced health care.

Moreover, about a part of the region is still relying on the groundwater or subjected to rain fed agriculture despite the states of canal irrigation supersession.

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