

Towards Creating Better Cities: Problems and Potentials of Transit Oriented Development as Community Development Tool in Dhaka

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Abstract

Peter Calthorpe saw Transit Oriented Development (TOD) as a neo-traditional guide to sustainable community design, rather than an excuse for new infrastructure development. Coming to Dhaka, it has become a mega city with more than ten million inhabitants, and its population is projected to reach 16 million by 2015. Lack of sufficient public transport facilities to support this growing demand and efficient transport management paired with increasing automobile dependency resulting into serious traffic congestion in addition to air pollution induced health hazard, reduced productivity and additional stress on city dwellers. Considering this situation the government of Bangladesh has identified priority issues such as improvement of mass transit system (buses and rail transportations). But in spite of all the detail technical guidelines regarding the transit networks, little evidence has been found regarding how the surrounding community is going to be affected or benefited due to this new transit infrastructures and how these changes can be guided. This is where this paper considers to critically investigating the problems and prospects of mass transit system in Dhaka and potential of TOD as a promising concept for strengthening the local communities. The investigation has been based on examining documented evidences such as national guidelines, international case study and informal social survey in one of the busiest influence zones along the proposed mass transit corridors. The findings focus on the positive perspectives of the local community supporting the TOD and some of the policy and institutional barriers that might hamper the benefits TOD application may yield in the context of Dhaka.

Keywords: Mass transit, Transit oriented development, community development, Dhaka

Introduction: TOD as a community development tool

“Historically, transit helped foster community, just as the automobile helped undermine it. The reason is that when most people took transit, they normally walked from their homes to the bus or streetcar stop. Other people from the neighborhood were doing the same, and as they walked at the tram stop they

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met face to face. Since commuters tend to be creatures of habit they saw many of the same people each day. They met, talked, and got to know each other. They found a shared interest in the well being of the neighborhood. Transit itself was part of that well being. Often shops and maybe a bar or cafe opened near the shop, and a mini-community developed around it. All these influences helped a neighborhood become a community”

Weyrich and Lind, 1996

Transport and the built environment are mutually dependent entities that have consistently pushed and pulled to create urban forms. The idea that transit might orient development and vis a versa is certainly not new (Carlton, 2007). Over the years, substantial amount of guiding principles and normative approaches have been designed for practical implementation of Transit - Oriented Development (TOD). Even though the literature regarding TOD is new, the concept is rather old. Researchers have analyzed over the years and within a large amount of literature the importance that high densities and mixed land-use have in the city's expansion, and the interconnection between demand and supply of public transport as an active element in the dynamics and the structure of urban system (Dragutescu, 2006). Peter Calthorpe was the first to pioneer and codify the concept of TOD in the late 1980's and, while others had promoted similar concepts and contributed to the design, TOD became a fixture of modern planning when Calthorpe published his provocative book “The New American Metropolis: Ecology, Community and the American Dream” in 1993 (Carlton, 2007). From that moment, the literature began to see this concept as a real solution in providing smart growth, turning this study in one of the most frequently cited (Dragutescu, 2006).

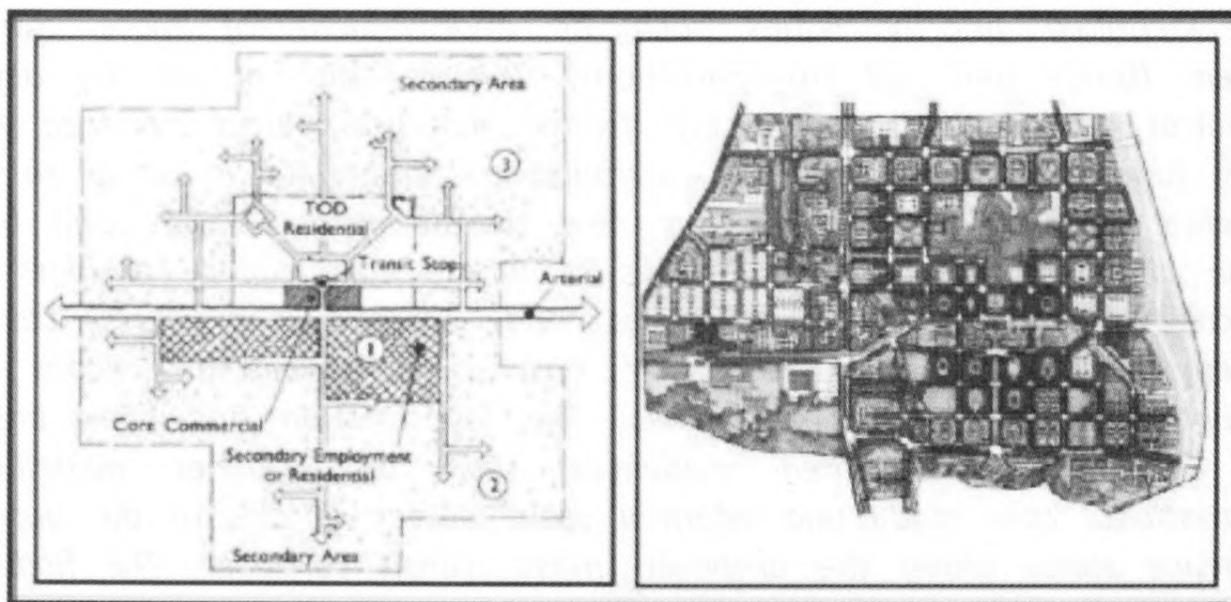


Fig.1: Conceptual design for TOD
Source: Calthorpe, 1993

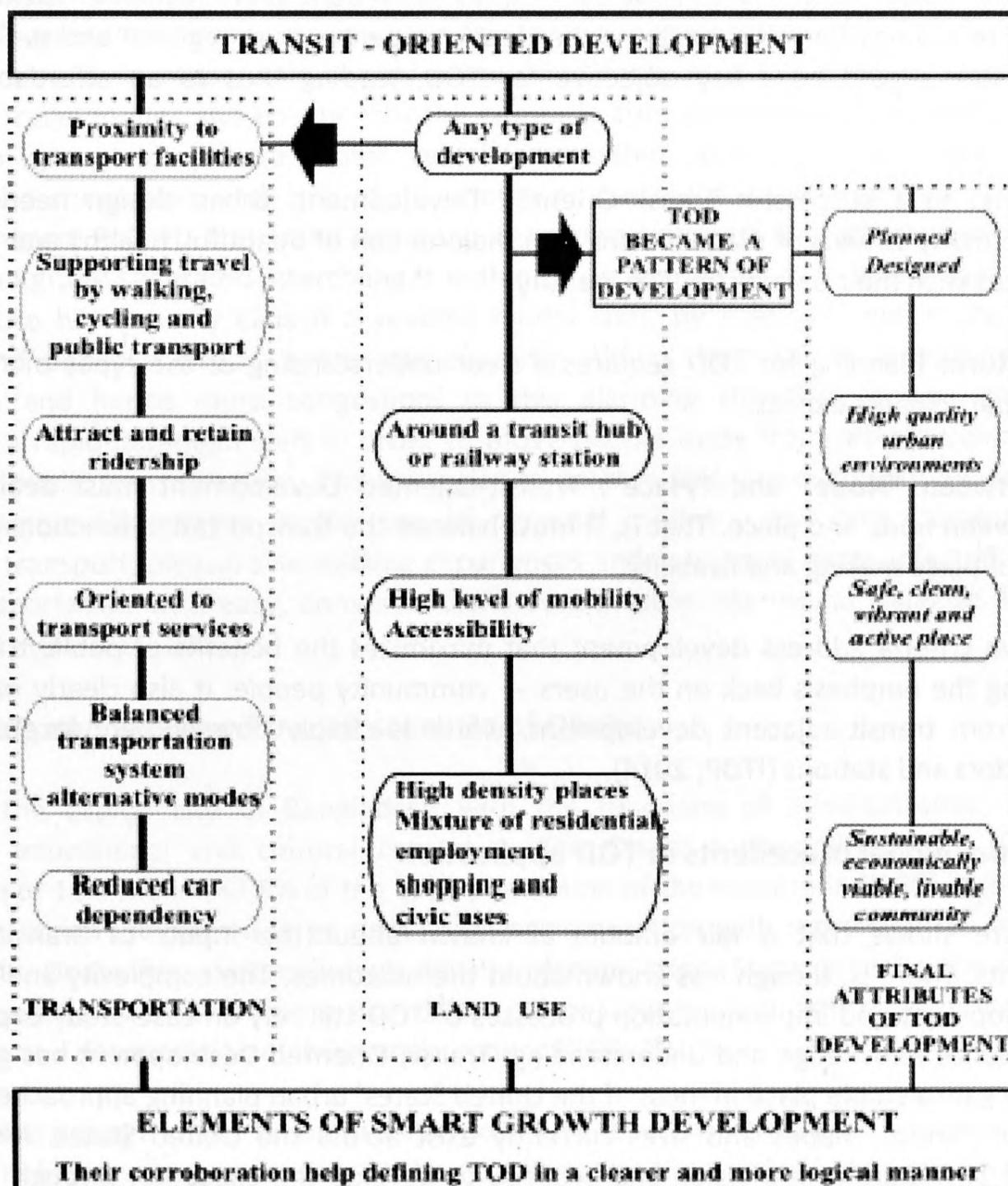
The concept of TOD varies in form in different locations. According to Cervero et al, in Europe, a transit station often represents more than a collection/drop-off point (Cervero, Ferrell and Murphy, 2002). It rather functions more as a centre-piece for community building – an organizing platform for creating “compact, mixed-use community centered around the transit station that, by design, invites residents, workers, and shoppers to drive their cars less and ride mass transit more (Bernick and Cervero,1997)

There is no generally accepted definition of TOD. It has been defined generally as “a mixed-use community that encourages people to live near transit services and to decrease their dependence on driving.”(Still, 2002). Calthorpe saw it as a neo-traditional guide to sustainable community design. Beyond its definition of built form, it was also a community design theory

that promised to address a myriad of social issues. It was a natural evolutionary next-step from many familiar community design precedents (Calthorpe, 1993). As later TOD analysts explained, “These Transit-oriented developments have the potential to provide residents with improved quality of life and reduced household transportation expense while providing the region with stable mixed-income neighborhoods that reduce environmental impacts and provide real alternatives to traffic congestion.”(Hank et al, 2004). Nevertheless, the definitions of TOD share some common traits as seen in the following table. Stakeholders and agencies provide different definitions that particularly concern their area of intervention. Some of them emphasize high density and mixture of uses, while for others the alternative public transportation system weights more to the disadvantage of the mass diffusion of automobile. But most of them strive for a high quality sustainable environment and a livable, active community (Dragutescu, 2006).

Table.1: Shared elements in defining TOD

Table 3 – Shared elements in defining TOD



Performance criteria of TOD

A clear vision of what TOD wants to achieve is compulsory in order to comprehend its role as a community development tool. Focusing only on physical qualities might block out TOD from creating locations that function differently from other conventional developments. Different

studies emphasize quite similar measurable point of reference that increase the purely descriptive definition of TOD (Dittmar and Ohland, 2004; Beltzer and Autler, 2002). According to the TOD researchers, the following attributes can be summarized as performance criteria-

Efficiency of location: Location efficiency is about turning driving from a necessity into an option and about placing homes in the proximity of public transport system. Homebuyers are encouraged to choose a location-efficient neighborhood through financial mechanisms.

Choice: The theory of choice is needed for generating the idea of a good life. The incontestable advantage that rich mix of choices brings is represented by the possibility of creating a wider range of options. Options to live in different housing types, options to shop other than one would shop at an auto-oriented retail centre, options to get around on foot, by bicycle or by public transport, enhancing the mobility of either seniors or children.

Value capture: Value capture is an issue that comes like a benefit of location efficiency, directly translated into savings for individuals – either local residents, or at regional and national level. Capturing value should be a key objective for TOD, leading thus to an affordable life for individuals.

Place making: In a successful Transit-Oriented Development, urban design needs to draw together the many strands of place-making into the creation of beautiful, healthy and pedestrian friendly places with their own distinctive identity.

Financial return: Planning for TOD requires a clear understanding of the types of return that each of the participants expect.

Balance between “Node” and “Place”: Transit-Oriented Development must deal with the tension between node and place. That is, it must balance the transportation functions of the site with issues of place making and livability.

All the above criteria address development that maximizes the benefits of public transit while firmly placing the emphasis back on the users — community people. It also clearly marks a key difference from transit-adjacent development, which is simply development located next to transit corridors and stations (ITDP, 2014).

Learning from global precedents in TOD application

The literature shows that a fair amount is known about the inputs of Transit-Oriented Developments. There is, though less known about the outcomes. The complexity and constraints of the development and implementation processes of TOD still rely on case-study experience in order to advance knowledge and understanding. Transit-Oriented Development has gained and continues to gain a stable place in most of the United States' urban planning approaches -almost 100 TODs of various shapes and sizes currently exist across the United States. Most of the examples of TOD start with a vision and proceed to develop the execution through aggressive and inclusive station area planning, backed up by supportive zoning, infrastructure enhancements, and fiscal policies that reward smart growth investments (Cervero, 2004).

In Asian context, Singapore and recently Delhi have demonstrated huge success in executing TOD. For example, in Singapore, A mixed-use planning strategy puts work and home closer together, moderating the demand on transport systems. Policy makers have restrained traffic,

through road pricing, and have “managed” to maintain a safe, efficient, and environmentally acceptable movement of people, not just vehicles. This implies prioritization of infrastructure to protect movements of public transport and non-motorized transport against the unrestricted expansion of private motorized trips (as in Bogota, Colombia and Curitiba, Brazil through bus-way systems) (ADB, 2012).

Delhi has a different story to share. In spite of Delhi’s recent investments in Public Transport Systems which include a world class Metro System and a planned BRT Network, Delhi has been unable to deliver efficient, comfortable and affordable mobility options to its citizens due to lack of emphasis on community centric transit policies or more precisely, TOD policies. The current lack of connectivity (in particular to Metro stations), abundant subsidized parking options as well as a lack of safety for walkers, cyclists and women in the city has resulted in public transportation being relegated to second or even last choice of travel. This has consequentially resulted in the ever increasing number of private vehicles plying in the city in spite of the existing transit facilities. The city has a very long history of auto-centric planning which prioritized segregated land uses, low density sprawl and large unworkable block sizes. The supply of extra wide roads with heavily encroached footpaths/ cycle tracks, discourage non-motorized travel modes and ensure that the citizen is auto-dependent. The result has been an exponential growth in private motor vehicle ownership, and a corresponding increase in pollution and congestion, with loss of man-hours and increase in urban poverty (ref: National Urban Transport Policy). This trend has been aggravated through the rampant construction of flyovers and grade separated interchanges within city limits. Congestion is still as it is, and such infrastructure has actually caused a reverse modal shift, by making travel more difficult for walkers and public transport users, consequently adding them to the private-vehicle using population and hence more congestion! In this alarming situation, it was imperative to undertake a rapid paradigm shift in order to move people away from private vehicles towards the use of public transportation. The strategies to achieve this paradigm shift included offering more attractive alternatives to the use of personal modes – low cost, comfortable, non-motorized transport, pleasurable walking experiences and very easily accessible and comfortable mass transportation with easy, convenient and comfortable intermodal transfers for last mile connectivity (UTTIPEC, 2012).

The existing and proposed transit scenario of Dhaka

Dhaka is the capital city of Bangladesh with the functions of administrative, commercial, industrial, educational and cultural centers. The Dhaka Metropolitan Area (DMA) has a population of 10.7 million (7.5% of the total population of the country in 2006). It is often called Mega City, which indicates a large population agglomeration with more than 10 million. More significantly, Dhaka has extremely high density of population. Some areas in the old city area have a population density of more than 1,000 persons per hectare, which causes serious traffic congestion and deterioration of living environment (GOB, 2010).

Currently the urban transportation in DMA mostly relies on road transport, where car, bus, auto-rickshaw, rickshaw, etc. are coexistent. An assessment of the existing urban transport system of Dhaka revealed that it suffers from major constraints such as fragmentation of organizational responsibility; inefficient regulatory frameworks; insufficient financial resources; poor allocation of road space; presence of too many low capacity and slow vehicles on major roads; poor traffic control, management and enforcement; underdeveloped public transport system; absence of adequate pedestrian facilities; poor linkage between land use planning and

transport development and finally, lack of emphasis on environmentally sound and sustainable transport development (Mahmud and Hoque, 2012). All these create serious traffic congestion in addition to health hazard caused by the traffic pollution including air pollution. So, the improvement of urban public transportation system for DMA has become a pressing issue to improve its traffic situation and urban environment.

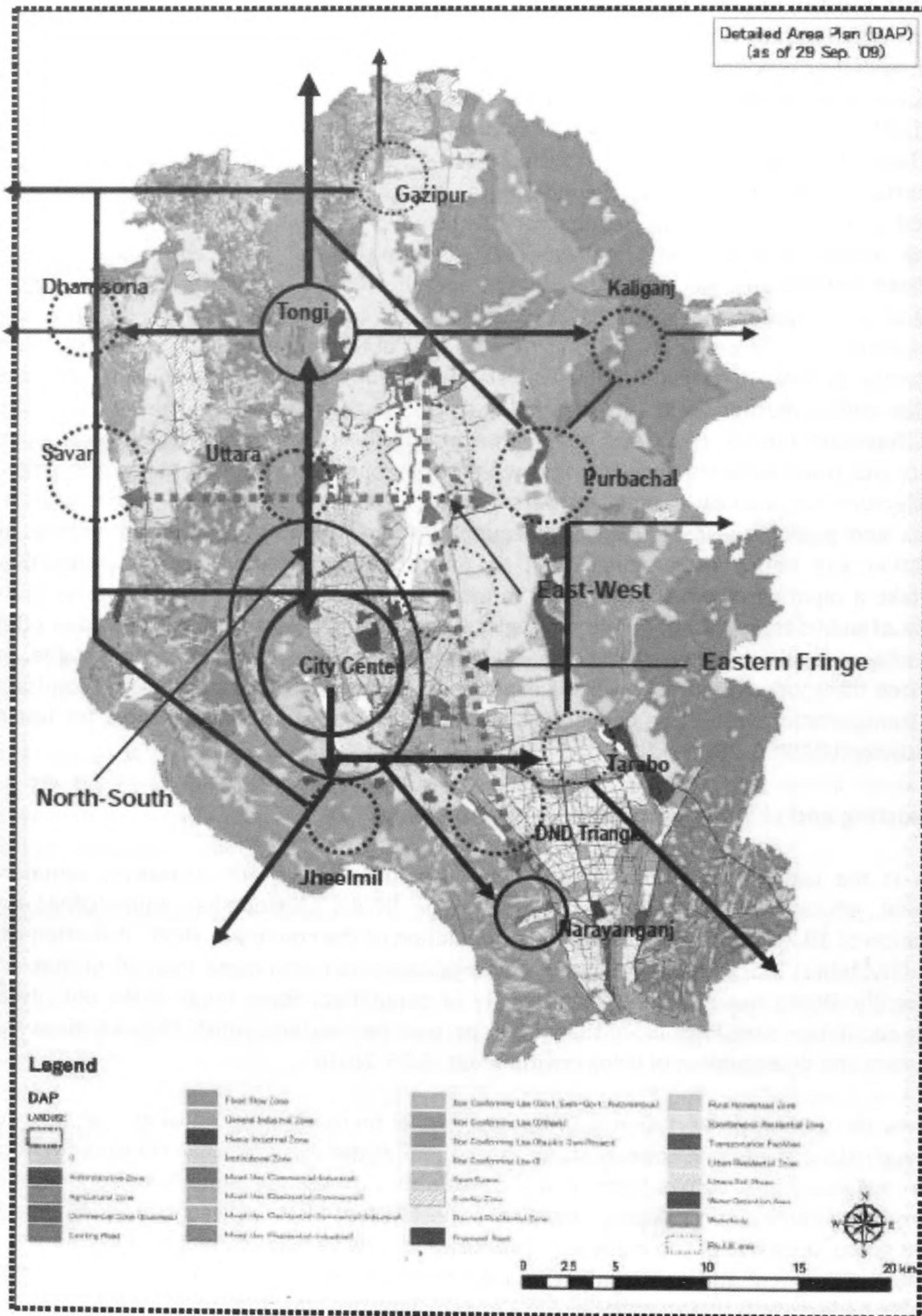


Figure 3 Proposed Future Urban Structure for Dhaka toward 2050

Considering this situation the government of Bangladesh formulated a 'Strategic Transportation Plan' (STP) in cooperation with the World Bank in 2005. The STP prepared 'Urban Transportation Policy' for 20 years (2004–2024), and identified priority issues such as improvement of mass transit system (buses and rail transportation, development of urban expressway and establishment of organization in implementation and maintenance/operation of the projects (GOB, 2010)

On the other hand, the Dhaka Urban Transport Network Development Study (DHUTS) undertook a further elaboration of the transportation policies stated in STP. According to the previous master plans like DMDP, it is proposed that Dhaka should be decentralized in population and employment opportunities from the inner city to the surrounding areas with satellite communities. Following the recommendations of the DMDP, the Government has developed satellite communities outside of DCC, such as Tongi, Gazipur, Savar and Narayanganj and more recently, Purbachal new town. DHUTS adopted this issue in formulating policies. These settlements will constitute a multi-core mega urban region centering DCC. Thus the future urban structure making multi-core mega urban region in Greater Dhaka Area toward 2050 is proposed in terms of three development axes along which mass transit corridors should be established: (1) Existing North-South Development Corridor, i.e., Tongi – Mirpur – City Center - Narayanganj, (2) East-West Development Corridor, i.e., Purbachal – Uttara – Savar, and (3) Eastern Fringe Development Corridor. The mass transit includes Buss Rapid Transit (BRT) and rail oriented Mass Rapid Transit (MRT), which will become a trigger to change the urban structure of Dhaka to multi core mega urban region. Mass transit development will provide a significant impact on urban activities. Fig.2 shows the overall development scenario for Dhaka in a timeframe from 2009 to 2050 (JICA, 2010).

Potential of TOD in Dhaka

According to experts, Transit Oriented Development (TOD) has the potential to offer smart growth scenarios, which can be found profusely in Dhaka city, but in an un-organized, discouraged and unprofessional layout. Mass transit is essential to sustain a traditional compact city like Dhaka having nodal characteristics. It is still possible to maintain 'rickshaws' in neighborhood 'nodes' (which is very compact), while interlinking nodal points by applying well-articulated mass transit-led Transit Oriented Nodal points/Development (Zaman, 2012).

Coming to the national guidelines, both STP and DHUTS demonstrates policies that might provide a way forward towards sustainable community development through TOD. In STP, pedestrians, public transport and non motorized transports have been prioritized along with significant policies to ensure their efficiency, safety and convenience for the city dwellers. However it has also identified the lack of integration between land use planning and transportation planning as a vital cause behind uncontrolled and unplanned development, non-compliance and a poor mix of land uses leading to inefficiencies in the transportation system. The results are larger distances between linked land uses such as between residential and work places and the need to provide long haul transportation systems and other infrastructure to serve the land use developments, complying to the basic concern of TOD (GOB, 2005).

DHUTS, on the other hand, established three visions to achieve socio-economic goal, each of which is the vital factor to improve the people's quality of lives.

a) Vision 1: To achieve a sustainable social and economic growth

Dhaka should be a drive force to achieve the growth of Bangladesh economy and it will function as socio-economic growth center in the country.

b) Vision 2: To ensure social equity

Development of urban transport should provide equitable benefits to all the people, not only to the selected social and economic groups.

c) Vision 3: To ensure a healthy and secure urban environment

Urban transport should contribute to ensuring a healthy and secure environment for all the residents (JICA, 2010)

Moreover, as the DMDP is expiring in 2015, a new project by RAJUK, titled Regional Development Planning (RDP), to revise the DMDP structure plan is underway with the financing from Asian Development Bank. These policies are supposed to guide further detailed planning for DAP. The main challenge will be to accommodate the additional population, ensuring quality of life and safeguarding the city's environment. Transit oriented development (TOD) is one of the main ideas to be implemented in this project, which will connect small and medium urban centers within the vicinity of Dhaka city with each other and the city itself (Shuvo, 2014). All these appear to create a lucrative background for applying the concept of TOD in Dhaka.

Understanding the socio economic forces: case study of a selected influence zone

Mass transit is a very new concept to the city dwellers, let alone TOD. In most of the cases the least they can apprehend is the benefit that they might yield in terms of safe, convenient transportation and easy communication. The future projection of how their habitable environment might be affected due to the transit infrastructures is still quite a blur picture to most of the people. Understanding the underlying socio-economic forces that might act as driving forces behind the future growth and change of the existing areas along the transit corridor thus becomes a vital step to further elaborate the possibilities and problems of TOD application in Dhaka. This step of the research was based on two parts- 1) Defining the study area, 2) Identifying the demographic pattern of the surveyed influence zone, 2) Identifying physical and socio-economic issues that might act as driving forces for potential implementation of TOD.

Moghbar rail crossing is one of the busiest spots in Dhaka where the existing rail line crosses one of the major arterial roads of Dhaka. Two of the proposed mass transit corridors BRT 3 and MRT 4 will be intersecting at this point, turning it to be one of the busiest influence zones of all. Moreover, an ongoing flyover crossing the center point of the transit station is also under construction (Fig.4). Influence zone has been defined as a maximum up to 2000 m. wide belt on both sides of centre line of the MRTS Corridor, among which 800 m(10 min walking distance) has been considered as intense influence zone. This survey has been based on the intense influence zone of the Moghbar station point. Hatirjheel, one of the prime water bodies of Dhaka, acts as a unique topographical element and a potential source of recreation for the city dwellers. But at the same time this also acts as a catalyst for development control along the adjacent areas of the water body.

The informal socio economic survey was conducted on an average of 70 participants from each of the segment of the influence zone in spite of varying density in order to ensure an even comparison. Zone 1 has a long traditional history of posh settlements along Dilu road and now it has converted into one of the high density high income residential areas of Dhaka. But on the contrary, zone 2 and zone 3 portrays a lower density of development with smaller plot size and a

concentration of lower to middle income people. This is probably due to the poor connectivity to the arterial roads resulting into discouraging private developers' investment into the lands (Fig.4). The existing pattern of local trade in this area mostly consists of electrical, automobile and mechanical workshops, attracting automobiles from furthest areas of Dhaka. Proximity of job and educational facilities are the major identified causes behind the residency. Occupational pattern consists of an equal portion of job holders and businessman.

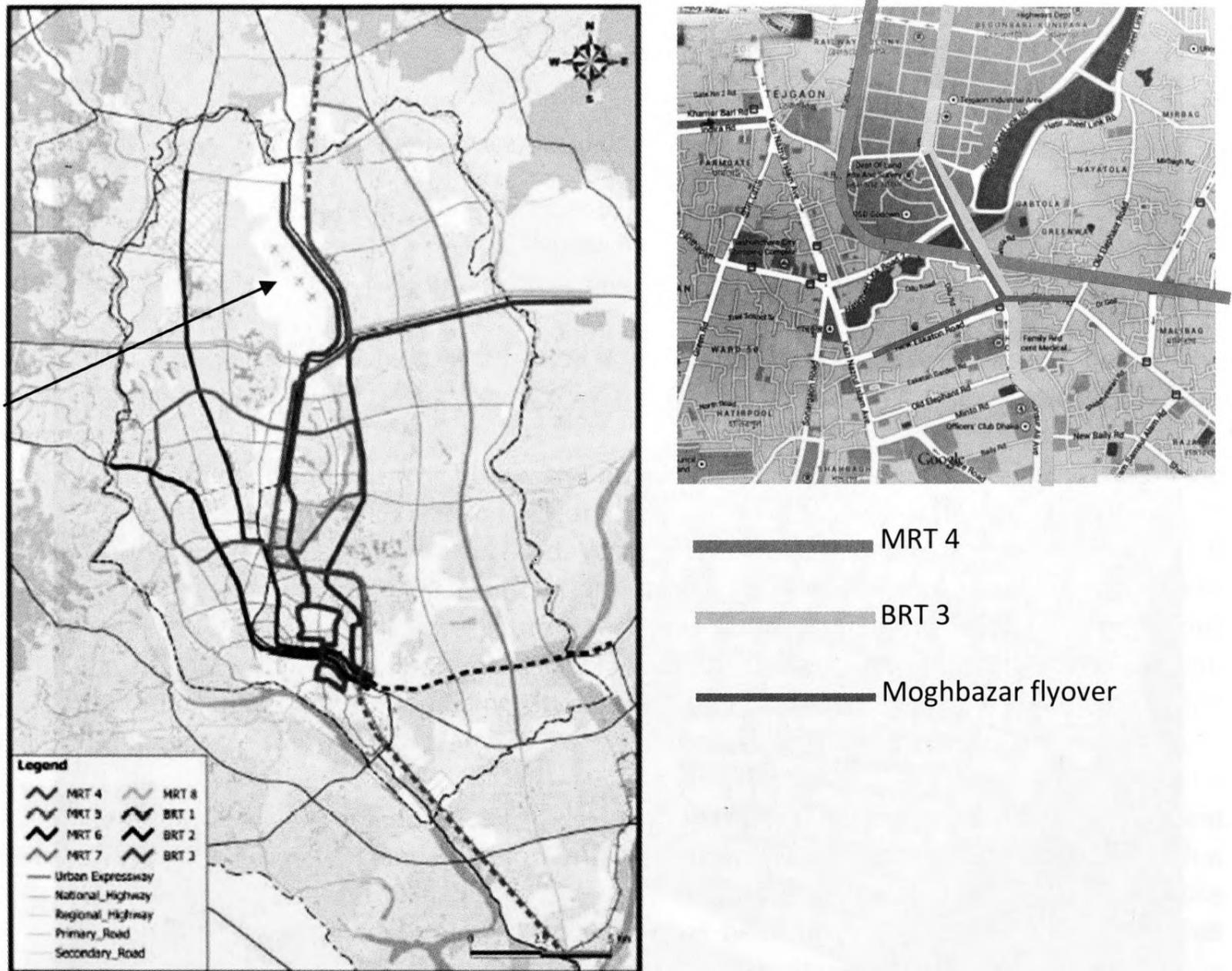


Fig.3: The mass transit routes in Dhaka and intense influence zone at Moghbazar intersection
 Source: DHUTS, 2010, Author

Regarding the usage of public transport facility, 45% respondents prefer bus, whereas 32% prefer car as transportation choice. The reasons that could be identified behind lower level of public transport usage are less frequency (46%), overcrowding (33%) and lack of accessibility (20%). When asked about BRT and MRT, 85% of the respondents were quite positive. The pedestrian environment is derogatory as 90% of the respondents find it unsafe.

The social and recreational facilities are quite insufficient in this area. 99% of the respondents feel the lack of open green space and most of them compensate by going to Ramna park or Hatirjheel, but those are also not very convenient destinations for the local people since lack of security plays a big role in discouraging people to move around on foot.

The demand and desires of the local people derived through the survey emphasizes the need for community space, recreational facilities and open play ground mostly (Fig.5). Some of the added features that the local dwellers demand include safe, live and active community streets by

adding mixed use facilities within the residential fabric, safe and convenient pedestrian routes to reach the public transport facilities. The collected data invariably places the emphasis on retrofitting and redevelopment of the existing urban fabric and strengthening the socio economic environment taking the advantage of TOD suggested as in UTTIPEC, 2012.



Fig.4: Density, income and rent distribution across the three zones of the Moghbazar intersection
Source: Author

ZONE 3
Density= 96 du/hect
Area=9.1

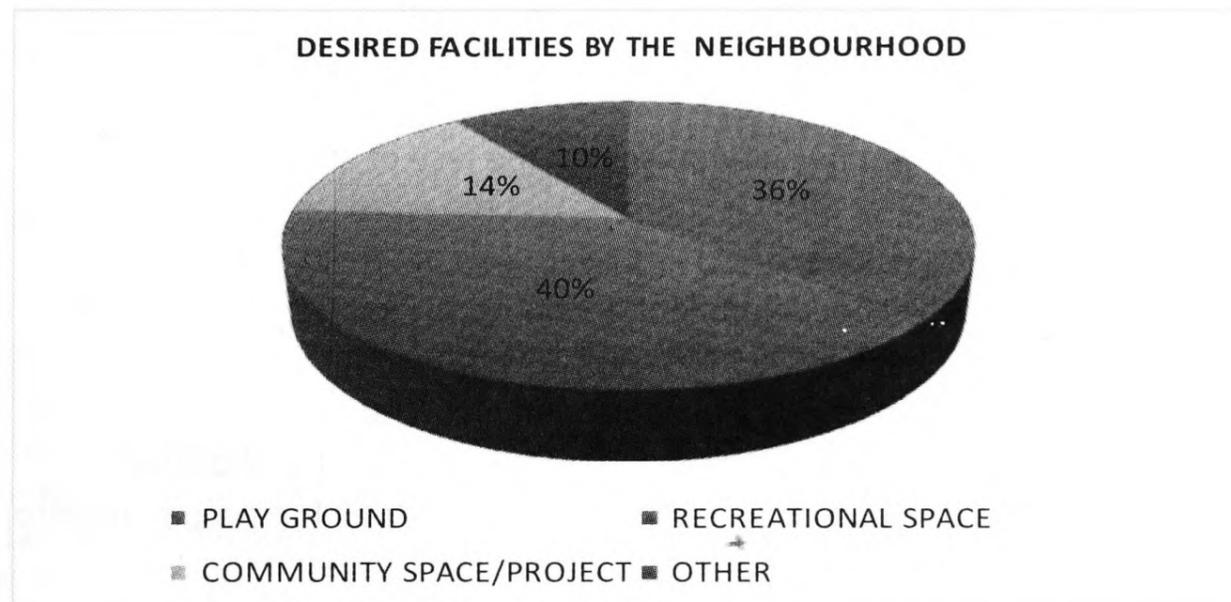


Fig.5: Desired facilities by the community people
Source: Author

Identified barriers

After all the above discussions, the question rises on what could be the barriers behind the implementation of TOD in Dhaka in spite of the prevailing national vision, policy and local demand.

- **Lack of community centric vision and quantifiable, objective strategies:** The vision and policies drafted in STP and DHUTS are very shallow and needs further elaboration in order to be effectively implemented. What proves to be alarming is that, unlike the TOD guideline of Delhi (UTTIPEC, 2012), the essential focus of STP lies mostly in establishing an efficient transport infrastructure rather than utilizing the infrastructures as improving the overall quality of life of the city dwellers such as, safe pedestrian environment, vibrant public realm. Regarding the DHUTS, there needs to be clear definition of the quantifiable scope of the drafted visions and practical physical measures for execution.
- **Organizational fragmentation and disintegration:** Disintegration among different executing authority stands as another crucial obstacle. Without considering the fact that urban transportation planning is intricately and integrally related with urban land use planning, this vital component of the plan has been taken away from RAJUK and has been vested with DTCA (Dhaka Transport Co-ordination Authority). Thus under the current situation, RAJUK is an organisation for town planning without the responsibility of transportation planning, and at the same time, the DTCA is an organisation for transportation planning without the responsibility of town planning (Shuvo, 2012). Surprisingly, significant disintegration has been observed among the different body responsible for execution of the transit corridors.
- **Lack of community participation** is another prime cause that derogates the possibility of integrating the community needs and desires with the development plans. The survey at Moghbazar influence zone clearly portrays community's desire for a better living environment in terms of safe and vibrant public spaces, pedestrian walkways and public transport. Unfortunately the mass transport facilities are on the way to be executed but without raising the awareness among the users on how these infrastructures are going to facilitate them or, on part of the executing bodies, how their intervention will affect the existing socio-economic environment. As a result, the infrastructures remains solely as dead elements that fails to facilitate the community needs. Above all, there needs to

be a huge paradigm shift in the pragmatic development planning process and shift the core of concern from being development oriented to community oriented.

The recommendations that might be summarised on the face of these barriers are-

- User centric planning visions
- Bottom up approach in development planning guidelines through active community participation
- Integrate land use planning and transportation planning
- Lateral integration among different planning and executing authorities
- Establishing a TOD standard as a post evaluation tool for proper monitoring of the executed decisions.

Conclusion

It is very unfortunate if the vital functioning of a dynamic city like Dhaka gets restrained due to the 'piecemeal' implications of whimsical thoughts and proposals in urban development, the scenario that is very apparent in case of transit oriented development in Dhaka. By adopting a more holistic and community centric approach to transport, it is possible to reconcile high mobility with high quality of urban life and in this case this paper strongly considers TOD as a potential means for achieving a sound and sustainable socio-economic atmosphere. The optimism lies in the belief that the future mass transit proposals in Dhaka will not remain as mere infrastructures, but also act as strong nucleus for community development.

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