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PREPARATION OF DEVELOPMENT PLAN FOR MEHERPUR ZILLA

## REPORT ON ASSIGNMENT-01

Spatial Transformation of Socio-economic survey output such as spatial transformation, comparison between PRA and Socio-economic, etc

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# **Summary of Assignment 1**

## **A. Summary of Assignment 1**

This report summarizes Assignment-1 according to the ToR by Junior Urban Planner (Individual Consultant) for the "Preparation of Development Plan for Meherpur Zilla" project. The assignment I have done is "Spatial Transformation of Socio-economic survey output, such as spatial transformation, comparison between PRA and Socio-economic, etc". This study assesses the quality of life in Meherpur Paurashava using three indices: Physical Quality of Life Index (PQLI), Quality of Life Index (QLI), and Cultural Capital Index (CCI). These indicators evaluate physical well-being, service satisfaction, and cultural engagement. Data were collected from 216 households across 9 wards using structured questionnaires. The Integrated Quality of Life Index (IQLI), combining all three indices, revealed significant ward-wise disparities. Ward 02 showed the highest quality of life, while Wards 03 and 08 performed poorly. The study emphasizes the importance of using these indices for data-driven, people-centered, and culturally inclusive urban planning.

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## **1.1 Introduction**

Urban and regional planning increasingly emphasizes not only physical development but also the overall well-being and satisfaction of residents. In this context, understanding and enhancing the quality of life has become a central objective of planning practices. Quality of life includes various dimensions, such as access to basic services, safety, education, health, cultural engagement, and environmental sustainability. To accurately assess these dimensions, planners use a combination of quantitative and qualitative indicators that capture both tangible (e.g., infrastructure, public services) and intangible (e.g., social cohesion, cultural participation) aspects of urban life.

This study explores three key indices widely used in planning: the Physical Quality of Life Index (PQLI), the Cultural Capital Index (CCI), and the Quality-of-Life Index (QLI). The PQLI highlights the basic physical and social conditions necessary for human well-being. The CCI, on the other hand, evaluates a community's cultural engagement, which is often overlooked in traditional planning approaches but plays a vital role in fostering identity, social resilience, and inclusive development. The QLI serves as a broader composite measure that captures resident satisfaction with essential urban services, typically based on perception-based surveys.

By integrating these three indices, planners can gain a comprehensive understanding of quality of life at both micro and macro scales. In this study, ward-wise data from Meherpur Paurashava has been analyzed using these indices to support planning efforts that are more people-centric, culturally informed, and socially responsive.

## **1.2 Definition PQLI, QLI, and CCI**

### **1.2.1 Physical Quality of Life Index (PQLI)**

The Physical Quality of Life Index (PQLI) is a composite social indicator developed by Morris D. Morris in the 1970s as a non-economic measure of development. It was designed to offer a clearer picture of the actual well-being of people in a country, rather than relying solely on economic indicators like GDP, which may not reflect the true social conditions of the population.

## **Components of Physical Quality of Life Index**

- **Infant Mortality Rate (IMR):**

Measures the number of infant deaths (under age one). A lower rate suggests better maternal and child health services.

- **Life Expectancy:**

Represents the average number of years a person is expected to live after surviving the first year. This focuses on general health conditions and excludes infant mortality to avoid duplication.

- **Literacy Rate**

The percentage of people aged 15 and above who can read and write a simple sentence. It indicates access to basic education and educational infrastructure.

Each of these indicators is scaled between 0 (worst performance) and 100 (best performance). The PQLI is then calculated as the average of the three scaled indicators, resulting in a score ranging from 0 to 100.

### **1.2.2. Quality of Life Index (QLI)**

The Quality-of-Life Index (QLI) is a broad, multidimensional tool that seeks to measure the general well-being, happiness, and life satisfaction of individuals or communities. Unlike PQLI, which is limited to basic health and literacy, QLI takes into account a comprehensive set of variables that affect day-to-day life.

#### **Typical Dimensions of the quality-of-life index:**

- **Health and Healthcare Access:** Health services availability, for example, hospitals, clinics etc.
- **Education and Knowledge Access:** Availability of educational institutions such as primary school, high school, and college, and their level of satisfaction among the people.
- **Safety and Security:** The level of satisfaction of the people with the presence of the police station, police box, street light, etc.
- **Movement:** Level of satisfaction of the residents of the study area with the existing road, footpath, and lane divider, etc.

### **1.2.3. Cultural Capital Index (CCI)**

The Cultural Capital Index (CCI) is a more recent and evolving concept, grounded in sociologist Pierre Bourdieu's theory of cultural capital, which refers to the non-financial social assets that promote social mobility and community identity. The CCI aims to quantify and analyze the cultural resources, activities, and participation levels in a given community or region.

#### **Types of Cultural Capital within the Cultural Capital Index (CCI)**

##### **Embodied Cultural Capital**

This type refers to the personal traits, knowledge, skills, and cultural competence that individuals acquire through socialization, education, and experience. It is internal and long-lasting, often passed down within families or through communities.

##### **Objectified Cultural Capital**

This includes physical, tangible cultural goods and assets that people can own, use, or interact with. These cultural objects carry meaning and artistic value, and their accessibility reflects a community's cultural wealth.

##### **Institutionalized Cultural Capital**

This refers to official recognition of cultural skills or knowledge. It legitimizes cultural competence within society and often influences social mobility.

##### **Infrastructural Cultural Capital**

Some contemporary interpretations also include infrastructural or spatial cultural capital, focusing on physical spaces and institutions that support cultural life. This is evaluated through the availability, accessibility, and distribution of cultural infrastructure across urban and rural areas.

##### **Participatory Cultural Capital**

This emerging type focuses on active engagement and participation in cultural life, highlighting inclusion, diversity, and community involvement.

## 2. How are these indicators used in the Development Plan

### 2.1 Study Area

Meherpur, a district of notable historical and cultural importance, holds a unique position in the national landscape due to its rich heritage, agricultural productivity.

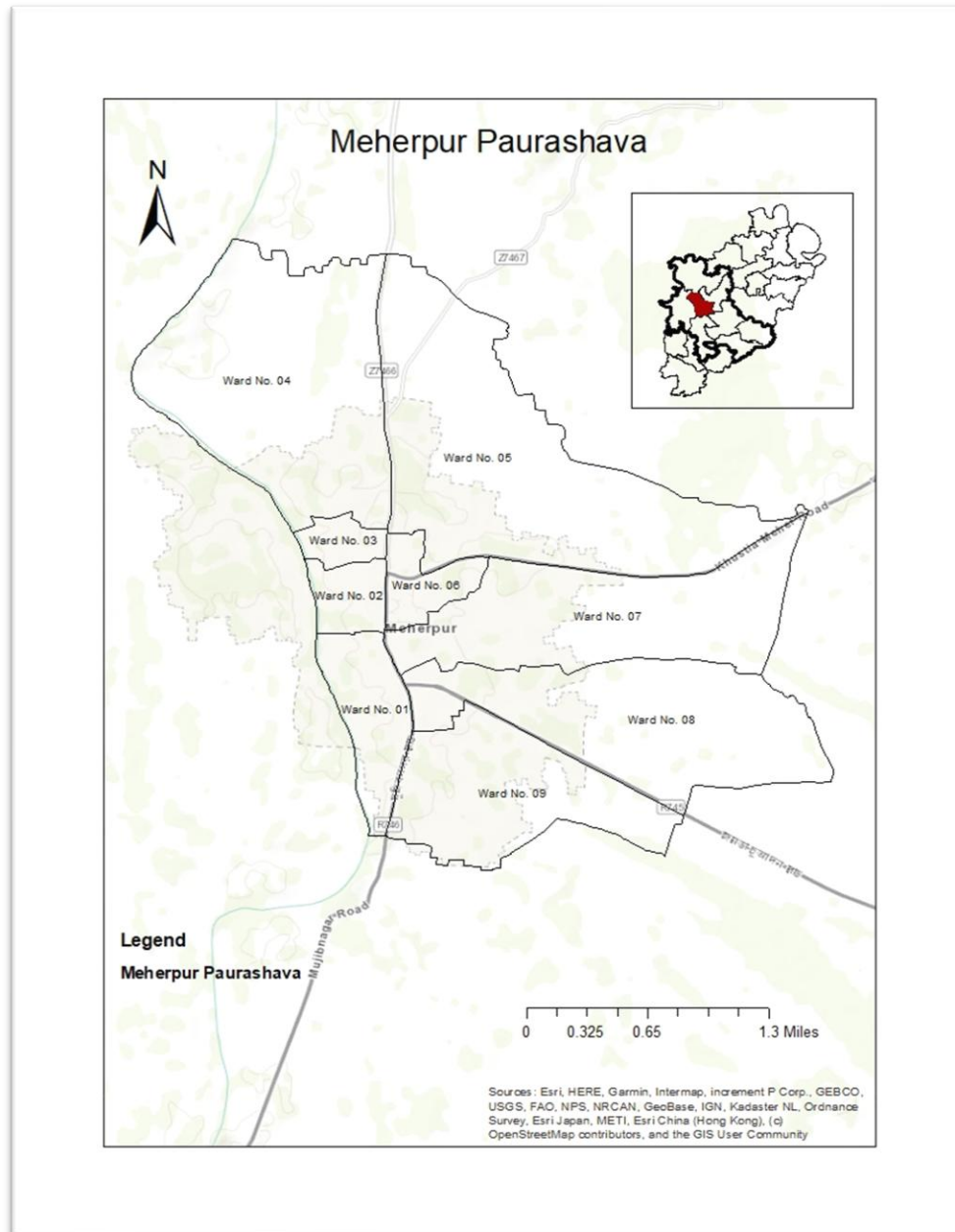


Figure: Study Area Map

There are three upazilas within Meherpur District—Meherpur Sadar, Mujibnagar, and Gangni. Situated in the southwestern region of Bangladesh. And among these three upazilas, there are two paurashavas, named Meherpur Paurashava and Gangni Paurashava. At the same time, these two are counted as urban areas. In this study, Meherpur Paurashava is selected as the study area, and it lies approximately between 23.7803° North latitude and 88.63° East longitude.

## **2.2 Questionnaire Preparation**

Questionnaires are prepared based on the three theories. And they are

- Physical Quality of Life Index,
- Quality of Life and
- Cultural Capital Theory

For measuring the physical quality of life, three core indicators will be measured properly.

- Life Expectancy: Measures longevity.
- Infant Mortality Rate (IMR): Measures child survival.
- Literacy Rate: Measures education levels.

For measuring the quality-of-life index, 15 indicators influence the quality of life. And those indicators are education, health, recreation, safety, movement, accessibility of drinking water, electricity system, sewerage, fuel system, drainage system, waste management, religion, and others. Develop the questionnaire based on a Likert scale (1 to 5),

- 1= Very Satisfied
- 2= Satisfied
- 3= Neither satisfied nor dissatisfied
- 4= Dissatisfied
- 5 = Strongly Dissatisfied

Responses for each subcategory of the selected indicators from the sample population.

For measuring the cultural capital theory, develop the questionnaire based on a binary scale (yes and no)

- 1= Yes
- 2 = No



### 2.3 Sample Size and Design

A stratified random sampling technique is used to ensure the representation across different types of housing structures. The population was divided into three strata based on the type of housing

1. Pucca (permanent structures),
2. Semi-Pucca (semi-permanent structures), and
3. Kacha (temporary structures).

The division into these strata was based on predefined housing characteristics to ensure that all housing types were adequately represented in the sample. Within each stratum, households were selected randomly to avoid selection bias and provide each household with an equal chance of being included in the sample.

The sample size is 216 for each pourashava, which is considered the urban area; the detailed distribution is given below.

Number of the ward in Paurashava = 09

For Paurashava,

Per Ward 24 households

Per Type = 8 as the strata based on the type of housing

So,  $24 \times 09 = 216$  households for Paurashava

### 2.4 Data Analysis Process

For Physical Quality of Life Index

- Life Expectancy
- Infant Mortality Rate
- Literacy Rate

$$\text{Literacy Rate} = \frac{\text{Number of Literate Individuals (15 years)}}{\text{The total number of Surveyed}} \times 100$$

$$\text{Life expectancy} = \frac{\text{Life Expectancy from BBS} - \text{Minimum value from question}}{\text{Maximum From Question} - \text{Minimum from Question}} \times 100$$

$$\text{Infant Mortality Rate} = \frac{\text{Number of Infant Deaths}}{\text{Number of Live Births}} \times 100$$

$$\text{Physical Quality of Life Index} = \frac{\text{Literacy Rate} + \text{Infant Mortality Rate} + \text{Life Expectancy}}{3}$$

For Quality-of-Life Index

- The sum of all the scores of the level of Satisfaction
- Normalize to 0–100 Scale = [ Maximum Score= Indicators x 5]
- QLI {The sum of all the scores of the level of Satisfaction / (Indicators x 5)} x 100

For Cultural Capital Index

- The sum of all the scores of the yes
- Normalize to 0–100 Scale
- CCI = (Sum of scores / (Number of respondent x Number of questions) x 100

For Integrated Quality of Life Index

$$\text{Integrated Quality of Life Index} = \frac{\text{PQLI} + \text{QLI} + \text{CCI}}{3}$$

### 3. Analysis and Findings

#### 3.1 Physical Quality of Life Index, Cultural Capital Index, and Quality of Infrastructural Index of Meherpur Paurashava

Descriptions of the Physical Quality of Life Index, Quality of Life Index, Cultural Capital Index, and Integrated Quality of Life Index are given below

**Table: PQLI, QLI, CCI, and IQLI Index**

<b>Ward</b>	<b>PQLI</b>	<b>QLI</b>	<b>CCI</b>	<b>IQLI</b>
Ward 01	42	71	50	54
Ward 02	79	63	83	75
Ward 03	60	67	40	55
Ward 04	54	77	35	55
Ward 05	85	58	50	64
Ward 06	46	71	61	59
Ward 07	62	53	64	66
Ward 08	46	66	58	57
Ward 09	54	62	62	59

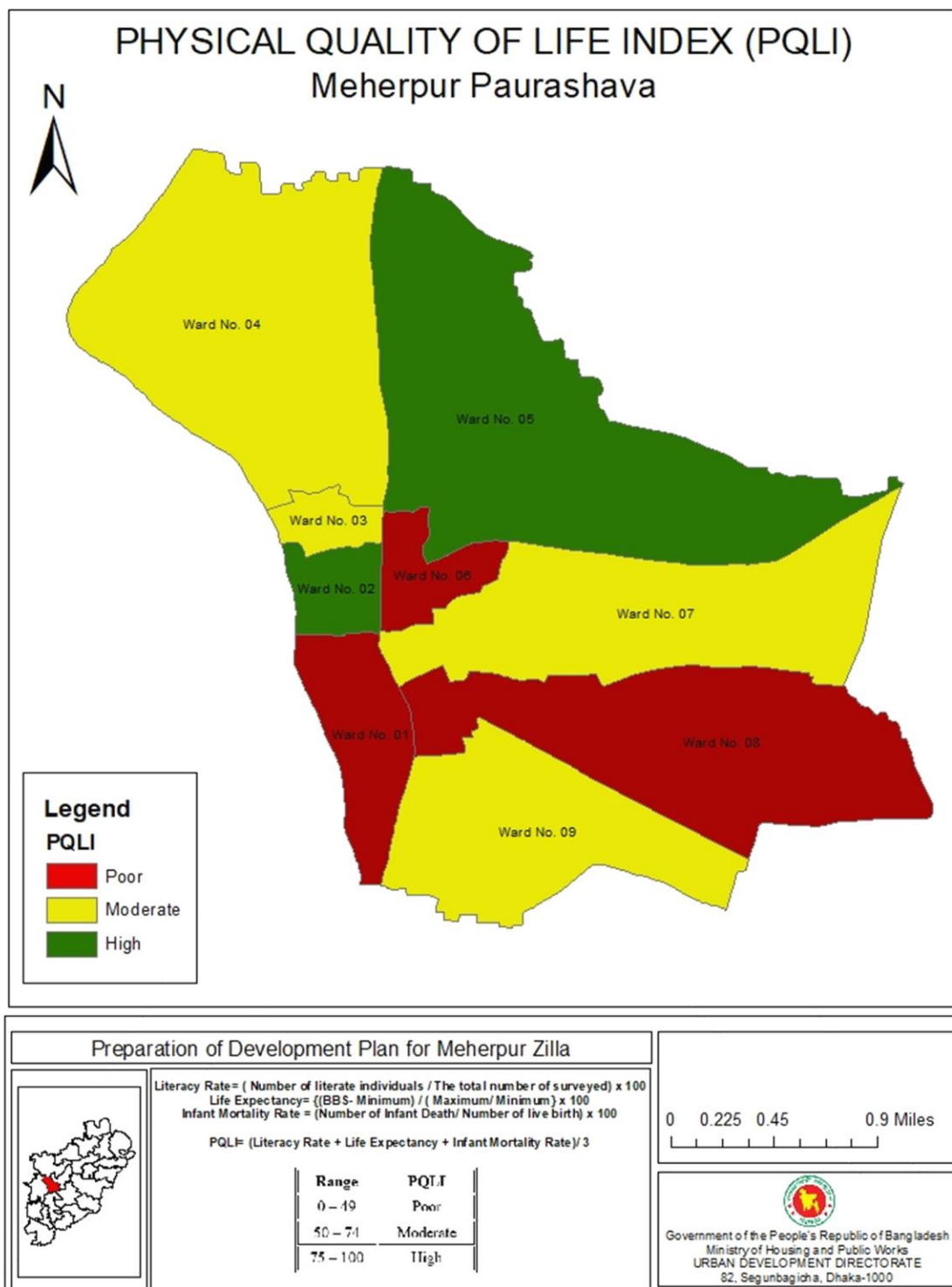


Figure: Physical Quality of Life Index

The figure categorizes the wards based on three indicators—literacy rate, life expectancy, and infant mortality rate—grouping them into three PQLI categories: Poor (Red), Moderate (Yellow), and High (Green).

Ward No. 01, located in the southwestern part of Meherpur Paurashava, falls under the Poor category, indicating lower literacy rates, reduced life expectancy, or higher infant mortality rates. Similarly, Ward No. 06 and Ward No. 08 are also marked as Poor, suggesting these areas suffer from comparatively poor physical quality of life and require targeted development efforts.

On the other hand, Ward No. 02, Ward No. 03, and Ward No. 05 are categorized under the High PQLI group. These wards show a higher physical quality of life, reflecting better access to education, healthcare. Ward No. 02 and Ward No. 03 are relatively smaller in size but still manage to score well in physical quality-of-life indicators. Ward No. 05 covers a large northeastern area and reflects consistently high human development standards.

Wards with a Moderate physical quality of life includes Ward No. 04, Ward No. 07, and Ward No. 09. These wards show average values in the three PQLI indicators and lie between the high- and low-performing areas. Ward No. 04 is the northwesternmost ward, while Wards no. 07 and 09 are situated towards the eastern and southern parts of the Paurashava, respectively.

This spatial distribution of PQLI highlights the disparity in living conditions across different wards of Meherpur Paurashava, guiding policymakers toward more equitable resource allocation and development planning.

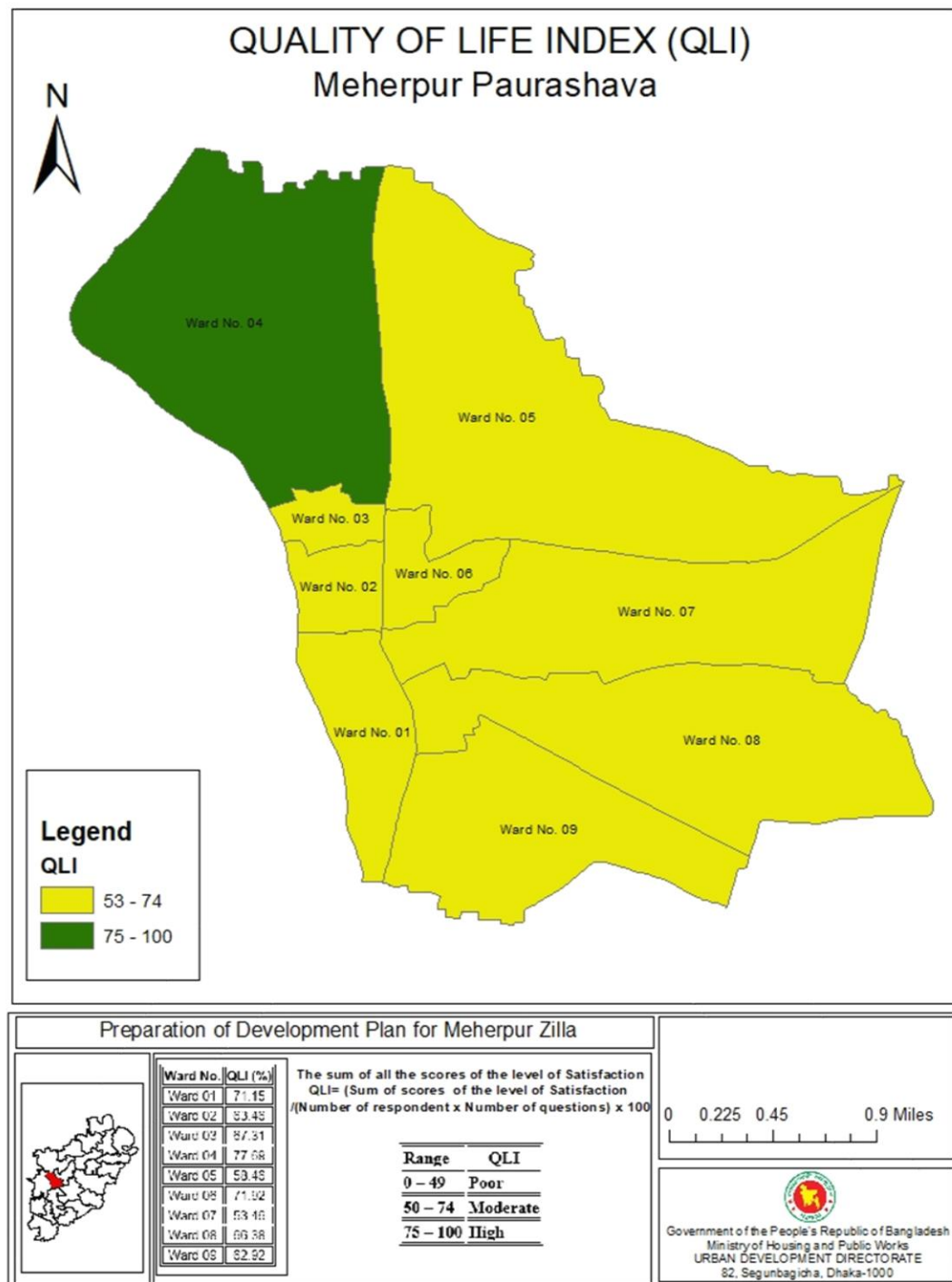


Figure: Quality of Life Index

The Quality-of-Life Index (QLI) map provides a comprehensive view of resident satisfaction levels across various wards based on survey data. The index is measured on a scale from 0 to 100 and is categorized into three levels: Poor (0–49), Moderate (50–74), and High (75–100), based on respondents' satisfaction scores.

Ward No. 04 stands out as the only ward in the High QLI category (colored green), with a score of 77, indicating the highest level of satisfaction among residents. This suggests that Ward No. 04 has better access to basic services, infrastructure, and community well-being compared to other parts of the Paurashava.

The remaining wards fall under the Moderate category (colored yellow), with QLI scores ranging from the low 50s to low 70s. Ward No. 01 scores 71, which is close to the high QLI threshold, reflecting relatively favorable living conditions. Ward No. 02 and Ward No. 03 also perform fairly well with scores of 63 and 66 respectively. These central-western wards likely have access to basic urban services but may require improvements in specific sectors to reach higher satisfaction levels. In contrast, Ward No. 05 and Ward No. 06 score 53 and 57, respectively, which are among the lower scores in the moderate range, suggesting limited satisfaction and potential gaps in public service delivery or infrastructure. Ward No. 07, Ward No. 08, and Ward No. 09 record scores of 63, 61, and 62, indicating moderate but consistent levels of satisfaction in the southeastern and southern areas of the Paurashava.

Overall, while most wards fall into the Moderate quality of life category, Ward No. 04 sets a benchmark with a high level of satisfaction. The spatial differences highlighted in this QLI map can be used for targeted planning and investments to raise the living standards in the moderately performing wards.

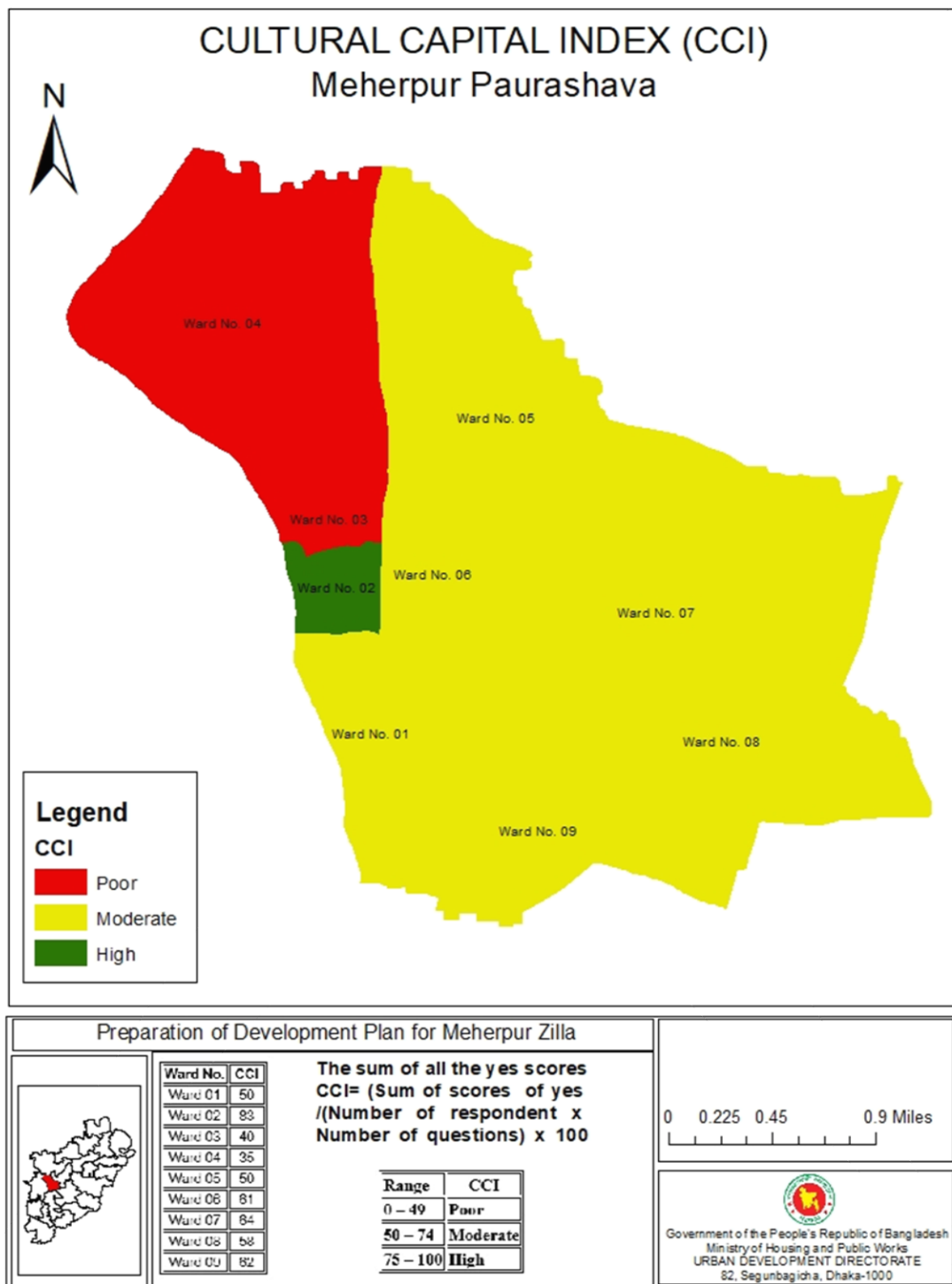


Figure: Cultural Capital Index



The figure represents the level of cultural engagement and resources across different wards. The CCI is based on survey responses indicating the presence and participation in cultural activities, institutions, and heritage, with scores categorized as Poor (0–49), Moderate (50–74), and High (75–100).

Among the wards, Ward No. 02 is the only one that falls into the high CCI category (colored green), scoring 84, signifying a strong presence of cultural values, participation in cultural practices, and preservation of heritage. This suggests Ward No. 02 has an active cultural environment and accessible resources that promote community engagement in traditions and arts.

The majority of the wards, including Ward No. 01 (score 60), Ward No. 05 (74), Ward No. 06 (67), Ward No. 07 (84), Ward No. 08 (64), and Ward No. 09 (82), are classified under the Moderate category (colored yellow). These wards show a fair level of cultural activities and awareness, but still have room for improvement in terms of cultural infrastructure and community participation. Notably, Ward No. 07 and Ward No. 09, despite being moderate, are close to the high threshold, suggesting strong but perhaps underdeveloped cultural potential.

In contrast, Ward No. 03 (score 40) and Ward No. 04 (score 35) fall under the Poor category (colored red), indicating a lack of cultural facilities, events, or community engagement in traditional or cultural activities. This highlights a significant gap that may require focused development efforts to enhance cultural capital in these areas.

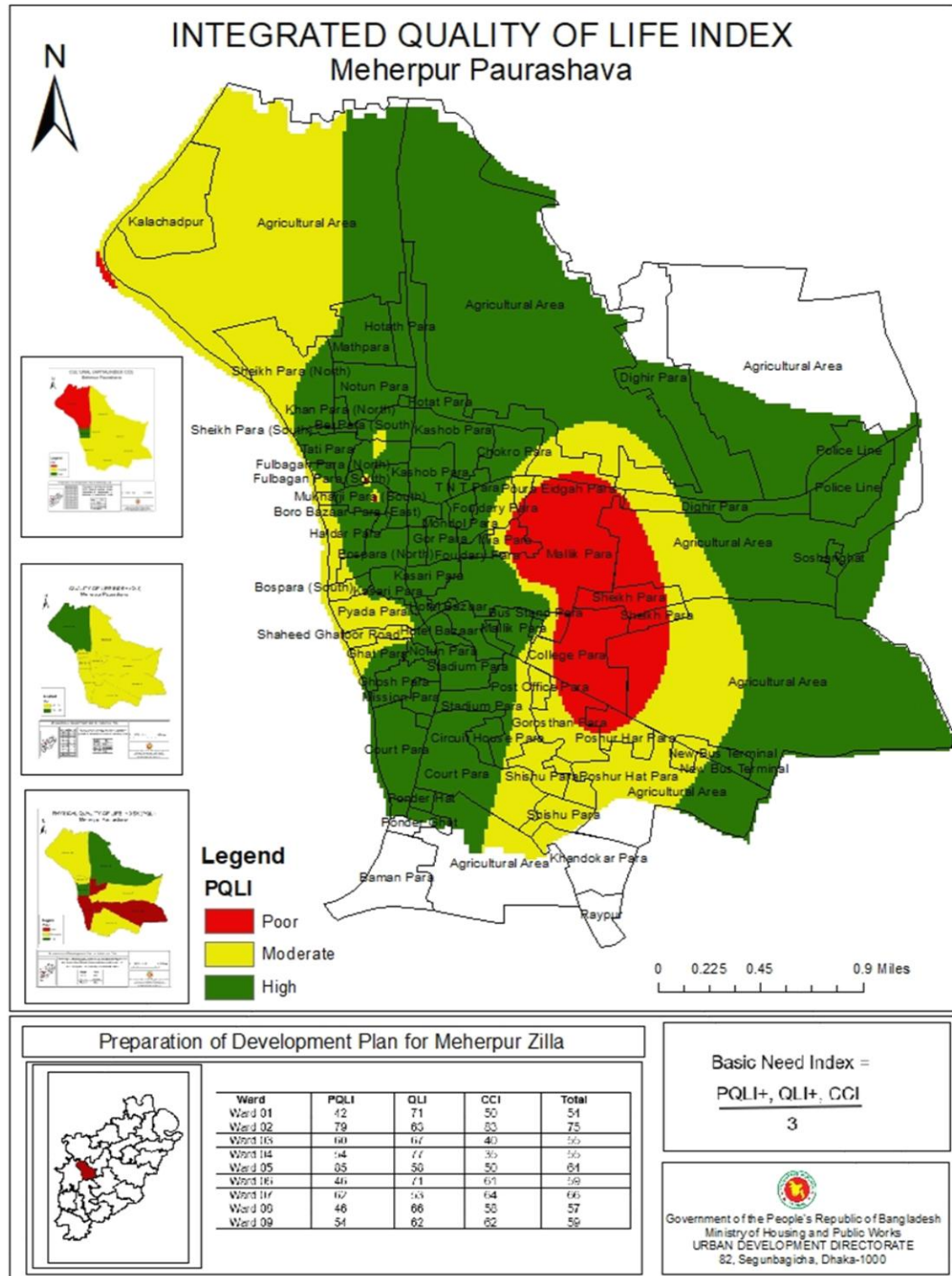


Figure: Integrated Quality of Life Index

The IQLI is calculated as the average of these three indices, which together reflect the overall living conditions, service availability, and cultural participation within each ward. The classification into High, Moderate, and Poor categories helps in identifying development priorities.

### **Ward-wise Description:**

#### **Ward No. 01**

PQLI: 42 | QLI: 71 | CCI: 50

IQLI: 54

Key Areas: Shaheed Nagar, Bospara, Fulbagan

This ward shows moderate living conditions with good quality of life, but weaker physical and cultural indicators.

#### **Ward No. 02**

PQLI: 79 | QLI: 63 | CCI: 80

IQLI: 75

Key Areas: Court Para, Jail Para, Stadium Para

This is one of the best-performing wards, with high scores in all indicators. It benefits from strong infrastructure, active cultural life, and relatively high satisfaction among residents.

#### **Ward No. 03**

PQLI: 60 | QLI: 67 | CCI: 40

IQLI: 55

Key Areas: College Para, Sheikh Para, Mollah Para

This ward ranks among the poorest due to very low infrastructure levels (PQLI), despite having moderate social satisfaction. Urgent improvements are needed in sanitation, roads, and basic utilities.

#### **Ward No. 04**

PQLI: 54 | QLI: 77 | CCI: 35

IQLI: 55

Key Areas: Kalachadpur, Hothan Para, Kashbo Para

Ward 04 is in the moderate category with a good cultural base and social quality but requires better physical infrastructure to progress into the high group.

#### **Ward No. 05**

PQLI: 85 | QLI: 58 | CCI: 50

IQLI: 64

Key Areas: Dighir Para, Dighir Pasha

The indicators show moderately balanced development; physical improvements such as drainage, roads, and lighting would significantly enhance overall living standards.

**Ward No. 06**

PQLI: 46 | QLI: 71 | CCI: 61

IQLI: 59

Key Areas: North Para, Kashbo Para (North), Pirot Para

This is the highest-performing ward in Meherpur Paurashava. It sets a benchmark with strong infrastructure, vibrant cultural life, and a highly satisfied population.

**Ward No. 07**

PQLI: 62 | QLI: 53 | CCI: 64

IQLI: 66

Key Areas: Dighir Pasha, Poshu Hat Para

Although slightly better than other moderate wards, it still needs enhancements in community services, recreational facilities, and household utilities to push it to a higher category.

**Ward No. 08**

PQLI: 46 | QLI: 66 | CCI: 58

IQLI: 57

Key Areas: Poshu Hat Para (South), Sheikh Para (South), Rayer Para

This ward is in critical condition, lacking in infrastructure and quality services, and scoring low in community participation. Strategic, prioritized development is necessary here.

**Ward No. 09**

PQLI: 54 | QLI: 62 | CCI: 62

IQLI: 59

Key Areas: Khandokar Para, Shishu Park, Rapapali

Though not poor, this ward can benefit from targeted improvements in cultural engagement and community services to improve residents' satisfaction and move toward a higher index rating.

Table: **IQLI Index**

Ward No.	PQLI	QLI	CCI	IQLI	Key Areas	Summary
01	42	71	50	54	Shaheed Nagar, Bospara, Fulbagan	Moderate living conditions, good QLI, weaker physical and cultural indicators
02	79	63	80	75	Court Para, Jail Para, Stadium Para	One of the best-performing wards; strong infrastructure and cultural life
03	60	67	40	55	College Para, Sheikh Para, Mollah Para	Poor overall due to weak infrastructure; needs urgent sanitation and utility improvements
04	54	77	35	55	Kalachadpur, Hothan Para, Kashbo Para	Good social quality and QLI, but lacks physical infrastructure
05	85	58	50	64	Dighir Para	Balanced development; improvements in roads, lighting, and drainage would help
06	46	71	61	59	North Para, Kashbo Para (North), Pirot Para	Best-performing ward; sets benchmark for quality and satisfaction
07	62	53	64	66	Dighir Pasha, Poshu Hat Para	Slightly better than moderate; needs better services and facilities
08	46	66	58	57	Poshu Hat Para (South), Sheikh Para (South), Rayer Para	Critical condition: lacks infrastructure, needs prioritized strategic development
09	54	62	62	59	Khandokar Para, Shishu Park, Rapapali	Not poor, but needs improvement in cultural and community services

#### **4. Role of PQLI, QLI, CCI, and IQLI as Planning Tools in Meherpur Paurashava**

In the context of Meherpur Paurashava, an emerging urban area in Bangladesh, integrated indices such as the Physical Quality of Life Index (PQLI), Quality of Life Index (QLI), and Cultural Capital Index (CCI) serve as vital tools for informed and human-centered urban planning. These indices allow planners and local authorities to assess and interpret the socio-spatial realities of residents, guiding targeted interventions and equitable development.

The PQLI focuses on the basic physical needs of residents, including indicators such as access to health services, literacy rates, and life expectancy proxies. In Meherpur Paurashava, where some wards face limitations in healthcare access and educational facilities, PQLI helps identify service delivery gaps, allowing planners to prioritize infrastructural investments in underserved neighborhoods. For example, wards with lower literacy or poor health satisfaction can be flagged for educational outreach programs or improved primary care facilities.

The Quality of Life Index (QLI) incorporates both tangible infrastructure (such as roads, drainage, sanitation, and waste management) and subjective satisfaction with urban services. In Meherpur, where urban infrastructure varies significantly from ward to ward, QLI helps visualize disparities in service quality. By combining residents' satisfaction levels with spatial data, planners can create priority zones for intervention in areas facing dissatisfaction in water supply, mobility, or recreation access. QLI also reflects the lived experiences of citizens, ensuring their voices are central to development strategies.

The Cultural Capital Index (CCI) captures intangible yet powerful community resources, such as religious and cultural participation, social cohesion, and local identity. In a socially rooted area like Meherpur, with strong religious and cultural traditions, CCI is crucial for recognizing community values and ensuring that development initiatives preserve local culture. For example, planning that acknowledges community festivals, religious structures, or traditional social practices will be more sustainable and accepted by the population.

To enable comprehensive planning, these three indices are synthesized into an Integrated Quality of Life Index (IQLI). The IQLI offers a holistic view of each ward's development by combining physical, social, and cultural dimensions. By mapping the IQLI using GIS and spatial interpolation (e.g., spline analysis), planners can visualize geographical disparities in well-being across the municipality. This integrated approach allows for ward-specific planning strategies, targeted

resource allocation, and the promotion of equitable development throughout Meherpur Paurashava.

In summary, PQLI, QLI, CCI, and IQLI function collectively as diagnostic and prescriptive tools that help transform data into action. Their application in Meherpur Paurashava ensures that urban planning goes beyond infrastructure to encompass quality of life, cultural integrity, and inclusive development—supporting the creation of a resilient, equitable, and people-centered urban future.

## 5. Conclusion

This study highlights the importance of using integrated quality of life indicators—namely the Physical Quality of Life Index (PQLI), Quality of Life Index (QLI), and Cultural Capital Index (CCI)—as effective planning tools for assessing and enhancing urban living conditions. In the case of Meherpur Paurashava, these indices provided a comprehensive understanding of ward-wise disparities in infrastructure, public service satisfaction, and cultural engagement. The analysis revealed that while some wards perform well in specific areas, others lag significantly behind, particularly in physical infrastructure and cultural capital.

By synthesizing these three indices into the Integrated Quality of Life Index (IQLI), the study offers a multidimensional assessment that supports data-driven decision-making. The spatial representation of IQLI using GIS and spline analysis further enabled the visualization of regional differences, helping planners identify priority zones for intervention and allocate resources more equitably. This integrated approach ensures that development efforts are not only technically sound but also socially inclusive and culturally sensitive.

Ultimately, the application of PQLI, QLI, and CCI in urban planning fosters a human-centered perspective that addresses both the material and intangible aspects of urban life. It encourages planners to go beyond physical development and design strategies that improve the overall well-being, identity, and resilience of communities. In the context of Meherpur Paurashava, this methodology sets a foundation for more responsive, balanced, and sustainable urban development.