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Modern Mobility, Rejuvenation of Howrah and the East-West Metro

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Preface

One of the indicators of an efficient urban system is the presence of an efficient public transport system. And it must be admitted that in about three decades of its existence (in three different length of distances covered since its inception in 1984), the Metro Rail of Kolkata has served the purpose. At the time of its construction, it promised to add the 'wings' to the city and surely it had added wings of speed. The snarling traffic of the early eighties, is a matter of history now. In a normal day, the north-south stretch of Metro carries a sizeable proportion of the total traffic volume of the city. At the same time, it also serves as a feeder transport for east-west traffic and suburban commuters coming to the city and city-people going out to places along the suburban railroutes.

Even with this level of service, there are several snags in the functioning of the Metro rail. Even with the increase in the volume of passengers, the whole system is heavily subsidized. There are technological upgradations here and there, but there is no comprehensive plan for modernisation, and regular 'wear and tear' without maintenance is playing havoc with the system On the other hand, various other metro rail projects are under construction in different parts of the metropolis. So, it is high time for introspection and the two consecutive Discussion Papers of CUES are attempts in this direction. In early nineties, one of the CUES Discussion papers described the functioning of the metrorail in its nascent stage. It was by Kuntala Lahiri-Dutt, one of the renowned geographers working on urban issues. The present one, the first of the series is by Anis Mukhopadhyay. It is more concerned with the planning of metrorail system from the early days and the lessons not learnt and applied for the upcoming east-west metro.

We expect that these discussion papers will initiate academic discussion of the necessity and economic viability of the metro system which is rightly the 'pride' of the city.

December 1, 2012

Mahalaya Chatterjee
Director
Centre for Urban Economic Studies

Modern Mobility, Rejuvenation of Howrah and the East-West Metro

Anis Mukhopadhyay

Abstract:

*Metro Railway is the most significant and modern mass transit mode in Kolkata Metropolitan Area (KMA). The North-South Metro in the city took almost fifteen years to be completed; and its extension to New Garia has now (2009-10) been almost fully operational. On the east bank of Hooghly this metro corridor has been effectively connected to both the suburban railway system and the circular railway through the Dum Dum terminus. Public policy regarding East-West Metro which is reported to be under active consideration of the government since 2006 is now crucial in the context of modern mobility experience for KMA in general and potentials of the west bank of Hooghly in particular. This paper examines how east-west metro was first planned in this city in 1920, how it remained the first priority until 1970, how metropolitan transport policy remained unconcerned about the need for east-west metro for three decade and, how the west bank was completely erased from the metro map in 2009, thereby bypassing the Howrah Development and Rejuvenation Plan (**HDRP**) on the west bank. The paper has also shown that the route alignment of east-west metro as finalized in 2009 has ignored the east west connectivity principle for Kolkata Metropolitan Area and the planning of this metro is going to make Kolkata the only metropolis in the country to have a complete dualism in its metro-rail system, in terms of gauge of the permanent way, organizations operating the two lines and also in fare structure.*

Key words: Rapid Mass Transit, Metropolitan Transport Project, Hay Report, Interchange point, Indian Broad Gauge, Howrah Development and Rejuvenation Plan, National Urban Transport Policy.

1.1 A Prelude:

For a long time, we were familiar with a slogan about Kolkata's existing Metro, "India's first, Kolkata's pride". We held such a pride for more than two decades, but now in the midst of a programme of metro rail expansion in Kolkata we must realize that other major cities are gradually having their own metros as a modern mass transit system and it is no longer a source of pride for Kolkata only. What Kolkata may really boast of is the fact that this city is the pioneer in Metrorail planning in the country. Conception of a Metrorail system was accommodated in the first Comprehensive Urban Planning for the 'Calcutta Metropolitan District' (CMD) in 1966 while such a suggestion for underground rail-based east-west connectivity in the river metropolis of Calcutta existed much earlier. In the report of the Committee on Transport Policy and Coordination (Chaired by Tarlok Singh) appointed by the Planning Commission, there was no metro railway not even a special urban transport policy which was, of course, not a specified task of the committee.[i] On the other hand, National Committee on Science & Technology (NCST), Panel on Futurology 1973 (Chairman being Dr. N. S. Srinivasan), in its Interim Report on Transport Development, made the first recommendations (in Sec.5) on Urban Metropolitan Transport. It talked of developing rapid mass transport systems and the need for multi-modal urban transport. In the context of Metropolitan Transportation Project Organisation constituted by the Railways it was considered to be inadequate to meet the challenges of future and the committee pointed out, "It is high time to visualize a centralized urban transport agency pooling the resources of rail, air and road technologies to carry out systematic and scientific research and planning to meet the challenging problems ahead".[ii] On the basis of recommendations of this Committee National Transport Policy Committee was appointed in April 1978 under the Chairmanship of B. D. Pande.

By that time, the Metropolitan Transport Team which was set up by the Planning Commission in 1965 and which studied and provided technical guidance to transport planning in metro cities, was wound up in 1974. National Transport Policy Committee made recommendations on transport policy co-ordination at the national level, inter-modal mix and using transport development as an instrument for dispersal of industries.[iii] Regarding Urban Transport, the National Transport Policy Committee considered a number of issues like urban growth projections up to 2001, optimum city size, efficient inter-modal mix,

interaction between land use and transport planning, emphasis on trams, trolley buses, special facilities for the cyclists, truck terminals, special problems of medium sized cities, etc. Meanwhile, in Maharastra, the Barve Committee Report 1959 or Bombay Traffic and Transportation Study by Wilber Smith and Associates in 1963 did not accommodate any plan for Metro Rail Project. Kolkata is, therefore, definitely **the pioneer** in planning for our city a modern rapid transit facility – the metro rail. This was done by the young planners and architects in the Calcutta Metropolitan Planning Organisation (CMPO) in collaboration with the Metropolitan Transport Team of the Planning Commission.

In this paper we will discuss, among other things, route alignment of East-West Metro, but two specific considerations are primarily relevant since 2009 when the present east-west metro project was finalized:

(a) Metro Railway in Kolkata Metropolitan Area is now going to have two gauges of the permanent way, two organizations operating two metro lines, and two fare structures for the two lines, – a complete dualism which is not found in any other Indian city.

(b) There are two technical constraints for the East-West Metro:

(i) The East-West metro line has to cross the North-South line at 'Central' station only; because arrangement for such a crossing has been built in the construction of the North-South line at that point.

(ii) The East-West metro line has to cross the river Hooghly through a tunnel laid at least twenty-five metres below the surface.

A third consideration is also relevant, i.e. availability of land at both Howrah station and at Howrah Maidan areas; but it may be considered in the context of metro expansion westward.

1.2 Modern Mobility and KMA:

Mobility and modernity are mutually constitutive, 'Mobility' is a major overall goal of urban planning and long term design of mobility has always been regarded as an implicit social policy. Excepting some rare scholars like Professor G.P.A. Mom of the Eindhoven University of Technology, modern experience of mobility is identified as rapid mobility.[iv] A safe and sustainable mobility policy also implies an efficient Rapid Mass Transit System. Secondly, rapid forms of mobility have radical effects on how people actually experience the modern world and socio-economic opportunities; because, an efficient transportation infrastructure is a major factor in increasing production capability, enabling employment,

creating market opportunities, facilitating economic growth, developing backward areas and improving socio-economic conditions; on the heels, demand for land use changes may be expected to follow. Thirdly, the challenge of modern mobility is to be able to meet the socio-economic aspirations of the people, to satisfy the quest and need for mobility and yet do it in a manner that is inclusive, is in harmony with nature, *i.e.* has minimal impact on the environment, air quality and energy efficiency. In the long-run, the design of mobility management is expected to fulfill the key requirements of the economy and to consider the effects they have on environment, spatial balance and social equality, for which the existing modern technologies should be used in the best possible way.

Intra-urban transport network and mobility pattern not only affects spatial reach in a metropolitan agglomeration, but it also has impact on urban form by catalyzing economic development in different segments of the urban area. Modern mobility management policy, therefore, attempts to attain a blend of speed, capacity and flexibility. Along with economic forces, technology and infrastructure in transport have major contributions in shaping a city; and in the context of globalization and review of 'automobile city', transport infrastructure priorities have been emphasized in many studies.[v] Being within the process of rapid urbanization in the developing world, lessons learnt in the other world may be important. The Survey of thirty-seven global cities in 1999 exposed certain interesting aspects of modern mobility: (i) excepting car dependent urban form in Australia and the US, the European cities (plus Toronto) and Asian cities have all been growing very rapidly in transit; (ii) transit systems are characteristic of wealthy Asian cities; (iii) the newly industrializing Asian cities are dominated by their traffic problems and are mostly tending to invest in solutions to such problems; (iv) the general Asian urban form lends itself to transit, as not only are these cities compact, they are invariably very densely developed along strong corridors which are ideal for rapid transit; (v) investment in rail would produce dramatic improvement to their traffic solutions.[vi]

Historically, the backlash to automobile oriented suburbanization through the experience of social costs of excessive car usage which outweighed 'personal convenience' has forced countries to return to urban rail projects. The renewed interest in urban rail since 1970s was linked to efforts to stem the low-density, car oriented land use development that was occurring at the periphery of cities. In the developing countries, as cities face an array of

transport-related challenges with respect to economic efficiency, environmental sustainability and social equity, planners developed policies that prioritize the use of a hierarchy of transportation modes led by a high capacity mass transit system. National Urban Transport Policy 2006 has attempted to accommodate all these issues into its recommendations.

If we analyze the temporal and spatial issues that play a prominent role in our experiences with the modern mobility policy in KMA, we find that

(i) the city started with a technological solution to modern mobility,

(ii) the city learnt through decades of experience that metro rail integrated with other modes of transport is the best instrument for mobility management in Kolkata Metropolitan Area; and since 1996 the city could actually recognize metro rail as the most modern, efficient and popular mode of transport in the entire Kolkata Metropolitan Area (KMA).

But in course of time, the transport policy vision somehow became myopic to overlook the long term objectives of mobility management and east-west metro is one such example. That the east-west metro is long overdue can be understood by a very simple observation:

There are not less than seven parallel surface level travel corridors between Salt Lake and Howrah station (the latest route set for east-west metro in 2009) which converge at Rabindra Setu, *viz.* S.N.Banerjee Road, Lenin Sarani, B.B.Ganguli Street, M.G.Road, Vivekananda Road, Beadon Street, Shovabazar Street. The continued expansion of motorization along these travel corridors and closure of tramways beyond Burabazar have brought this transport route to the verge of a crisis that none of the traditional modes are able to manage and which the aging Rabindra Setu is unable to bear. From the proven efficiency of metro railway in terms of its high capacity, operating cost, traffic congestion, safe journey saving on travel time and fossil fuel, it was natural that east-west metro would have been considered for implementation decades ago.

When the delayed implementation was considered, the west bank still remained out of focus and it is shocking to learn that the East-West Metro, as conceived now (2009), is being terminated at Howrah Maidan on the west bank setting aside the age old concept of integrating the east and west banks through Transport Network. Such a metro plan denies access of west bank people to modern mobility experience, denies access to economic

opportunities created in the prime segments of KMA, underestimates the potentialities of the west bank, undermines the logical foundation of east bank – west bank integration in KMA and, above all, forgets the principles of regional balance and social equality in mobility management.

The objective basis for such observations has been explained in the following sections.

2.1 History:

It is generally reported that the first feasibility study of underground railway for Calcutta was held in 1949 by a French Metro Mission who came to the city at the requested of the then Chief Minister Dr. Bidhan Chandra Roy. The Misson submitted a Report recommending two routes of electrified underground alignments,

(i) one, from Sealdah to Howrah Maidan (3.91 miles) along East-West, and

(ii) the other, from Paikpara to Kalighat (7.14 miles) along North-South

They considered the project feasible, although there were difficulties with the soil conditions of Calcutta for which project cost would be higher. [vii]

It may be noted in this context that there was a large Railway establishment at Howrah Maidan at that time, for operating three narrow gauge light railway routes from Howrah Maidan to different parts of Howrah and Hoogly districts; and around Howrah Maidan adjacent to the railway establishment, there were bus termini as well as other wide open spaces.

In the Calcutta Metropolitan Planning Organisation (CMPO) regime, M/s Wilber Smith and Associates were first appointed the consultant for suggesting on transportation network suitable for the Calcutta Metropolitan District (CMD). In their Report in 1964, Wilber Smith recommended elevated railway for two routes,

(i) from Sealdah to Howrah Station (3.20 miles) along East-West, and

(ii) from Galiff Street to Kalighat (6.40 miles) along North-South with a connection from Shyambazar to Dum Dum (1.80 miles).

The most peculiar thing about Wilber Smith Report is that they did not consider an underground transit system suitable for Calcutta, on the apprehension that the underground stations would be used as shelters for the pavement dwellers.[viii]

For studying history of Kolkata Metro it is important to note here that even after the birth of CMPO, when the organisation was initially engaged in drafting a development plan for 'Greater Calcutta' and specifying its priorities, Dr. Bidhan Chandra Roy continued his efforts to realize a metro for the state capital. An engineer from West Bengal was sent to the Soviet Union in 1960-61 to study their technology of metro construction; because the apprehension of the French Metro Mission was a vexed question. The Soviet technology was found suitable for Calcutta soil and, with a proposal for 40 km of metro railway on two lines, Dr. Roy, while on Europe tour, personally discussed the project with French, Swiss and Russian experts and quotations for 'feasibility study' were sought from them. Later, since the Soviet quotation was found least expensive, a high level delegation was sent to Moscow in1961 to finalise the study.[ix] But unfortunately, the nation suddenly got involved in a number of military confrontations, short run national priorities changed and then we lost this foresighted Chief Minister in 1962.

In the Basic Development Plan 1966-1986 (BDP) prepared by the CMPO, emphasis was laid on 'A New Rapid Mass Transit Facility'

(i) between Sealdah and Howrah Stations along East-West; and

(ii) between Dum Dum Station and the junction of Diamond Harbour Road and Biren Roy Road (Behala) along North-South.

The idea was reiterated in the Traffic and Transportation Plan for the Calcutta Metropolitan District (1966 – 1986).[x] The suggestion for alternative routes by different agencies reflected, to some extent, alternative comprehensions of a changing demographic scenario in Calcutta over time taken as a proxy for possible traffic demand. Traffic and Transportation Plan of CMPO studied the feasibility of urban and sub-urban mass transportation systems along with a future land use and travel pattern, and it recommended a 'transportation plan framework' that would be an instrument for spatial distribution of development and which would maintain a viable urban structure.[xi]

The 'Metropolitan Transport Team' of the Planning Commission appointed to examine the problem of mass transport in four metropolitan cities of the country, submitted their report in 1969 and accepted the need for high capacity Rapid Transit Systems along the two travel corridors in Calcutta as suggested by the CMPO in the BDP and in their Traffic and Transportation Plan 1967. Ministry of Railways, Govt. of India in collaboration with M/s

Technoexport of Moscow conducted the study in 1970-71, a Master Plan of Metro Rail was prepared for CMD, consisting of a number of lines, and the Soviet experts suggested a high priority to be attached to the first North-South line from Dum Dum to Tollygunge (16.4kms). Thus the north-south Metro project, Calcutta's pride, was sanctioned in 1972 and launched in 1974; was partially opened to traffic in 1984 and the full stretch was opened in 1996. A new organization under the Ministry of Railways, Government of India, *viz*, Metropolitan Transport Project (Railways), was entrusted with the construction and operation of this metro line.

In 1975, Metropolitan Transport Project (Railways) prepared 'Calcutta Mass Transit Study, Phase II', and focused attention to (i) extension of North-South metro rail from Tollygunge to Garia, and (ii) construction of a new East-West line from Salt Lake to Ramrajatala (18.33 kms). This project report observed availability of land at Ramrajatala for developing an interchange station between the Rapid Transit System and the Suburban rail System. According to this study, expected year of commencement of the East-West line was 1980.

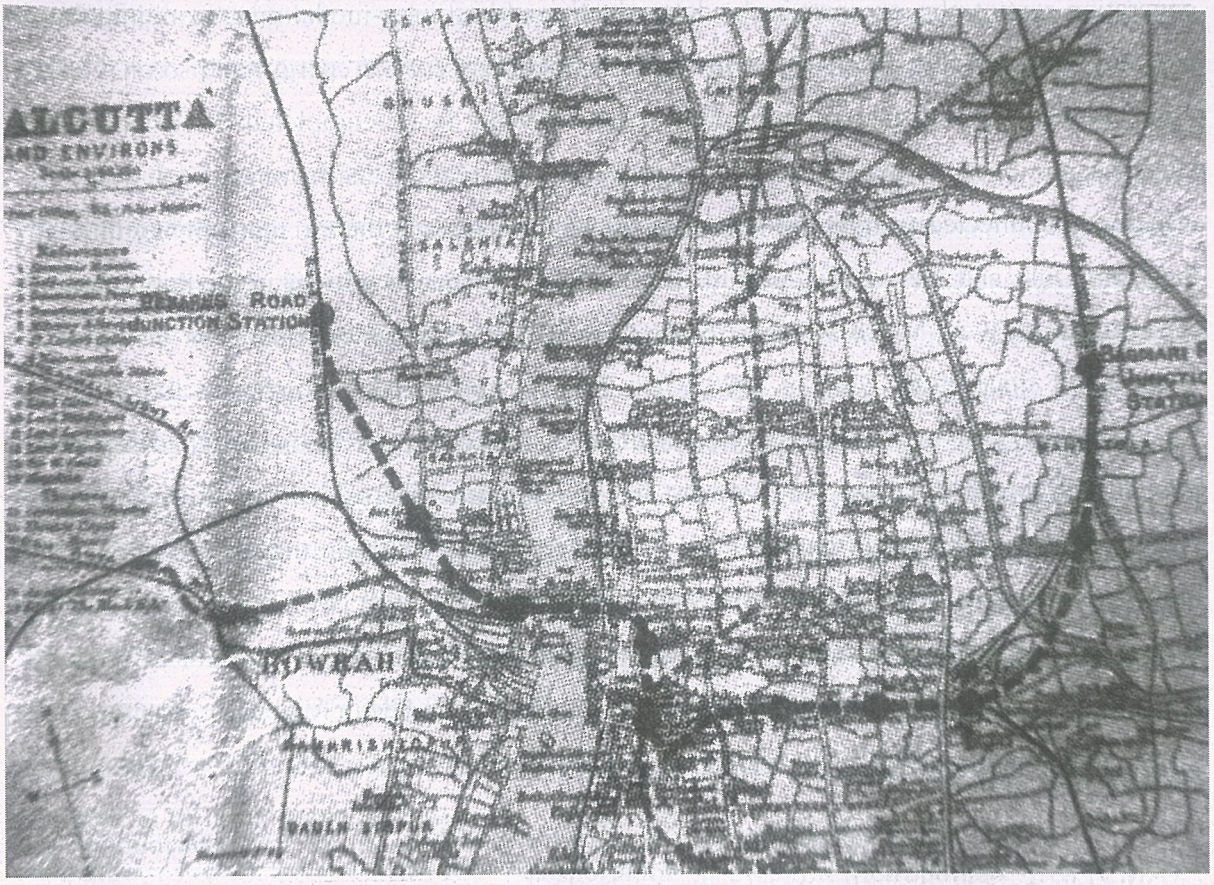
In the Calcutta Metropolitan Development Authority (CMDA) regime, since early 1980s things took the shape of a conflict of ideas between the Railways and the state level Planning Authority. On the one hand, the Metro Rail organization of Calcutta, till 1991, continued to work on studying the prospects of projects like extending the North-South line to Garia, introducing the East-West line, and even the second North-South line from Baranagar to Thakurpukur; on the other hand, for reasons unknown, CMDA managed to erase from its transport planning map any trace of East-West metro. For example, 'Concept of Integrated Transport System for CMD' (ITS) was a planning document prepared by CMDA in 1983, when the North-South Metro project was still under construction and the 'Phase II Study 1975' was still fresh. In view of the trend of urban growth and a reassessment of the transport needs of CMD, ITS failed to appreciate the need for East-West Metro as a rapid transit corridor although the surface route from Sealdah Station to Howrah Station was admitted in all plan documents to be the "most travelled corridor" in the entire CMD. It is only the Master Plan for Traffic and Transportation in Calcutta Metropolitan Area (CMA), Interim Report 1994 which attached some importance to the East-West Metro line from Salt Lake on the east to the proposed new Shalimar Passenger Terminal on the west; however, a

huge confusion regarding the west end beyond Howrah station can be found in this report. But in 2001, again for reasons unknown, in the 'Master Plan for Traffic and Transportation in CMA 2001 – 2025' the idea of East-West Metro has been dropped, only to be revived again in 2005 overlooking the need for extending the East-West Metro line beyond Howrah Station even in the context of rapidly changing urban growth on the west bank of river Hooghly. Looking back, one can point out that the Soviet experts at a meeting with CMPO on 21.12.1970 emphasized the need for an East-West metro line to penetrate into the newly developing settlements at the two ends of the metropolis. It is also ironical to note that precisely during the two decades since 1983, instead of development and extension of a modern transit system, Calcutta became gradually dependent on para-transit mode along major thoroughfares as a part of the implicit metropolitan transport policy, although National Transport Policy Committee Report 1980 categorically pointed out that direct employment generation cannot play any part in the determination of best inter-modal mix; more important are considerations like efficiency, resource-cost (including cost of energy) and so on. [xii] The North-South Metro in the city took almost fifteen years to be completed; its extension to Garia has now been under execution for more than five years. This metro corridor would be effectively connected to both the suburban railway system and the circular railway through the Dum Dum and New Garia termini. But more significant at present is the public policy regarding East-West Metro which is reported to be under active consideration of the state government since 2006. Until in 1970 when the priority for North-South was fixed by the Soviet experts, east-west metro line was justified by the concept of "most travelled corridor" pointed out above. But, now the east-west line is really justified by its extension of the two ends by virtue of the urban growth during last forty years – both on the West Bank and in Salt Lake-Rajarhat New Town. But title of the metro project which has come under execution by Kolkata Metro Rail Corporation (KMRC) is "East-West Corridor of Kolkata Metro Rail System from Howrah Railway Station to Salt Lake Sector V."

2.2 The Hay Report:

Sir Harley Hugh Dalrymple-Hay received a Knighthood for his contributions to tunneling and underground railways. In the city of Kolkata, construction of the Calcutta Electric Supply Corporation tunnel (690 yards long and 90 feet below ground level) under river Hooghly was engineered by him in 1931 and the tunnel is still operative. But, before

this construction, Sir Hay, as a consultant engineer, headed a Committee in 1920 appointed to report on "problem of rapid transportation to and from and within Calcutta." It may be noted that at that time, to reach Howrah station, the city traffic had the challenge of both crossing the river on the only pontoon bridge and the slow movement as well as congestion along the roads leading to the pontoon bridge. Sir Hay along with his chief assistant Mr. E. A. Ogilvie studied the feasibility of a mass transit system and recommended that an east-west 'tube railway' between Howrah and Sealdah was necessary. They studied the geological characteristics of the city's subsoil in collaboration with the Port Commissioners of Calcutta, the route suggested passed through Dalhousie Square and the present junction of Central Avenue and Bowbazar Street, and of course below the river Hooghly.[xiii] The technology suggested was 'shield-driven tunnel' and the gauge recommended was the Indian broad gauge, not the British standard gauge.



Map-I: East – West and North - South Metro Routes in Hay Report 1921 (photocopy)

The Hay Report draws our attention to the fact that East-West Metro was the first priority of the twin cities until the Soviet Experts fixed the changed priority in favour of the North-South line. It also draws our attention to many other aspects, of which two should be mentioned here:

(i) At that time Howrah city was a narrow strip along the river; still he did not terminate the route at Howrah station; for the sake of future needs of transit interchange point, two branch lines were suggested: one to meet the B. N. Railway beyond Kadamtala to its west and another to meet the Eastern Bengal Railway line beyond G. T. Road near Liluah.

(ii) Similarly, on the eastern end, the route was extended up to Bagmari beyond Sealdah. Regarding an intermediate station at Narkeldanga, the report observed that the population of the area did not justify a station there at that time; but a station there was necessary for future requirements; and that it would be extremely difficult and expensive to add any new station along the tube later.

2.3 Renewed interest in East-West:

The east-west metro plan which was virtually sent to cold storage after 1975 could be revived in 2002 through the 'look east' policy of the government for regeneration of the state economy and Japan Bank for International Cooperation (JBIC) showing interest in the east-west metro project in Kolkata among nineteen world projects. In fact, JBIC focuses on development of Urban Railway in the global climate change perspective to access co-benefits like reduction of green house gas (GHG) emissions on account of high capacity of rail transport, energy consumption per vehicle, electricity consumed by ancillary facilities and so on. Therefore, Urban Railway Development funded by Japanese Overseas Development Assistance loans in Thailand (74 km) and Vietnam (20 km) has the objective of both developing mass transit systems and accessing co-benefits of such transport development. The same is applicable to JBIC funding to metro railways in Delhi, Bangalore or Kolkata. In fact Deputy Director General of JBIC made an explicit statement on this on 18 March 2008, eight days after the loan agreement for east-west metro was signed at New Delhi.[xiv]

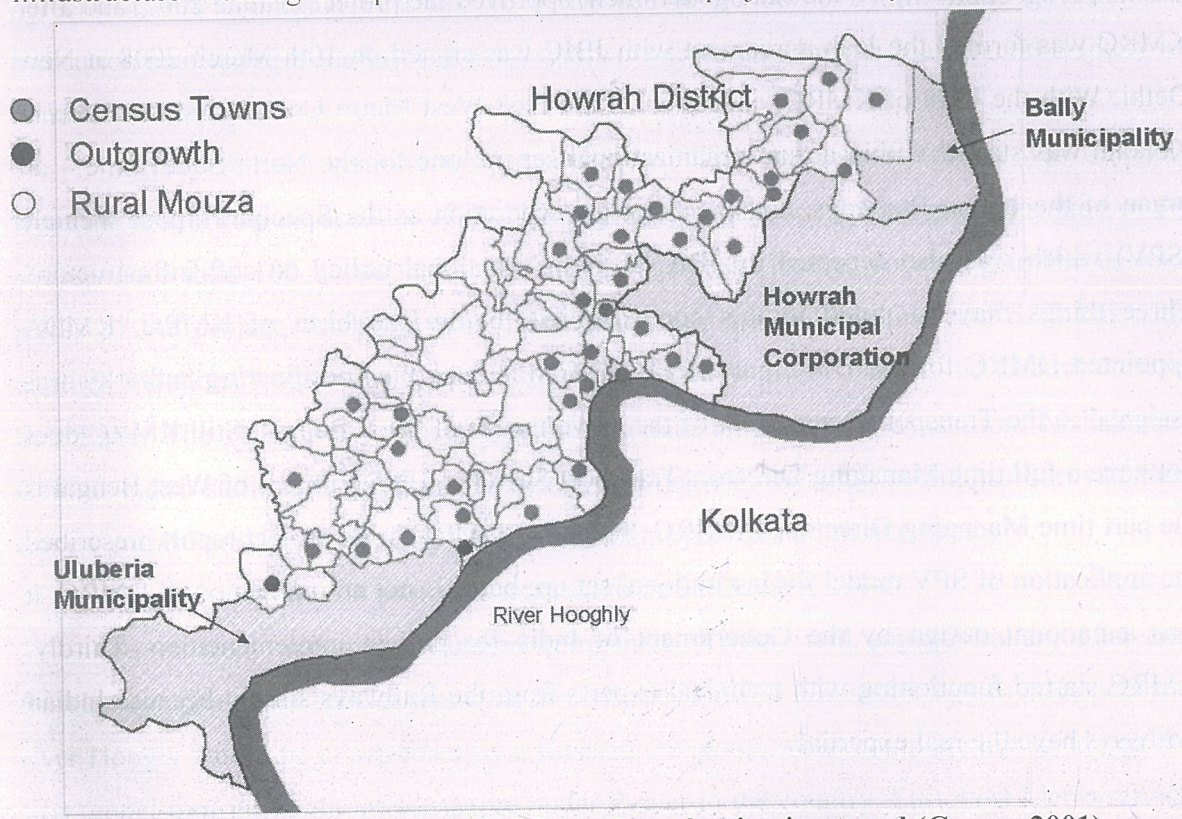
Along with the actions for a east-west metro since 2003, a concurrent development in planning exercise for the West Bank has been the formulation of short term and long term

strategic plans for the west bank, known as **Howrah Development and Rejuvenation Plan** (HDRP) which took six years to be completed since 2004. Both the strategic plan and the infrastructure plan for HDRP area suggested an extension of the east-west metro beyond Howrah Maidan, but any signal is yet to be received from the state government whether the recommendation has been accepted or not.

Meanwhile, the National Urban Transport Policy 2006 observed that urban areas with their unique geography of location, have to be able to support the desired level of economic activities, and therefore, must provide for easy and sustainable flow of goods and people. The policy document also spelt out the objectives like (i) more equitable allocation of road space with people rather than vehicles, (ii) encouraging greater use of quality focused multi-modal public transport system, (iii) reducing pollution levels of transport operation, (iv) incorporating urban transportation as an important parameter at the urban planning stage rather than being a consequential requirement. Such objectives in the context of urban growth on the west bank of KMA as well as strategic planning for the Howrah Development and Rejuvenation Plan Area (**HDRPA**)[xv] justify a mass rapid transit system for Howrah to enhance both its economic growth and quality of life. It may be noted here that the financial and organizational arrangements for execution of the east-west metro have been designed on the lines suggested by this national policy of 2006. On the basis of this national policy, Government of India also encouraged planning and execution of high capacity public transport systems for all million plus cities of the country, in which a technology would be adopted to suit city requirements in the next thirty years at the least. According to Census of India 2001, population in Howrah Municipal Corporation is 1,007,532 and that of the HDRP area is 2,340,842; population in this area has been growing fast along the western direction, and also around Domjur sprawl. Ninety-seven percent of urban Howrah district belong to HDRP area which is also a subset of Kolkata Metropolitan Area (*Please see Map-II* and this map may also be read with other Figures in the Land Use and Infrastructure Plan prepared by SEIHSM, BESUS during 2009-10).[xvi] Given the title of the project by KMRC, press reports till January 2009 suggest that the construction authority was confused or perplexed with the question of determining the location of metro rail terminus on the west bank; and this might be due to the fact that the technical constraint of trans-river crossing of East-West line makes it a difficult proposition to build the terminal station close to Howrah station. Meanwhile

between 2000 and 2006 two reports were prepared for the project and then the implementing agency Kolkata Metro Rail Corporation Limited (KMRC) was formed as a special purpose vehicle (SPV) as per guidelines of the Government of India.[xvii]

Although the agreement between JBIC and Government of India for eight fold initiative in global partnership came in April 2005 Indo-Japan Investment dialogue was initiated in Tokyo in December 2000; and in December 2002 both the countries agreed to choose three infrastructure projects in India for feasibility study in connection with an application for grant of funds, *viz* Kolkata East West Metro Line, Mass Rapid Transit System for Pune and Multi-modal Public Transport Plan of Ludhiana. Subsequently, Japan External Trade Organisation (JETRO), commissioned by the Ministry of Economy, Trade and Industry selected only nineteen projects among two hundred applications of world projects, and East-West Metro in Kolkata was the only project chosen from India by Japan. The Infrastructure Working Group of JETRO evaluated the project viability of this east-west line



Map – II: Urban Composition of HDRPA – the urbanization trend (Census 2001)

(The Author is indebted to SEIHSM of Bengal Engineering and Science University, Shibpur for allowing him to use Map II)

and recommended financial source of JBIC "for the specialized construction technique for implementation." This Feasibility Study Report (December 2003) concluded that "the institutional arrangement for project implementation should be started from now without any interruption." (underline ours).[xviii] But the metropolitan transport planning system in Kolkata was unprepared because the Vision Document (2001 – 2025) was finalized and approved by the Kolkata Metropolitan Planning Committee only in 2005. On the other hand, till June 2005, the government of West Bengal was in two minds with appropriate action on the Feasibility Report of JBIC; on the one hand, Delhi Metro Rail Corporation (DMRC) was entrusted with preparing the Detailed Project Report and on the other, the government preferred a Light Rail Transit project owing to a "funds crunch"; even a global tender was floated for the LRT project seeking "expression of interest" [xix] In March 2006 the Detailed Project Report was prepared by Delhi Metro Rail Corporation (client Kolkata Metropolitan Development Authority),[xx] the state government approved the project in June 2007, and after KMRC was formed the loan agreement with JBIC was signed on 10th March 2008 at New Delhi. With the birth of KMRC, execution of the East-West Metro Corridor construction in Kolkata was started within a dual organizational set up; one for the North-South Line – an organ of the Indian Railways, and the other a Corporation as the Special Purpose Vehicle (SPV) which was also accepted by JBIC as India's national policy on soft infrastructure. Three things may be noted in this context. First, before the birth of KMRC, KMDA appointed DMRC for the DPR; but after KMRC was born the coordinating authority was assigned to the Transport Department of the Government of West Bengal. Still KMRC does not have a full time Managing Director; Transport Secretary, Government of West Bengal is the part time Managing Director of KMRC. Secondly, DMRC in its project report prescribed the application of SPV model for institutional set up; but it is not an innovation of DMRC, it was a national design by the Government of India for project implementation. Thirdly, KMRC started functioning with technical experts from the Railways simply because Indian Railways have the real expertise.

3.1 The on-going Project, as in 2009-10

In terms of status of the project in early 2010, East-West Metro has been planned to have its eastern terminus at Salt Lake, proposed to be further extended to Rajarhat New

Town and known as a showcase project of the government of West Bengal in recent years. Initially, KMRC started the project with the project title: "East-West Corridor of Kolkata Metro Rail System from Howrah Railway Station to Salt Lake Sector V" (13.77 km) and the series of press reports during last two years suggest that for more than one year since its inception, KMRC suffered from indecision on two counts: (i) western terminus of the corridor and (ii) location of the Car Depot. Both the issues have been resolved in late 2009 and it has been admitted by KMRC that west-end terminal station would be extended to Howrah Maidan because 'reversing facilities for trains' is unavailable at the designed four-storied underground Howrah station (please see technical constraints in section 1.1 above). Now that the project has been settled to be "From Howrah Maidan to Salt Lake Sector V" (14.67 km) and that there has been considerable delay in project execution, the cost figure get escalated (by about Rs.200 crores) – a price to be paid for indecision. According to the loan agreement, the additional cost due to delay has to be borne by the state government. Execution has started from Salt Lake end and work from the Howrah Maidan end is likely to commence shortly.

Initially thirteen stations were planned, but later 'Bowbazar' station was dropped from the metro map on account of problems related to land acquisition and relocation of 80 shops, more than 100 house structures and 75 squatters. Hence, according to the current status of the project, 8.90 km with 6 stations would be underground and 5.77 km with another 6 stations would be elevated and the car depot would be built at the Central Park of Salt Lake. The route will connect Howrah Maidan, Howrah railway station, Mahakaran, Central metro station, B. B. Ganguly Street, Sealdah railway station, Subhas Sarovar, Salt Lake Central Park, Salt Lake City Centre, Karunamoyee and Salt Lake Sector V.

Operation of the full project is targeted to be 31 October 2014.

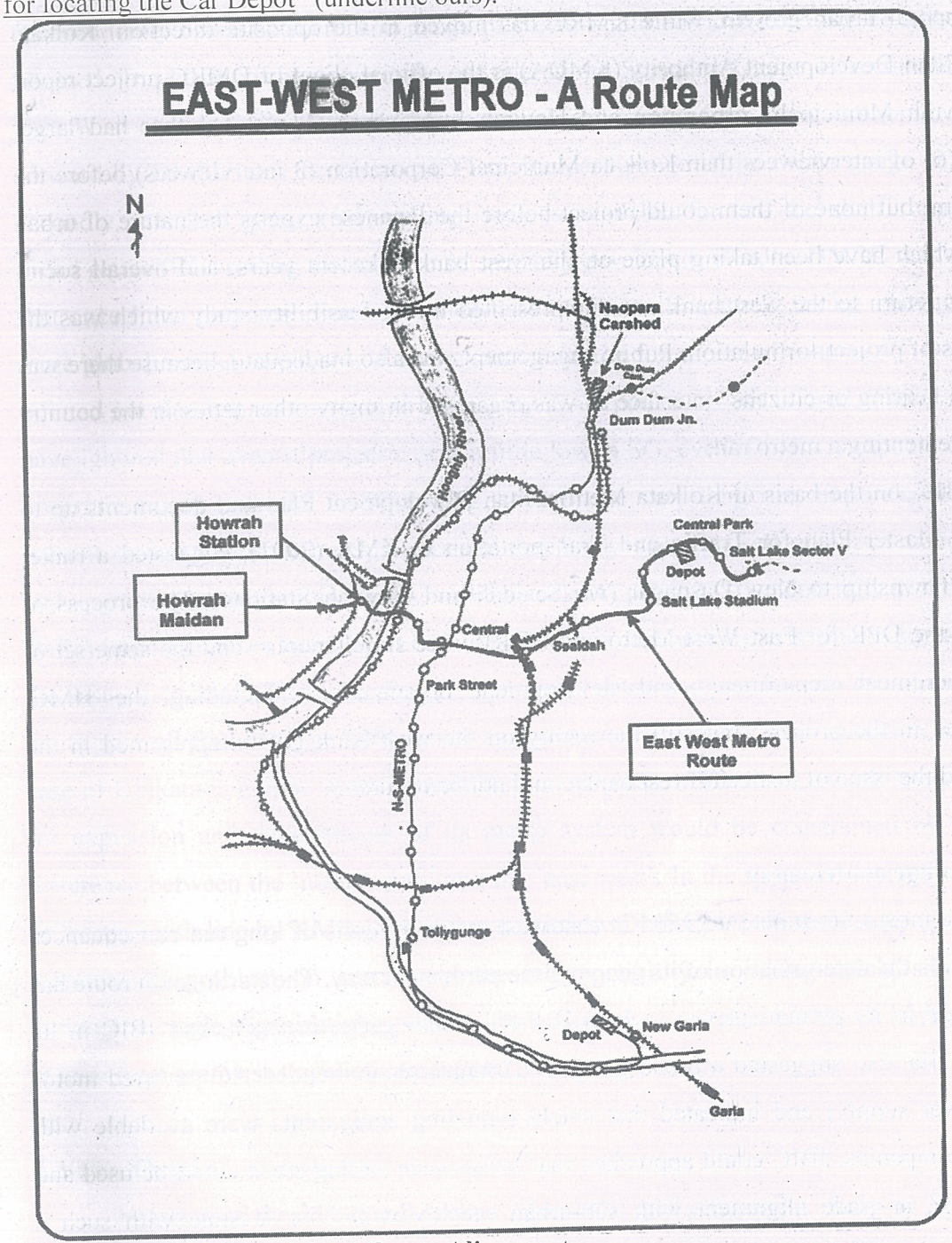
Apart from Indian construction companies, KMRC will engage Italian, Thai and Russian companies for special segments of construction. The 520 meter long tunnel under the river Hoogly would be constructed by a Russian company; when completed, it would be the first tunnel-transportation infrastructure under a river in the country. East-west Metro service would be a 'premium service' and its fare structure would be double that of the existing North-So ıth Metro, and there would be a provision for ten percent enhancement of fare every two years.

Another special aspect of the project may be mentioned here. According to 'Detailed Project Report' the site for the underground station of East-West Metro at Howrah is the space between the old and new complexes of existing Howrah railway terminal and 'cut-and-cover' technology would be used for construction of such stations. But, at this very location, the following inscription with the emblem of 'East Indian Railway' is found on a stone plaque: **"The first train from Eastern India ran from this place on 15th August 1854 from Howrah to Hooghly."** This is a historical monument and needs to be protected as a heritage site. The concerned authorities should have shared the responsibility of protecting this monument in right earnest such that the same plaque is re-installed after construction of the metro station is completed. But neither the DPR nor any authority concerned with the metro project has so far spelt out the policy regarding this particular monument.

3.2 Route Alignment:

Government of West Bengal, while appointing (2004) Delhi Metro Rail Corporation (DMRC) for preparing the Detailed Project Report (DPR), mentioned the task as "preparing DPR for Rajarhat to New Das Nagar East-West Corridor of Kolkata Metro Rail Project"; but DMRC recommended a route length of 18.65 km "from New Dasnagar to Salt Lake Sector V" under special circumstances explained in the DPR. Initially, DMRC not only identified a route length of 24.82 up to Rajarhat but also pointed out the feasibility of extending the corridor further towards NSC Bose Airport.[xxi] However, during the presentation on 08.02.05 at the Writers Building on formulation and implementation of the project, the government suggested to reduce the length of the corridor "to make the project viable" (underline ours). DMRC considered undeveloped traffic demand at Rajarhat New Town and accordingly suggested a route up to Salt Lake Sector V (for the eastern end) for initial implementation. In fact DMRC was also not able to assess the potential demand from the west bank on account of their biased demand study on which our observation is available in another section below. In their opinion, after pruning Salt Lake – Rajarhat section of the route: "The best option available would have been from Salt Lake Sector V to Kadamtala (15.46 km) with Car Depot at Central Park of Salt Lake City" (underline ours). DMRC wrote to the state government (11.02.2005) for making the land at the Central Park available for the car depot; but since no confirmation was received from the government within a reasonable period of time, DMRC

had the only "option of recommending an extension of the metro corridor to New Dasnagar for locating the Car Depot" (underline ours).[xxii]



Map-III: East – West Metro Route Alignment
Source –website ***kmrc.in*** **(Map not to exact scale)**

It is Kolkata Metro Rail Corporation (KMRC) who selected the **final route** for execution from "Howrah Maidan to Salt Lake Sector V" (14.67 km) which is even shorter

than the route length from Ramrajatala to Salt Lake Sector V (18.33 km) suggested in 1975 study. A route recommended forty/fifty years ago need automatic extension on account of inter-temporal urban growth, while KMRC has moved in the opposite direction. Kolkata Metropolitan Development Authority (KMDA) is the official client of DMRC project report and Howrah Municipal Corporation and Howrah Improvement Trust together had larger number (6) of interviewees than Kolkata Municipal Corporation (3 interviewees) before the JBIC team; but none of them could project before the Japanese experts the nature of urban growth which have been taking place on the west bank in recent years; and overall socio-economic return to the west bank got unrepresented in the feasibility study which was the very basis of project formulation. Public engagement was also inadequate, because there was no public hearing or citizens' interface as was organised in many other cities in the country now implementing a metro rail.

JBIC, on the basis of Kolkata Metropolitan Development Plan and documents up to the Draft Master Plan for Traffic and Transportation in KMA (2001), suggested a route: Rajarhat Township to New Dasnagar (*via* Sealdah and Howrah Stations). The process of preparing the DPR for East-West Metro and HDRP were simultaneous; and the same set of state government departments and development organizations, including the HMC, participated in the process; but still the reality on the west bank got unrepresented in the project and the issue of justice to west bank could not be ensured.

4.1 The Gauge controversy:

The most unfortunate decision in east-west metro in terms of long run consequences on dualism is the determination of its gauge of the permanent way. The north-south route has broad gauge in its permanent way, which is the national gauge in India, and JBIC in its design criteria also suggested a broad gauge (1676mm), recommended AC powered motor (OHC power supply) and indicated that shield tunneling equipments were available with Japanese companies. JBIC could appreciate that India-made rolling stock could be used and if necessary, at-grade alignment with sub-urban railway would be feasible with such a technical design.[xxiii] DMRC, on the other hand, recommended a standard gauge (1435mm), DC powered motor (third rail power supply) and suggested import of rolling stock.[xxiv] DMRC observed, "The East-West corridor is planned with latest technologies available of

different systems including signaling, rolling stock etc, therefore, interchangeability of trains between two corridors is ruled out and gauge for East-West corridor can be chosen independently based on merit and gauge of North-South corridor need not be automatically adopted. Based on techno-economic considerations Standard Gauge is recommended for East-West corridor".[xxv] Setting aside technicalities, some of the basic economic logic put forward by DMRC may be reviewed. First, standard gauge is the metro gauge world over; secondly, standard gauge (SG) rolling stock is available for 'off-the–shelf' import while broad gauge (BG) rolling stock has to be specially developed. Thirdly, DMRC was optimistic that once India prepares a manufacturing base for SG rolling stock, taking advantage of the large global market, India would earn export potential for export of coaches.[xxvi] DMRC also pointed out that capital cost would be less by 2 – 4 percent if SG is used. These arguments have ignored that even if project cost is a little low in SG, even if India is capable of earning uncertain export potential in SG rolling stock in the very long run, import content in the present project would be much higher and that India is already self reliant in manufacturing and upgrading of technology for BG rolling stock. At present, SG metro rails in India (e.g. in Delhi) import coaches from Japan or Korea; and it is Japanese experts who suggested BG for the east-west metro. The issue, therefore, is complicated and justification for adoption of SG is not so well founded; the DPR rather exaggerated the benefits from adoption of SG. The case of Kolkata is unique in the sense that it already has a BG metro and all future planning for expansion and development of its metro system would be constrained by the gauge difference between the 'north-south' and the 'east-west'. In the short run, even the take-over of North-South line by KMRC (as recommended by DMRC) would result into operation and maintenance problem on account of the incompatibility in rolling stock, signaling etc. although a single organization operating the entire metro system in KMA is highly desirable at least for a seamless travel of passengers.

4.2 The Third Line and after:

In terms of the Metro rail Master Plan 1970 and subsequent study by Metropolitan Transport Project (Railways) till 1991, there was a provision for a third line (north-south) from Dakshineswar to Thakurpukur (26.46 km) *via* two alternative alignments which were never taken up for serious execution. Only the Traffic and Transportation Plan (Interim

Report 1994, CMDA) attached some importance to this third line. But within the process of finalizing the East-West Metro project,[xxvii] the Third Line has been transformed into a Light Rail Transit (LRT) project by the West Bengal Transport Infrastructure Development Corporation and project-launch was finally publicized on 18 February 2009. The state government initially expected a grant from JnNURM scheme and declared that a Delhi-based Consulting Engineering Firm had been engaged for preparing the Detailed Project Report; but in September 2010 it was declared as a Public-Private-Partnership project called 'Kolkata Mass Rapid Transit System'. Initially, the LRT route was conceptualized from Joka to Panihati (32 km); but later it was extended up to Barrackpur (40 km).[xxviii]

The project has subsequently been taken over by the Ministry of Railways, Government of India in a modified form: two metro routes have been announced (i) Joka to B. B. D. Bag *via* Park Street and Esplanade, and (ii) Noapara (Dum Dum) to Barrackpur. The state government's LRT plan thus fizzled out.

5.1 West Bank Potentials:

As against the urban blight and transport congestion in the old city Howrah and its urban continuum Bally, a special aspect of consideration for regeneration in HDRP Area is the changes taking place on the western segment including fringe areas, specially:

(i) Fast expansion of large, medium and small scale industrial and warehousing units along the developed Highway System in the HDA as a part of the Golden Quadrilateral Project of the Government of India. This is a **'New Enterprise Zone'** on the Highways – market driven and established on the basis of direct purchase of land without any major public acquisition of land. Similarly, the new Nivedita Setu has strengthened the regional connectivity potential, and increased the strength of HDRP Area in terms of its connectivity with the airport.

(ii) Rapid increase in population and settlements in outgrowths and census towns within HDRP Area particularly on the western fringe areas. These are growing urban sprawls.

Taking into consideration the trend of urbanization in the entire HDRP Area shown in Map-II, natural argument for the route of the present east-west metro project is: it cannot be terminated at Howrah Maidan on the west bank; – the Metro route to the West has to take

cognizance of the inter-temporal pattern of urban changes in the HDRP area – physical, infrastructural, demographic, as well as to take cognizance of the potentialities of the metropolis on the west bank, particularly the newly growing industrial and residential areas.

From infrastructure point of view, two things are to be noted. First, given the current situation, without other modal improvement at Howrah Maidan, the East-West Metro will be of little help to the west bank people. In this respect, planning of Howrah Maidan station requires immediate review and revision with a futuristic outlook of linking this metro station with multimodal transport network. A feasibility study and planning–designing of the station as a multi-modal complex and development of the area **must be immediately undertaken** in view of the present state of implementation of East-west Metro Project; otherwise the long-run feasibility of this planned nodal centre for traffic and transportation network on the west bank may be lost on account of irreversible outcome of the current project.

Secondly, scope for extension of the route to newly growing areas, which are economically significant, must take into account the recent development in transport infrastructure and existing as well as emerging interchange points for passengers.

From demographic point of view, the second fastest (after Kolkata) urbanizing area in West Bengal is the HDRP area. East-West connectivity by rapid transit is as important in this end of KMA as it is in the future smart growth in Rajarhat New Town. Deprivation of the West Bank from such a network is equivalent to deprivation of the west bank people of a share of economic opportunities being created elsewhere in the KMA – inequality in policy design itself.

5.2 Some observations:

(a) Biased Travel Demand Study

In the **JBIC** study, demand forecasting was based on basic public transportation data provided by the Government of West Bengal and other official data; a zoning system was adopted for modeling in which Kolkata Area was represented by 55 zones and Howrah Area was represented by 21 zones as follows:

Kolkata Area

Kolkata Municipal Corporation (KMC): 141 wards = 51 zones

Salt Lake (Bidhan Nagar), Rajarhat, Bonhoogly, Patipukur (one zone each) = 4 zones

Total = 55 zones

Howrah Area

Howrah Municipal Corporation (HMC): 50 wards = 21 zones.

But finally, for analytical purposes including modal split modeling, only 55 zones in Kolkata Area were chosen; which ignored the demographic dynamics not only in HMC but also in the entire HDRP area. Again, in the bus-metro modal split model in this report, required data were either not available or non-existent; and hence the parameters were adopted from another study on monorail project (excluding the west bank). Thus the potential demand for mass rapid transit on the west bank remained unrepresented in the very basis of decision making in spite of the fact that in the process of making the study, as we have pointed out earlier, JBIC team interacted with a large number of officials from the HMC, Howrah Improvement Trust (HIT), KMDA and the Transport Department, Government of West Bengal. Still JBIC honoured the Calcutta Mass Transit Study Phase II (1975) by selecting a route from Rajarhat town ship to New Dasnagar (*via* Sealdah and Howrah Railway Stations) for further examination.[xxix] According to JBIC Report, the Final Route selection was made after considering various conditions as total system, location of depot/workshop, area development plan and priority.

On the basis of such a recommendation DMRC prepared the Detailed Project Report in which Travel Demand Study took into account the following traffic zones for analysis:

KMC – wards 1 to 141 = 141 zones

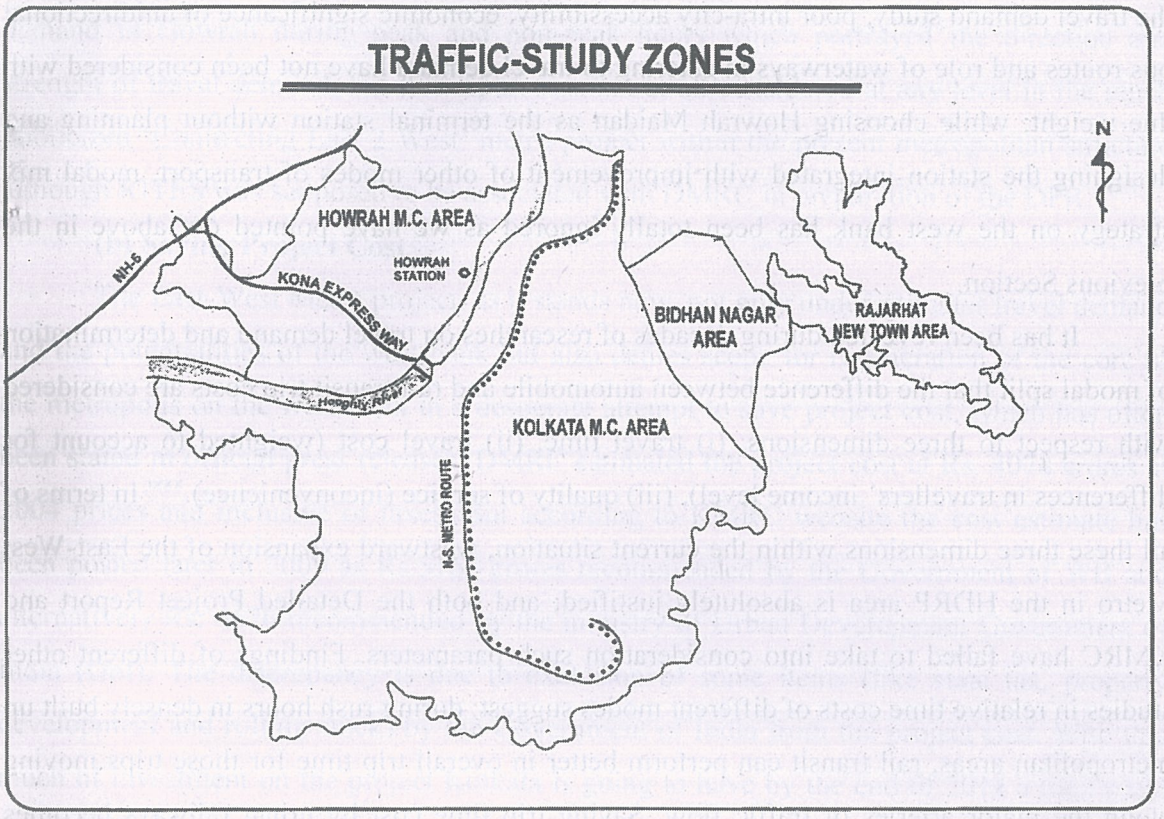
Salt Lake (Bidhan Nagar) – wards 1 to 23 clubbed into = 5 zones

Rajarhat New Town – Action Areas I, II, III = 3 zones

HMC – wards 1 to 50 regrouped into = 21 zones

Plus External zones on the East bank = 10 zones[xxx]

TOTAL = 180 zones



Map – IV: Location of Traffic Study Zones (as per DPR, DMRC)

Without going into any sort of statistical debate, one can simply look at Maps II, III and IV as well as the traffic zones mentioned above, and say that the potential demand on the west bank has been inadequately represented in the data base, whatever be the quality or merit of traffic demand modeling. Thus the route selected now (Map III) reflects the fact that it is incapable of capturing the potential travel demand in the HDRP area and incapable of utilizing the existing improved transport network on the west bank like, say, the Kona Expressway or the NH-6. Inadequate route alignment has, therefore, been the result of both faulty travel demand forecasting and administrative indecision.

Similarly, in suburban rail passenger survey (in the DPR), Howrah station has been included but Santragachhi station has been excluded, in spite of the fact that during last ten years, Santragachhi has emerged as the most important interchange point for suburban railway passengers for South Eastern Railway on account of the bus services along the highway and the Vidyasagar Setu. This interchange point if linked by metro may be an instrument for rejuvenation of the newly growing parts of HDRP Area. On the other hand, in

the travel demand study, poor intra-city accessibility, economic significance of unidirectional bus routes and role of waterways in catering to travel demand have not been considered with due weight; while choosing Howrah Maidan as the terminal station without planning and designing the station integrated with improvement of other modes of transport, modal mix strategy on the west bank has been totally ignored as we have pointed out above in the previous Section.

It has been revealed during decades of researches on travel demand and determination of modal split that the difference between automobile and rail transit trip costs are considered with respect to three dimensions: (i) travel time, (ii) travel cost (weighted to account for differences in travellers' income level), (iii) quality of service (inconvenience).[xxxi] In terms of all these three dimensions within the current situation, westward expansion of the East-West Metro in the HDRP area is absolutely justified; and both the Detailed Project Report and KMRC have failed to take into consideration such parameters. Findings of different other studies in relative time costs of different modes suggest: during rush hours in densely built up metropolitan areas, rail transit can perform better in overall trip time for those trips moving along the major arteries of traffic flow. Saving trip time cost by urban railways becomes more significant in high density built up urban areas, because land requirement of such transit infrastructure is low. Again, it is the experience of many countries that initially transit routes are laid to serve usual trip patterns, particularly peak hour trips, and these are work trips.[xxxii] Peak hour road speed for automobile transit in metropolitan cities of Asia is usually much lower than the rail transit systems and DMRC also determined the selection of "medium capacity metro" for the east-west corridor on the basis of their observed "peak hour peak direction trips" and on the basis of relative merits of such a metro transit system.[xxxiii] Combining such observations with the findings of Rail India Technology and Economic Services (RITES) study on the trip pattern and travel demand in Howrah Municipal Corporation Area (2000), a strong justification is found in making a planned network of urban rail available to the citizens of Howrah as an alternative to the existing options of public transport. The justification is also strengthened by the fact that non-CBD job opportunities in Kolkata are now more and more concentrating in Salt Lake-Rajarhat area as a part of land use planning by the development authorities of KMA. RITES report was not prepared in the context of "larger choice rider market", but it was a systematic study of travel

demand in Howrah during peak and non-peak hours which portrayed the direction and strength of travel demand; but this report was not at all considered at any level in the much publicized 'Connecting East 2 West' metro project within the present metropolitan structure although RITES was supposed to be associated with DMRC in preparation of the DPR.[xxxiv]

(b) Saving Project Cost

The East-West Metro project, as it stands now, not only underestimates travel demand and the potentialities of the west bank but also denies scope for regeneration of the core of the metropolis on the west bank in a desperate attempt to save project cost, which has often been stated in official press releases. DMRC estimated the project cost at Rs. 4078 crores at 2004 prices and inclusive of taxes. But according to KMRC website the cost estimate has been posted later in 2009 as Rs.5165 crores recommended by the Government of WB and alternatively Rs. 4676 recommended by the ministry of Urban Development Government of India (GoI). The discrepancy is due to exclusion of some items (like state tax, property development and rolling stock) by the Government of India from the project cost. With this much of investment on the project Kolkata is going to have by the end of 2014 a total route length of about 40 kms metro (assuming that Joka metro is still uncertain). Website information allow us to make a comparison, with Mumbai having 82.58 kms metro with a project cost of Rs. 8548 crores, Hyderabad 71.16 kms (at a project cost Rs.12132 crores), Bangalore 33 kms (at a project cost Rs. 6395crores) by that time. In the National Capital Region Delhi 65 kms of metro was completed in 2009 at a project cost of Rs. 10571crores; and by 2021 it will have a total route length of 413 kms. Rail based Mass Rapid Transit Systems were in progress in six other cities in India primarily on the basis of the recommendations of the National Urban Transportation Policy. If other cities who are late starters can do it, why KMA, which started decades ago, lags behind is a pertinent question.

(c) Car Depot and Rajarhat

JBIC suggested two locations for car depot: (i) depot at Rajarhat had the function of storage of trains and a workshop; (ii) depot at New Dasnagar had the function of storage of trains at night and light inspections.[xxxv] JBIC also prepared the outline layout for car depot and workshop including capacity of depot. DMRC, on the other hand, recommended a route from New Dasnagar to Salt Lake Sector V and suggested New Dasnagar as the location for the only 'Depot-cum-Workshop' where intensive automation and multi-skill maintenance

staff would be put to use.[xxxvi] We have presented in section 3.2 above how the decision of extension of the route from Kadamtala to New Dasnagar was a matter of 'no option' to DMRC under compelling circumstances. But, KMRC in their route selection shortened it to Howrah Maidan – again a case of 'no option' such that the car depot was located at Salt Lake Central Park at environmental costs to the city. A detailed design of the car depot-cum-workshop at grade and its cost implication (at New Dasnagar) are available in the DPR, but the car depot at Central Park may be a costly proposition in terms of investment also, when the route along the park is an elevated one.

5.3 Suggested West Bank Route:

Since traffic demand study in the Detailed Project Report (by DMRC) is biased, in our opinion, there is scope for revising the east-west metro route on the west bank. The suggestion in this section has been based on observations in demographic and economic trends in the HDRP Area without applying statistical models.

Three nodes on the west bank

Historically, transport system in Howrah has evolved largely around the railway network and Howrah station has been the basic nodal point of road transport on account of the connectivity between Howrah and Kolkata. Such a system has itself created some bottlenecks for intra-city mobility (as well as rigidities in land use pattern), and therefore, has to be altered in principle and as far as practicable. But, since such alteration is constrained by different existing activity linkages, it would be a better option to supplement the existing transportation system with new directions of access and new modes so that newer activities at newer locations are facilitated. Safe and sustainable mobility policy has also to be implemented on the old arterial roads in HDRP area through effective route reorientation, traffic engineering, innovative correctional planning and circulation systems consistent with the new developments in infrastructure.

Since generating speed to the existing road system in the congested parts of the old city of Howrah-Bally is difficult to achieve within a short time frame, there is an urgent need for grade separated high capacity mass transit system for Howrah, which may be combined with both suburban railways and highways on the one hand and road development plus traffic improvement schemes in the congested parts of the city on the other. Achieving such an

integrated transportation system implies achieving intra-city, intra-metropolitan, intra-regional linkages to generate better access to activities and services. A transport network including the east-west metro has to take into account existing urban form as well as future growth and land uses.

Apart from the 'single nodal point' role of Howrah railway station in the public transportation system of Howrah (Howrah Maidan performing the role of an auxiliary nodal point) three new nodal points (with integration of modal splits) cannot be ignored for the purpose of all future transportation planning in urban Howrah: Howrah Maidan (existing and developing), Shalimar (potential), Santragachhi (emerging). Therefore, the east-west metro route alignment for the west bank recommended in 1975, terminating the metro at Ramrajatala, may be reconsidered taking cognizance of the issues we have pointed out above. Santragachhi is now a better interchange point option than 'Ramrajatala' as proposed in 1975. The route alignment suggested here have taken into consideration all such issues.

Land space at Howrah Maidan is inadequate for accommodating a metro-terminus either at the surface level or elevated keeping space for road transport development as a major option, in this high-density commercial area. In view of a prudent utilization of space on the surface, Howrah Maidan station should be an underground station with provisions for building an integrated interchange complex providing links with different modes of transport, both at grade and elevated, as may be determined in the transportation network planning for the entire HDRP area.

In our opinion, the East-West Metro should be extended towards further west on two flanks, *viz*,

Option I

(a) Along the alignment Kadamtala – Ichhapur – Santragachhi towards further west at least up to NH-6. Station 'Nibra' on this alignment at the crossing of Kona Expressway with the Andul-Dankuni Chord link Railway line would allow another interchange for sub-urban railway passengers as well as passengers on Kona Expressway.

1. From station Howrah Maidan (underground) to
2. Station Kadamtala (underground) – near Nabarupam cinema,
3. Station Ichhapur (underground) at a suitable point of crossing Howrah Drainage Canal

Road e.g. near Mahendra Bhattacharyya Road

4. Station Santragachhi (underground) on the north of Kona Expressway, and a subway system beneath Kona Expressway connecting the metro station with the sub-urban railway system of South Eastern Railway. This subway will also take care of the bus passengers on Kona Expressway. Re-structuring of the existing Santragachhi railway station would also be necessary to make it compatible with urban transport system and to enhance its capacity and efficiency.

5. Station Nibra (grade separation according to technical feasibility), which may also be utilized for more passenger transit.

6. Terminal station 'Howrah West' (surface level / elevated) at the junction of Kona Expressway and NH-6; preferably further to the west of NH-6.

The land of existing Kona Truck Terminal may be used within this project, if necessary, say for 'car depot'; and the truck terminal may be shifted to the west of NH-6, *i.e.* towards Dhulagarh or the 'new enterprise zone' on the highway.

This revised route will be able to connect the Metro not only with those areas of Howrah where population is growing faster, but also with the South Eastern Railway sub-urban system, Howrah-Amta railway route, any new passenger service on Andul-Dankuni link railway, and with the Highway system. It has also the merit of allowing Bally, Uluberia and Dankuni regions an easy access to East West Metro, more so through the other feasible transport improvement programmes.

Option II

(b) From the route under Option I, a branch towards Domjur along the alignment Ichhapur (or Kadamtala) to Domjur *via* Salap across the highway.

Both these metro routes may have the provision for future extension.

The east-west metro extended to west Howrah as designed in this revised route, is capable of serving, in the long run, the entire Howrah Development and Rejuvenation Plan area as the most significant and effective mode of rapid transit. Above all, the revised route offers a scope for increasing livability of the urban area on the west bank and a better east-west connectivity to the entire KMA such that economic opportunities can be better shared on equitable basis by the people on both the banks of the river.

Option III

The scope for studying feasibility of a north-south metro for the west bank has never been explored. This can be studied with the objective of economic rejuvenation on the west bank.

6.0 Conclusions:

Considered in terms of modern mobility, without a network of rapid mass transit system KMA would become spatially more fragmented, socially more divisive and environmentally more destructive. Specific inadequacies in the Mobility Management policy in KMA are reflected in the history of executing the East-West Metro corridor in its transport system, *viz.* failure to consider spatial economic balance within the metropolitan area, using mobility policy as a "catalyst for development", using multi-modal system as a combination of mass rapid transit and other modes leading to an energy-efficient non-polluting modal mix in the long run. Ignoring the potentials on the west bank is only a symptom of such a failure and lack of long term vision.

Post Script:

Developments after the writing of this paper for the seminar on 26 September 2010 till end-June 2011:

1. On 07 October 2010, North-South Metro has been extended up to New Garia (Kavi Subhas), and thus the "dog's tail" of North-South Metro route is completed with 23 stations and its linkage with Sealdah south section of suburban railway has also been established.

2. On 29 December 2010 Indian Railways created Kolkata Metro as a separate Zone of Indian Railways (the 17th Zone of it). It has been a move towards a more autonomous existence of Kolkata Metro. In fact, National Urban Transport Policy 2006 wanted operation and management of urban railway separated from the national railway system as a matter of policy.

3. On 11 January 2011 Government of West Bengal proposed to surrender to Indian Railways its share in KMRC, and the Government of India (Urban Development Ministry) may also surrender its share in KMRC to Indian Railways, because the structure of a joint venture company in KMRC would break down with the action of the state government. Therefore, combining both these shares, Indian Railways would

now have a majority stake (55 percent) in the East-West Metro Project; rest of funding would come from JBIC loan. The proposal is under scrutiny of the Indian Railways.

4. The foundation stone for Metro from Joka to B.B.D. Bag (16.72 km) was laid by the President of India Pratibha Devisingh Patil on 22 September 2010; and commencement of work on Phase I (elevated 8 km with 7 stations from Joka to Majherhat) of this Metro was announced by the Railway Minister on 29 December 2010. Rail Vikas Nigam Limited (RVNL) has been in charge of project execution; RITES was the consultant; and Ministry of Railways also intended to build one integrated terminal at Majherhat and connect it to South Eastern Railway on the west bank through a two-tier bridge between Uluberia and Budge Budge. But from the beginning, Joka metro project was in trouble, because the metro alignment claimed the median of Diamond Harbour Road on which the tram tracks are lying at present.

5. On 25th February 2011, the Railway Budget for 2011-12 has been presented in the Parliament, in which three **west-ward** extensions of the East-West metro route from Howrah Maidan have been proposed for survey, *viz*,

(i) Howrah Maidan to Belur,

(ii) Howrah Maidan to Dhulagarh via Santragachhi, and (iii) Howrah Maidan to Sreerampur *via* Dankuni and Singur.

On the **east** bank, the following metro routes have been selected for survey: (i) Joka to Diamond Harbour, (ii) Joka to Mahanayak Uttamkumar (Tollygunge), (iii) Baruipur to Kavi Subhas (New Garia) (iv) Barrackpur to Kalyani. These are in addition to the projects under survey/planning/execution since 2009 *viz*: (i) Joka to BBD Bag, (ii) Noapara (Dum Dum) to Barasat *via* Airport, (iii) Noapara to Barrackpur, (iv) Baranagar to Dakshineswar (v) Kavi Subhas to Airport *via* Rajarhat. Foundation stone of Dum Dum – Barasat – Airport metro extension was subsequently laid. All the east bank routes have been planned by the Indian Railways and are on Broad Gauge.

6. Census of India 2011 Provisional Population Data released during April-June 2011 reveals that there has been a rapid expansion of urban Howrah district (mainly HDRP Area) and a huge concentration of new census towns around the western fringe areas of Howrah and Uluberia.

7. The earthquake and tsunami in Japan on 11 March 2011 (and another earthquake in early April 2011) became world's costliest natural disaster rendering thousands dead and millions homeless; Japan now requires biggest re-construction push since post-World War II history; public finances in Japan have been under severe stress and there is not much the Bank of Japan can do to help the country.

Comments on the updates: These changes have no major bearing on the basic observations of this paper. But the relevance of these updates may be pointed out as follows:
First, completion of the entire stretch of North-South metro is a boon to the citizens of Kolkata and it would dramatically change the travel options and transport system in a major part of south Kolkata and its suburbs. Secondly, autonomy of Kolkata metro as a separate zone of Indian railways is also welcome in view of the needs and characteristics of urban rail being different from the suburban or national railway; and such administrative separation is likely to benefit the commuters. But, the duality between Kolkata Metro and the KMRC metro in operation and management will exist until KMRC is fully taken over by Indian Railways. Thirdly, extension of metro along different alignments on the east bank undertaken by Indian Railways will definitely change the mobility pattern in KMA on the east bank; but such a network would not, in any way, link the east-west metro for technical reasons we have discussed in this paper. Above all, such expansion plans expose a coordination failure between the state-level planning authorities and the railways, which is unfortunate. Fourthly, in view of the contents of this paper, the concept of westward expansion of the east-west metro in the Railway Budget is the most welcome. We shall be waiting for the final outcome. In our opinion, the proposed route in the budget from 'Howrah Maidan to Belur' may be extended and surveyed as a north-south route in HDRPA and be linked to development of other transport corridors and transport infrastructure projects for an appropriate modal mix. Fifthly, Census data 2011 strengthens the conclusions of this paper as well as the proposals in the Railway Budget 2011-12. Finally, the post-tsunami situation in Japan may, to some extent, delay or reduce the availability of funds from JBIC and thus delay the completion of the project. There are indications that the project would not be stalled.

Notes and References:

[i] Final Report, Committee on Transport Policy and Coordination: Government of India, Planning Commission, New Delhi, January 1966

[ii] Department of Science and Technology; An Outlook for India's Future (2000 AD); NCST, Panel on Futurology; Interim Report on Transport Development, Government of India, New Delhi, 1976; p.15

[iii] Report of the National Transport Policy Committee; Government of India, Planning Commission, New Delhi 1980

[iv] According to Professor Mom, Mobility is topical as the circulation of goods and people, speed, efficiency and individual ownership governed by consumerism are central to modernity. His research project attempts to study world history of mobility in which modernisation practices are viewed from a non-Western perspective. In his keynote address at the international seminar on 'Mobility, Modernity and Transport' on 19 August 2009 at the Centre for Urban Economic Studies, CU, Mom wished to write a history of mobility practices in a global context, contrasting Western and Asian cultures.

[v] Newman, Peter, Jeff Kenworthy and Felix Laube – "*The Global City and Sustainability – Perspectives from Australian Cities and a Survey of 37 Global Cities*" in Brotchie, John *et al* (ed) – East West Perspectives on the 21st Century Urban Development; Sydney 1999

[vi] Newman, Peter, Jeff Kenworthy and Felix Laube – *Ibid* (1999)

[vii] This date appears in official documents like 'The Calcutta Metro: Dum Dum – Tollygunge; Design and Construction, Phase I' But, in section 2.2 below we shall see that in 1920 one British Engineer studied the feasibility of underground tube rail between Calcutta and Howrah, which is a valuable document from the standpoint of a vision it contained about a century ago.

[viii] Report (1964) by G.H.Frieling of M/s Wilber Smith Associates in Sec.8.4 of 'The Calcutta Metro: Dum Dum – Tollygunge; Design and Construction, Phase I', Calcutta 1991

[ix] *Ananda bazaar Patrika* (Bengali), Calcutta, Saturday, October 21, 1961
During the same time, Dr. Roy was also exploring the possibilities of an East-West link in Calcutta Metropolitan District through a new bridge to the south of Howrah Bridge or through an underground tunnel across the river Hoogly. He also started negotiating with the World Bank for necessary survey work. *Ananda bazaar Patrika* (Bengali) Special article , Calcutta, Friday, December 15, 1961

[x] Traffic and Transportation Plan: CMD 1966-1986, Calcutta Metropolitan Planning Organisation; Published by the P.R.O. CMPO, Calcutta 1967

[xi] Traffic and Transportation Plan CMD (1966-1986), CMPO; *Ibid*, p.3

[xii] Report of the National Transport Policy Committee; Government of India, Planning Commission, New Delhi, 1980, p.339

[xiii] For details of Hay Report: Dalmia, Gopal – 'The Rail Truth' in The Statesman (Downtown), Calcutta, 18 May 2001

[xiv] www.jbic.go.jp

[xv] Strategic Plan, Land Use Plan and Infrastructure Plan for HDRP Area were formulated in 2009-10; but the current situation assessment and the planning process started from 2004; and East-West Metro planning did not consider this concurrent planning process in any manner.

[xvi] Land Use and Infrastructure Development Plan for Howrah Development and Rejuvenation Planning Area was formulated by the School of Ecology, Infrastructure and Human Settlement Management (SEIHSM), Bengal engineering and Science University, Shibpur, in 2009-10.

[xvii] According to the initial design, KMRC is a joint venture company with 50:50 sharing of equity by the Government of West Bengal and the Government of India; equity covers 30 percent of the project cost and rest of it is covered by Sub-ordinate Debt (20%) and Term Debt (50%). Term loan would be funded by JBIC.

[xviii] The Feasibility Study on East West Metro Corridor for Kolkata in India; Japan External Trade Organisation (JETRO), Draft Final Report, December 2003; sec. *Conclusions and Recommendations*
Henceforth, we call it **'JBIC Report, December 2003'**

[xix] The Statesman, dated Kolkata June 14, 2005 (Newspaper)

[xx] Detailed Project Report: East-West Corridor of Kolkata Metro; Delhi Metro Rail Corporation Ltd. March 2006 Henceforth, we call it **'DPR, DMRC March 2006'**

[xxi] In fact, DMRC made an attempt to compare among four alternative alignments between Sealdah station and Rajarhat New Town and choose the best one on the basis of their evaluation.
DPR, DMRC March 2006, *Ibid*, ch 2

[xxii] For details of Route selection process, please see DPR, DMRC March 2006, *Ibid*, ch 4, particularly sec. 4.7

[xxiii] JBIC Report, December 2003; *Op cit,* p. 6-14, 8-1, 8-29

[xxiv] DPR, DMRC March 2006, *Op cit*, ch 3; However third rail power supply is consistent with the North-South Metro system in Kolkata

[xxv] DPR, DMRC 2006, *Ibid*, Executive Summary, sec. 0.3.2

[xxvi] DPR, DMRC 2006, *Ibid*, ch 3, p.2/39

[xxvii] In fact, in 2005 Government of West Bengal prioritized the LRT project (from Shyamnagar to Joka) over the east-west metro because of project costs and the state government's share in them.
The Statesman, dated Kolkata June 13, 2005 (Newspaper)

[xxviii] Times of India, dated Kolkata February 18, 2009; The Statesman, dated Kolkata September 21, 2010 (both Newspapers)

[xxix] JBIC Report 2003, *op cit*, ch 4 & 5
"In the request of India, initial study route was from Salt Lake to Ramrajatala" – p.4-5 of the Report

[xxx] Most of these external zones have later been taken care of by extension of metro projects by the Indian Railways; a real example of coordination failure in transport planning.

[xxxi] Lang, Scheffer A and Soberman, Richard M – Urban Rail Transit: Its Economics and Technology; The MIT Press, Massachusetts, 1964

[xxxii] For details of such studies, Lang, Scheffer A and Soberman, Richard M – Urban Rail Transit: Its Economics and Technology; *Ibid*, Ch.2
Such observations are also found in studies by Wilbur Smith and Associates

[xxxiii] DPR, DMRC March 2006, *Op cit*, ch 3 p. 1/39

[xxxiv] RITES – Comprehensive Traffic and Transport Study: HMC Area; Final Report December 2000, Transport Department, Govt. of West Bengal.
It may be noted that when RITES survey was conducted (1998), (i) scope for studying feasibility of east-west metro was out of the purview of terms of reference, (ii) RITES observed that traffic flow would exceed saturation flow and acceptable limits to Y-value on most parts of road space in HMC by the year 2010, (iii) RITES justified the need for creating additional capacity in both north-south and east-west directions in HMC, (iv) Santragachhi did not emerge as a basic interchange point for east bound suburban commuters on the SE Railway.

[xxxv] JBIC Report, December 2003; *Op cit,* ch 8 sec 8.3; and
Rajarhat New Town Planning allocated land for metro car depot in advance.

[xxxvi] DPR, DMRC March 2006, *Op cit*, Ch 5

Note: This paper was written in mid-2010 for a seminar. It has subsequently been updated with a 'post-script' and is now being published for wider circulation, since the observations are quite relevant to the present situation also.

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