



Government of the people's Republic of Bangladesh

Ministry of Housing and Public Works

Urban Development Directorate

82 Segunbagicha, Dhaka-1000

PREPARATION OF DEVELOPMENT PLAN FOR MEHERPUR ZILLA

REPORT ON ASSIGNMENT-12

**A Report of Review of Acts, Policies and Plans related to the planning packages
and Report Submission**

September 2025

Rakibul Hasan
Junior Urban Planner

Identifying Accident Hotspots and Reviewing Road Safety Policies

Introduction

The accident pattern of Meherpur district reveals a concerning situation regarding road safety. Accident data for Meherpur district were collected from the Meherpur Fire Service and Civil Defense Office for the period of January to August 2025. A total of 50 accident records were obtained and later converted into a point shapefile containing information on accident location, type of accident, and number of injured and deceased persons. The analysis indicates that most accidents are associated with motorcycles, and a large share of incidents occurred along the Meherpur–Chuadanga Highway. During this period, 72 people were injured and 5 people lost their lives.

Field data show that accident spots are mostly concentrated at key intersections, highway crossings, and densely populated areas. The majority of incidents are linked to reckless driving, lack of proper traffic management, and insufficient road safety measures. The dataset was further analyzed through Kernel Density Estimation (KDE). This analysis highlights vulnerable zones that require urgent attention.

The findings suggest that improved traffic monitoring, awareness campaigns, road engineering, and enforcement of traffic rules could significantly reduce accident risks. Therefore, a strategic action plan is necessary to ensure safer mobility for the people of Meherpur.

Accident Distribution & Pattern

Table 1: Monthly Distribution of Road Accidents in Meherpur

Month	Number of Accident	Number of Injured	Number of Deceased
January	5	4	0
February	6	11	0
March	8	13	1
April	6	10	0
May	3	4	0
June	11	19	3
July	2	4	0
August	9	7	1
Total	50	72	5

Source: Fire Service & Civil Defense, Meherpur, 2025

Table 2: Location-wise Distribution of Accidents

Location	Number of Accidents	Number of Injured	Number of Deceased
Amjhupi Bazar	7	9	1
Baradi Bazar	11	18	2
Chandbil	6	7	1
College Mor	2	3	0
Din Dotto Bridge	4	4	0
Hotel Bazar Area	1	2	0
Impact Hospital	4	6	0
Puraton Dorbeshpur	1	1	0
Notun Dorbeshpur	4	8	1
Rajnagar	1	3	0

Roghunathpur Road	1	2	0
Terail	1	1	0
Teroghoriya	1	1	0
Mohajonpur Bazar	1	0	0
Kolar Mor	1	2	0
Jhaubaria	1	1	0
Chokhtular Math	1	2	0
BTCL Meherpur	1	1	0
Chandpur	1	1	0
Total	50	72	5

Source: Fire Service & Civil Defense, Meherpur, 2025

Table 3: Accident Pattern by Type

Type of Accident	Number of Accidents	Number of Injured	Number of Deceased
Auto	2	2	0
Auto – Van	4	9	0
Auto Rickshaw – Dog	1	0	1
Auto Van – Nosimon	1	2	0
Bus - Rickshaw	1	2	0
Motor Cycle	12	12	1
Motor Cycle – Auto	2	2	0
Motor Cycle – Auto Rickshaw	1	1	0
Motor Cycle – Auto Van	1	2	0
Motor Cycle – Bi Cycle	2	2	1
Motor Cycle – Bi Cycle – Van	1	6	1
Motor Cycle – Bus	1	1	0
Motor Cycle - Goat	1	2	0
Motor Cycle – Microbus	1	1	0
Motor Cycle – Motor Cycle	3	6	0
Motor Cycle – Nosimon	1	0	0
Motor Cycle – Pedestrian	3	5	0
Motor Cycle – Private Car	1	2	0
Motor Cycle – Rickshaw	1	2	0
Motor Cycle – Tractor	1	1	0
Motor Cycle – Truck	1	1	0
Nosimon	1	1	1
Private Car	2	2	0
Truck	1	2	0
Truck – Nosimon	1	1	0
Truck – Pedestrian	1	1	0
Van – Auto Rickshaw	1	3	0
Total	50	72	5

Source: Fire Service & Civil Defense, Meherpur, 2025

Table 4: Upazila-wise Accidents, Injuries and Deaths

Upazila	Union	Number of Accidents	Number of Injured	Number of Deceased
Meherpur	Amjhupi	19	26	2
	Baradi	22	35	3
	Meherpur Municipality	4	6	0
	Shyampur	1	1	0
	Kutubpur	1	1	0
Gangni	Bamandi	1	1	0
	Sholataka	1	2	0
Mujibnagar	Mohajonpur	1	0	0

Source: Fire Service & Civil Defense, Meherpur, 2025

Result

Table 1 presents the highest number of accidents was recorded in June (11 accidents, 19 injuries, and 3 deaths), followed by August (9 accidents). In contrast, July reported the lowest number of accidents (2 only). The data indicates that accident frequency and severity vary across months, with June standing out as the most critical month.

Table 2 shows the location-wise distribution of road accidents in Meherpur. A total of 50 accidents occurred across 19 different locations, resulting in 72 injuries and 5 deaths. The data shows that among the 50 recorded accidents, as many as 43 incidents took place along the Meherpur–Chuadanga road, indicating it as the most accident-prone route in the district. The highest number of accidents was concentrated in Baradi Bazar (11 accidents, 18 injuries, 2 deaths) and Amjhupi Bazar (7 accidents, 9 injuries, 1 death), indicating these areas as major accident-prone zones. Other notable spots include Chandbil (6 accidents) and Notun Dorbeshpur (4 accidents, 8 injuries, 1 death). In contrast, several locations such as Mohajonpur Bazar, Rajnagar, and Jhaubaria reported only a single accident each. The data highlights that commercial and busy bazar areas tend to record higher accident frequencies.

Table 3 illustrates the accident pattern by type in Meherpur. Motorcycle-related accidents dominate the distribution, accounting for the highest frequency with 12 single-vehicle motorcycle crashes and several multi-vehicle collisions involving motorcycles (e.g., Motorcycle–Pedestrian, Motorcycle–Rickshaw, Motorcycle–Bus). Combined, motorcycles were involved in over half of all reported accidents. Other notable accident types include Auto–Van collisions (4 accidents, 9 injuries) and Auto Rickshaw–Dog accidents (1 accident leading to 1 death). Heavy vehicles such as trucks and buses were less frequent but still present in serious accidents, including one fatal case involving a Nosimon. Overall, the data highlights motorcycles as the most vulnerable mode of transport, both in terms of frequency and severity, making them the primary concern for road safety interventions in Meherpur.

Table 4 presents the upazila-wise distribution of road accidents, injuries, and deaths in Meherpur district. Meherpur Sadar upazila accounts for the overwhelming majority of cases, particularly in Baradi Union (22 accidents, 35 injuries, 3 deaths) and Amjhupi Union (19 accidents, 26 injuries, 2 deaths), indicating them as the most vulnerable hotspots. In contrast, Gangni upazila reported only 2 accidents with minor injuries, while Mujib Nagar upazila recorded a single non-fatal accident. This distribution highlights that road accidents in Meherpur are highly concentrated in the Sadar area, especially in busy unions like Baradi and Amjhupi, whereas Gangni and Mujib Nagar show minimal accident occurrences.

Hotspot Analysis

The accident density classification map of Meherpur district shows that most areas fall under very low to low accident density, indicating relatively fewer incidents across the district. However, two major hotspots stand out Amjhupi and Baradi Bazar where accident density is classified as high to very high, forming critical clusters. These locations, situated along important road corridors, represent the most vulnerable zones and require immediate road safety measures and traffic management interventions.

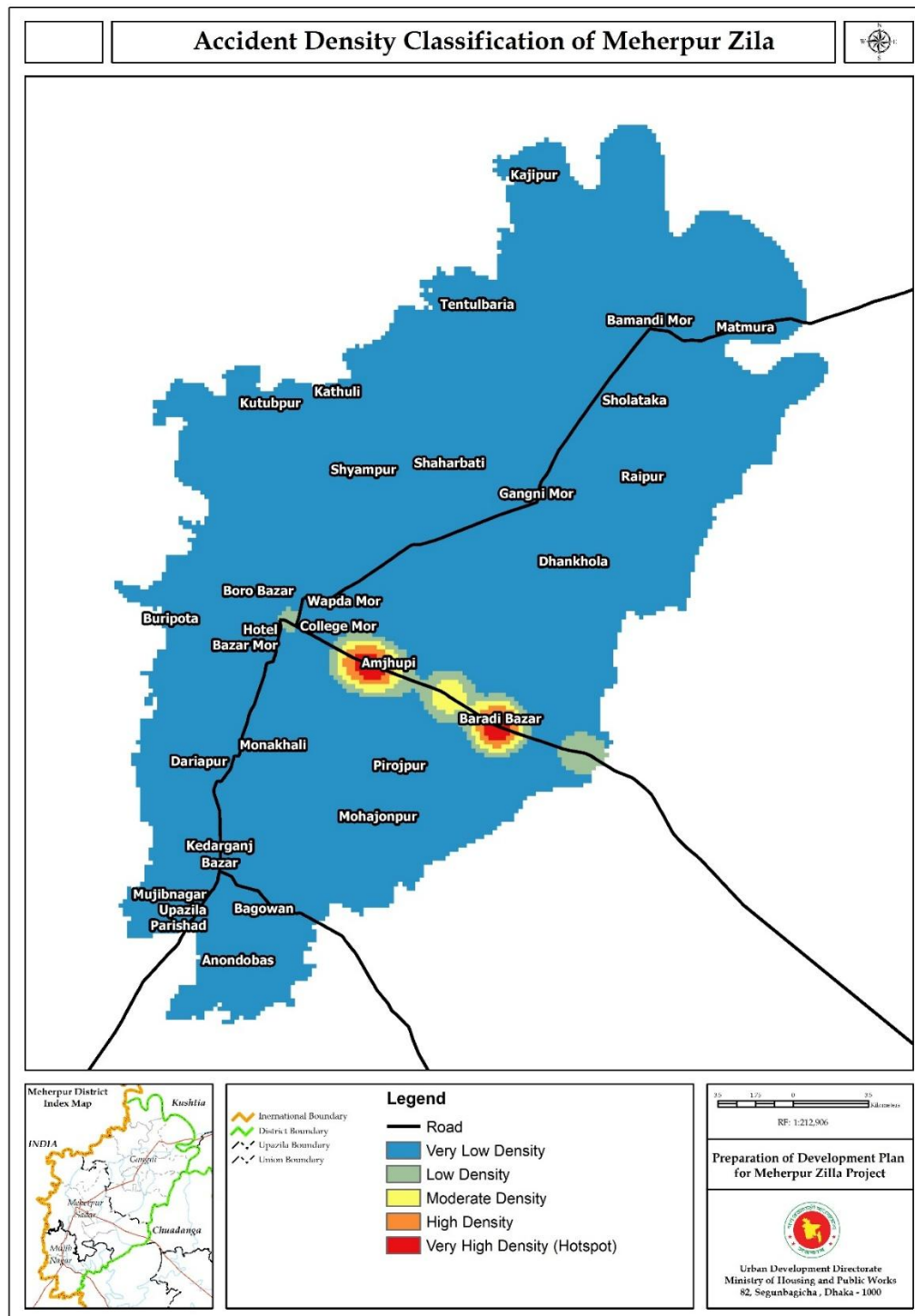


Figure: Accident Density Classification of Meherpur Zila

The injury-weighted kernel density map of Meherpur district shows that most areas fall under very low to low injury density, indicating limited accident-related injuries. However, two hotspots Amjhupi and Baradi Bazar stand out with moderate to very high injury density, highlighting them as the most vulnerable zones. These locations demand urgent attention for targeted road safety measures and improved accident management.

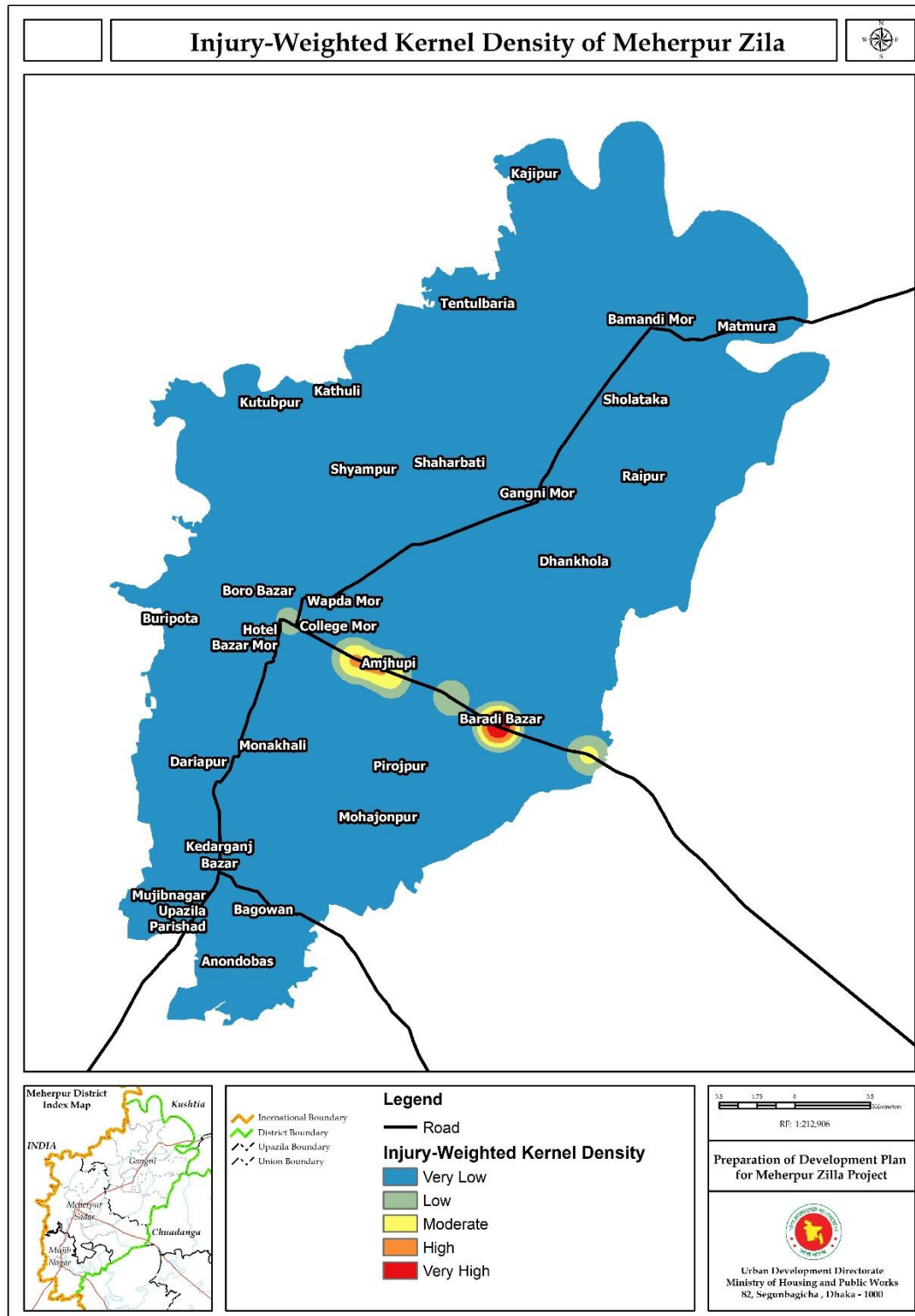


Figure: Injury-Weighted Kernel Density of Meherpur Zila

Road Safety Provisions for Meherpur District

Background

The Meherpur–Chuadanga and Meherpur–Kushtia roads are the most critical corridors within the district, serving regional trade, education, and local markets. Between January and August 2025, a total of 50 accidents were reported, of which 33 involved motorcycles. Key hotspots include Amjhupi Market (four-way intersection), Baradi Market (cluster of three T-junctions), and Din Dutta Bridge (sub-road approach). Accidents occur due to mixed traffic (motorcycles, buses, trucks, non-motorised vehicles), excessive speed, unsafe pedestrian crossings, and roadside market encroachments. A structural safety framework is therefore needed to combine district-wide design measures with spot-specific interventions.

Policy Framework

- Road Transport Act 2018: Provides legal basis for speed enforcement, reckless driving penalties, and vehicle regulation.
(Reference: Ministry of Road Transport and Bridges, Road Transport Act 2018)
- Motor Vehicle Speed Limit Guidelines 2024: Authorises zonal speed limits, particularly in schools, markets, and pedestrian-heavy areas.
(Reference: Motor Vehicle Speed Limit Guidelines, 2024)
- RHD Road Safety Audit Guidelines 2017: Requires systematic safety audits for new road projects and critical junctions.
(Reference: RHD, Road Safety Audit Guidelines 2017)
- National Health Policy 2011: Emphasises emergency response, trauma care, and integration of health systems into road safety.
(Reference: Ministry of Health & Family Welfare, National Health Policy 2011)

Corridor-wide Recommendations

1. Speed Management

- Apply zonal speed limits: 70 km/h on open stretches, reduced to 30–40 km/h near markets, schools, and bridge approaches.
(Reference: Motor Vehicle Speed Limit Guidelines, 2024)
- Install rumble strips, raised crossings, and signage in accident-prone zones.
(Reference: Road Transport Act 2018)

2. Pedestrian and Non-Motorised Safety

- Provide footpaths, raised zebra crossings, and pedestrian refuge islands in dense areas.
(Reference: NRSC, National Road Safety Strategic Action Plan 2021–2025)
- Introduce dedicated NMV (rickshaw, van, bicycle) lanes to separate slow-moving traffic from motorcycles.
(Reference: RHD, Black Spot Treatment Manual 2020)

3. Roadside and Market Management

- Remove illegal parking and enforce restrictions on roadside encroachment to improve visibility.
(Reference: Road Transport Act 2018)
- Designate formal lay-bys and passenger drop-off zones at market areas.
(Reference: RHD, Black Spot Treatment Manual 2020)

4. Night-time and Visibility Safety

- Install streetlights at intervals near bridges, intersections, and rural markets.
(Reference: Motor Vehicle Speed Limit Guidelines, 2024)
- Use retro-reflective road markings, guardrails, and signage across corridors.
(Reference: RHD, Road Safety Audit Guidelines 2017)

5. Emergency Access and Post-Crash Care

- Preserve ambulance access corridors and allocate sites for first-aid posts.
(Reference: Ministry of Health & Family Welfare, National Health Policy 2011)
- Integrate road safety audits and crash data monitoring into project design.
(Reference: RHD, Road Safety Audit Guidelines 2017)

6. Cattle and Rural Livestock Crossing Safety

- Establish designated crossing points with advance signage for cattle, goats, ducks, chickens, buffaloes, and sheep in rural stretches.
(Reference: Road Transport Act 2018; NRSC, National Road Safety Strategic Action Plan 2021–2025)
- Introduce roadside fencing or guiding barriers in high livestock-movement zones to reduce accidents.
(Reference: Road Transport Act 2018; NRSC, National Road Safety Strategic Action Plan 2021–2025)

Spot-Specific Interventions

Amjhupi Market (Four-way Intersection)

- Construct a compact roundabout with splitter islands.
- Provide raised zebra crossings and parking control.
(Reference: RHD, Black Spot Treatment Manual 2020)

Baradi Market (Three T-junctions)

- Add channelization islands and physical medians for turning.
- Provide service lanes and market parking zones.
(Reference: RHD, Road Safety Audit Guidelines 2017)

Din Dutta Bridge (Sub- Road Approach)

- Apply speed-reduction geometry, advance signage, and flared shoulders.

- Introduce guardrails and reflective markings to improve night-time safety.
(Reference: RHD, Black Spot Treatment Manual 2020)

Monitoring and Governance

- Establish a District Road Safety Committee under the Deputy Commissioner to coordinate BRTA, RHD, and traffic police.
(Reference: Road Transport Act 2018)
- Review accident and speed data every six months to update hotspot interventions.
(Reference: Motor Vehicle Speed Limit Guidelines, 2024)

Identifying Fire Incidents Hotspots and Reviewing Fire Safety Policies

Introduction

Between January and September 6, 2025, a total of 96 fire incidents were reported in Meherpur district, including 40 in Meherpur Sadar, 42 in Gangni, and 14 in Mujibnagar, based on records from zila fire service stations. Kernel Density Estimation (KDE) was used to analyze the spatial distribution of these incidents. KDE calculates the intensity of events within a defined search radius and produces a continuous surface that highlights areas with higher incident density compared to surrounding locations.

Fire Incident Distribution & Pattern

Table 1: Monthly Distribution of Road Accidents in Meherpur

Month	Number of Fire		
	Meherpur	Gangni	Mujibnagar
January	0	1	1
February	6	0	6
March	19	17	2
April	10	15	2
May	1	7	1
June	1	2	0
July	0	0	1
August	3	0	0
September	0	0	1
Total	40	42	14
	96		

Source: Fire Service & Civil Defense, Meherpur, 2025

Table 2: Location-wise Distribution of Accidents

Upazila	Union	Number of Fire
Meherpur	Amdah	3
	Amjhupi	13
	Baradi	1
	Buripota	4

	Kutubpur	9
	Municipality	9
	Pirojpur	1
	Shyampur	0
Gangni	Bamandi	11
	Dhankhola	2
	Municipality	4
	Kathuli	1
	Kazipur	1
	Matmura	6
	Raypur	0
	Shaharbati	5
	Sholataka	2
	Tentulbaria	10
Mujibnagar	Bagoan	9
	Dariapur	3
	Mahajanpur	0
	Monakhali	2
Total		96

Source: Fire Service & Civil Defense, Meherpur, 2025

Table 3: Accident Pattern by Type

Type of Fire	Number of Fire		
	Meherpur	Gangni	Mujibnagar
Cooking Stove	3	8	2
Fire Burns from Bhimruls Wheel	1		
From Cigarette	5	4	1
Gas Cylinder	2		
Mosquito Coil	2		1
Short Circuit	6	6	8
Tea Shop Stove	1		
Tobacco	15	22	
Jute Stick		1	
Little Boys and Girls Playing with Fire		1	
From Boiling the Fire			1
Hot Ash			1
Unknown	5		
Total	40	42	14
	96		

Source: Fire Service & Civil Defense, Meherpur, 2025

Result

The table 1 presents the monthly distribution of fire incidents in Meherpur district. March and April show the highest number of fire incidents, particularly in Meherpur Sadar and Gangni, indicating peak periods of fire occurrences. Other months recorded relatively fewer incidents, suggesting temporal variations in fire risk across the district.

The location-wise distribution of fire incidents (Table 2) in Meherpur district shows that certain unions and areas experience higher fire occurrences. In Meherpur Sadar, Amjhupi recorded the highest number with 13 incidents, followed by Kutubpur and the Municipality with 9 each. In Gangni, Bamandi and Tentulbaria were notable hotspots with 11 and 10 incidents respectively. In Mujibnagar, Bagoan reported the highest with 9 incidents. Several areas recorded few or no incidents, indicating spatial variation in fire risk across the district.

The fire incident pattern by type (Table 3) indicates that short circuits and tobacco-related fires are the most common causes in Meherpur district. Short circuits accounted for 6, 6, and 8 incidents in Meherpur Sadar, Gangni, and Mujibnagar respectively, while tobacco-related fires were particularly high in Meherpur Sadar (15) and Gangni (22). Other notable causes include cooking stoves, mosquito coils, and gas cylinders, along with isolated cases from children playing with fire, jute sticks, and hot ashes. A few incidents had unknown causes, highlighting the need for better investigation and awareness.

Hotspot Analysis

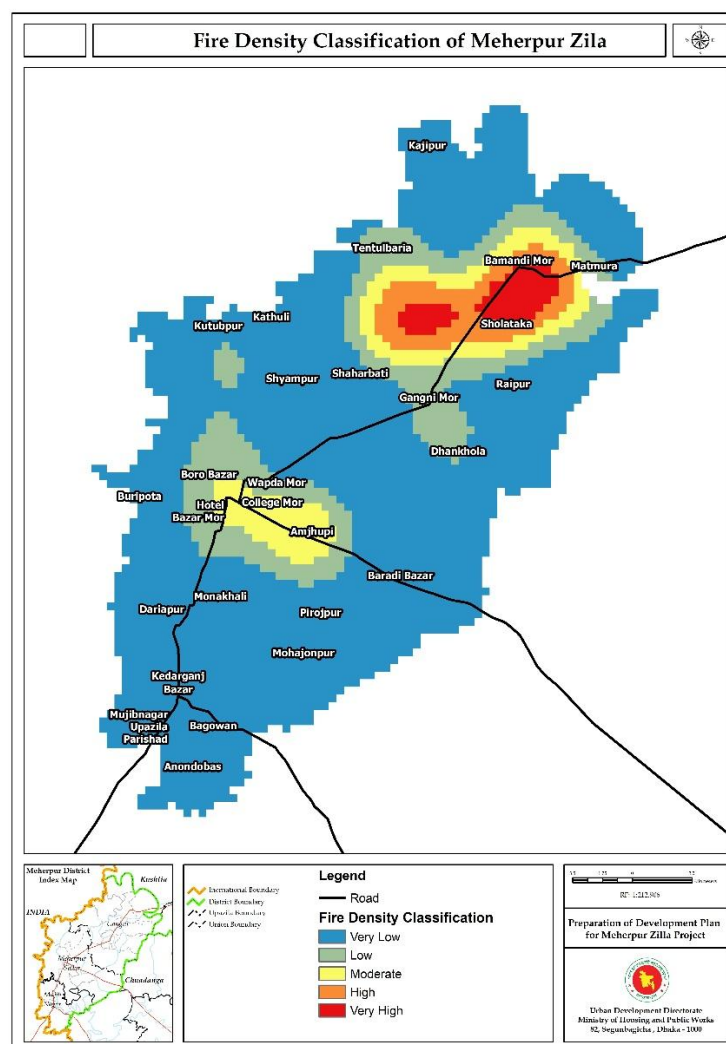


Figure: Fire Density Classification of Meherpur Zila

The fire density classification map of Meherpur district highlights spatial variations in fire risk across the area. The Kernel Density analysis shows that the highest fire concentration is found

around Bamandi Mor, Sholotaka, and Tentulbaria in Gangni upazila, which fall under the “Very High” and “High” density zones. Amjhupi and its surrounding areas in Meherpur Sadar indicate moderate fire density, while most of Mujibnagar, including Bagowan and Dariapur, remain within very low to low density zones. This spatial pattern suggests that fire risk is heavily clustered in certain union areas, especially within Gangni, and requires targeted interventions and resource allocation for prevention and response.

Fire Safety Policy and Recommendations for Meherpur District

Background

Meherpur district recorded 96 fire incidents between January and September 6, 2025, with 40 in Meherpur Sadar, 42 in Gangni, and 14 in Mujibnagar. Among these, 37 incidents were related to tobacco drying houses, while the remainder occurred in residential, commercial, and agricultural settings. The clustering of incidents highlights the need for a district-wide fire safety strategy incorporating both hotspot-specific and corridor-wide interventions.

Policy Framework

- Fire Service & Civil Defence Act, 2003: Provides legal authority for fire prevention, preparedness, response, and enforcement of safety measures.
(Reference: Fire Service & Civil Defence Act, 2003)
- Tobacco Control Act, 2005: Regulates cultivation, processing, and use of tobacco in Bangladesh.
(Reference: Tobacco Control Act, 2005)
- Narcotics Control Act, 2018: Ensures that fire safety measures do not promote illicit or illegal substances.
(Reference: Narcotics Control Act, 2018)
- National Health Policy, 2011: Emphasises emergency response, trauma care, and integration of health services into disaster management.
(Reference: Ministry of Health & Family Welfare, National Health Policy, 2011)

District-wide Recommendations

1. Fire Risk Reduction in Agricultural Processing
 - Install safe stoves, heat sources, and smoke control systems in drying houses.
(Reference: Fire Service & Civil Defence Act, 2003)
 - Maintain clear spaces around drying houses to prevent fire spread.
(Reference: Fire Service & Civil Defence Act, 2003)
 - Provide fire extinguishers and sand containers in all high-risk facilities.
(Reference: Fire Service & Civil Defence Act, 2003)
2. Training and Community Awareness
 - Conduct training for workers on safe drying and handling practices.
(Reference: Fire Service & Civil Defence Act, 2003)

- Promote community awareness programs on fire hazards, including tobacco drying areas.
(Reference: National Health Policy, 2011)
3. Infrastructure and Monitoring
- Equip high-risk zones with smoke detectors, alarms, and retro-reflective signage.
(Reference: Fire Service & Civil Defence Act, 2003)
 - Integrate fire incident monitoring into district disaster management plans.
(Reference: National Health Policy, 2011)
4. Legal Compliance and Enforcement
- Ensure all drying houses and processing units comply with Tobacco Control Act, 2005 and do not violate Narcotics Control Act, 2018.
(Reference: Tobacco Control Act, 2005; Narcotics Control Act, 2018)
 - Fire service inspections should be mandatory for high-risk facilities and conducted regularly.
(Reference: Fire Service & Civil Defence Act, 2003)

Hotspot-specific Interventions

- Meherpur Sadar: Priority installation of fire extinguishers, safe stove guidelines, and awareness programs in high-density residential and commercial areas.
(Reference: Fire Service & Civil Defence Act, 2003)
- Gangni: Safe drying practices for tobacco houses, emergency water storage, and firebreak maintenance.
(Reference: Fire Service & Civil Defence Act, 2003)
- Mujibnagar: Focus on rural agricultural fire safety, including smoke control and rapid response protocols.
(Reference: Fire Service & Civil Defence Act, 2003)

Monitoring and Governance

- Establish a District Fire Safety Committee under the Deputy Commissioner to coordinate between Fire Service, health authorities, and local governance bodies.
(Reference: Fire Service & Civil Defence Act, 2003)
- Review fire incident data quarterly and update risk mitigation measures based on Kernel Density hotspot analysis.
(Reference: Fire Service & Civil Defence Act, 2003; National Health Policy, 2011)