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Encroachment, Street Vendors and Traffic Chaos in Gaya City: A Study of Core City Areas

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Abstract: ***This research investigates the Encroachment, street vendors and traffic chaos in Gaya city and its core area. Urbanisation, informal economic activity and poor traffic management have resulted in growing numbers of street vendors taking over roadsides and public spaces, particularly along markets, religious places and transport points. Such encroachments contract road width, interfere with vehicle movement and cause congestion at major areas. Based on secondary data and field observations, this paper underscores the necessity for inclusive urban planning that weighs livelihood demands and traffic management.The outcomes provide critical insights for urban planners, policymakers and researchers engaged in managing urban growth in similar contexts.***

Keywords: Encroachment, Street vendors, Traffic congestion, Urbanisation, Gaya City

I. INTRODUCTION

Approx70%oftheglobalpopulationwillliveinurbanareas,By2050.Itleadingtotheriseofmegacitiesandmorethan10millionresidentswillliveincitiesTrafficcongestionisthemostimportantamongallthechallengesfacingsuchcities,evenmoresothanpower,water,andhealthcareservices.Freighttrafficcontributestoandisavictimofcongestion,causingeconomiclossesinhighnumbers.Efficientlogisticssystemsarenotavailableinmostcities (WR Bretzke,2013).In the transportation realm, congestion usually relates to an excess of vehicles on a portion of roadway at a particular time resulting in speeds that are slower—sometimes much slower—than normal or "free flow" speeds. Congestion often means stopped or stop-and-go traffic(Akeke, G.A2018 ,et al).

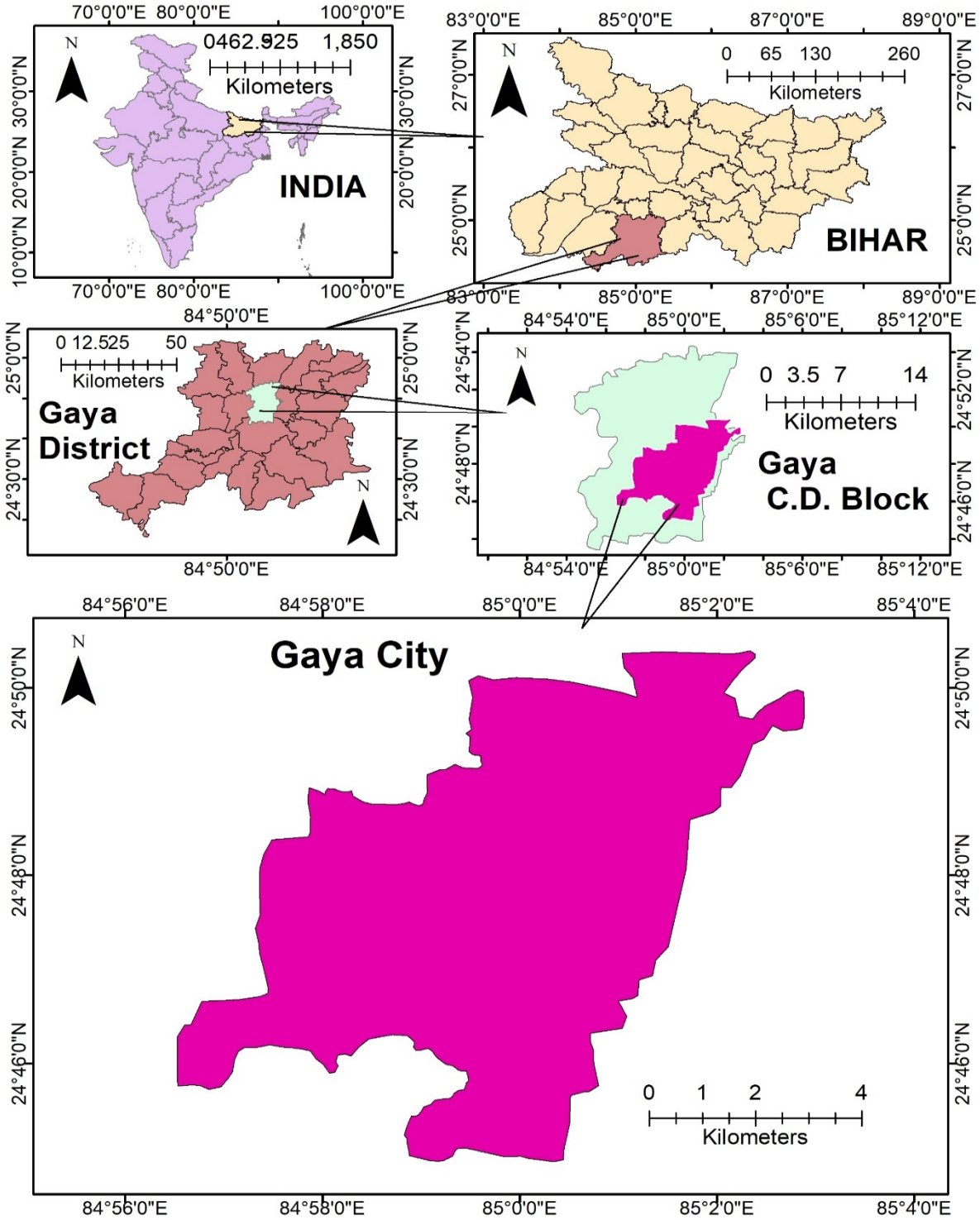
Traffic congestion is one of the most visible, pervasive, and immediate transport problems plaguing not only India's but also most of the cities of the world on a daily basis. It affects all modes of transportation especially roads and all socioeconomic groups. Rapid population growth, increasing urbanization, inadequate/unplanned transport infrastructure, poor public transport systems and the rising number of personnel vehicles are some of the primary causes of congestion (Manoj kumar et al, 2021). Encroachment and unregulated street vending in city areas lead to sever traffic congestion, blocking roads and less pedestrian safety. In small cities like Gaya, lack of proper urban planning and enforcement worsens the smoothness as disrupting smooth vehcle movement and increasing travel time, pollution and road accidents in core areas or busy Zones.

II. STUDY AREA

Gaya district and its main city also known as Gaya is located in southern Bihar. It is a historic and religiously significant city in India. It issituated along the Falgu River and surrounded by hills. Gaya is a major Hindu pilgrimage site and famous in world for the Pind Daan ritual. From this city Just 12 kilometres away is Bodh Gaya, where Lord Buddha attained enlightenment.From here Buddhism is spread across the world. Gaya is home of ancient temples like Vishnupad and rich cultural traditions. With growing infrastructure, tourism, and an international airport, Gaya is evolving into a modern urban center while preserving its deep spiritual and historical roots.

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Map 1 : Location map of Gaya City



III. OBJECTIVES

1) To study the Chage in numbers of vehicle in Gaya over the years.
2) To investigate Traffic congestionin the core areas of Gaya city.
3) To analyse the issue of Encroachment& Street Vendors on the road of Gaya city.

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IV. HYPOTHESIS

Urbanisation in Gaya city has ledto population growth and surge in the number of vehicles leading severe traffic congestion on narrow roads.

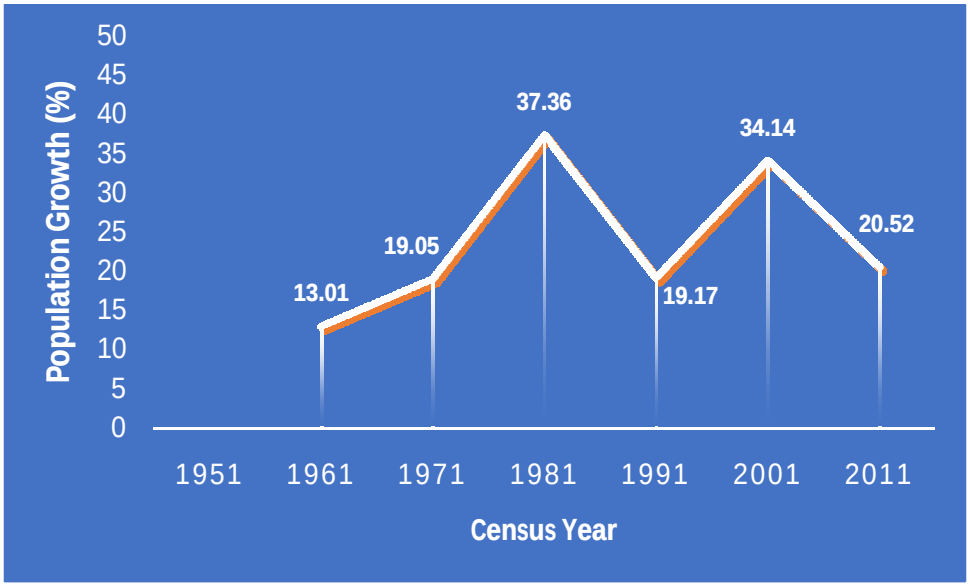
V. POPULATION GROWTH

Table 1: Population growth in Gaya city

S. No.	Year	Population	Population Growth (%)
1	1951	1,33,700	……
2	1961	1,51,105	13.01
3	1971	1,79,884	19.05
4	1981	2,47,075	37.36
5	1991	2,94,427	19.17
6	2001	3,94,945	34.14
7	2011	4,75,987	20.52

Source: District Census Handbook Gaya, Part XII-A ,page-1789

Figure 1: Population growth in Gaya city



Source: District Census Handbook Gaya, Part XII-A ,page-1789

Table 1 & Figure 1 highlights the decadal population growth of Gaya city from 1951 to 2011. In 1951 city population are gradually increased from 1,33,700 to 4,75,987 by 2011. This continuous growth reflects the urbanisation and migration towards the city in search of better opportunities. In figure 1 we can see the most significant growth was observed between 1971 and 1981. There is a sharp growth of 37.36%. This is indicating a possible influx of migrants, expansion of city boundaries, or improvement in livelihood facilities. After decline of population growth (19.17%) between 1981 and 1991, another notable rise occurred between 1991 and 2001 showing a growth rate of 34.14%. 1n 1961, 1971 & 2011 growth remained relatively moderate. The consistent growth in population has likely put pressure on the city's infrastructure, including transportation, housing and public services.

VI. NUMBER OF VEHICLES

There exist a close relationship between the nature of the urban transportation and the urban structure. This is more so as transport plays a significant role in the origin and continual survival of any settlement. The movement of people, goods and services within the urban area has been a vital aspect of the city life. Urban form was compact and walkable prior to the invention of modes of transport that enhances long distance travel and as transport technology improves, various urban forms emerge (Pacione, 2009; Ogunsanya, 2002; Muller, 1986).

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Urban landscape of Gaya is expanding rapidly. Due to urbanisation , Gaya city population grew from approximately 4,75,987 in 2011 and it is estimated 694K in 2025. It is highlighting substantial Urban expansion of Gaya. Yet only about 13.24% population of Total population of Gaya District lives in urban areas according to 2011 census. Vehicle ownership is increasing alongside urbanisation. In Bihar, there are 38 vehicles per 1000 people which is very low but RTO of Gaya is among the top in the state in car registrations.

Table 2: Registeredof Motor Vehicleson Road inGaya Year 2006-2007 to 2024-2025 (In Numbers)

S. No.	Types of Vehicles	No of vehicles		Growth(%)
		2006-2007	2024-2025	
1	Trucks	60	548	813.33
2	Buses	77	46	-40.26
3	Car and Station Wagons	299	2,938	882.61
4	Taxies	59	51	-13.56
5	Jeeps	163	….	……
6	Three Wheelers	572	1,820	218.18
7	Two Wheelers	7,548	30,359	302.21
8	Tractors	142	1,875	1,220.42
9	Trolley	143	387	170.63
10	Others	18	125	594.44
	Total	9,081	38,149	320.10

Source : Bihar Economic Survey, 2006-2007& 2024-2025

Above data of the Table 2 is presenting the increase in vehicle registration in Gaya city from 2006-2007 to 2024-2025. It is indicating both urban growth and changing mobility patterns. The total number of registered vehicles increase 320.10%, from 9,081 to 38,149. Among all types of vehicles, Number of tractors experienced the highest growth with 1,220.42%. it indicates the ongoing mechanisation of agriculture and rural-urban integration. Moter cars recorded a growth of 882.61%. it is indicating higher level of incomes, growing aspirations, and transition towards individual ownership. Two wheelers, the most prevalent vehicle type because of affordability and convenience of movement in crowded urban areas, went up by 302.21%. Three wheelers also registered a steep growth of 218.18%. It is a pointer to their significance in urban and semi-urban public transport.

In contrast, buses fell by 40.26% and taxis by 13.56%. It shows an investment shortfall in public transport infrastructure or a desire for individual mobility over collective systems. The high increase in trucks (813.33%) reflects increased commercialisation and urban consumption. Overall, the data reflects Gaya's rapid urbanisation and vehicle dependence, the imperative being sustainable transport planning and investment in public transist options.

VII. RISING TRAFFIC CONGESTION

There has been a considerable rise in the number of vehicles in Gaya. The roads in the nucleus or traditional sections of the city seem to be narrow. It is because of encroachments on their periphery. Tekari Road, G.B. Road, Ramna Road, riverfront roads, Bajaja Road, Station Road, Manpur Road, K.P. Road and other internal roads are the major roads of the city. These road range from 3 meters to 15 meters in width. Because of commercial activities, roadside parking decreases the effective road width, which poses difficulties in traffic operations. Major city intersections like Sikariya Mor, Collectorate, Kashinath Mor, Chowk, Muffasil Mor, Bhusanda Mor, and Kiranighat are congested for most of the time because of traffic.

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Figure 2: Traffic congestion in the city



Traffic Congestion at Manpur Road

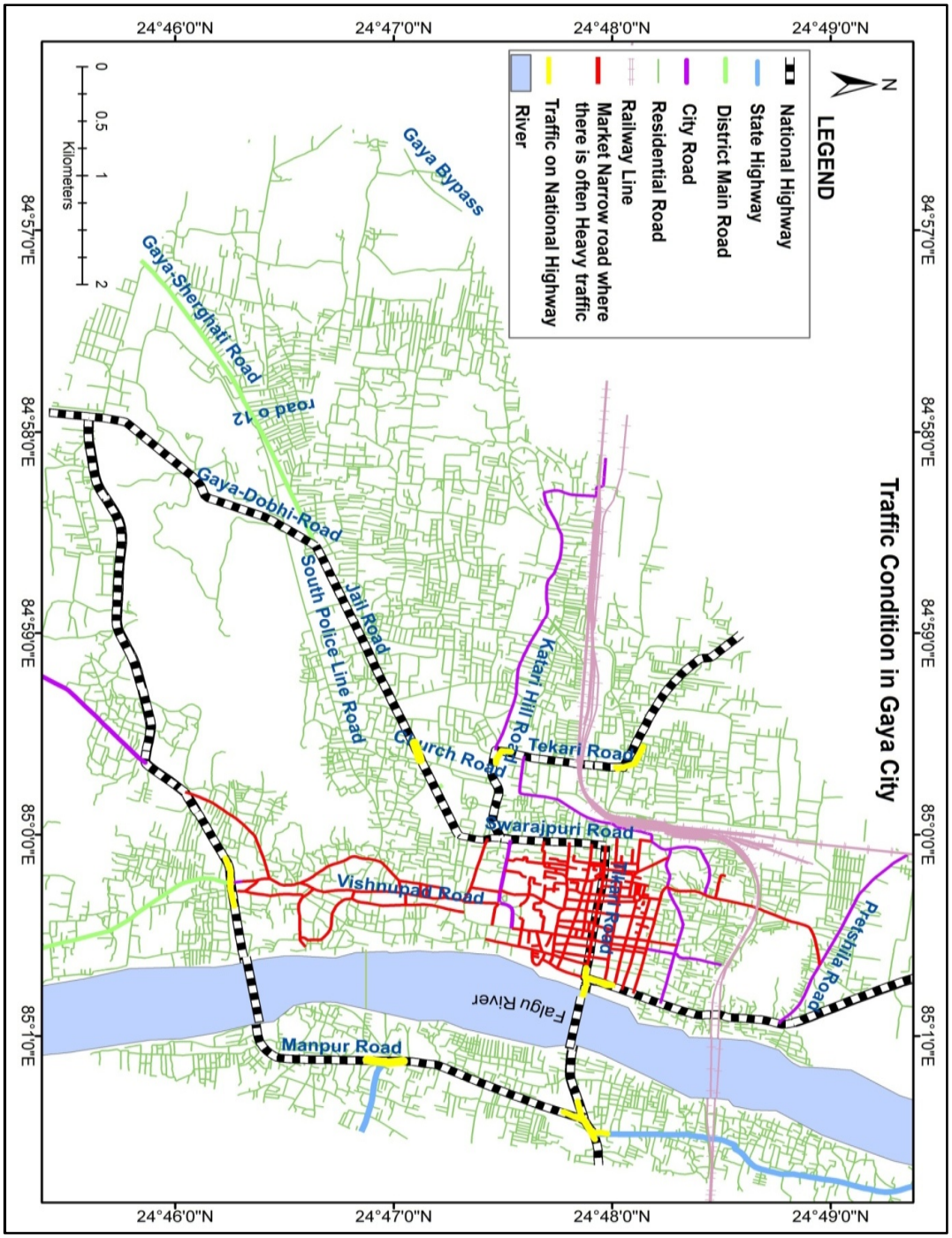


Traffic Congestion at Sikadiya Mod



Traffic Congestion at Bypass Mod

Map 2: Major Traffic Congestion Roads in Gaya city



The map shows the traffic in Gaya city, showing different types of raods and congestion areas with the help of many colour. State and Nation highway go around the city center, assisting in diverting through-traffic. Red colour show the congestion of roads which is jammed with heavy traffic almost whole day. The main reason of this jam is encroachment by shop owner and illegal parking of vehicle and most important narrowness of roads. These roads are main commercial roads of the city. Vishnupad road, swarajpuri Road, Tekari road, Bazaza road, K.P. Road etc. are vast with narrow city roads and demarcated congestion areas due to roadside encroachments and markets. Yellow coloured roads indicate heavy traffic frequency areas. Physical barriers are formed by the railway and Falgu River, which restrict even smoother mobility. The mast bottlenecks of traffic are at large intersections and inner roads, pointing to more effective traffic management and infrastructure planning in Gaya city.

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VIII. ENCROACHMENT& STREET VENDORS IN CITY

Street vendors in Gaya constitute a significant component of the informal economy. They offer means of livelihood to individuals who migrate from rural communities in search of jobs. The vendors conduct their activities along urban roads using carts, pushcarts or makeshift stalls. They tactfully pich their spots, frequently establishing themselves around work areas, business districts, schools and colleges, religious sites, tourist areas, hospitals and transportation hubs- busy areas where many people walk through. These street vendors typically do their business along major roads like the station road, bus stop, vishnupad temple, Ghungri Tad road, chowk area, tikari road, K.P. road, G.B. road, Ramna road, Gandhi Maidan etc.

Table 3: Distribution of Street vendors Markets in Gaya City.

S. No.	Area	Main Items Sold
1	K.P. Road	Clothing, Grocery
2	G.B. Road	Clothing, Fruits
3	Station Road	Small hotels, Stalls (Gumti)
4	Sikaria Mor	Fruits, Tea Shops
5	Gandhi Maidan	Clothing, Juice, Food Items
6	Chowk	Chaat, Juice, Clothing, Sunglasses, Belts, Sweets, Others
7	Chand Chaura	Clothing, Sweets
8	Kachahari Road	Fruits, Clothing
9	Manpur Road	Fruits, Vegetables, Clothing, Others

Figure 3: Street vendors in Gaya city



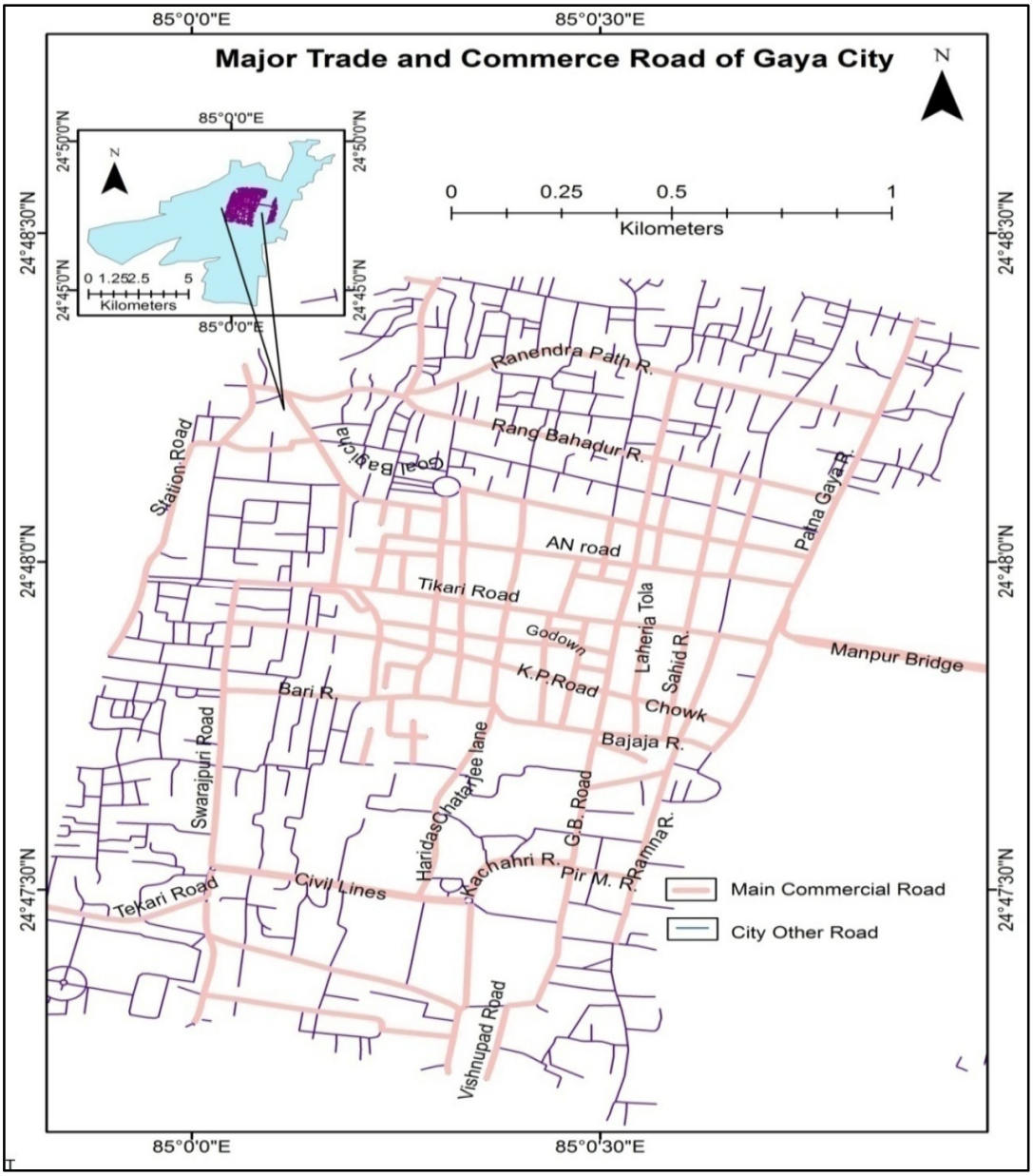
3.1 : Street vendors at K.P. Road, Gaya city



3.2 : Street vendors in Kedarnath Market, Gaya city

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Map 3: Major Trade and Commerce Road of Gaya City



IX. CONCLUSION

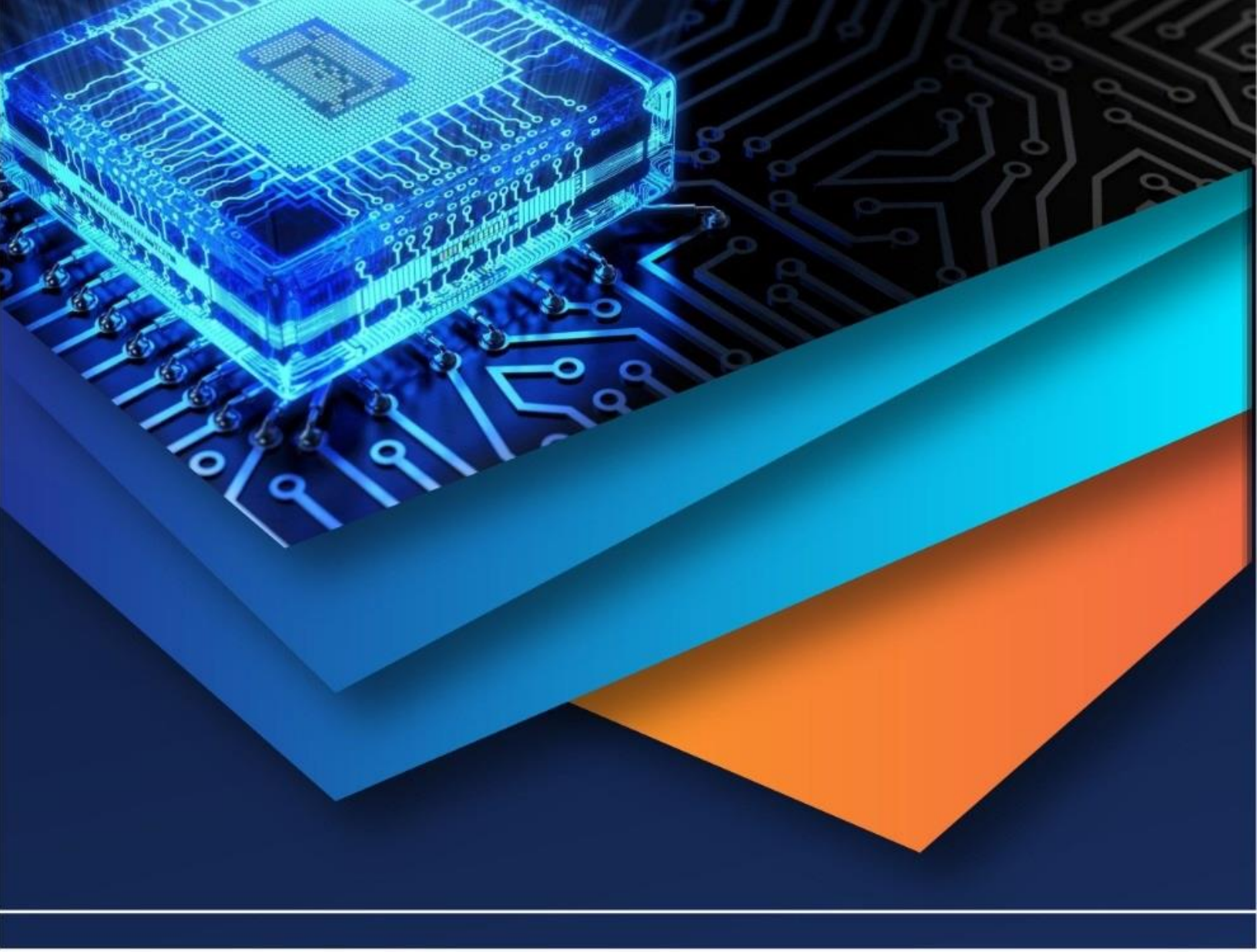
Above analysis of "Encroachment, Street Vendors, and Traffic Chaos in Gaya City: A Study of Core City Areas" discloses a confounding urban situation where informal economic life and unplanned growth have largely influenced urban transportation. Although, street vendors crucial to the city's informal economy and livelihood of rural migrants. They take up footpaths, road margins and intersections of different roads. It happens particularly in commercial and busy area like K.P. Road, Station Road, Chock Area, Swarajpuri Road, Vishnupad Area, Tekari Road, G.B. Road etc. Due to their favourable location close to markets, schools, religious places and transport facilities, they cause repeated encroachment onto roads as well as the narrowing of carriageway width, aggravating traffic congestion. The inner core sections of Gaya city, with narrow roads that vary from 3 to 15 meters, are already overburdened in managing contemporary traffic levels. Ineffective enforcement, improper designated vending areas, and poor public transport infrastructure have compound traffic clogs at key junctions such as Sikaria Mor, chock, Bypass, Manpur Road, KiraniGhat etc.

Though street vendors have a critical economic and social function, their unorganized presence leads to traffic disorganization, pedestrian discomfort, and road safety. A harmonious solution through inclusive urban planning, specialized vending areas, and better traffic organization is needed in order to guarantee sustainable city development in the central areas of Gaya city.

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