Some Issues in Transport Planning for Third World Cities

G. ADEGBOYEGA BANJO

In this paper, the nature of the transport problems facing Third World cities is briefly discussed, aspects of approaches being adopted to address these problems are commented on, and reasons why these approaches presently are not having the desired effects are indicated. In discussion of this last issue, one of the factors identified as a negative influence is the present inadequate integration of transport and urban development actions. It is argued that this problem must be remedied because transport is a service to urban development, and its planning must therefore be responsive to the nature of urban development forces.

In these last two decades of the 20th century, the cities of the Third World are having to absorb an additional 1 billion people, most of them poor. Almost without exception, these people will be accommodated in cities that are currently typified by chronic shortages in basic services for large sections of their existing population. One of the basic services that is suffering this chronic shortage is transport. Yet along with increasing population and spatial growth, new demands for travel are being generated and must be accommodated in planning. The main tool that the transport planning profession presently has at its disposal in this task is a methodology that evolved in affluence, whereas the typical Third World context is characterized by poverty. This methodology must therefore be sufficiently modified so that it becomes appropriate for use in the Third World. Alternatively, a new methodology could be developed.

The objective of this paper is to briefly discuss the nature of the transport problems facing Third World cities, comment on aspects of approaches being adopted to address these problems, and indicate why these approaches are not having the desired effects.

In the discussion of the last topic, one of the factors identified as a negative influence is the current inadequate integration of transport and urban development actions. It is argued that this problem needs to be remedied because transport serves urban development, and its planning must therefore be responsive to the nature of urban development forces. Only through this approach can the real transport issue of Third World cities—how to minimize the need to travel while still facilitating developmental activities—be adequately addressed.

THIRD WORLD URBAN TRANSPORT PROBLEMS AND PLANNING

Third World Realities and the Conventional Planning Process

To the transportation engineer, the key characteristic of the transport problems of Third World cities is chronic traffic congestion, which arises from inadequate road network provision and from misuse and abuse of those roads that are provided. To the transport economist, the dominant feature is the high cost associated with travel within these cities. The cost is high in terms of time and fuel wasted traveling in the chronic traffic congestion and wasted opportunities for productive activities, and the cost of providing and using transport services is also high.

From the sociological and political perspectives, however, the transport problems of Third World cities would most likely be seen in terms of the tendency of transport planning actions to reinforce existing inequalities through insufficient consideration of and attention to the needs of the urban poor. The emphasis that is invariably given to construction of primary roads over secondary and local roads, the absence of bus priority measures on such roads, the notable underinvestment in public transport vehicles, and so on, are symptomatic of this neglect. As a consequence of these actions, urban transport issues have become highly visible at the political level and may become a focal point for political action.

The political scientist is also likely to identify urban transport problems of the Third World as being characterized by imposition: the methodology applied, its main practitioners, its technology and standards, and (quite importantly) its funding sources and conditionalities are dependent on external factors. It should not be surprising, therefore, that the Third World urban transport situation seems to be worsening rather than improving. The current characteristics of the situation are as follows:

- Inadequate technical and material resources;
- High incidence of inadequate attention to and provision for mobility needs in both planned and unplanned settlements;
- Inadequate awareness of the transport implications of land use developments;
- Absence of long-term strategic perspectives in transport actions, resulting in reactive rather than prescriptive planning;
- Dominance by the highway engineering view of the problem, resulting in too much concern about increased system efficiency and capacity without adequate consideration of who suffers and who benefits from changes in these performance measures;
- Increasing journey distances and travel time, with the latter factor often due to transport system deficiencies;
- Application of urban and road design standards often out of tune with social, cultural, and economic realities;
- Lack of provision for freight movement, one of the key visible outputs of national and urban development;
- A high accident rate, resulting from misuse and abuse of an already deficient infrastructure;

Department of Civil Engineering, University of Lagos, Akoka, Lagos, Nigeria.

- Application of technical criteria that insufficiently consider the developmental context in which they are being applied and the basic service role of transport in the fulfillment of developmental goals;
- Highest aggregate rate of growth in demand for mobility from those least able to afford to pay for it;
- Setting of inappropriate goals for public agencies that operate transport services, resulting in their inability to effectively meet existing demand or plan for the future;
- The neglect of nonmotorized modes of travel;
- Perception of informal motorized public transport as an undesirable element rather than as a valuable part of the urban scene;
- Inadequate and often inappropriately educated transport professionals incapable of viewing their actions in a wider context;
- Inadequate institutional frameworks for plan formulation and implementation at the different levels of government;
- Ineffectiveness of traffic and land use control and regulatory instruments, where they exist at all;
- Lack of a national awareness of urban transport needs;
- A seeming impotence in planning actions, which has a demoralizing effect on transport professionals, among others;
- Insufficient provision of road space, especially secondary roads; and
- An inadequate information base for planning action.

Of course, not all of these characteristics will be found in every Third World city, and neither will they be equally significant in each location. As a generalization, however, they describe the present transport realities of these cities.

According to the recent World Bank sector policy paper on urban transport (*1*), the present transport situation of Third World cities is the result of the following factors:

- Large increases in urban population, leading to a proportional increase in transport trips;
- Spread of urban areas, incurring the need to expand road networks, undertake longer journeys, and consume more fuel;
- Greater availability of motorized transport, resulting in more motorized trips and increases in fuel consumption;
- Increases in household income, creating a greater propensity for travel and a marked increase in car ownership, with a consequent demand for more road capacity; and
- Increases in commercial and industrial activity, leading to increased volumes of service vehicles and freight traffic.

Cumulatively, these factors are believed to have caused widespread traffic congestion, greatly increased transport costs (especially among those with low incomes), and serious loss of productivity in commerce and industry. In parallel with these trends, and perhaps serving to compound their adverse effects, is the seeming inability of the institutions responsible for transport to fulfill their obligations.

As a description of the present transport realities of Third World cities, the analysis just presented is difficult to dispute. However, as argued elsewhere (*2*), these realities are also the result of the assumptions and perceptions underlying the conventional urban transport planning approaches hitherto applied to the provision of transport facilities and services for these cities:

- The Third World urban transport problem is that of how to overcome motorized traffic congestion.
- Rapid growth in car ownership is inevitable.
- Informal public transport is unimportant.
- Benefits are best derived by improving the operational efficiency of urban transport systems.
- The variables affecting travel demand will not experience marked unexpected changes.
- Urban transport problems are essentially the same worldwide.

These assumptions do not take into account the typical developmental features of Third World cities:

- Fast rate of population and spatial growth;
- Low and unstable revenue base;
- Low and uneven income levels among the inhabitants;
- High rate of growth in vehicle ownership among a small but significant minority, while the majority are dependent on nonmotorized modes of travel;
- Acute deficiencies in the provision of basic infrastructures and services;
- Absence of effective frameworks for urban management;
- Misplaced developmental priorities; and
- The inability to plan for and control the future.

When the conventional planning assumptions are interfaced with these typical Third World developmental features, it is apparent that most if not all are inappropriate.

The primary Third World urban transport problem cannot be that of overcoming motorized traffic congestion when most of the population cannot afford to use such vehicles. The motorization level of West African cities (25–60 per 1,000 population) and the declining trend of these levels is not typical of other Third World cities (*3*).

Rapid growth in car ownership is probably inevitable only among a small proportion of the population. The ability of this group to realize their aspiration, however, is heavily constrained by foreign exchange scarcity. Table 1 shows that the Gross National Product (GNP) per capita in a randomly selected list of 16 Third World cities is only about 1/13th the price of an economy car. This compares with a ratio of 0.7 for the four industrialized cities listed.

Informal public transport (an unregulated and largely illegal form of public transport typified by single-owner operation) cannot be unimportant when, in many cases, it is the only motorized mode of travel accessible (in both spatial and monetary terms) to the majority of the population. The importance of this mode becomes even clearer when it is considered that, apart from its service role, informal public transport is also a source of employment, income, or both for large sections of the population.

Although benefits can certainly be derived by improving the operational efficiency of urban transport systems, it is doubtful if the criteria often used as indicators of efficiency, such as vehicles per hour, travel time and speed, and so on, are appropriate in a context that is actually typified by an inability to travel. The issue being raised here relates to the objective criterion or raison d'être that underlies operational improvement measures. For example, use of such measures as people

TABLE 1 URBAN TRANSPORT DATA FOR SOME SELECTED CITIES (*1*)

City	Population 1980 (thousands)	Population Annual Growth Rate 1970–1980 (%)	GNP per Capita, 1980 (U.S. $)	Automobiles per 1,000 Population, 1980	Number of Automobiles: Annual Growth Rate 1970–1980 (%)	Market Price of Economy Automobile, 1983 (U.S. $)	Economy Automobile Price, Ratio to GNP per Capita
Third World Cities							
Abidjan	1,715	11.0	1,150	50	10.0	6,560	5.7
Accra	1,447	6.7	420	19	–	6,000	14.3
Bangkok	5,154	9.1	670	71	7.9	10,870	16.2
Bogota	4,254	7.1	1,180	42	7.8	6,075	5.1
Bombay	8,500	3.7	240	21	6.1	7,327	30.5
Cairo	7,464	3.1	580	32	17.0	10,002	17.2
Harare	670	5.2	630	160	3.0	–	–
Jakarta	6,700	4.0	430	33	9.8	18,697	43.5
Karachi	5,200	5.2	300	35	8.4	10,741	8.0
Kuala Lumpur	977	3.5	1,620	38	–	8,616	5.3
Lima	4,415	4.2	930	75	7.2	8,000	8.6
Manila	5,925	5.1	690	45	8.0	9,187	13.3
Mexico City	15,056	5.0	2,090	105	–	7,000	3.3
Nairobi	1,275	8.8	420	47	–	–	–
São Paulo	12,800	4.5	2,050	151	7.8	5,469	2.7
Tunis	1,230	6.4	1,310	31	–	8,106	6.2
Average							12.9
Industrialized Cities							
London	6,851	0.9	7,920	282	2.6	8,354	1.1
New York	7,086	1.0	11,360	218	–	9,000	0.8
Paris	8,800	0.6	11,730	368	12.3	4,592	0.4
Tokyo	8,352	5.6	9,890	266	2.5	3,516	0.4
Average							0.7

moved per hour, percentage trips satisfied, and so on, combined with measures of access to activities and facilities, may better reflect the degree to which transport actions are supporting developmental efforts.

In the Third World, variables affecting travel demand are clearly changing, and changing markedly. This is especially true of population and land use factors. Moreover, the economic reality of Third World cities is unstable and prone to unexpected changes.

Finally, it is difficult to accept that urban transport problems will be the same in the contrasting environments to be found in the industrialized and Third World countries. The former are typified by affluence, and the latter by poverty.

Because past transport planning actions have been based largely on the conventional assumptions stated previously, they have not had the desired positive effect on the transport situation of most Third World urbanites. Indeed, it has been argued that these planning actions and their underlying philosophy have themselves become one of the transport problems of Third World cities (*2*). This somewhat ironic situation, coupled with the characteristics of the basic problem, have set in motion a problem-generation chain (Figure 1), which can be described as problem fusion (*4*): the generation of new problems without a significant resolution of the previous one leads to the old and the new fusing together to create a new, more intractable problem.

The main challenge of transport planning in Third World cities in fact rests on finding ways of breaking this problem-generation chain. In addressing that challenge, it is important that sufficient attention be paid to the integration of transport and land use. Perhaps more importantly, there is a need to accept that changes cannot be accommodated in planning without sufficient understanding of the developmental forces underlying them.

The key stages of the conventional urban transport planning process are as follows:

- Explicit formulation of study goals and objectives, and demarcation of the study area;
- Collection of land use, population, economic, and travel characteristics data for the present-day situation, and division of study area into traffic zones;
- Establishment of quantifiable relationships between present-day mobility trends and land use, population, and socioeconomic parameters;
- Prediction of land use, population, and economic parameters for the target date of the study, and the conceptualization of these parameters into a land use plan or plans;
- Prediction of the origins, destinations, and distribution of future mobility demands, based on the relationships established for the present-day situation and the predicted land use, population, and economic parameters;
- Prediction of the human movements likely to be carried by the different modes of travel at the target date;
- Development of alternative highway and public transport networks to serve the predicted land use plan and satisfy the projected pattern and level of movement;

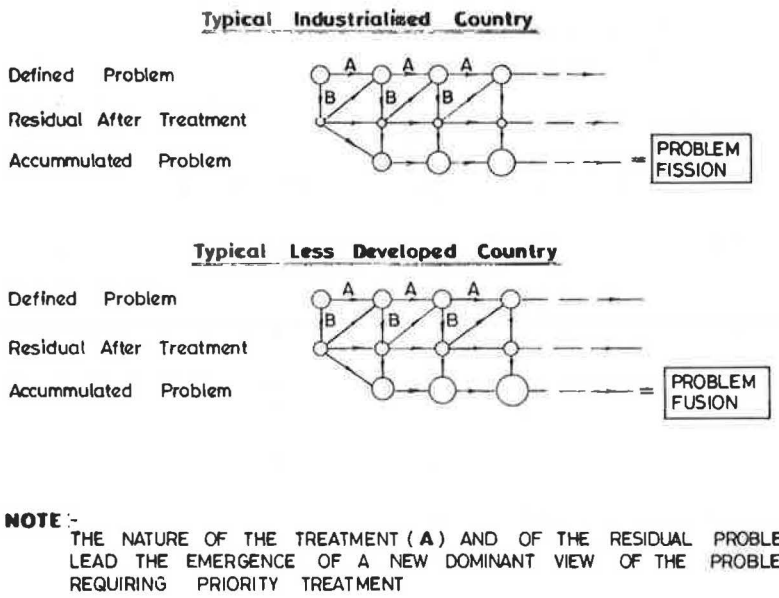

FIGURE 1 Problem-generation chain.

- Assignment of predicted trips onto the alternative transport networks or systems to establish how well these devices meet the projected level of travel demand;
- Evaluation of the efficiency and economic viability of the alternative transport networks in terms of economic and social costs and benefits; and
- Selection and implementation of the transport network judged to best serve the declared goals and objectives.

When this process is considered in terms of Third World urban transport problems, it can be seen, for example, that greater attention needs to be paid to the first task, that of definition of study goals and objectives. Second, once defined, the nature and requirements of the dominant goals and objectives should actually influence the tools and approaches used in subsequent study tasks. Models are not a panacea for the transport problem of Third World cities.

Components of the Third World Urban Transport System

It has been suggested elsewhere (*4*) that the transport system of Third World cities is in fact trihedral in nature:

- A formal, motorized component providing for the needs of the relatively rich;
- An informal motorized component used mainly by the middle- to low-income groups and constituting a source of income and employment for many urbanites; and
- A nonmotorized component used by the rich and poor alike, depending on the mode and the city, that provides income and employment for a significant percentage of the city's poor.

Each of these components has its own characteristics that merit individual attention. Unfortunately, it is the first component that has hitherto attracted the concerted planning attention and implementation funds. Thus this mode is the most "developed" in the sense of having clearly defined structures in the approach to its planning. Indeed, it can be argued that it is only in regard to this component of the Third World city's transport system that the conventional urban transport planning process can claim whatever validity it has in the Third World.

It is only in recent years that the informal motorized sector has attracted planning attention. Previously, such attention was negative: this component was seen largely as a nuisance, a source of traffic congestion and other problems, and was thus to be discouraged. The general view is now more sympathetic. However, there is no generally accepted best methodology or approach to planning for this component, primarily because comparatively little is known about its characteristics and their underlying forces (*5*). This is a rather unfortunate situation because when there are rapidly growing cities and population, it is this component that invariably bears the brunt of the resultant travel demand. Indeed, this component is typified by its dynamism and responsiveness to changing travel demand forces. Thus attempts to understand and influence it require a good appreciation of the relationship between spatial and other developmental forces. This type of comprehension is vital because of the role of this mode as an important source of income and employment for significant numbers of Third world urbanites. Moreover, informal motorized transit is also coming to be an avenue for "indigenizing" automotive technology, with all the attendant positive outgrowths. Even if only this positive developmental effect were considered, the informal motorized transport sector would deserve encouragement.

The third and final facet of the typical Third World city's transport system is the nonmotorized component: travel by animal- or human-drawn vehicles and, of course, by foot. This component, like informal motorized transport, has suffered from the undue emphasis of transport planning actions on the formal motorized component. It also appears to have suffered from attempts to "plan it out" through inadequate provisions in new or overspill settlements and even in redevelopments of central areas.

If the material presented thus far is considered, it is evident that a methodology that will have validity in the Third World will be one that can adequately address the mobility problems associated with each of the three components of the typical

Third World urban transport system, against the background of developmental realities. A possible framework for the integration of transport planning actions has been suggested (*4*). In this framework (Figure 2), an understanding and articulation of overall developmental policies and strategies is seen as a basis for providing coherence and relevance to planning actions with respect to each component of the urban transport system. Because of this method's focus on developmental issues, it seems likely to yield robust and relevant prescriptions. Moreover, it allows identification of unique features of an area or issue, and hence the targeting of specific responses.

Effective Planning for Third World Urban Transport Needs

Reference was made earlier to the World Bank's assessment of the present transport situation of Third World cities. It should be noted that the large increases in urban population that are taking place largely involve the low-income group, whose members are expected to be increasingly unable to meet the cost of satisfying their mobility needs. Likewise, it is the members of this low-income group who are more often than not located in the emergent peripheral settlements of Third World cities and who are hence making the longer journeys mentioned previously. In contrast, the increases in household income and car ownership have involved and will continue to involve a relatively small proportion of the urban population. Much of the observed road network expansion has been directed toward the satisfaction of the travel needs of this group. If these trends are expected to continue, a need will arise for the adoption of strategies aimed toward (a) increasing the ability of low-income urbanites to pay for their transport needs and (b) reducing the need for motorized transport services and car ownership. Adoption of these strategies will, of course, raise questions about urban development policies and future city structure with respect to existing and new parts of the urban areas.

The question of the urban development and city structure strategies appropriate for Third World cities is of fundamental importance to these governments. It is therefore unfortunate that these strategies are given only passing attention in the current attempts to improve operational efficiency and make better use of existing transport infrastructures. This type of focus, in fact, largely benefits the elite portions of Third World urban populations. In addition, by invariably increasing available road capacity without providing bus priority measures, this focus tends to encourage the use of the automobile more than any other mode.

This concern for improved system efficiency is very much present in the World Bank study mentioned earlier and provides the basis for its recommended strategies: (a) strengthening of transport institutions; (b) transport demand management primarily through road pricing; (c) traffic management, road improvements, and maintenance; (d) road safety measures; (e) public transport improvements; and (f) selected capital-intensive projects. With the possible exception of institutional reforms, all of these measures are transport sector–specific and do not reflect an awareness of the wider context within which solutions must be sought. Indeed, the underlying aim seems to be an increase in available traffic capacity instead of a reduction in the need to travel by making changes in land use allocation. A strategy that fails to recognize the importance of this last factor and the accompanying need to integrate urban transport and land use actions is, in the author's opinion, unlikely to have a significant positive effect on the present transport realities of Third World cities. Moreover, such a strategy fails to recognize that the consequences of the frequently mentioned inefficient operation of Third World cities, especially with respect to movement, are disproportionately borne by the members of low-income groups. Their inadequate means of transportation reduce their ability to improve their developmental state, and the relatively high cost of meeting their mobility needs means that they often have to forgo the satisfaction of other important needs. The inability of low-income groups to achieve their mobility needs cumulatively reinforces their state of economic, social, and political deprivation.

The primary issue that arises in this discussion is the relationship between transport and urban development goals, that is, What is the role of transport in urban development? This is an important question for the Third World, and the perceptions brought to bear on it will determine the type of transport actions prescribed.

The issue that was just raised can be expressed differently: Is transport a catalyst to development or a consequence of development? The thrust of present orthodox thinking, which emphasizes reduced public transport subsidies and the use of financial and efficiency criteria as measures of the effectiveness of transport investment proposals, would seem to support the view that transport is the consequence of development: to require users to bear the cost of the transport services that they consume is to imply that they have attained a certain degree of

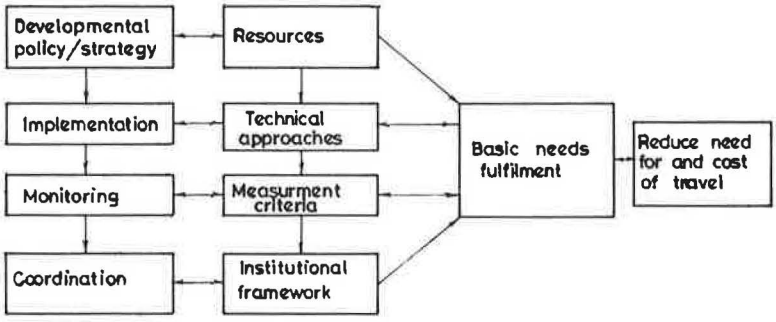

FIGURE 2 Conceptual basis of the framework.

economic development. This is a perception that currently places transport planners in apparent conflict with development planners, who believe that the key issue in Third World urban development is the improvement of the economic reality of the urban poor, who make up the major population group. Transport should surely play a catalytic role in this effort and should be provided at costs affordable to the urban poor. This latter viewpoint would appear to be in tune with the World Bank's declared approach to developmental issues of the Third World (*6*):

> Its [the bank's] present development strategies place a greatly increased emphasis on investments that can directly affect the well-being of the masses of poor people of developing countries by making them more productive and by integrating them as active partners in the development process.

Increased accessibility to transport services is arguably one of the best ways of transforming the urban poor into more productive, active partners in the development process. Thus transport must be seen as a means of achieving development.

East, west, or south, the basic problem of urban transport investment is arguably the untraceability of many of its benefits and costs, especially in terms of identifying those bearing the costs and those enjoying the benefits. This problem notwithstanding, the hard evidence is that Western and Eastern nations are willing to subsidize their urban transport systems heavily, suggesting that the tangible and intangible benefits of such investments are accepted as outweighing their perceived and unperceived costs. In the face of this, it follows that the word "subsidy" is perhaps a misnomer when applied to urban transport; rather, it is all a question of what is measured and how.

Moreover, when a subsidy is mentioned in the present approach, it is invariably the result of looking at one side of the balance sheet. The losses made on the transport system are identified, but the profits generated by the increased productivity and efficiency of the city's economy as a result of the provision of transport services are ignored, even when these profits are greater than the perceived losses. The inability to identify and quantify all the benefits should not lead to a denial of their existence.

CONCLUDING COMMENTS

In this paper, an attempt has been made to highlight aspects of the current realities of transport in Third World cities. From the discussion, it appears that transport planners are presently not equipped to make an impact on the situation. One of the factors identified as contributing to this problem is the historic and continuing concern of transport planners with system efficiency and operational issues at the expense of the wider developmental question of how to help the rapidly increasing number of poor urbanites to improve their economic situation.

The view has been taken in this paper that transport and urban development actions and policies need to be more integrated than they have been hitherto, with transport made subservient to development and used explicitly as a tool for achieving urban development goals. This approach raises many issues, especially about whether the existing body of urban transport planners are equipped to operate within such a framework. This question has been posed and discussed elsewhere (*7*) and deserves the attention of the profession at large, both in industrialized and Third World nations. In that self-examination, a point worth noting is that transport planners are not free of their own values. More importantly, in the Third World they operate in an environment whose political and social milieu is increasingly characterized by a need to respond to the requirements of the urban poor. In this situation, the tools and actions of transport planners must be more responsive to developmental factors than they have been previously.

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