CHAPTER II

REVIEW OF LITERATURE

While the literature on urban infrastructure service is vast, only relevant studies are summarised here. Literature about the role of infrastructure and its essence in the development of an economy was presented by development economist like Nurkse Rostow (1954), Hirschman, A.O. (1958), Haffman (1958), Lewis (1954), who have expressed their ideas about the role of infrastructure. In their opinion infrastructure is a precondition for economic development in general. The process of urbanization and increasing population has resulted in various infrastructure technologies and increased its demand. It is generally observed that development occur unequally owing to geographical distribution of infrastructure. Hence, geographic incidence and transmission of economic development form a crucial point to be discussed in the process of infrastructure development.

Gowda and Mamatha (1997) highlighted the role and prospect of India’s infrastructure development. They stressed that the better infrastructure brings a strong positive relationship between GDP and infrastructure stock per capita. In the exploration of the relationship between the gross domestic product (GDP) and stock of infrastructural services in India, Sahoo (2000) finds indeed that among all the sectors electricity, gas, water supply and communication sectors play the key role. The 3i Network (1973), Infrastructure Development Finance Company Delhi, Indian Institute of Technology (IIT) Kanpur, Indian Institute of Management, Ahmedabad has supplied ample information about infrastructure development.

There are, several scholars who have attempted to capture the glimpse of urban development both national and regional level, relationship between urbanization and socio-economic development and various aspect of urban infrastructure services. The relationship between urbanization and socio-economic development in India in early nineties has been brought out by Banerjee - Guha (2001). The fact that urbanization and development go together has been well brought out by Krishnanaiah and Ramaiah (2002) in case of AndhraPradesh and Phadke and Mukherjee (2004) in case of Maharashtra. The over burdened public amenities and inadequate infrastructure at different hierarchic levels of urban centers have drawn the attention of scholars to focus on this problem. Saxena (1972) has applied least square and correlation co-efficient methods to examine the relationship between population growth and civic services and observes that civic amenities in Dehradun are lagging behind due to its explosive population growth.
Biplab Dasgupta in his keynote address (1993) delivered at the Eastern Region Seminar on “Urban Basic Services and local participation” explained various issues regarding basic services, such as, inadequacy of services, coverage of the services, planning of the services. He gave some clues on the solution of the problem regarding the urban services. According to him quality and quantity of services ultimately depend upon local economy. In his address M.N.Buch (1973) concluded that there should be a participatory approach from both end Municipal administration and its citizen. There should be contribution of its citizen towards the municipal resources. A report prepared by the Public Affairs Center (2002), a nonprofit think tank provides an assessment of key public services like education, road and transportation, drinking water, health, sanitation and also a data base and set of bench marks to measure the progress and performance of these services over a period of time. Study shows that a significant portion of users are only partially satisfied with the provision of these services. Amitabha Kundu, Soumen Bugchi and Debolina Kundu (1999) are of opinion that state wise disparities in the level of urban amenities were extremely high in the nineties. Further authors say that government and parasitical institutions have not exhibited sensitivity in favour of backward statistics of infrastructure. Murthy Nirmala, Indira, Hirway, P.Panch mukhi and I.Satia (1990) found in their paper that India’s social services were used relatively little by the poor. The health and education of the poor has improved but not as much for the population as a whole. Existing capacity and resources are inadequate particularly for education and health. Wilson’s (1997) research on Chicago suggests that those who are in the bottom find themselves trapped in that world as they are excluded not only in terms of employment but also in terms of housing and other services. And as cities started expanding these inequalities increases as they get structured with identities, such as class, caste, and ethnicity and gender.

Given the importance of water supply, we find that majority of studies on urban public services focus on water supply since it is most important at the local level. Mekenzie, D and J.Roy (2004) in their paper “Drinking water option for India” has shown the level of disparities in the modes of access for water supply across states using latest date provided by 58th round National Sample Survey Organization (NSSO) and National Family Health Survey (NFHS). The data also provide a robust idea of the discrepancies in service across states and between large cities and small towns. Ruet, J., V. Saravanan and M.H. Zerah (2002) in their work “The Water and Sanitation scenario in Indian Metropolitan cities: Resources and Management in Delhi, Calcutta Chennai, Mumbai” have compared the institutional set up of two large water boards (Delhi and Chennai) and two municipal corporations. Zerah M.H.(2000) in her studies “Water: unreliable supply in Delhi” created reliability indicators taking into account the number of hours and pressure; Tovey, Kath (2002) have provided an interesting insight into the
functioning of informal access to collective water taps and creation of institution, rules, and norms that it leads to. Work of Raghupathi, U (2003) on Delhi bears testimony to new modes of service delivery in slums where enterprising inhabitants dig tube wells, install power motor and set up a small network to supply water to few lanes. Shirley, M.M and C.Menard (2002) have highlighted the key role played by political will and decision making in catalyzing change in her comparison of water sector reforms in a number of countries, including Chile, Mexico, Argentina, and Guinea. Colin Jeremy and Joy Murgan (2002) conducted a situational analysis of water supply and sanitation in Kerala, India and in central and Eastern Uganda provides a number of keys globally applicable recommendations on service delivery. It is found that largely for political reason, local authorities are unwilling or unable to collect charges for water services; this makes service delivery unsustainable. In a significant paper “water supply of urban poor in India: A new policy paradigm,” Shipra Shukla (2009) argues that in the absence of a well articulated policy on provision of basic services to the urban poor, innovations have remained at the level of “isolated pilot project”. Effectiveness of one of the urban water supply schemes in India is examined by Kirti, Lanjewar (2009) in their paper “Assessment of Implemented Accelerated Urban Water Supply Scheme in India”. The authors argue that the aim and objectives originally envisaged at the time of designing the scheme including community participation in water supply, rationalization of tariff, separation of budget for water supply and sanitation from the municipal budget subsidies for well defined target groups and water conservation have so far been partially fulfilled. Based on survey data from Lagos Reedy (1986) found that many participants did not have access to public water supply because the supply authority could not afford to expand the service delivery. Fax and Edmiston (2000) have pointed out, water charges are a sustainable way to increase affordability of the local governments because taxes or intergovernmental revenues are less likely to provide a consistent funding source. In the case of essential public services such as water, it is generally accepted that it is not fair to recover capital costs. However as Williamson (1988) have pointed out there is a reason why marginal, not average costs, should be the basis for pricing of water supply. A city usually develops its least expensive water sources expensive to produce an additional unit of water as demand grows with increasing migration into the urban areas. Sridhar, Mathur and Nandy (2006) have estimated the marginal costs of providing water supply in several India’s cities and found that a few large (million plus) cities are indeed under-pricing their water. Zerah (2002) reports findings from a household survey in Vijayawada, whose objectives were to determine the level of service provided by the Municipal Corporation, assess the existing household level strategies, evaluate the cost of water supply and sanitation and measure the level of satisfaction of the inhabitants of the city. Raju, Praveen, and Anand (2004) made an attempt to understand the resources and management
constraints in providing adequate and safe drinking water supplies in a medium sized city in the southern part of India. In addition to the needs of expanding coverage, investment is also required for basic services. The Urban Water Council (UWC, 2000) of the United State Conference of Mayors, point to recent estimates by U.S. Environmental Protection Agency (EPA) of Capital investment trends and current investment needs for sustainability. The EPA made a rough projection that if the nation’s cities were to meet the requirements of the clean water Act, they would need to increase capital spending by 5 percent each year for next two decades. A study by the University of Birmingham (1999) based on information from 35 urban centers in India, which represent 15 percent of India’s urban population finds that private sector participation is unlikely to have significant impact on delivery of public services such as water supply. A recent study by Neha Walia (2009) based on satellite imagery; by NASA, US observed that North India’s ground water table is dropping by nearly a foot every year. In her timely paper “Harvesting Rainwater: A noble Goal – A common Responsibility” underlines the point that promoting rain water harvesting and efficient water management are among most urgent contemporary challenges facing both urban and rural communities in India.

Bijlani, H.U. and Rao PSN (1990) described the extent of coverage of the service like water supply, sanitation in India. They have also exposed the variation in this regard between states and national average. Water Aid (2005) in a paper entitles “Drinking water and sanitation : Status in India, coverage, Financing and Emerging concerns” has made an assessment of the drinking water and sanitation situation in terms of coverage and financial gap, if any, keeping the targets of the Millennium Development Goal (MDG) as a bench mark for assessment. Water Aid India, has in this paper tried to highlight emerging concerns and recommendations for public policy. Kundu (2002) has shown that in poorer peri-urban areas, where slums dwellers and industrial workers are relocated in a process of degenerated peripharalization, the absence of basic amenities, especially sanitation is a cause for serious concern. GOI (2003) in a paper “Towards Total Sanitation and Hygiene: A challenge for India” briefly outlines the importance of sanitation and traces the evolution of India’s sanitation program and policy reform. Arup Mitra (1997) has made an evaluation of the existing data on slum population. He has also examined various estimates of population with practically no access to basic amenities. In the context of grim sanitation scenario in urban India, Pratima, Joshi, Chetan Vaidya and Shikha Shukla (2009) in their paper “community led Sanitation Program, Sangli, Maharashtra” highlighted the experience of a unique sanitation initiative based on partnership between the local governments; international agencies; a nongovernmental organization and a community based organization. Asian Development Bank (2009) in a paper entitled “India’s Sanitation for All: how to make it happen” have examined the current state of sanitation service in India in relation two goals – goal 7 of the
MDG, which calls on countries to halve by 2015, the proportion of people without improved sanitation facilities (from 1990 level) and India’s more ambitious goal of providing “Sanitation for all by 2012”. This paper discussed six recommendations that can help key stakeholders addressing the significant obstacle in providing universal sanitation coverage in India. Akalkar, A.B. (2005) discussed per capita waste generation and waste generation rates. He found that waste generation rates in India were lower among the low income countries in other parts of the world and much lower compared to developed countries. He also discussed how solid waste can be managed. Asnani (2004) gave the reasons for non-compliance of waste collection of municipalities and also discussed the constraints in creating treatment and disposal facilities. He also highlighted the status of compliance of Management of Solid Waste (MSW) Rule, 2000 by class I cities in India. Asnani (2005) discussed about modernization of collection and transportation of MSW and also proposed a development of cost effective technology for treatment and disposal of the same in the state of West Bengal.

Kumar and Gaikwad (2004) explained that although the solid waste characteristics in different urban centers vary significantly but there is a meager effort to tailor the system. He also explained the major deficiencies associated with the system. Ministry of Urban Development (MOUD) Report (2005) described the nature, composition, and quantity of waste generation in class I cities, Megacities in India and how far they differ from developed countries. CPCB (2000) described the quantity of waste generation, their nature in class I cities of India. The report also illustrated the collection procedure and related problem in this regard. It also explained how the waste could be transferred scientifically to disposal site and could be scientifically recycled. Sukanya Das, Boral, and Bhattacharya (2008) examined the residents willingness to pay (WTP) for improvement in solid waste management services provided in Chendennagore and South Dum Dum municipality of Greater Kolkata in West Bengal. The result revealed that an average resident of these municipalities are in group of WTP. Colon and Faweell (2005) analyzed the system advocated by EXNORA (Community based programmed by NGO) and concluded that it requires significant strong local resources, and political and technical support which are hard to find and sustain without strong local leaders. This is based on triangular contracts between the municipality, the residents and micro enterprises. Today solid waste management is an emerging issue as a major public health and environment concern in the urban areas. It is clear from the study “Innovative Financing Mechanism for solid waste Management (SWM) in Secondary cities of Ethiopia: The case of Arba Minch City” by Jonathan Nodeto (2009) explores innovative financing mechanism for municipal SWM in secondary cities of Ethiopia. The findings show that there is inadequate financial capacity and inability of institutions to finance, administer and monitor disposal of
solid waste management services and calls for establishment of institutional option to finance provision of waste management and sewage.

MOUD (2008) compiled a report to establish the urban transport scenario and forecast the anticipated issues that would most likely crop up in the future. Most of the Indian cities are unable to meet the demand for transport. Present study is aimed at updating the transportation information and projection made from the previous study in order to review the National Transport Policy in the light of the new and comprehensive data acquired from the study. According to Geetam Tiwari (2001), most Indian cities are characterised by high densities, intensely mixed land use patterns, short trip distances and high share of walking and non motorized transport. There is ample evidence to illustrate the mismatch between urban transportation planning method and growing transportation problems. Katarzyna Tota (1999) described how speed could be improved in Delhi and what will be the benefit from that improved speed. Ranganathan, N (1995) while reviewing the National Urban Transport Policy stated that level of economic development is higher in those states where the urbanization level is high. Pattern of urbanization has many distinguishing characteristics. According to him transport is one of them. But flow of goods and people facing several problem like loss of hour because of “stuck in traffic” increased cost of traffic for the poor, high accident rate, increased use of personal vehicles. Unless the above problems are remedied, poor mobility can become a major dampener to economic growth. RITES (1998) estimated that although the population in A class cities and above is to grow 2.5 times during 1991 – 2021, the corresponding intracity travel demand would grow by 3.5 times during this period. The growth in terms of total number of trips for different categories of cities has profound implications on urban transport planning in India. Noland R.B. (1999) stated that there is a short rational study which verifies the relationship between road infrastructure and traffic volume or the ownership of motor vehicles. He concludes that induced travel demand become more important factor relative to others factor affecting growth. Wu Yong and Jiang (1999) have explained how high capacity road inside a city influence land use around it and makes it less people friendly. According to him Shenzhen city has 139 Km of high way. The total number vehicle is 2500 but the rush hour average speed on main road is 20 Km/h. Mahan and Tiwari (1999) in their paper have discussed some of the issues concerning public transport, safety and the environment. According to them unless the needs of non-motorized modes of traffic are met, it will be almost impossible to design any sustainable transportation for urban areas. Pawan Kumar, S.Y. Kulkarni and M. Parida (2009) in their paper “Policy Oriented Approach for Multi-Modal Transport System: Challenges Ahead” argues that it is necessary that land use policy and urban transport policy must be successfully integrated. The authors conclude that no one policy is sufficient for dealing with multi-faceted urban transport.
problems. According to Mozzem and Mc Donald (1998) even at low proportion (10 percent of traffic mix.), non motorized vehicles reduce the operating speed of motor vehicles significantly. Smaller towns with narrow and poorly maintained road face this problem more acutely. Sarna (1990) has explained how the modal preferences affect the sustainable mobility. He has also emphasized on the need of public transportation over personal vehicle.

Social aspect of interaction and transportation is published by Stutz Frederic P (1976). The significance of communication network as crucial infrastructure for growth and modernity of Ahmedabad has been examined by Bayan Wala and Kulkarni (2000). Bhaduri (2000) has discussed the condition of mass transport service in Calcutta.

Economic literature is rich with studies on education and health sector in India identifying problem areas, providing solutions, estimating investment requirements, making recommendations for policy and institutional changes. PROBE (1999) Survey has been a landmark study on education in the country. It brings out the inadequacy of school infrastructure and services. Basic facilities such as furniture, black boards, toilet, playgrounds and teaching aids are missing if not in most public schools.

World Bank (2002) describes the factors which influence the completion of primary level of school education of children in the poverty context. Report comments that enrollment is not a big issue any more; but attendance, transition, completion and learning outcomes are emerging biggest challenges in developing countries. Many authors describe the factors responsible for the lack of primary education in India. Among them Basu (1995), Dreze and Sen (1995) explained the factors mainly as an insufficient government commitment. Tan and Mingat (1992) Dreze and Sen (1995) describe it due to low levels of budget allocation. Dreze and Garedar (1996) describe the reason behind lack of primary education as general public’s weak monitoring of education and indifference to education in general, and primary education in particular and restricted use of fiscal transfer from the central government. Consequently basic education has been largely ignored by some state government.

Banerji (2000) has shown that a high dropout ratio exists among the primary school children in Mumbai and Delhi slum and they are not engaged in work. School is also available at short distances. So question is why quite a large number of slum dwellers are still less educated. Rathor (2003) has pointed out that economic problems were one of the main reasons why children can’t attend school from slum. Mehrotra (2006) based on UNICEF survey on urban areas in seven Indian states, monthly Indian Analytics (2005) has prepared a report on status of private primary schools in India. The report highlights the case for more rapidly growing private primary schools in India. It also finds that many parents not only recognize the value of educating their children but also willing to invest the meager resources they can

Many authors have shown that Poverty or low income, adversely affect the quality and quantity of education at macro, country level (Millennium Project, 2005), the meso region, and school levels (Govinda, 2002, Michaelowa 2001, Natkins 200) and micro household level (Harper 2003, Watkins 2000). All the authors in same way opine that poverty and education nexus is complex, partly attributable to difficulty in distinguishing the effects of poverty on education from the effects of education on poverty. Govinda (2002) analyzes that education deprivation is caused not merely by poverty, but also by related factors. In case of India, these factors closely related to gender, caste, labour market opportunities, the quality of learning and facilities in schools. Peter, David, H. (2002) having looked at various measures of health outcomes conclude that India’s health sector is becoming increasingly polarized, disparities between states across gender, by social group and by income level are growing wider. Garg (1995) in her study documents the importance of public facilities not so much as a first entry point for the poor but as facilities that are accessed if ailment continues. Studies have also found that the lack of a systematic and well functioning referral system as affecting the accessibility of the poor. Sahni and Kshirsagar (1993) elaborated health infrastructure especially in urban slum areas. He discussed the institutional set up for urban health service in slum areas. Muraleedharan, VR and Sunil Nandraj (1998) have explained the role of Private Health Care Sector in India. They highlighted the poor availability and accessibility of public health system in urban areas due to lack of well organised public health care system. According to their opinion smaller cities and rural areas are far from all available evidence, quite underserved both by private and public sectors.

Nandraj (2001) finds that poor households spend ordinarily large shares of their incomes on health services. A large part of expenditures for treatment comes from borrowing for the poorer sections. The better of section in the urban areas utilize their savings for the purpose. Sidharth Agarwal and Kumar (2006) highlighted the main learning from USAID supported urban health Program (UHP) in 2002, which involve local stakeholders to identity a total of 539 slums beyond the official list of 438. The main learning is that all slums are not equally vulnerable. So, these should be identified and prioritized in the implementation of health and other welfare programs.

Reviewing the literature on urban infrastructure, it is found that there are few studies on urban infrastructure concerning West Bengal State. A comprehensive study of overall infrastructural development is also limited especially in case of West Bengal. Most of the studies are concerned with either metropolitan cities or large cities. At the same time, most of these studies are related to specific sector of infrastructure e.g. water, or sanitation etc. There
is a lack of studies on overall infrastructural situation and problems. Most of the studies are concerned with national level. There are few studies on state level as well as district level. Therefore, an attempt has been made in this thesis to assess the existing situation of infrastructure covering six sectors of infrastructure e.g. water, sanitation and sewerage road and transportation, power supply, education and health taken together and also to trace the relationship between urbanization and infrastructural development on district level. The study area is Murshidabad district of West Bengal. The study also attempts to provide some valuable insight and guidelines to overcome the bottleneck identified in the process of infrastructural development.

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