



GEF-World Bank-UNDP supported

## National Project Director's Note

Sustainable Urban Transport Project has made considerable development since the project inception. Procurement has already started for various sub components of Component 1 & 2 of GEF-SUTP.

### Current Status

#### Component 1A: Capacity Building of Institutions and Individuals.

Strengthening of IUT (PC1): The contract has been awarded; Individual capacity development through training of trainers and training professionals (PC2): Expression of Interest (EOI) received and have been evaluated; Preparation of Manuals and Toolkits (PC3): EOIs received and have been evaluated.

**Component 1B: Technical Assistance to the MoUD to improve the National, State and Local Capacity to implement National Urban Transport Policy.** Terms of Reference and EOIs have been approved and procurement will start soon.

**Component 2: Implementation of Demonstration Projects in Selected Cities.** Procurement of goods and consultancy services as per city project components is on-going in various demonstration cities.



#### Farewell note: Anirudh Kumar Jain

Mr. A.K. Jain acted as National Project Manager for Sustainable Urban Transport Project from August 2008 - February 2011. He provided his valuable support since the project inception to bringing the project to a stage where the project development objectives started materialising.

He not only guided but also provided this multi organisation project, along with the help of Gol, World Bank and UNDP a direction to follow and helped in progressing in right direction. His commitment and guidance will always be valued and will remain integral part of the project. Mr. AK Jain will continue to provide his support to Project Management Unit by acting as an advisor.

### Introducing Ishwar Chandra Sharma: National Project Manager for GEF-SUTP

Mr. Sharma has more than 36 years of extensive experience in Indian Railways with a proven record of unprecedented accomplishment in senior executive positions providing fiscal, strategic and operational leadership in uniquely challenging situations

Mr. Sharma has more than 19 years of experience of project management of workshop modernization, development of software based planning tool (LRDSS) for long term investments for building transport capacities, design, development, procurement and manufacturing of electric locomotives/emus ,railway electrification including >16 years of experience in management of projects funded by World Bank/UNDP/ADB/JEXIM Bank. Has been responsible for urban transport planning for >8 years and has performed as an active team leader of a multidisciplinary team in transport sector for >3 years.



From 1 February 2011 Mr. Sharma has taken over from Mr A. K. Jain as National Project Manager for GEF-SUTP and is now providing support in taking the project forward. I welcome him and wish him all luck in making the project a success.

National Project Director, OSD (UT)  
S.K.Lohia

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## Workshop on Urban Transportation System by Naya Raipur Development Authority

Consolidated by Supratik Sarkar, PMC to NRDA

Naya Raipur Development Authority organised a workshop on Urban Transportation System in Raipur on November 30, 2010. Professor Petr. Stemberk, Associate Professor, Czech Technical University, Prague, Czech Republic was invited for the event, which was facilitated by Professor N P Dewangan, Professor of Civil Engineering, Government Engineering College, Raipur. The workshop was attended by the executives from different departments of the State Government, Urban Local Bodies, professors and students of engineering colleges of the region. The existing transportation system of Prague (Czech Republic) was explained in the workshop.



Public Transportation system of the city of Prague was discussed in detail, including the different modes of public transportation systems available, fare collection system and technology for public transport, prioritization of public transportation system through synchronization of signal system when route of more than one mode of transport interferes with each other at the same grade.



Prague is the capital and largest city of the Czech Republic. The city proper is home to about 1.3 million people, while its metropolitan area is estimated to have a population of over 2.3 million.

### Public transportation system at Prague

The public transport infrastructure consists of an integrated transport system of Prague Metro, Prague Tram System, buses, and ferries: Prague integrated traffic system. All services have a common ticketing system, and are run by the Prague Public Transit company and some other companies.

### A brief on public transportation system that is being followed at Prague:

- The city of Prague has dedicated rail track for public transport within and around the city which is traditionally called as Tram. It offers a rapid mode of transportation that is having priority over private cars in traffic management and has dedicated tracks for operation which are at grade with the city roads





- In co-existence with the tram networks, bus rapid transport system was developed in the city of Prague. City roads have dedicated bus lanes to signal priority at crossings and junctions to ensure that they remains a rapid mode of public transport
- Dedicated rail tracks are segregated by low height kerbs while dedicated bus lanes are segregated by marking on the road as illustrated through the images.
- A unique feature of dedicated bus lanes of Prague is that the Bus lanes are also shared by cyclists, which offered a safe proposition

### Park and Ride:

To design and develop the public transportation system more sustainable the concept of 'Park and Ride' has been adopted and implemented. As a part of its planning and designing, some of important traffic nodes was selected, this used to receive majority of traffic inflow from the peripheral regions of the city of Prague, moving towards the core area of the city. In those major receivers of traffic inflow, large parking areas have been created, where people can park their vehicles and can take the public transport for taking the further journey towards the more congested and high density parts of the city. This could ensure decongest the city roads from the traffic that used to flow into the city from the peripheral regions, at the same time the system enhanced ridership in the modes available for public transportation. Following is a satellite imagery of a typical map of parking area under this system for the purpose of illustration.



### Off-board ticketing system:

Fare collection system for public transportation is integrated for all modes; equipments for the same are installed at the bus shelters. Bus fare paid in advance by the users. Tickets can be bought at the shelters, and also at automated machines installed at many parts of the city

### Conclusion:

All of the above concepts and components of urban public transportation system, those have been implemented in Prague are also discussed with case studies of other cities where implementation of similar concepts have been successful across the continents, like, Curitiba (Brazil), Yokohama (Japan), Bratislava (Slovakia), Guangzhou (China), Jakarta, Istanbul, Bogota, Seattle, Volgograd, San Francisco, Kaunas and Vilnius (Lithuania).

Bus Rapid Transit System of Naya Raipur that is under implementation under the World Bank-UNDP-GEF assisted SUTP, concept and components of that, were discussed in detail with the perspective of all the concepts discussed and their implications on public transportation system. Various transportation issues of Naya Raipur, connecting Raipur with Naya Raipur, planning of BRTS infrastructures and services were discussed in detail, drawing reference from the lessons

“There is a simple rule about the environment. If there is waste or pollution, someone along the line pays for it”  
Lee Scott, Chief Executive, Wal-Mart (October 2005)

learnt by the cities where most efficient and sustainable public transportation system has been implemented.

After detailed discussion, design criteria like dedicated lane for BRT buses in Naya Raipur, median bus shelters, off-board ticketing system, efficient passenger information system, closed / semi-closed bus shelters with more transparency from outside to ensure sense of security to the users, integration of fares in future with other public transportation options through buses, like Raipur city bus services, possibility of a transit oriented development in future to ensure ridership in public transportation system, park and ride facility in pick up points in Raipur and 2 bus transfer stations in-between Raipur and Naya Raipur to enhance sustainability of public transportation system were reaffirmed.

The workshop could throw light, could offer knowledge and exposure on how other cities in other parts on earth are dealing with their transportation issues and are designing more efficient and sustainable public transportation system for their cities and could offer a platform for discussions on the transportation issues of Raipur and Naya Raipur on the knowledge acquired in guidance of Professor Petr Stemberk, who facilitated the discussion drawing reference to different successful case studies across the world.



*All information, data, image, photographs that have been used in the literature and descriptions above are work Professor Petr. Stemberk, Associate Professor from Czech Technical University, Prague, Czech Republic that was presented by Prof. Stemberk in the said workshop on Urban Transportation System organized by Naya Raipur Development Authority at Raipur. Uses of the information, image and other details from the work of Prof. Stemberk are specifically for publication in SUTP newsletter for sharing of knowledge only and for no other purpose.*



*Supratik Sarkar has assimilated this article. Supratik is Team Leader of Project Support Consultant (PMC) to Naya Raipur Development Authority.*

## Planning for Pedestrian Accessibility

Vanishree Herlekar and Nitin Warriar, ITDP

In the past decade India has urbanized at an unprecedented rate leading to severe congestion, haphazard growth, rise in motor vehicle use and increasing pressure on existing city infrastructure. The typical solution to accommodate this rapid growth has been to build new roads and flyovers as a means to providing for “easy mobility”. This over-reliance on traffic engineering solutions to manage the growth of our cities has rarely resulted in healthier liveable and safer urban environments, and is a major contributor toward increased use of personal automobiles.

With the growing concern about the environmental and social impacts of increasing rate of personal motor vehicle use in India there however has been a visible shift towards sustainable transport alternatives in the last few years with the creation of a National Urban Transport Policy (NUTP) in 2006. NUTP emphasizes the need for efficient public transport along with high quality pedestrian and bicycle infrastructure. The thrust so far has been on implementing mass transportation projects like bus rapid transit (BRT) and metro rail systems.

The success of metro and BRT systems rests on the patronage from residents whose primary mode of access to any public transportation system is on foot. This can only be ensured by a high degree of pedestrian accessibility. So far, majority of efforts to promote walking and cycling in Indian cities are defined around physical infrastructure (footpaths, cycle tracks, pedestrian crossings) but have not investigated other aspects of pedestrian accessibility, such as how convenient (in terms of time, comfort and safety) it is for a pedestrian to walk between two locations.



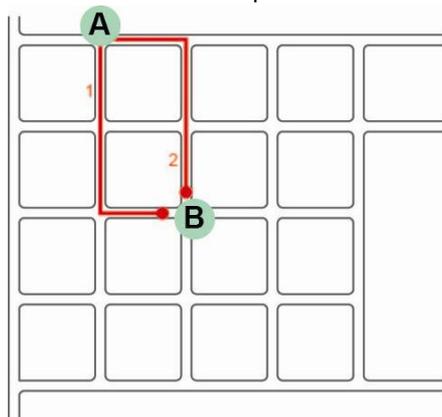
## Defining pedestrian accessibility

Pedestrian accessibility can be defined simply as a person's ability to travel between two destinations on foot. It is closely linked to the concept of 'walkability,' which concerns with how conducive an urban area is to walking. There are three key parameters that can be used to evaluate and plan for enhanced pedestrian accessibility: street connectivity, street design and the type of land uses along the street.

### Street Connectivity

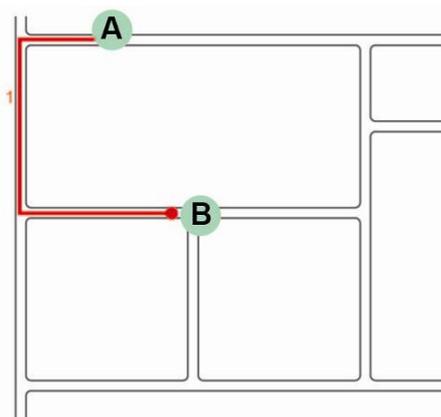
Street connectivity is a measure of how well different locations in a city are linked to each other with a network of streets and pedestrian paths. It is a function of the directness and the number of alternative routes available between any two locations.

A dense network of streets with frequent intersections decreases walking time between destinations and provides multiple ways of reaching the same destination. A dense street network also disperses traffic to multiple locations and reduces vehicle speeds, resulting in a healthier and safer pedestrian environment. The diagram below illustrates how a pedestrian can travel between location A and B in a well connected urban fabric more easily than in a superblock structure with sparse street connections.



#### **Dense street grid**

Distance travelled: 300 m  
Time taken: 5 Minutes (assuming walking speed of 1 m/sec)



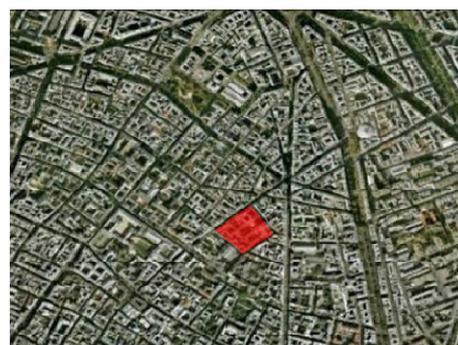
#### **Sparse street grid**

Distance travelled: 500 m  
Time taken: Around 8 Minutes (assuming walking speed of 1 m/sec)

The level of street connectivity in an urban fabric can be measured using the number of street intersections in a given area. Another metric is block size. A block is the smallest area that is surrounded on all four sides by public streets. Block size can either be measured in block perimeter or block area. The ideal block size for a well connected urban fabric is 400 meters in perimeter (equivalent to 1 hectare in area).



**Manhattan, New York**  
Block Size: 400 m Perimeter



**Paris**  
Block Size: 400 m Perimeter

## Street Design

In addition to the connectedness, the second important parameter that affects pedestrian accessibility is the design of the street itself. Streets in Indian cities rarely have usable pedestrian infrastructure. Moreover, the facilities are marred by parking encroachments and are not large enough to accommodate both the informal sector and pedestrian movements. A pragmatic change in approach is necessary. Based on street hierarchies, all users on a street need to be accounted for with a clear delineation of the slow and fast zones using physical infrastructure to enable various types of activities to coexist<sup>1</sup>. Great streets have continuous, high quality pedestrian infrastructure with tree shade, designed in such a way that harmonizes with edge conditions. This can be achieved through proper allocation of activities within the street right of way.

## Type of Land Uses

Land uses along streets and pedestrian paths are the third parameter that affects walkability. When streets are abutted by long stretches of dead walls with no signs of activity, people avoid walking even if wide and well maintained footpaths exist. The “eyes on the street” concept put forth by American author and urban activist Jane Jacobs emphasizes the importance of encouraging a vibrant mix of land uses that are oriented toward the street and keep it lively and safe at all times of the day.

Though often termed a “nuisance,” informal vending also in fact helps in making streets more lively and secure for pedestrians. Well-planned vending zones can make urban space more vibrant, promote social supervision, and improve public safety.

## Improving Pedestrian accessibility in Pimpri Chinchwad

Pimpri Chinchwad is one of the five cities selected for demonstration projects under the Sustainable Urban Transport Project (SUTP), a special program initiated by Government of India in partnership with Global Environment Facility, The World Bank and United Nations Development Programme. The projects emphasize the key principles of National Urban Transport Policy. The complete BRT network planned for Pimpri Chinchwad in the first phase is about 40 km which will be further expanded to cover a length of 130 km. The Municipal Corporation has designated a 100 meter influence zone on either side of the BRT Corridors to allow for value capture. The success of Pimpri Chinchwad’s BRT, like any other public transport system, will depend on the degree of pedestrian accessibility to the system. A walkable, pedestrian friendly environment, in a 500 meter influence zone, coupled with high quality cycling facilities will make public transport the preferred mode of choice for mobility.

One of the biggest challenges the city is facing today is the rapid development of farmland at the urban fringe. Without an existing network of public streets and the lack of regulations to mandate the same in future developments, large areas of farmlands have been developed without ensuring proper street connections to the proposed mass transit corridor, and other civic amenities. The type and character of this development also significantly affects pedestrian accessibility. This development at the fringe areas largely comprises of inward-looking gated residential enclaves with dead street edges which are unsafe and undesirable to walk past.

The aerial image provided below shows the Pimple Saudagar area along the Nasik Phata-Wakad BRT corridor in Pimpri Chinchwad. The sparse street grid has resulted in a superblock type development along the transit corridor, resulting in very long walking distances along dead compound walls. Pedestrian access to the bus stops is extremely cumbersome and unsafe for users located adjoining the corridor. This type of planning is a potential deterrent to the use of transit.

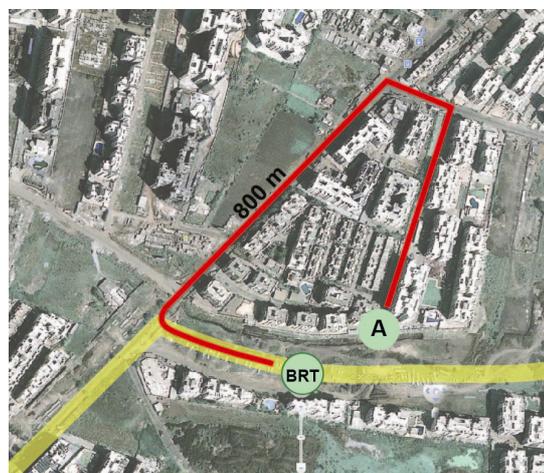
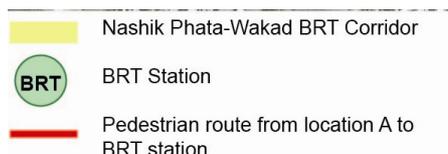
<sup>1</sup> ITDP, Better Streets, Better Cities: a manual for street design in urban India, forthcoming.



### Measuring Pedestrian accessibility in Pimple Saudagar

Actual distance between location A and BRT stop: 125 M

Walking distance between location B and BRT stop: 800M



PCMC understand this context and is committed to improving pedestrian accessibility city wide. With assistance from the Institute for Transportation and Development Policy (ITDP), the Corporation is investigating potential modifications to its Development Control Regulations. These modifications are aimed at fostering a more mixed-use, pedestrian friendly environment by regulating building use and character and orienting the development towards the street edge.

In addition, the Corporation is actively looking at implementation of streets that were proposed in Pimpri Chinchwad's Development Plan. The Development Plan along with other spatial planning tools such as station area plans and/or Town Planning Schemes can help materialize a well connected network of streets making the urban environment more accessible and inclusive. Other tools to improve pedestrian accessibility in Pimpri Chinchwad could include incentive based mechanisms to developers and private property owners to allow public streets and accesses and streamlining the approvals process to ensure a more connected fabric. In the short term, the corporation can explore the possibility of carving out pedestrian lanes/paths at property edges.

### Conclusion

Pedestrian accessibility is the foundation of making great liveable cities. As urban areas continue to grow, it is crucial that local bodies look beyond delivering road infrastructure on a piecemeal basis and instead employ a comprehensive approach to planning and implementing inclusive, vibrant and healthy pedestrian friendly environments. This requires integrating transportation, land use, public safety, health and access to civic amenities together into one strategic plan that guides city's future growth. This approach to city planning will ensure that Indian cities continue to flourish and remain inclusive and accessible to all citizens.

*Vanishree Herlekar is the Program Officer for Urban Design at the Institute for Transportation and Development Policy. She is working on promoting Pedestrian and Transit Oriented Development (PTOD) in Indian cities.*



*Nitin Warriar is a City Programme Manager with ITDP and is coordinating efforts to improve public transportation through the implementation of Bus Rapid Transit in the Pune Metropolitan Region.*

## National Project Manager's Note

### SUTP Events - World Bank Second Supplementary Mission

World Bank Interim Mission was scheduled from 1st – 15th February 2011. The main objective of the mission was to meet the representatives from cities under GEF-SUTP and review the progress made by the cities to date and discuss progress made by PMU / PMC on Component 1. World Bank along with PMU and PMC teams' mission visited the following cities:

- The Naya Raipur – 2nd February 2011
- Pune – 3rd February 2011
- Pimpri – 4th – 5th February 2011
- Hubli – 7th – 8th February 2011

### New Cities for Joining SUTP

Following proposals were received from New Cities / States to join SUTP and were discussed with World Bank / PMU during Second Implementation Mission.

#### Karnataka – Hubli-Dharwad

World Bank, PMU and PMC teams visited Hubli Dharwad twin cities and discussed revised proposal for "Improvements to Public Transport in the twin cities of Hubli and Dharwad (City Municipal Corporation) under the GEF/World Bank/UNDP Sustainable Urban Transport Project". Based on the discussions during World Bank Mission a DPR is awaited from Government of Karnataka, to confirm inclusion in SUTP.

#### Rajasthan – Jaipur, Jodhpur and Kota

Following proposals for Jaipur, Jodhpur and Kota with Government of Rajasthan officials:

- Jaipur – The proposal for the city was for 'Access Improvements in Walled City Area'. During the discussions it was decided that the city will prepare a DPR on proposals with its own resources and the proposals to be reviewed for consideration for inclusion of the project in SUTP.
- Jodhpur – It was suggested that City of Jodhpur will work on 'Public Transport Master Plan, including alternative analysis for Jodhpur'. It was proposed that preparation of this master plan will be funded out of Component 1B as development of such a master plan including alternative analysis would of great demonstration value and useful for other cities to follow.
- Kota – City to prepare a 'Public Transport Master Plan, including alternative analysis for Kota'. For this it was proposed that the first stage for the city would be to prepare CMP.

#### Contact details:

|  |  |   |                                 |
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Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

- The Brundtland Commission, 1987