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Resuscitate Urban Streets: for Human Not for Wheels

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Abstract:- **Now days, cities are a dynamically transforming socially as well as economically, in which urban spaces in the form of streets is playing an increasingly important role. Within such a fast developing context, the nature of urban streets in our cities gets transformed.**

Urban spaces are the mirror of society; it shows the cultural realm of a city. A space where a human being does not feel as an individual entity but rather a people get together and interact with each other either of same cultural or racial background or of different cultural people.

This paper as about our expectation from urban open spaces in 21st century. Role of streets as public space may need to be re-thought.as streets give essence to the city and leave impression on other's mind. One can't imagine any city without streets and streets without cars but 'streets are for people not for cars', the paper focus on transportation, its effects on urban streets ,and how sustainable mobility revitalize the essence of streets by making them safer, more attractive, and more livable ("traffic calming). The effects are measured in terms of neighborhood interactions, use of public space and the personal feelings of belonging of residents. The study includes the analysis of three urban streets in Indore.

Livable streets in urban neighborhoods can be great places for public life and social inclusion

Keywords:- Livable Urban Streets, Urban Transport, CO_2 Emission, NMT, Public Transport

1. INTRODUCTION

Every town has its own character. Public space is the living room of the city - the place where people come together to enjoy the city and commute with each other. Public spaces make top quality life in the city potential - they are usually molded by building facades and the city's floor. It is dedicated to individual for common use. Its ceiling is that the sky.

Streets, before independence were used primarily for pedestrian movement and socialization. People use it for other purposes also i.e. holding functions and rituals, by hawkers; children will run the streets in joyful mood. Streets were the connecting corridors with slow mode of the movement i.e. on foot, animals, animal carts, cycle, or few motor cycles. Slow moving vehicles displays no threat to the pedestrians on the street.

With the transformation of era, society and acceleration in population size, urban sprawl, pressure on transportation systems and public spaces also grows. Transportation systems need to cover increasingly large distances and sustain more individuals. Currently, with high density of city, growing cities struggle with the varied, competitive roles public space must fulfill: as meeting space, as public domain, as political and liveable space, and as space for commerce. Due to low percent of open spaces, urban streets become multifunctional.

Urban public space exists in a large variety of forms, such as parks, squares, markets, transport interchanges – and streets (Hajer &-Reijndorp, 2001; Mehta, 2013). It is hard to imagine any of these spaces functioning without the possibility of people moving to and through them – by walking or perhaps skating, running, or cycling. *Street as public space is also a space of economic activity, for example through cafés, vending or food trucks* (Kim, 2015; Mehta, 2009). Urban streets are a very particular kind of public space. Next to a street, there are also the main channels through which flows of people and goods that are essential for cities are facilitated, to the point. Urban streets embody the relation between mobility and public space, as increased mobility and more intensive use of public space both feed each other and directly compete for ever scarcer urban space (Idem; Tranter, 2010).

It is not only difficult but also more crucial to facilitate access while at the same time restricting mobility due to pollution and congestion problems (Hickman & Banister, 2013; Moriarty & Honnery, 2008; Sheller, 2008; Tranter, 2010). Simultaneously changes in mobility patterns and the use of public space are intimately related. Functions, mode of mobility and streets as public space increase the livability of cities?

URBAN STREET AS PUBLIC SPACE

Lord Rogers' urban task force report (1999) says "*To achieve urban integration means thinking of urban open space not as an isolated unit be it a street or square"*. If we think of city what comes in mind is street.

Traditionally streets and public spaces in Indian cities facilitated a setting for large low-income classes to earn a livelihood and to satisfy their demand for basic needs.

Urbanization is a major change taking place globally. According to UNDP, 2006, 30% of world's population lived in cities in 1950, growing rapidly. Due to migration of people from rural areas in search of job opportunities. Worlds 70% population lives in cities (UNDP 2006) census of India (2011) data reveals that 377million Indians live in urban area, the average annual growth rate is 2.5-2.6%. The number of towns grows from 5161 in 2001 to 7935in 2011. With the rapid urbanization and high density in the inner city. The mobility patterns of the urban middle class have changed. Rising incomes among the Indian MIG and HIG have made cars even more affordable. It disturbed the condition on streets and public spaces. Besides transportation commercial streets are home to many other uses.

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The urban street as open space becomes recreation space for quick walk or for a short game for kids. The social bonding between neighbors' and people were enhanced by chitchat on the sides of the streets. Now, they are infrastructural backbone of these activities and economic growth of a city. The very development of cities depended on its streets. They act as veins of the community and foundation of our economy.
The condition of streets and public space has been disturbed due to increase demand of mobility. Beyond transportation the activities on streets (as playground for kids, street café, shelter for homeless, commercial place for vender, etc. become significant. With the growing need of people, to accommodate faster and longer mode of transport ,our streets become wider and stronger. The motorization increasingly shapes the urban streetscape.

HOW URBAN TRANSPORT INFLUENCE OUR URBAN STREETS

Cities today are suffering from declining mobility and environmental degradation and affect the small business. Social and cultural streets and sidewalks in the city are losing its character. The place which originally was designed to facilitate public interaction is now mere a place where fast moving cars commute.
Acceleration in vehicular traffic on the street reduces the street size for pedestrians causing traffic congestion, degrading the environment and the spirit of the street. Today's need is to design the easily accessible streets to encourage social inter relation and to put people before cars. Donald apple yard's seminal study "liveable streets" (1982) showed *that social connections between people on a street were inversely proportionate to the amount of traffic*. Effective, comfortable, safe, fast and affordable urban transport services not only increase the commercial and labor market efficiency of cities, but also create vibrant spaces, improves mobility and quality of life. Urban areas to make them safer, more attractive and more livable ("traffic calming") affect small businesses in highly urbanized areas. The extensive approach is planning for 'accessibility' the ability to reach desired goods, services and activities.
Geddes in his triad theory discusses about the relationship between people and place and their impact on each other. He explains people not only needs shelter but require food, work and social life.

PUBLIC TRANSPORT AS SUSTAINABLE MOBILITY

Before, mobility has been discussed in various ways. Sustainable mobility need to save energy and reduce carbon emissions. Simultaneously, Protection of environment means control of energy consumption, air pollution noise. Social equity means to benefit all social groups. Thus it has four main objectives:
Fuel conservation and protection of environment.
Social equity and safety.
Mobility for all mode of transport the commuter wishes.
Financial sustainability.
Besides sustainable mobility, there should be a talk of low carbon strategies, mobility in narrow streets, and smart mobility.

ROLE OF PARKING V/S PRIVATE TRANSPORT

Restore human legs as a means of travel. Pedestrians rely on food for fuel and need no special parking facilities." ~ Lewis Mumford

Tab. 7.11 Growth Trend of Registered Vehicles in Indore District

Year	Two wheeler	Three Wheelers	Car / Taxi	Jeeps
1993-94	203142	8019	19305	3643
1994-95	219578	8242	21652	3644
1995-96	241780	8772	29481	3824
1996-97	266173	9122	35633	3991
1997-98	296766	9319	36065	4142
1998-99	330586	9399	38105	4260
1999-2000	367046	9444	41328	4310
Average Annual Growth (%)	10.4	2.8	13.5	2.8

Source; C TTS Report Consulting Engineering Services (CES)

Fig 1-Growth Trend Of Registered Vehicles In Indore District
source ; C TTS Report Consulting Engineering Services (CES)

Owning a car is not always a necessity; it is often inspiration and also a status symbol. In Indore the average annual growth of two wheelers and four wheeler is 10.4% and 13.5 %. Widening of roads and providing more and more parking lots, enhance the use of private motor vehicle. Parking is directly proportional to private transport and inversely proportional to public transport. Discouraging the public to use private vehicle for short trips can be done by controlling parking lots. Decrease in the supply of parking is a reduction in automobile trips, and increase in public transport which implies some or all of the following:
1.An increase in automobile-occupancy levels,
2. A decrease in person trips,
3. Faster travel times for the remaining trips and a decrease in delays,
4. An increase in public transit use, (BRTS, sharing Car, Autos, and Bikes)
5. A reduction in air pollution, and
6. Lower ambient noise levels.

In urban design, most beneficial strategies may involve to motivate walking, control motor vehicles to the urban streets.

URBAN TRANSPORT PLANNING APPROACH

Avoid, shift and improve approach

The avoid, shift and improve aning strategy is advocated by the Asian development bank in its draft 'action plan to make transport in developing countries more climate friendly' to promote sustainable practices. *Avoid* means limit the demand for travel by reducing the number and length of trips. *Shift* means limit use of personal vehicles and increase use of Public Transport and NMT modes to reduce energy consumption and pollution in cities. *Improve* means use of clean fuels and clean

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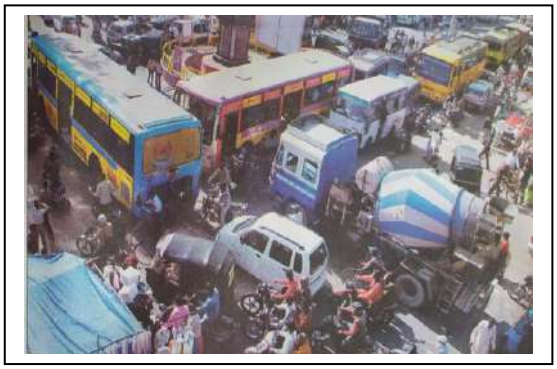
vehicle technology. Public transport plays a significant role in the shift.



Public Transport v/s Non- motorized transport (NMT)

NMT is directly proportional to public transport. The number of vehicles registered in Indore cities has increased from 0.27million in 1993 to 0.48 million in 2000 recording an average growth rate of 8.8% per annum (Tab 1). The average annual growth rates for two wheelers: three wheelers, Car / Taxi and Buses during 1993-99 were 10.4%,2.8%,15.5:,17.2% respectively.(planning commission, 2014). "

Cities	Modal split					Share Of NMT (%)	Average Trip Length (atl) (in km)
	Population urban agglomeration (2011 census)	Share of public transport (%)	Share of private Transport (%)	Share Of Walking (%)	Share Of Bicycle (%)		
Mumbai	18,414,288	52	15	27	6	33	11.9
Delhi	16,314,838	48	19	21	12	33	10.2
Chennai	8,696,010	39	30	22	9	31	8.6
Bengaluru	8,499,399	36	39	20	5	25	9.6
Ahmadabad	6,352,254	30	36	22	12	34	5.4
Pune	5,049,968	13	54	22	11	33	6.1
Surat	4,585,367	14	31	42	13	55	5.3
Jaipur	3,073,350	17	39	37	7	44	5.4
Indore	2,167,447	16	37	27	20	47	5.6
Bhopal	1,883,381	28	19	49	4	53	3.1
Rajkot	1,390,933	14	38	36	12	48	3.7
Mysore	983,893	26	23	34	17	51	2.5

Table 1: Existing travel modes in selected Indian cities, Source: Institute of town planners, India journal 16 x 1 (ITPI) ,January– march 2019

The average trip length in small and medium size cities is less than 5km.linear regression analysis shows that, shorter the trip length and greater the share of NMT and vice-versa (fig 1). The result drawn by national institute of urban affairs in 2014 whereby bicycle trip lengths in Indian cities range between 2.5-4.8km in small cities and 4.2-6.9 km in medium and large cities. (NIUA, 2014) it makes NMT an attractive option to commute. It is sustainable mode of transport. It includes Walking, Cycling, Cycle Rickshaws, e-Rickshaw. Because of urban sprawl the traditional planning can be considered slow but for improving the health of cities. Indore has 47 per cent NMT trips respectively. NMT is ecofriendly mode of transport as there is no consumption of energy, no carbon footprint, and zero emission. Further it is not dependent on fossil fuel.

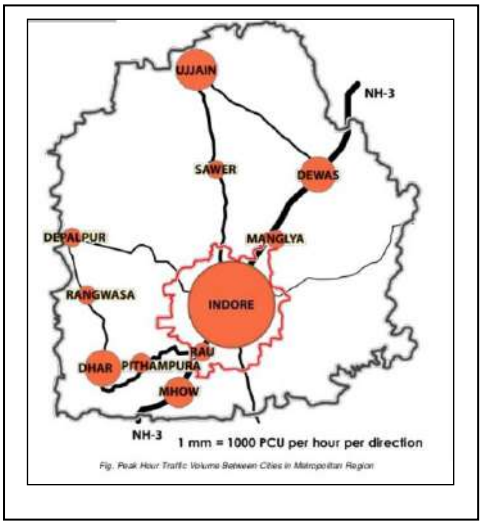
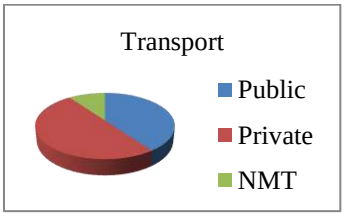


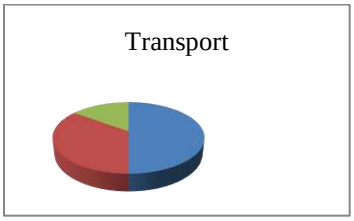
Fig 6 peak hrs Traffic Volume between cities in Metropolitian Region

A Paradigm Shift from Car-centered to People Oriented Policies



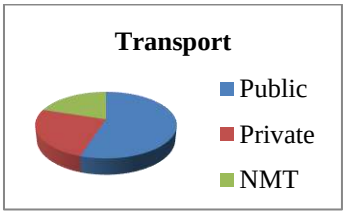
Vehicles	%
Public	40
Private	50
NMT	10

Fig 3- Past (individual Transport) Infrastructure built for individual Transport



Vehicles	%
Public	50
Private	35
NMT	15

Fig 4- Present (Public Transport) Infrastructure built for Public Transport



Vehicles	%
Public	55
Private	15
NMT	30

Fig 5- Future (NMT) Infrastructure built for People -First Transport

CITY INDORE

Situated on one of India's oldest pilgrimage routes from Mahakaal at Ujjain on river Kshipra, to Omkareshwar on river Narmada and onwards to Rameshwaram, Indore has been a convenient resting place since historical times. Area of Indore city is 131.0 sq. km (source: Draft development plan 2021) Indore.

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Population of Indore is 16, 00000. Its increase between 1991 and 2001 has been tremendous. Indore, the commercial capital of Madhya Pradesh is also well known as educational hub. Trade, commerce and learning are its magnets to attract the people from all directions. It has cultural diversity and peaceful environment. Here people belong to different culture.

It is a city young at heart full of thrill, celebrations, pleasure and anxiety. People celebrate each movement of life. Indore has this unique tradition of, celebrating Rangpanchami, called Gair on the fifth day from Holi. They celebrate Anant Chaturdas,Navratri, Desshera, Diwali Chrishmas and Eid with full enthusiasm. There is a void in any celebration without food Indore as is always claimed as a paradise for foodies; the people here are like the biggest foodies ever. Food streets are the individuality of the city.

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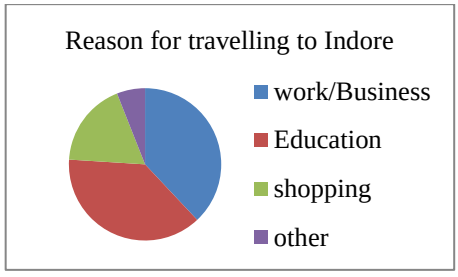

Fig 7

RAJWADA

The Holkar's palace or the Rajwada housed the administrative as well as residential activity of the ruler and was the central node around which the concentric development took place, its location forms an urban square which acts as the focus of the city and its influence radiates throughout the city and hence is a major landmark of the city. All three sides are surrounded by versatile commercial streets for cloths, Jewelleries, Books, Utensils etc. Earlier people move on their feet, elephant, horse cart, etc.

With the ages, now motors vehicles replace all NMT. This population growth exerts pressure on natural resources and manmade infrastructure. Due to commercial establishments in core area, heavy traffic was observed around the heritage precinct. According to Indore Master Plan 2021, the traffic density in peak hours is 9503 in morning and 9659 in the evening The versatile traffic causes traffic congestion, pollution and even the heritage is losing its identity.

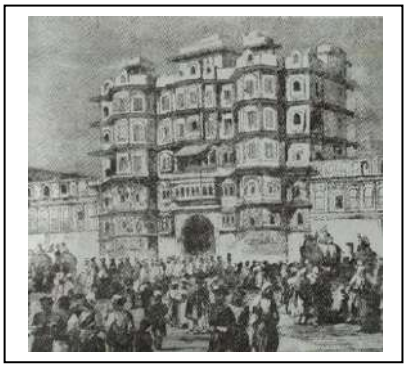

Fig 8- Parana Rajwada source;Dainik Bhaskar

Fig 9- Aaj ka Rajwada

Fig 10- Kal ka Rajwada (Vehicles free)
Source: Smart city.gov.in

Fig 11- showing NMV routes at Rajwada Zone ;
Source: Smart city.gov.in

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The maximum observed traffic flow is 3530. Parking space has always been a problem in the busy Rajwada. For making it vehicle free zone IDA is proposing 14 multi level parking. This will preserve the cultural and historical value.

Sarafa street

The place is in the heart of the commercial center of the city. The street-food culture is second to none in the country. 'Sarafa' place for late night food lovers. Prominently it's a gold market from morning 9:00 a.m.to till 10 p.m. Peripheral space in front of the shops is multi- functional for day and night. The street transferred its patronage and swaps to food market at night. One can find food up to 2 a.m. here easily. So it's a heaven for foodies. Due to expansion of city people took long
trips by their own vehicles. The density of walking people is around 2369 in peak hours Lack of parking space as well as of NMT reduces the craze for it or one has to park here or there which leads congestion.

Fig 12- Sarafa at Day Time

Different use of same space at different time

Fig 13 Sarafa after 9:00p.m.

Fig 14 - Transformation of Sarafa Street after restricting Vehicular Moment

CHHAPPAN DUKAN

True to its name there are 56 or more snack joints here always crowded. It's the favorite spot of every age group.
All type of Chaats, Garadu, Full Meals, Sweets, Coffee. One can name it food street in the city because of its central location and access. The area is not only crowded with foodies but also opposite to it is "one centre" for the people who want to shop. Hence eating and shopping haven't been that easy, from friends to family to enjoy. Indore Master Plan 2021 shows that the vehicular density around Palasia circle adjacent to Chhappan Dukan in peak hours is 9332 in the Morning and 10532 in Evening. Now with crowd comes traffic and pollution. Though there is a section to park but never ending vehicular movement makes it difficult. Small vendors also occupies the parking makes it difficult too. According to Indore Master Plan 2021, number of people on walk is 1277 in peak hours between 6:00pm to 9:00pm. Hence there is a need to restrict the vehicles and encourage walking.

Fig 15-Street View of Chhappan Dukan

Fig 16- Off Street Parking at Chhappan Dukan

MALHAR AND C21 SHOPPING MALLS

These are the one of the popular shopping malls across in Indore. Two malls have high building merely divided by a common road in between that hold them together as a open social place in a city. Pedestrians are the most frequent visitors to the malls. Having two malls side by side invites traffic. It spoils the environment and essence of that street. It became difficult for people to move from one mall the other mall due to congestion. This is the only thing to be taken care off. The road in between leads to parking .The open four wheeler

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parking is at the back of the Malls which can accommodate approx 40Cars and 50-65 two wheelers. Approx number of two wheeler and four wheeler in peak hours is 200 and 100 respectively to accommodate. Due to shortage of parking space, people park their two wheelers off the street also. By restricting the vehicular movement on the between street and adopting the shift policy, it can be revitalize as social street for people.

Fig 17- Off Street Parking and traffic movement between two malls

Fig- 18 Parking at the back of C21 Mall

CONCLUSION

In public sphere, shopping / food streets are multidimensional, it reflects the society. Making traffic free streets facilitate the people acting and interacting with each other. Street conjoins all kinds of people, not just of certain class or color or age. As it's difficult to retain adequate space for social and economic activities. Urban streets functions more as social space than market area, more as conduits for an ever growing volume of traffic. India is following western –style in different directions, but we are struggling to reconcile the competing need of mobility and livability. Street should be properly treated by providing street furniture, planters, low walls etc. To give people a place to sit, relax, interact and enjoy. As ownership of private vehicles grows and govt. attempt to accommodate the additional vehicles. Making CO_2 and congestion free environment of urban streets is the major challenge. Walking and cycling are the most desirable modes of urban residents for shopping and other social activities. Modal share of NMT is quite enormous. Earlier studies show that implication of shift approach (form private to public transportation) and acceptance of NMT reduces CO_2emission, congestion, crashes and increases public transport. Its focus is not individual transport modes but citizens as a whole. The plan provides infrastructure for the benefit of the public by creating an environment dedicated to pedestrians, bicycles and public transit. It also helps in reducing the demand of widening road with and parking lots and accelerates the land value. Traffic calming environment improves the quality of local area and community interaction; improve commercial activity, makes urban streets more attractive, livable and social. In the urban street design guide published by island press, an important aspect of a street is noted: "*streets are the lifeblood of our communities and foundation of our urban economies. They make up more than 80% of all public space in cities and have the potential to foster business activity, serve as a front yard for residents, and provide a safe place for place to get around, whether on foot. Bicycle, Car or Transit. The vitality of urban life demands a design approach sensitive to the multi faceted role street play in our cities".*

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