

Gender and Transport in Less Developed Countries: A Background Paper in Preparation for CSD-9

Deike Peters¹

Co-Coordinator, UN CSD Caucus on Sustainable Transport

Background Paper for the Expert Workshop
"Gender Perspectives for Earth Summit 2002:
Energy, Transport, Information for Decision-Making"
Berlin, Germany, 10 - 12 January 2001
Jointly hosted by the Federal Ministry for the Environment,
Nature Protection and Nuclear Safety
and
the Heinrich Boell Foundation

Paper commissioned by UNED Forum as input for the workshop

UNED Forum, 3 Whitehall Court, London SW1A 2EL, UK
www.unedforum.org and www.earthsummit2002.org
Workshop website www.earthsummit2002.org/workshop

¹ Institute for City and Regional Planning (ISR)
Technical University Berlin
Rohrdamm 20-22, RO 123
13629 Berlin, Germany
Tel: +49 30 38006 134
Fax: +49 30 38006 117
deike.peters@berlin.de

Table of Contents

	Page
1. Introduction	1
2. Rationales for Addressing Gender Issues in Transport Planning and Policy	2
2.1. Patriarchy	2
2.2. Poverty	3
2.3. Planning /Policy	3
3. Gender and Rural Transport	4
3.1. Walking and Headloading	5
3.2. Public Transport	6
3.3. Bicycles and Intermediate Means of Transport	7
4. Gender and Urban Transport	8
4.1. Walking	10
4.2. Two-Wheeled Transport	10
4.3. Private Motorized Transport	11
4.4. Public Transport	12
5. Better Transport Surveys: Giving Women Voice	12
5.1. Gender Sensitive Survey's: Whom, Where, When	13
5.2. Documenting Women's Latent Demand	14
5.3. Documenting Women's Willingness to Pay for Better Transport	14
5.4. Documenting Mode Share at District Levels	14
5.5. Documenting the Daily Reality of Women Transport Users	15
5.6. Beyond Household Surveys: Gender-Sensitive Stakeholder Consultation	15
6. Improving Public Transport Services: Targeting Women's Needs	16
6.1. Women Only Services	16
6.2. Special Services and Employment Facilities	16
7. Concluding Remarks	17
8. Bibliography	18
9. Annex I: IFRTD's Seminar "Balancing the Load" Full List of Contributions	23
10. Annex II Conclusions from a 1999 World Bank Gender & Transport Seminar	25

List of Figures

Figure 1: Load Carrying Efforts by Gender in Five Regions of Sub-Saharan Africa	5
Figure 2: Women's Participation in Labor Activities, General African Situation	6
Figure 3: Gendered Mode Choice in 5 Southern Cities	9
Figure 4: Access to Individual Transport in Bamako, Mali	10
Figure 5: Suggestions for Transport Improvements in Dhaka, Bangladesh	13

Summary

Few developing country research and development projects have adequately accounted for the intersection of gender, transport and mobility. This paper brings together recent evidence from rural and urban transport case studies in less developed countries. Women's disadvantaged position in transport systems is apparent throughout. However, rather than simply use the studies to confirm general trends, this paper highlights both similarities and differences in women's experiences in order to stress the need for locally-adapted gender-sensitive transport strategies. Once this local dimension is brought back in, "giving voice" to women in transport planning and practice does not have to remain a lofty theoretical principle. Crucial, practical advances can be made by improving the quality of household and user surveys and by collecting all data in a sex-disaggregated manner. These efforts should be complemented by comprehensive, locally-targeted gender analyses and action plans. Depending on local context, the provision of special transit services to women may be an appropriate intervention, but should not be seen as a permanent solution.

1. Introduction

Over the course of the last decade, transport planners, geographers, economists and policy makers all over the world have increasingly recognized that the differences in travel and activity patterns between men and women are a central and recurring feature in transportation systems all over the world. A growing body of academic literature has emerged over the last few years addressing the complex relationships between transportation/mobility and gender, both in developed (see e.g. Rosenbloom 1993, Spitzner 1998, Terlinden, 1994, Spitzner and Beik 1994, Hamilton, Jenkins and Gregory 1991, Jones 1990; Little, Peake and Richardson 1989; Grieco, Pickup and Whipp 1989) and developing countries (see especially Turner and Fouracre 1995; Levy 1992; Fernando 1997; Grieco Apt, and Turner, 1996).

Even major development institutions such as the World Bank, UNDP, the Swedish SIDA or the Canadian CIDA, are now increasingly producing research, manuals and other written materials on gender and transportation. Much of it is still "grey literature," that is academic studies, consultant reports and/or other not widely distributed writings produced mostly for internal use (e.g. Bamberger and Lebo 1998; Peters and Bamberger 1998, McCann 1998; Hook 1998; Bujorjee et al. 1997; SIDA 1997). A noteworthy exception is the material produced by the so-called Gender and Transport Thematic Group (GTTG) recently instituted by the World Bank. Over the course of the last few years, this internal World Bank Thematic Group has assembled a sizeable amount of (old and new) research, case studies, pilot projects and supplementary materials, most of which is now easily accessible through the Group's website (see under www.worldbank.org/gender/transport). The Group has also organized several workshops, brownbag lunches and other exchanges that have improved transport professionals' understanding of gender issues. (Annex II presents the conclusions of the Group's international seminar on "Gender and Transport: Promoting an International Partnership," held in Washington D.C. in the spring of 1999.)

Yet while more researchers and development professionals today are busying themselves with trying to understand gender differences in access and mobility than ever before, still relatively few of the recent insights have found their way back into actual transport planning and policy making practice. Few local level transport plans and projects explicitly address the issue of gender. Bamberger and Lebo (1998:1) note that "in fiscal 1997 just 4 percent of [World] Bank transport projects included a gender component or gender actions - compared with 15 percent for water supply projects, 35 percent for agriculture, 44 percent for education, and 67 percent for population, health, and nutrition." The Bank's Transport Sector Policy Review (1996:78) concluded that "to date, transport policies have been geared primarily to the needs of men." As a result, women at the local level continue to struggle every day to overcome the adversities of inefficient local transport systems designed according to the needs of male wage earners and their journeys to work.

The present paper aims to bring together existing research, theoretical insights and descriptions of women's actual reality on the ground, drawing freely from a wide range of experiences in urban and rural settings in the Southern Hemisphere.

Available research is not quite as varied as one might wish, however. The vast majority of gender-aware transport research and development projects in less-developed countries have focused on the rural realm. Most of it has concentrated on Sub-Saharan Africa (Barwell 1996, Barwell, Airey and Strandberg 1993; Dawson and Barwell 1993; Howe and Bryceson 1993; Barwell and Malmberg-Calvo 1989; Doran 1996; Malmberg-Calvo 1994), and to a much lesser extent on other locations in Africa, in Asia or Latin America (see e.g. IFRTD 1999, Ahmed 2000). However, there have been a few recent research and/or development projects that have specifically looked at the issue of gender and mobility in the urban realm, most notably in the context of the World Bank's Urban Transport Projects in Dhaka, Bangladesh (Shefali, 2000; Paul-Majumder and Shefali 1997), in Ashgabat, Turkmenistan (Kudat et al,

1997), and in Lima, Peru (Gomez 2000a, Gomez 2000b). The British Transport Research Laboratory also sponsored several studies, such as Astrop's (1996) study on Pune, India.

2. Rationales for Addressing Gender Issues in Transport Planning and Policy

When presenting the overall rationales for addressing gender issues in transport, a combination of equity and efficiency arguments can be advanced. The core finding of all existing evidence is that women are responsible for a disproportionate share of the household's transport burden while at the same time having more limited access to available means of transport. It is important to recognize that this is not a mere equity question. Gendered transport and mobility patterns have measurable detrimental economic consequences first of all for the women themselves, but as a consequence also for their respective household units and ultimately for society as a whole. In the past, gender issues were typically dismissed by economists, planners and policy-makers as "soft science" arguments that did not produce measurable variables for use in "hard science" economic analysis such as cost benefit studies. Even World Bank project managers trained in mainstream neoclassical economic analysis are currently asked to rethink that notion (see e.g. Bamberger and Lebo 1998).

Recognizing gender issues as economically consequential of course does not mean that economic incentives targeted towards women will by themselves restore the balance. The underlying causes for women's inequality remain deeply rooted in society. In oversimplifying both the complex interplay of social, cultural, political and economic processes as well as their related analyses in the academic literature on gender, three interrelated explanatory variables for women's unequal access to transport facilities deserve special mention: patriarchy, poverty and planning/policy.

2.1. Patriarchy

Patriarchy is an overarching concept influencing local power relationships and cultures. It is therefore directly related to the gendered division of labor in both modern and traditional societies, with the household (or family) unit as the central perpetuator of the societal system. Men, in their superior power position within the household hierarchy, tend to appropriate the most efficient means of transport for themselves. In this interpretation, cars, motorcycles, bicycles or animal carts are mainly seen as household assets and resources over which men, as the most powerful members of the household, would obviously seek to maintain control. Given the lower levels of overall motorization in less developed countries, power struggles are more likely to occur even over non-motorized forms of transport. For example, Overton (1996) documents a case in rural Mozambique where bicycles that were distributed to poor village women to alleviate their extreme transport burdens were taken from them by their husbands or other male relatives, who often only used them for recreational and status purposes. In some cases, especially where women resisted, these appropriations were even accompanied with instances of domestic violence. In such extreme cases, male-dominated prevailing local cultures also tend to portray women's use of bicycles as inappropriate and unwomanly, branding the more daring, dissenting women as "loose," "behaving like men" and "unfit for marriage" (Grieco, Turner and Kwakye 1995, Overton 1996). Ironically, many of the concerns voiced in traditional communities around the world regarding women cyclists are striking echoes of the early European and US reactions. Consider the following account in Willard (1991, orig. 1895):

The chief concern of those morally against women riding bicycles centered on the belief that women would become wild and wicked if left unchaperoned. ... One American writer claimed that the 'unfettered liberty' of bicycling would 'intoxicate' women to immoral acts. Others argued that bicycling was the num-

ber one reason for an increase in the 'ranks of girls who became outcast women. ... One southern city in the United States actually banned female cyclists from its streets.

Local cultures and general social practices are often much more powerful restraints on women's access to vehicles than concrete power struggles within the household. The flip side of this is that careful project design can successfully address many of these culturally rooted restraints at relatively low additional cost, often yielding immediate and very significant economic development results.

2.2. Poverty

Poverty explanations for gendered transport and mobility patterns are more economically-oriented and tend to regard socio-cultural aspects as important yet secondary. According to this view, favored by many within development institutions, women's inadequate access to transport infrastructures and services is most frequently related to their *lack of capacity to pay*. In fact, economic approaches have gained considerable ground recently, and the overall phenomenon of "feminization of poverty" has surely emerged as a hot topic of debate in both developed and developing countries. While women's disempowered status within the household unit (i.e. patriarchy) undeniably plays a crucial role in this, it is important to note that forces beyond the simple household distribution of labor are also at work to shape this undesirable, inequitable outcome, and that these forces are increasingly complex. In times where men tended to be the only income-earning members of the household, women were cash-poor and economically dependent on their male partners just for lack of their own income. Today, with the increasing entry of women into the wage-earning labor force, this situation has changed somewhat. Nevertheless, the problem of unequal distribution of reproductive, unpaid labor is still exacerbated by the fact that women's directly productive labor is economically undervalued compared to men's. Many women are stuck in low-wage jobs that earn barely enough to eek out a living. Increasingly gendered urban labor markets are developing, especially in the Latin American and Asian textile industries (Chant 1996). Where possible, women usually prefer to live close to their workplaces that they can walk to work and save on transport costs. Often such housing is not available, however. Daily commutes of five hours or more are not uncommon among the working poor in developing country cities, especially when they live in peripheral settlements that have poor public transport accessibility.

2.3. Planning / Policy

Caren Levy (1990) succinctly summarizes the core problem with traditional transport planning and policy making: mainstream planning models and methodologies simplified the enormous complexity of travel and transport patterns through three basic yet faulty assumptions:

- Households consists of nuclear families with a husband, a wife and children.
- There is a clear gender division of labor in the family where the man takes the "productive" role of the is the income-earning "breadwinner" and the woman the "reproductive" role of the housewife or "homemaker."
- Everybody has equal access to resources and equal power in decision-making in matters concerning the household's livelihood and well-being.

With a thus defined hierarchy, the travel and transport needs of the "typical" male household head became the "natural" priority of urban transport planners and policy makers. However, these stereotypical assumptions are increasingly inappropriate characterizations of most households in developing country environments. The above assumptions also cling to an outdated dichotomy of 'productive' men vs. 'reproductive' women. Women make up at least a third of the world's productive labor force. Moreover, women's reproductive labor is equally important for the well-being and survival of the household as any paid labor.

Without clearly acknowledging and documenting women's multiple roles in society, transport planning is unlikely to meet their travel and transport needs. Transport planning methodologies need to become more gender equitable and give justice to the totality of today's urban fabrics.

With limited access to individual means of transport, the vast majority of female residents in developing countries are dependent on either walking or on public means of transport, which can be both motorized (e.g. buses, subways) or non-motorized (e.g. rickshaw taxis in Asia, boda-boda bicycles in Uganda). Beyond the basic yet grave problem of urban gridlock, poor route planning for public transport then tends to exacerbate the situation of women. Women often trip-chain. They combine their various domestic and care-taking responsibilities with wage earning trips. Transport systems targeted only at peak hour male commuter trip patterns do not serve their needs. They typically have to make multiple stops, pay multiple fares, and travel during off peak hours, when service is less reliable and waiting areas are less safe. Walking remains a predominant mode among rural and poor urban populations, with women typically accounting for a disproportionate share. In most cities and towns around the world, infrastructure planning continues to primarily cater to the needs of the car- or motorcycle-driving, largely male majority. By focusing on planning interventions that directly target the particular transport problems of women, much could be done to alleviate their burden.

3. Gender and Rural Transport

Over the course of the last two decades, a new, improved rural transport planning paradigm has emerged. The new core consensus is that "roads are not enough."² The reason is simple: In rural Africa, 87% of trips still takes place locally and on foot (Barwell 1996). Only about 10% of rural transport activity is regional travel. This is not to say regional infrastructures are unimportant. The absence of feeder roads can be a crucial factor in limiting access to markets and schools, especially for girls. For example, an often cited World Bank case study from Morocco found that girl's school attendance increased by over 40% after a new road was put in (World Bank 1996b). However, new rural access planning approaches explicitly acknowledge village-level tracks, trails and paths as essential parts of rural transport infrastructure.

Rural travel and transport patterns can be divided into three broad categories: i) domestic travel, including water and firewood collection as well as food processing trips to grinding mills, ii) agricultural travel, including trips to and from the fields, as well as supply and marketing trips, and iii) travel for access to services and social purposes, particularly to health facilities, shops, public markets or to church. While travel burdens are often shared between men and women for agricultural travel, women are almost entirely responsible for all domestic travel, which is by far the most energy and time consuming category in rural areas, accounting for one third to over two thirds of all travel. As a result, travel and transport activities tend to be more obviously gendered in rural areas and less varied overall across cultures. Discrepancies between male and female transport burdens are often stunning and challenge assumptions of households as co-operative, decision-making units that optimally allocate resources between members. This ideal is particularly questionable in rural Sub-Saharan Africa.

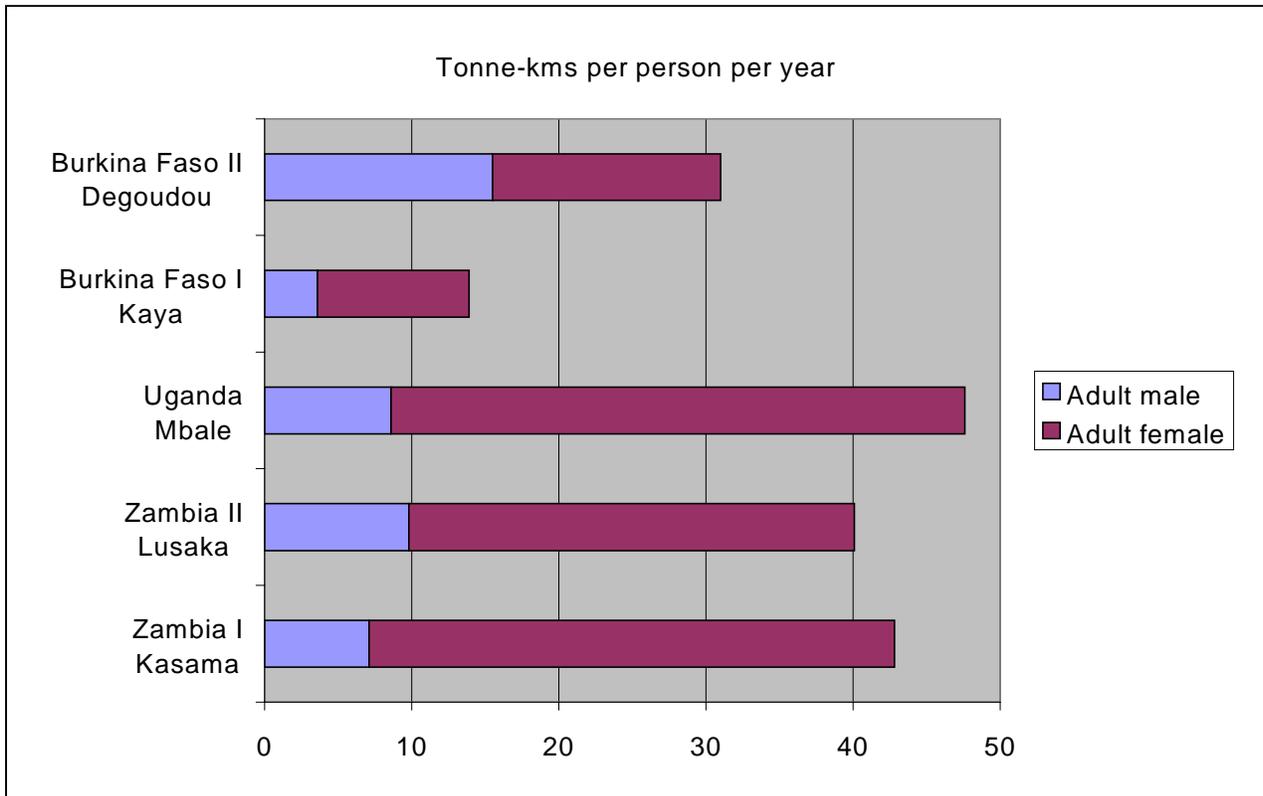
2 This is also the title of Dawson's and Barwell's often quoted 1993 ILO publication.

3.1. Walking and Headloading

Malmberg-Calvo (1997) notes that "the most common means of transport in Africa are the legs, heads and backs of African women." Women account for over 65 percent of household time and effort spend on transport. Figures 1 and 2 give an overview of the gender differences in labor activities across Africa.

One study on women fuel carriers in Addis Ababa showed that of 276 women sampled, an average load of 36.2 kg (i.e. 75% of body weight) was being carried an average of 11.7 km, and as many as 17% of the women were carrying loads heavier than their body-weight. The maximum carrying weight recommended by the ILO is 20kg. Among these women, eye, chest and back pains were common, as well as high rates of miscarriage (Haile, in Bryceson and Howe 1992:7-8). Kenyan medical sources document frequent backaches and knee damage among headloading Maasai women.

Figure 1: Load Carrying Efforts by Gender in Five Regions of Sub-Saharan Africa



Source: Peters and Bamberger 1998, (original data in Barwell, Airey and Strandberg, 1993).

Figure 2: Women's Participation in Labor Activities, General African Situation

Production Activities	Percent of Work by Women
Cash Crop Production	30 - 70
Food Production	60 - 90
Food Processing	100
Animal Husbandry	30 - 50
Marketing	50 - 80
Brewing	90
Water Collection	90 - 100
Fuel Collection	80 - 100
Transport of Crops from Field	70 - 90
Household or Community Activities	
Rearing and Care of Children	100
Cooking	100
Cleaning, Washing, etc.	100
House Building and Repair	30 - 60
Communal Farming	50 - 80
Social - Dances, Funerals, Weddings, etc.	50
Litigation Activities	10 - 20
Political Meetings	10 - 20

Source: Riverson and Carapetis, 1991:11

It has been estimated that at any given time, one third of all women in the developing world are either pregnant or lactating (Momsen, 1991, cited in Turner and Fouracre, 1995). Child carrying has to be accommodated in a way to still guarantee the safety and well-being of the child, further reducing women's "maximum carrying capacity."

Summarizing recent findings, Barwell (1996) lists five factors as particularly relevant for determining the actual extent of the female transport burden in rural areas:

- Number of female adults in the household:
- Number of children, particularly daughters in the household: Children especially contribute during times of maximum demand on household labor. It is important to note that daughters' contribution to household tasks is likely to affect their ability to attend school.
- Distance to Sources of Water and Firewood
- Food staple and preparation requirements: This mainly relates to travel to and from grinding mills
- Availability of intermediate forms of transport for domestic tasks: Especially women's access to bicycles is problematic in many cultures (see below).

3.2. Public transport

Short of hitching an occasional ride, public transport is the only way for rural dwellers to access regional markets as well as social, administrative or health facilities outside their villages. Service in rural areas is usually quite infrequent and unreliable. Consequently, space is limited and demand often

outnumbers supply. Such a situation is particularly detrimental to women in settings such as rural Africa, where local custom permits men to board buses before women do.³

3.3. Bicycles and Intermediate Means of Transport

Even simple wheelbarrows that hold up to 50kg can reduce rural women's time spent on water portage by about 60%. Bicycles offer even higher load carrying capacities and increased travel speed. Unfortunately, studies from many parts of the world show that access to intermediate means of transport such as wheelbarrows, carts, bicycles or animals is often heavily gendered.

In her case study on bicycles and rural women in Uganda, Malmberg-Calvo (1994) found that bicycle ownership and use was entirely the prerogative of males. More importantly, use was monopolized by men for trips outside the village. However, in some cases indirect benefits to women occurred as well in the instances where sons and husbands used the bicycle to fetch water from very distant dry season sources

Cultural norms regarding women riding bicycles are highly variable, but tend to be most prohibitive in Africa and Asian regions with predominantly Muslim populations. Yet even in Cuba and Nicaragua, where cycles are common and rural women have long worked alongside men on farms and community projects, very few women are seen steering bicycles. Much more common is the sight of women riding on the back seat as passengers. It is also important to note, that although cultural norms may exist, they are frequently more subject to change than one might expect at first glance (also see below analysis on motorcycles in Bamako).

Men are most likely to be supportive of women riding bicycles if there is a direct income benefit related to them doing so, for example if women can take more goods to the market faster. Bicycles are also increasingly accepted with female health extension workers, as men can easily understand the importance of getting the health services they offer to communities more efficiently. Fathers are also sometimes supportive of bikes if they enable their daughters to access distant educational facilities, since better schooling at least offers the prospect of future economic payoffs for the family. However, men are often reluctant to grant women access to bicycles or other intermediate forms of transport for their assigned domestic activities.

In the Pudukkottai district in the Tamil Nadu state of India, women's cycling was included in a rural development program, admittedly with a larger, strategic goal of empowerment connected to this pilot scheme. After the first ladies' bicycles were made available to women in the area through the financial help of the Indian Bank, cycling gained rapid popularity among females. Many of them pooled money in order to collectively hire bicycles to acquire riding skills. Most importantly, cycle-owning men eventually began to help teach women. The campaign was surprisingly successful. More than 50,000 women learned to ride bicycles in one year alone. (Rao 1994 in: Doran 1996)

Women themselves are generally very eager to adopt bicycles and other IMT, but are also very conscious of social perceptions. IT Transport Ltd. (1996:22) report that in Malawi, where most men regard riding bicycles inappropriate for women, in some parts of the country the women use them as load carriers by simply pushing them and not getting on. Other women do get on outside the village but would generally "try to minimize the number of people who see them in the saddle."

3 In the early 1970s, in an rare self-help initiative in Kenya, rural women were so frustrated with the difficulty of accessing local markets and hospitals that they decided to buy their own bus. The local women's group began a collective savings efforts and the women were successful in providing their own service for several years. Within a year and a half, the bus was paid for. It was only when increasingly high repair bills on the vehicle made it impossible for the group to continue service that this courageous venture was brought to a grinding halt. Kneerim in: Doran, 1996 and Seeds in: Bujorjee et al, 1997

4. Gender and Urban Transport

As noted above, research on gendered patterns of urban transport in less developed countries is both less extensive and conclusive than either in developed country or rural settings. The fact that urban modal splits are more diverse than in rural areas, and also vary greatly across geographical, social, cultural and economic levels allows for only cautious generalizations. Methodological challenges abound: Urban travel data is often not very accurate or complete, and rarely gender disaggregated. Urban travelers tend to use a variety of modes during one single trip. The importance of non-motorized forms of transport in urban areas is often not sufficiently recognized. Walking is frequently not included as a category in national transport surveys, although studies show that it accounts for about 20-40% of all trips in many tropical African capital cities and for 35-40% in four Indian cities (Simon 1996:95).⁴ Also, given the typically greater variety of social classes, economic situations and cultural backgrounds in urban contexts, there are likely to be greater differences in travel patterns between some women than between members of the same household.

Some generalizations are nevertheless possible. Figure 3 gives an overview of mode shares in five different Southern cities for which detailed, up-to date, sex-disaggregated data was available: Pune, India; Bamako, Mali; Dhakka, Bangladesh; Ashgabat, Turkmenistan; and Lima, Peru.⁵ Overall, the findings are consistent with other available evidence in that they show that:

- More women than men have no mode of transport available at all and walk.
- More women than men are depending on public means of transport.
- Women are less likely than men to have access to motorized means of transport.⁶
- Women are less likely than men to use bicycles or other intermediate mean of transport.

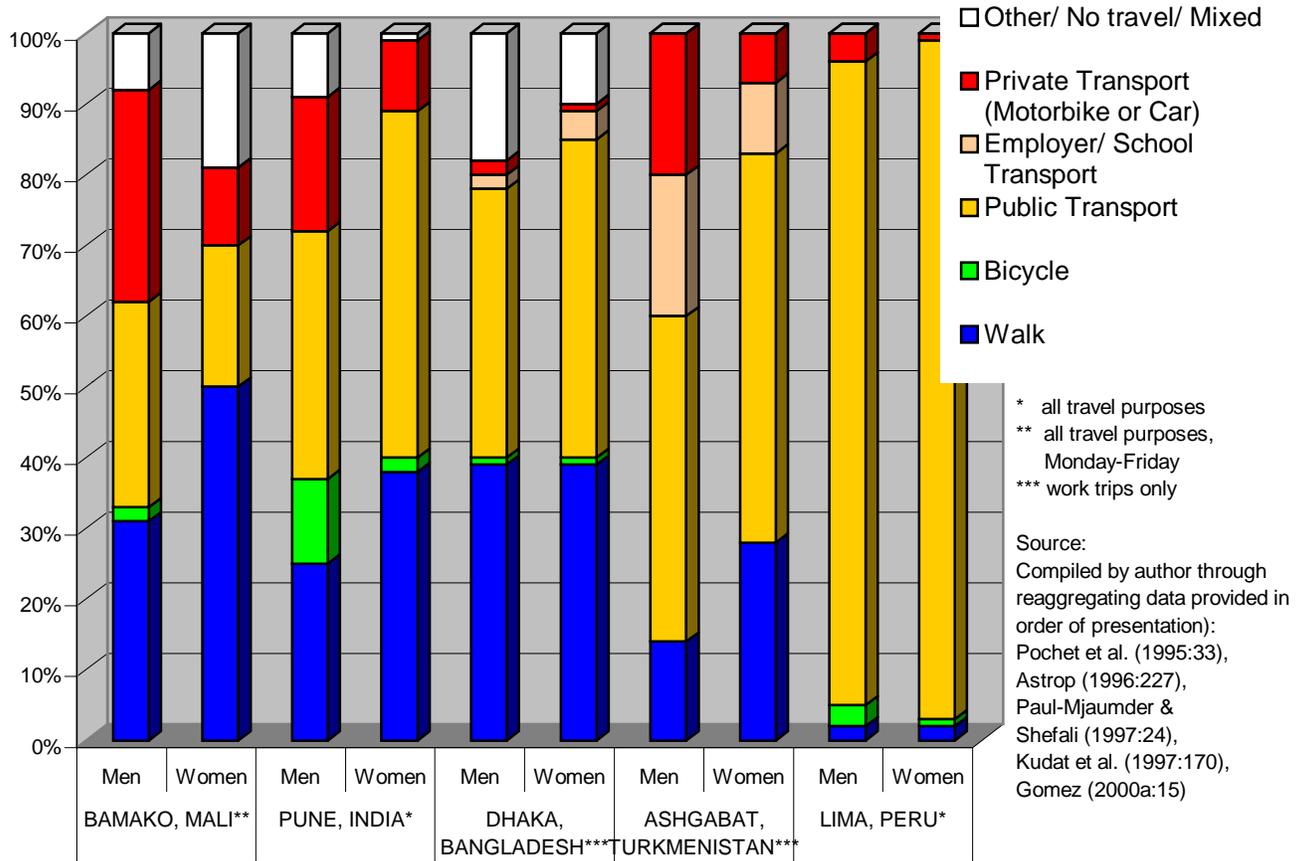
However, rather than to simply use available studies to confirm general trends, it is important to instead recognize differences in women's experiences. Gender-sensitive transport strategies need to be developed individually for every settlement. As subsequent analysis will show, crucial, practical advances can be made by improving the quality of household and user surveys and by collecting all data in a sex-disaggregated manner. These efforts should be complemented by comprehensive, locally-targeted gender analyses and action plans.

⁴ Interestingly, there is no direct relationship between city size and walking mode shares. In fact, some of the largest cities have the highest level of walking.

⁵ The following sections will rely heavily on the data provided in the following recent documents: Astrop (1996) presents a study undertaken as part of a Transport Research Laboratory (UK) research program on gendered urban travel behavior in Pune, India. Pochet et al. (1995) present research that the French institutions INRETS and LET carried out in Bamako, Mali. Kudat et al. (1997) provide documentation on a social assessment done for the World Bank's Turkmenistan Urban Transport Project (in Ashgabat), while Paul-Majumder and Shefali (1997) prepared a special gender study for the World Bank's Dhaka Urban Transport Project, for which Shefali (2000) presents a recent update. Gomez (2000a,b) presents a pioneering study analyzing gender issues for a bus corridor and a bicycle pilot project in Lima, Peru. The World Bank studies were prepared with the explicit objective of aiding the future decision-making process for the allocation of subsequent transport system investments.

⁶ The main exception to this rule is the hypermotorized US, where the motorization of the population is almost complete. Women still only making up about one third of those holding drivers licenses even in highly motorized Germany. In Britain, less than a third of all women are licensed to drive, compared to over two thirds of all men. More importantly, as Hamilton et al (1991) point out, as many as 75% of women say they have no or only restricted access to a car, compared to only 15% of men. These trends compare well to two frequently quoted studies from Kenya and Brazil, which found that while 24% of male heads of households in Nairobi, and 23% of male commuters in Belo Horizonte used private cars, only 9% and 6% (respectively) of their female counterparts were able to do so (Levy, 1990).

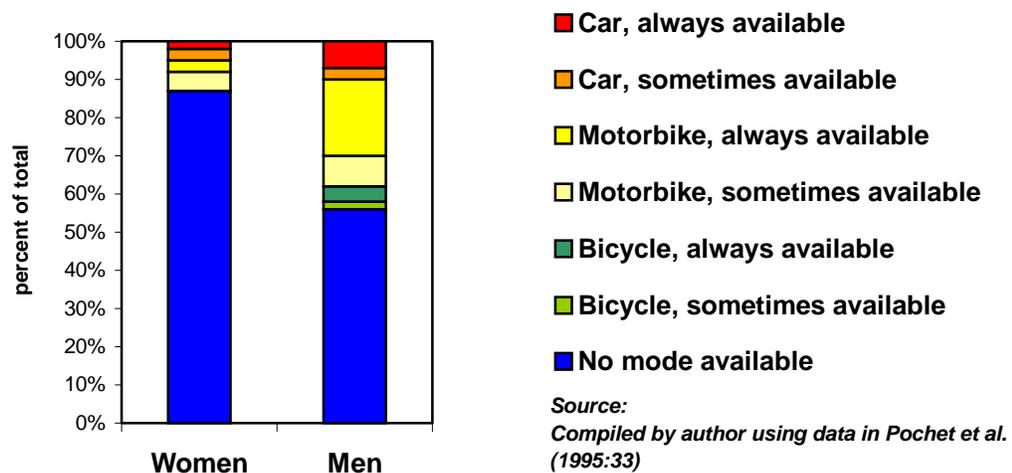
Figure 3: Gendered Mode Choice in 5 Southern Cities



4.1. Walking

Gendered mode shares continue to be most dramatically demonstrated by the percentage of women confined to walking as their sole means of transport. Men's and women's walking trip mode shares in Dhaka and Lima were roughly the same, while female walking trip shares were 52% higher than men's in Pune, 61% higher in Bamako, and a 100% higher in Ashgabat. A total of 87% of all women in Bamako reported that they had no access to individual means of transport at all. Only 57% of the men were in the same position (see figure 4).

Figure 4: Access to Individual Transport in Bamako, Mali



4.2. Two-Wheeled Transport

Motorized two-wheelers are much more affordable than cars, and they provide flexibility and convenience to their users in crowded traffic conditions. Overall, motorcycle use has risen dramatically in Asian and Africa cities over the last decade. Little is known, about the gender aspects of this dramatic increase. Although only scattered evidence is available, some interesting regional differences regarding the relationship between female cycling and motorcycling seems to emerge, however:

The only significant number of female bicyclists in the four studies is recorded in Pune. Almost 20% of women reported using bicycles at least at some time, compared to about 70% of men (Astrop 1996:231). With at least one bicycle per household and an additional 50,000 cycles available for hire, Pune has one of the highest bike availability rates in India (Hathway 1995:12). Still, cycle trips only account for about 2% of female and 12% of male trips in Pune (Astrop 1996:230). About 6 percent of females who make education-related trips use bicycles, compared to about 40% of men. A total of 23% of females and 21% of males reported making such education-related trips. Of the 204 female cyclists interviewed in a special survey, 69% were students (Astrop 1996:234). Interestingly, Pune was the only city that reportedly has separate-lane cycling infrastructures, thus significantly improving safety conditions for urban cyclists. None of the other three cities had significant bicycle shares for either males or females.

Cultural barriers to women's cycling exist in some regions, but as the Pune data show, it is quite possible for women in India to ride bicycles. Yet while just under 70% of men regarded it as a "safe" mode,

less than half of all women thought so. Women also rate bicycles as less acceptable and less comfortable compared to men. Even 24% of the females who did use bicycles in Pune named lack of safety as a major concern, and another 28% of them thought it was "uncomfortable." Still, over 50% of all women and over 60% of all men regarded bicycles as an "acceptable" mode of transport in Pune (Astrop 1996:231). By comparison, 22% of all women and 20% of all men in Bamako thought that bicycles were not appropriate for urban transport (Pochet 1995:59).

Bicycling continues to be off-limits to most women in urban Africa, both for cultural and safety reasons. Not surprisingly, no women ride bicycles in Bamako, although men's cycling accounts for 2% of overall mode share. However, things appear in a very different light if two wheelers are motorized. Scooters are important status symbols for middle income families. So rather than criticize women's newly found independence and mobility, husbands in Bamako are actually supportive of their wives' motorcycling. The idea is that women on a motorcycle are not only much more efficient shoppers and caretakers, but they are also moving advertisements of their families social status and wealth. This experience runs counter to simplistic assertions that insurmountable cultural biases keep developing country women from gaining access to individual means of transport. Also, with more and more urban women earning their own incomes, many of them are actually in a position to buy their own vehicles. This was already the case for as many as 39% of all interviewed female motorcycle and scooter users in Pune (Astrop, 1996:35).

Meanwhile, in countries such as China or Vietnam, bicycles continue to be the most important mode of transport in many communities, with women using bicycles at fairly equal levels as men. In Vietnam, the advent of the motorcycle has now even caused to raise women's share of bicyclists to over 50%, since here as well, it is the men who motorize first. Roughly 50% of all male trips in Hanoi are now by motorcycle, compared to 25% of female trips. Meanwhile, 54% of all female trips are made by bicycle, compared to 38% of all male trips (Goddard and Cusset, 1996). Overall, the use of bicycles in Hanoi has been declining at 5% annually since the mid-1980s, while motorcycle use has increased 5-10% annually during the same time period (Griffin 1995:14).

4.3. Private Motorized Transport

With regard to private motorized transport, private cars remain a negligible factor in both India and Bangladesh. However, as many as 9% of men in Bamako, and 20% in Ashgabat use private cars, compared to only 2% and 7% of women, respectively. This confirms previous research in Kenya and Brazil. A mere 2% of the women in Bamako had permanent access to cars, while another 3% had permanent access to motorcycles. This compares to 7% and 20% of the men, respectively. Also, of the women who did have at least sometimes access to cars, they were driving in only 11% of the cases, i.e. they were passengers 89% of the time. Meanwhile, 64% of all car-using men were drivers, and only 36% were passengers. Differences for motorcycles use were slightly less pronounced, but nevertheless revealing: women were passengers in 37% of all cases, compared to only 11% of all men on motorcycles (Pochet et al. 1995:24-26). These numbers emphatically confirm that women continue to literally "take the back seat" when it comes to car and motorcycle use. Unfortunately, passenger-driver data is not available for any other city, but the Ashgabat survey notes that 79% of car users are men (Kudat et al. 1997:179).

4.4. Public Transport

Beyond the general assertion that women are more dependent on public transport than men, patterns vary greatly both between cities and different modes. Both, economic and social considerations are important in women's decision to use a particular mode.

In Ashgabat, public transport was the major mode of transport used. Women, who had 30% lower earnings than men, were more dependent on the relatively cheap buses and trolleys, which received particularly low ratings from all users. Men had better access to mini-vans, taxis and employer-provided ser-

vices. In Bamako, women were often unable to afford even the standard minivan fares, so that women mostly walked, and, contrary to typical gender patterns, in fact used public transport less frequently than men. Detailed mode shares in Dhaka reveal a disproportionate dependence of women on cycle rickshaws, a mode public officials have increasingly attacked in recent years. Many officials believe that rickshaws “slow traffic” and “should make room for cars.”

However, the social institution of *pardha*⁷, makes it difficult for many women to share crowded public transport with men, which is why cycle rickshaws are such a viable option for many women. In their final recommendation chapter, Paul-Majumder and Shefali (1997:96) even muse that in Bangladesh, *pardha* is such a dominant part of the culture that ‘mainstreaming women’ into the public transport system will not bring the desired result and that “*pardha* culture will surely evict them from the transport system.” Pune even features sex-segregated train cars, and the data in Astrop’s survey shows that overcrowding on public transport is of significantly greater concerns to women than for men. Forty-one percent of the women report this to be a problem, as opposed to only 28% of the men. Moreover, women are vulnerable to constant sexual harassment on the public buses.

Surprisingly, when asked about suggested improvements to address this crucial issue, women in Dhaka had very different opinions from the women in Pune. In Dhaka, about half of the women in the sample households called for special, women-only bus services. By contrast, only 2% of the women in Pune thought this a viable option for buses, “as opposed to the very popular women-only carriages on trains. Instead of single-sex buses, women would like to simply see more buses operating, and thereby reducing the overcrowding which is so evident at times” (Astrop 1996:232).

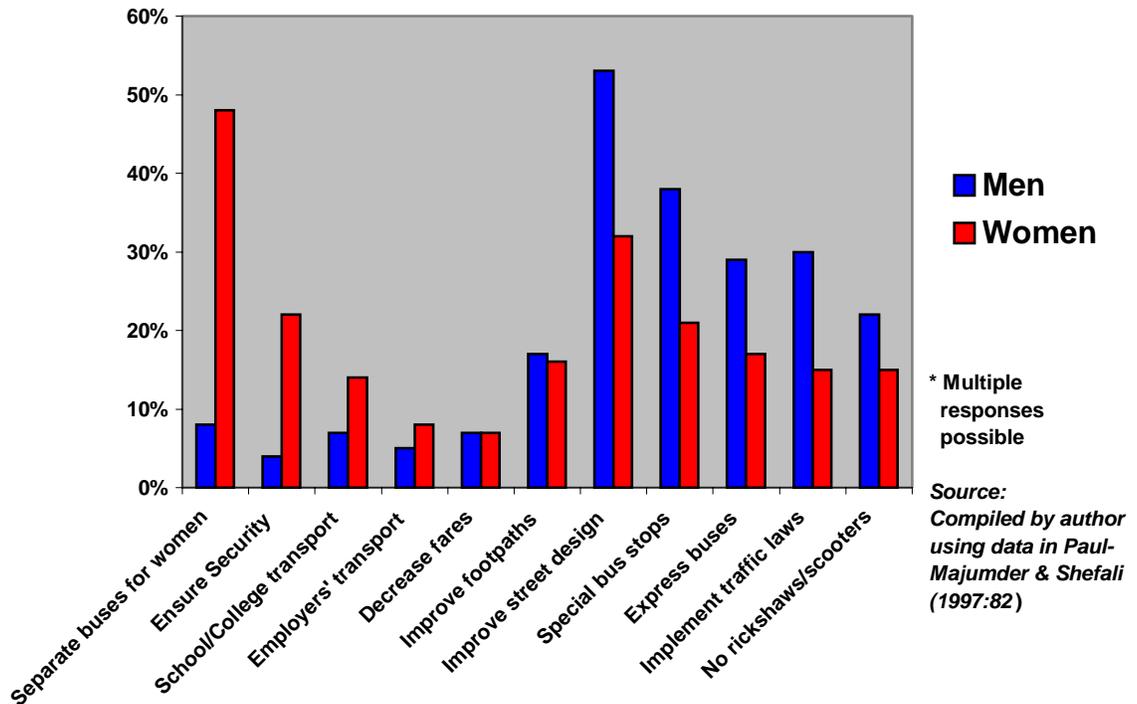
As more gender disaggregated data becomes available from different cities around the globe, evidence supporting general trends on gendered mobility patterns and needs is likely to be increasingly supplemented with regional differences such as described above. It is this awareness and careful documentation of regional peculiarities which is so essential for the development of local, gender-aware transport planning strategies.

5. Better Transport Surveys: Giving Women Voice

Traditional transport data on traffic flows, passenger volumes, fleet characteristics and use are insufficient to clearly assess the priority transport needs of the relevant stakeholders in transport development projects. Household and user surveys similar to the ones drawn from above can fill crucial information gaps. However, neither the Pune nor the Bamako study was intended as direct input for a particular transport development project. By contrast, the World Bank studies formed an integral part of the stakeholder consultation process for urban transport projects. Given their pioneering nature, the lessons learned from these studies are of great importance to anyone interested in mainstreaming gender concerns into transport projects. In general, disaggregating survey responses by sex is an obvious first step for better accounting for women’s needs. The striking gender differences in the transport improvements suggested by individuals in the Dhaka household survey, summarized in figure 3, would have been completely overlooked otherwise. It turned out that issues such as separate buses for women, better security, and more school-, college- and employer-based transport are significantly more important to women. Less than 8% of the men suggested any one of these services. However, it is important to remember that the disaggregation of data is only a prerequisite for subsequent gender analysis, not a substitute.

⁷ *Pardah* (sometimes also spelled *purdah*) refers to the practice (or custom) of gender-segregating access to public areas. While the exact extent and form of it may vary, it is a common practice in most Muslim societies.

Figure 5: Suggestions for Transport Improvements in Dhaka, Bangladesh*



5.1. Gender-Sensitive Interviewing: Whom, Where, and When

Trying to reach all members of a family in a household survey is always a challenging task. Researchers thus frequently resort to interviewing heads of households, the majority of which are male. This is likely to bias answers towards the head's own gendered travel experiences. Ideally, all members of a household should be interviewed, including teenagers over 13 years of age. For example, the Pune study collected information on the travel behavior of any person under sixteen from the household head, which may have biased it against the experience of teenage girls. Women may be more reluctant to answer surveys for cultural reasons. In those cases special efforts need to be made by researchers to reach them. For example, the Dhaka survey report notes that 55% of the targeted female individuals did not reveal their travel patterns from the previous day, compared to 32% of males (Paul-Majumder and Shefali 1997:7). The Dhaka report also stresses that special efforts had to be made to reach garment workers, which account for about 70% of the female labor force in Dhaka. About 60% of these women walk to and from work. Given their additional 12 hour work day, researchers had to arrange for visits in the late evening in order to be able to include them in the household survey.

5.2. Documenting Women's Latent Demand

Most transport surveys also undertake user surveys at bus stops, markets and other central places. This is a good opportunity to get information on reproductive and social trips, but it obviously discrimi-

nates against those who do not travel for lack of transport availability or other reasons. Data from all household surveys presented in this paper show that sedentary household members are predominately female. User surveys leave the needs of this group undocumented. Even household surveys often only document actual trips and fail to document why a person did not travel. Care must be taken to include this crucial question in survey response sheets. In the Dhaka case, for example, most of the women who did not offer their travel plans could not do so because they had not traveled the previous day. However, when asked about transport improvements, many of them were still happy to offer suggestions, often specifically indicating obstacles that if removed, would enable them to undertake journeys that current conditions did not allow them to make.

5.3. Documenting Women's Willingness to Pay for Better Transport

Economically-oriented approaches tend to stress women's inability to pay for better transport as one of the main reasons for gendered travel patterns. Findings from the World Bank gender and transport study in Dhaka are instructive on this issue. Following the assumption, sample populations were asked about their current and potential transport expenses.⁸ The Dhaka study very clearly refutes economic assumptions, finding that women's willingness to pay was substantially higher than their current expenses on transport, suggesting that women may very well be interested in special services. Women's mean monthly travel expenditures were Tk.167, as opposed to Tk.377 for men, and while men's averaged willingness to pay was actually lower than their current averaged expenditures, women were prepared to pay an average of 226, that is an additional Tk.59 per month on transport (Paul-Majumder and Shefali, 1997:53).⁹

5.4. Documenting Mode Shares at District Levels

Since mode shares are likely to be sensitive to residential location, it is important to collect sex-disaggregated data at the sub-metropolitan level. Of the available studies, only the Dhaka survey broke out mode shares by sex and district. Hardly surprising, residential location often turns out to be a more important determinant of mode choice than gender. Within the eight different districts, female walking mode shares vary from a low of 10% to a high of 75%, compared to a male low of 19% and high of 76%. Similarly, female rickshaw mode shares vary from a low of 5% to a high of 52%, compared to a male low of 1% to a high of 52%. Variations for other modes are similar (data in: Paul-Majumder and Shefali, 1997:18). District-level analysis is particularly helpful for identifying areas where certain modes are not available and/or where residents spent excessive time walking. In other words: women's voices in some district may be in greater need of being heard than others.

5.5. Documenting the Daily Reality Women Transport Users

Popular perceptions regarding, the attractiveness, efficiency, safety, relative cost, or the social status of particular modes have to be documented through sex disaggregated attitudinal surveys or other, less-structured interview forms. As with the other surveys, it may be advisable to especially target women for

⁸ Willingness to pay was also researched in Ashgabat. Unfortunately, the Ashgabat study does not present gender disaggregate data. However, it does show that one third of the 79 percent of all public transport users who pay an average of 2 manats are prepared to pay more for better transport. Meanwhile women make up roughly half of all public transport users in Ashgabat. The study also shows that a minority of people very reluctantly paid fares, and it is quite possible that the 7% of public transport users who pay one manat or less are predominantly female. However, 70% of those paying one manat and a full 100% of those paying less than that were prepared to pay up to four times as much in fares if service was improved (Kudat et al 1997:179).

⁹ For comparison: monthly incomes in the Dhaka survey ranged from under Tk. 3000 to over to over 10,000, with an average of Tk 8761. Mean monthly household transport expenditures were Tk. 769, or about 9% of total household income.

particular questions here. For example, sexual harassment is a serious deterrent to use public transport services for women in many countries (see Gomez, 2000, Anderson and Panzio 1984, Levy 1996, Astrop 1996, Paul-Majumder and Shefali 1997).

In Lima, the focus groups sessions revealed the extent of sexual harassment and the elaborate strategies developed by women against sexual harassment, from wearing unattractive clothing, traveling in groups, only boarding units that are not full to carrying open safety pins on their clothes and accessories to avoid unwanted physical contact. While men favored speed, women clearly put personal security issues on the top of their list of concerns.

Another very important issue is the identification of informal practices. Sometimes public officials and planners remain completely unaware of these on-the-ground realities. For instance, the World Bank Social Assessment in Ashgabat revealed that poor women, by being particularly dependent on bus services, were disproportionately vulnerable to bus drivers' informal overcharging. Interestingly, this practice was less due to male malice than the fact that multiple-ticket strips were largely unavailable and that tariffs in this Former Soviet Republic were still set so low that "there was no coin small enough for a passenger to pay for a single ticket fare" (Brown 1997:23). In this case, once revealed, the situation could be easily addressed by raising fares and by offering more multi-fare ticket strips. Thus, bus users' real costs of transport were lowered while the company's cost recovery was improved at the same time, allowing for further improved service. Other local practices may be more difficult to address, however. One custom that seems particularly prevalent in Africa is the practice of giving preferential boarding to men (Doran 1996), something that is obviously not easily planned away.

5.6. Beyond Household Surveys: Gender-Sensitive Stakeholder Consultation

Most of the complex constraints and unmet demands that women face cannot easily be recorded in standardized survey response sheets and therefore require more open-ended focus interviews. In fact, many of the deeply embedded cultural and social access and mobility constraints can only be revealed in small-size stakeholder workshops. By using a range of often psychologically based, participatory techniques, these workshops can provide participants with the enabling environment they need for voicing concerns and generating discussion amongst themselves. Depending on the local situation, such focus sessions could be either all-female or mixed. Development agencies such as the World Bank have developed a variety of resource materials for use in concrete project contexts, and while none of them are specific to transportation planning, most of them are flexible enough to be useful for a variety of purposes, including transportation (see for example World Bank, 1997).

6. Improving Urban Transport Services: Targeting Women's Needs

Several relatively generic interventions in the public transport sector, such as improved off-peak, non-commuter (decentralized) services, improved safety conditions in waiting areas, and more advance ticket sales, present themselves as obvious solutions for alleviating many women's access and mobility problems. Many more idiosyncratic obstacles will require specifically targeted, local responses, however. Affordability remains a key issue. Extra services should be easiest to implement when it comes to accessing destinations such as markets, educational and employment facilities, or perhaps administrative offices. Judging from the responses received in the above studies, additional investigations into the viability of the following two kinds of special services are likely to be particularly useful: women-only services and services to educational and employment facilities.

6.1. Women-Only Services

Women-only services are not necessarily appropriate in all cultural contexts. It also seems that women-only train carriages are generally much more acceptable than special women-only bus services. In the Mexico City subway, men and women are riding different cars on the three main lines during peak hours. This measure, initiated in 1978 in response to women complaining about harassment and increasing accidents due to overcrowding especially when travelling with small children, was implemented at very low cost, and seems to have markedly improved women's satisfaction with this crucial urban service, which carries up to 5 million passengers a day. In Pune, segregated commuter trains were also very popular. In neither case, however, did even the women themselves think sex-segregated bus services were a useful idea, and instead opted for added buses for everyone. In Dhaka, however, special women bus services were in place on and off in the 1980s and early 1990s. The chosen route was of relatively low profitability, however, and the service was finally stopped. Yet stakeholder consultation with women housewives, students, and workers in Dhaka all indicated the demand for such services, calling for a re-consideration of the practice with a perhaps more careful route selection. As a very practical, low-cost alternative, women suggested that the previous policy of reserving 5% of all seats for women be reinstated, together with a designation of a women-only and a men-only door in all larger, two-door buses.

6.2. Special Services to Educational and Employment Facilities

In practice, special, non-public sector transport services tend to be provided only by schools, colleges, and major places of employment. In the case of schools and colleges, since annual enrollment numbers are relatively predictable, existing demand can be easily determined, including for female only services. As for factory access, employers in many countries have begun to provide special transport for their employees simply because their workforce's tardiness due to ubiquitous delays of public transport vehicles stuck in gridlock traffic presented a substantial enough loss to warrant the expense of renting a special van or bus. So far only about 3 percent of the garment workers in the Dhaka study commuted to work by employer-provided transport, but unless alternative arrangements are made through public providers in the near future, this figure is likely to substantially increase. In fact, one out of ten factory owners has plans to provide transport support to their workers in the future (Paul-Majumder and Shefali, 1997:89). The situation is similar in many other developing countries where textile and other manufacturing industries are becoming increasingly dependent on cheap, female laborers. In Dhaka female labor force participation has increased from 4% to about 14% between 1981 and 1991, with further rises expected in the future. And as indicated, garment workers represent 70% of the total female workforce. Similarly, Turner and Fouracre (1995:79) note that "in some fast developing economies (in SE Asia for example) the share of women in the manufacturing labor force is more than 40%, some 10% more than any industrialized market economy." Of course, most of the existing employer-based services are not intentionally serving women's needs, but rather those of their garment workers in general. Yet they are *de facto* women's services because those segments of the urban labor market are so highly gender-segregated. Meanwhile, smaller employers are generally not able to provide such services, and even in the case of larger firms it would most likely still be more economically efficient if improved access to the factories could be provided through existing public transport providers.

7. Concluding remarks

Women's transport needs in less developed countries are hardly sufficiently documented, let alone adequately addressed by transport planners and providers. Especially in urban setting, gender advocates are thus still operating from a relatively small body of research upon which to base their observations and conclusions. Several important first steps have been taken, however. In particular, rationales for action regarding the lack of attention to gender in transportation have been increasingly and convincingly voiced by many international development organizations.

Economistic approaches may dominate in the beginning, but there is now much greater awareness of the social intra-household dynamics that dictate accessibility, control and ownership of means of transport. Targeting women as a special group must therefore still be considered a valid intervention, although not a permanent solution. Hopefully enough additional case studies and pilot projects will result from the new attention women's access and mobility problems have received more recently to further advance our knowledge on this pressing topic. We are still quite far from the ultimate goal of mainstreaming gender concerns into transport planning and practice, and there will have to be much more gender-sensitizing and re-learning of common thinking and practice.

Annex II presents a long list of conclusions and recommendations that were presented as the result of a special seminar on Gender and Transport held by the World Bank in April 1999. As noted above, some important steps to address particular issues have been taken, but as a whole the listed shortcomings and urgent tasks remain valid as they stand. Policy-makers have a key role to play in the active mainstreaming of gender issues into all infrastructure sectors, with transport being one of the most important ones.

8. Bibliography

- Airey, Tony, Ian Barwell, and Tom Strandberg. "Rural Household Travel and Transport Patterns." RTTP World Bank, Washington, D.C. Unpublished, 1993.
- Ahmed, Nizan. 2000. Study on Gender Dimension in Rural Roads and Markets Improvement and Maintenance Project. [sic] Consultant Report. Washington, DC: The World Bank
- Anderson J. and Panzio, N. "Transportation and Public Safety: Services that Make Service Use Possible." In: Bruce, J. and Kohn, M. (eds.) Learning About Women and Urban Services. Latin America and the Caribbean. A report on the Women, Low-Income Households and Urban Services Project of the Population Council, 1986.
- Astrop, Angela. "Urban Travel Behavior and Constraints of Low-Income Households and Females in Pune, India." Proceedings from the Second National Conference on Women's Travel Issues, Baltimore, October 1996. Washington, D.C.: Federal Highway Administration
- Bamberger, Michael and Jerry Lebo. 1998. "Gender Issues in the Transport Sector." PREM Notes. The World Bank.
- Barwell, Ian and Christina Malmberg-Calvo. 1989. Makete Integrated Rural Transport Project, The Transport Demands of Rural Household: findings from a Village-Level Travel Survey. (Main Report and Annexes) Geneva: ILO
- Barwell, Ian, G.A. Edmonds, John Howe & Jap de Veen. 1985. Rural Transport in Developing Countries. London: I.T. Publications.
- Barwell, Ian, Tony Airey & Tom Strandberg. 1993. Local-level Rural Transport in Sub-Saharan Africa, Final Report on Rural Household Travel and Transport Patterns. The World Bank Sub-Saharan Africa Transport Policy Programme (ILO, I.T. Transport Ltd.).
- Barwell, Ian. 1996. Transport and the Village, Findings from African Village-level Travel and Transport Surveys and Related Studies. Sub-Saharan Africa Transport Policy Program, The World Bank and Economic Commission for Africa (SSATP Working Paper No. 23).
- Brown, Jonathan. 1996. "The Direct Operational Relevance of Social Assessments." In Social Assessments for Better Development: Case Studies in Russia and Central Asia. ed. M. Cernea and A. Kudat, 21-31. Washington, DC: The World Bank
- Burjorjee, D. et al. 1997. "Mainstreaming Gender in Transportation Projects: A Toolkit" Unpublished Report, prepared at the School of International and Public Affairs (SIPA) of Columbia University, New York for the World Bank's Gender Analysis and Policy Group.
- Camph, Donald H. Transportation and the Changing Face of America. Washington, D.C.: Surface Transportation Policy Project, August 1995.
- Chant, Sylvia. 1996. Gender, Housing and Development. New York: UNDP
- City of Nairobi. 1984. Report by the Transportation Unit.
- Cusset, Jean-Michel. 2000. Les transports urbains de Hanoi dans une perspective de développement durable. Rapport de recherche 1999-2000: Perspectives pour 2001. Lyon : Laboratoire d'Economie des Transports, UMR 5593 du CNRS, Université Lumière Lyon 2, ENTPE
- Dawson, Jonathan & Ian Barwell. 1993. Roads Are Not Enough, New Perspectives on Rural Transport Planning in Developing Countries. London: I.T. Publications.
- Doran, Jo. Rural Transport. 1996. London: I.T. Publications & UNIFEM.
- European Transport and Planning -- Proceeding of Seminar, 17th Summer Annual Meeting. Sussex: PTRC Education and research services, Ltd. 1989. (vols. I & II).

- Fernando, Priyanthi. 1997. Balancing the Load, Gender issues in rural transport. London: International Forum for Rural Transport and Development (IFRTD).
- Gallagher, 1992. The Rickshaws of Bangladesh (Dhaka: University Press Limited)
- Gannon, C. and Z. Liu. 1997. Poverty and Transport (Washington, D.C.: World Bank Discussion Paper No. TWU-30).
- Gannon, Colin and Zhi Liu. Poverty and Transport. Washington, D.C.: The World Bank, September 1997. (TWU discussion paper)
- Godard, Xavier and Jean-Michel Cusset. "Des Systèmes de transport urbain au Vietnam à la recherche de la modernité." *Cahiers Sciences Humaines* 32 (3) 96:555-575
- Gomez, Lara. 2000a. Gender Analysis of Two Components of the World Bank Transport Projects in Lima, Peru: Bikepaths and Busways. (Draft August 2000) Washington DC: The World Bank (online under www.worldbank.org/gender/transport).
- Gomez, Lara. 2000b. Evaluation of Urban Transport in Metropolitan Lima - Gender Analysis of December 1997 Household Survey. (Draft August 2000). Washington, DC: The World Bank (online under www.worldbank.org/gender/transport).
- Grieco, Margaret; Nana Apt and Jeff Turner. 1996. At Christmas and on rainy days: transport, travel and the female traders of Accra. Avebury: Aldershot.
- Grieco, Margaret, Jeff Turner and Ed Kwakye. 1995. "A Tale of Two Cultures: Ethnicity and Cycling Behavior in Urban Ghana." *Transportation Research Record* No.?.
- Grieco, Margaret, Lauri Pickup and Richard Whipp. Gender, Transport and Employment. Aldershot: Avebury Press, 1989.
- Griffin, John. Motorization in Vietnam. Sustainable Transport. no. 5 (Winter 1994): 18-20. New York: The Institute for Transportation and Development Policy
- Hamilton, Kerry, Linda Jenkins and Abigail Gregory. 1991. Women and Transport: Bus deregulation in West Yorkshire. Bradford: University of Bradford
- Hayden, Dolores. Redesigning the American Dream. New York? Publisher? 1984.
- Hook, W. 1995. "The Economic Advantages of Non-Motorized Transport" (Washington, D.C.: Transportation Research Record #1487)
- Hook, Walter. 1998. "Transportation and Sustainable Human Settlements." New York: United Nations Development Program, unpublished draft policy document.
- Howe, John and Deborah Bryceson. 1993. "Rural Household Transport in Africa: Reducing the Burden on Women?" African Studies Center, Leiden, Holland.
- Howe, John. 1993. "The Bicycle in Africa: Luxury or Necessity?" Velocity Conference, Sept. 1993. (The Netherlands: IHE Delft)
- IFRTD (International Forum for Rural Transport Development). 1999. Balancing the Load. (A Compilation of Case Studies **(NOTE: Please see Annex I for the detailed list of the case studies, including author names and full titles)**)
- Jones, Peter (ed.). 1990. Developments in Dynamic and Activity-Based Approaches to Travel Analysis. Aldershot: Avebury Press
- Jones, Peter and Susan Carpenter (eds.). 1983. Recent Advances in Travel Demand Analysis. Aldershot: Gower Publishing.
- Jones, Peter. "Household organisation and travel behaviour." In: Grieco, Pickup and Whipp (eds.) Gender, Transport and Employment. Aldershot: Avebury, 1989, pp.46-74.

- Kudat, A. et al. 1996. "Strengthening Ashgabat's Urban Transport System." in Cernea, M and Kudat, A. (ed.) Social Assessments for Better Development: Case Studies in Russia and Central Asia. Washington, DC: the World Bank, pp. 165 - 187.
- Kudat, Ayse. 1990. Participation of Women in Rural Roads Maintenance in Sub-Saharan Africa. Washington, D.C.: The World Bank, 1990. (Economic Development Institute of the World Bank -- EDI working paper).
- Kwakye, E., P. Fouracre, and D. Ofosu-Dorte. 1997. "Developing Strategies to Meet the Transport Needs of the Urban Poor in Ghana." World Transport Policy and Practice, Vol. 3, No. 1.
- Levy, Caren. 1992. "The importance of gender in planning urban transport" in: Gender and development, a practical guide. Edited by Lise Ostergaard. London: Routledge.
- Levy, Caren. 1990. Gender and Third World Development -- Module 5: Towards Gender-Aware Provision of Urban Transport. Brighton: Institute of Development Studies.
- Little, Jo, Linda Peake & Pat Richardson. Women in Cities - Gender and the Urban Environment. New York: New York University Press, 1988.
- Malmberg-Calvo, Christina. 1994. Case Study on the Role of Women in Rural Transport: Access of Women to Domestic Facilities. Sub-Saharan Africa Transport Policy Program, World Bank SSATP Working Paper No. 11. Washington, D.C.: The World Bank
- Malmberg-Calvo, Christina. 1994. Case study on intermediate means of transport: Bicycles and rural women in Uganda, World Bank, Washington DC.
- McCann, Barbara. 1998. "Building Bridges: A review of infrastructure services projects addressing gender integration." Draft January 1998. CIDA (Policy Branch).
- Moser, Caroline and Linda Peake (eds.) 1987. Women's Settlements and Housing. London: Tavistock
- Moser, Caroline. 1993. Gender Planning and Development, Theory, Practice and Training. London: Routledge.
- Murphy, Josette. 1997. Mainstreaming Gender in World Bank lending: An Update. Washington, D.C.: The World Bank. (OED study).
- NORAD. 1990. Project Review of the NORAD Financed Project MAG003 Rehabilitation and Maintenance of Rural Roads by Labor-Intensive Methods, (Antsirabe, Madagascar: NORAD)
- Ostergaard, Lise (ed). 1992. Gender and Development, a Practical Guide. London: Routledge.
- Overton, Karen 1994. "Women Take Back the Streets: Overcoming Gender Obstacles to Women's Mobility in Africa." Sustainable Transport, Vol. 3, p. 6.
- Overton, Karen. 1996. "Using the Bicycle for Women's Empowerment in Africa." Sustainable Transport, No. 6, Summer 1996, pp. 6-10. New York: The Institute for Transportation and Development Policy (ITDP).
- Paul-Majumder, Pratima and Mashuda Khatoon Shefali. 1997 Examining Gender Dimension of Transport in Dhaka Metropolitan Area. Consultant Report for the World Bank Dhaka Urban Transport Project, March 1997. Washington, DC: The World Bank
- Peters, Deike and Michael Bamberger. 1998. Toolkit on Gender in Transport. Draft Document, World Bank PREM Gender Unit
- Peters, Deike. 1998. "Breadwinners, Homemakers and Beasts of Burden: A Gender Perspective on Transport and Mobility." Habitat Debate, vol. 4, No. 2. Nairobi: UNCHS
- Pochet et al. 1995. Les Transports Urbains Non-Motorisés en Afrique-Subsaharienne - Le Cas Du Mali. Lyon: INRETS/LET/ARETRANS
- Rao, Aruna, Mary B. Anderson & Catherine A. Overholt (eds.) 1991. Gender Analysis in Development Planning, A Case Book. West Hartford: Kumarian Press.

- Rosenbloom, Sandra. 1993. "Women's Travel Pattern at Various Stages of Their Lives." In: Full Circles: Geographies of Women Over the Life Course, edited by Cindi Katz and Janice Monk. London and New York: Routledge, pp. 208-242.
- Rosenbloom, Sandra. (ed.) 1989. Mobility and Transportation of Single Parents: Special Issue. Specialized Transportation Planning and Practice. Vol.3, no.3.
- Scheinman, D et al. 1989. Female Participation in the Rural Roads Maintenance Project: The Impact of Employment in the Lives of Participating Women. (Oslo: NORAD).
- Schminck, M. "Women in the Urban Economy in Latin America." Working Paper No.1 Women, Low-Income Households and Urban Services Project of the Population Council, 1982
- Shefali, Mashuda. 2000. Study on Gender Dimension in Dhaka Urban Transport Project. Washington DC: The World Bank (online under www.worldbank.org/gender/transport).
- SIDA. Handbook on the Integration of a Gender Perspective in the Rural Transportation Sector. Swedish International Development Agency (Transport Division, INEC, SIDA), April 1997.
- Simon, David. Transport and Development in the Third World. London: Routledge. 1996.
- Spitzner, Meike and Gabriele Zauke. "Rückblick und aktuelle Bilanz der Einmischung von Frauen in Verkehrswissenschaft, -planung, und -politik." in: Deutscher Städtetag, Kommission "Frauen in der Stadt," Frauen verändern ihre Stadt. Cologne: DST-Beiträge zur Frauenpolitik, Reihe L, 1998.
- Spitzner, Meike. "Die Krise der Reproduktions-Arbeit: Herausforderung an eine öko-soziale Stadtplanung." in: Deutscher Städtetag, Kommission "Frauen in der Stadt," Frauen verändern ihre Stadt. Cologne: DST-Beiträge zur Frauenpolitik, Reihe L, 1998.
- Stock, Elisabeth. 1996. The Problems Facing Labor-Based Road Programs and What to Do About Them: Evidence from Ghana SSATP Working Paper No. 24, (Washington, D.C.: The World Bank)
- Terlinden, Ulla. "Frauengerechte Stadtplanung." Paper presented at the Wuppertal Institute, Wuppertal, Germany, May 24th, 1994.
- Tivers, Jacqueline. "Women with young children: constraints on activities in the urban environment." In: Little, Jo, Linda Peake and Pat Richardson, Women in Cities: Gender and the Urban Environment. New York: New York University Press, 1988: Ch 5 (pp. 84-97)
- Turner, J. and Fouracre, P. (1995) 'Women and Transport in developing countries' Transport Reviews Vol 15, No. 1, pp 77-96.
- Turner, J. and P. Fouracre. "Women and Transport in Developing Countries." Transport Reviews. Vol. 15, No. 1, 1995, pp. 77-96,
- Turner, J., Grieco, M.S., and Kwakye, E.A. (1996) Subverting sustainability?- Cultural and infrastructural barriers to cycle use in Accra. World Transport Policy and Practice Vol. 2 No. 3.
- Turner, J., M. Grieco, and E. Kwakye. 1996. "Subverting Sustainability? Infrastructure And Cultural Barriers to Cycle Use in Accra," World Transport Policy and Practice, Vol. 2, No. 3.
- Turner, J., N. Apt, M. Grieco, and E. Kwakye. 1998. "Users Not Losers: Gender Representation in Transport Design and Operation." Paper presented at the 8th WCTR Conference in Antwerp, Belgium
- UNCHS. 1984. Transportation Strategies for Human Settlements in Developing Countries Nairobi: UNCHS.
- United Nations Centre for Human Settlements. 1997. Proceedings of the International Conference on Urban Poverty. International Forum on Urban Poverty, Florence, Italy, 9-13 November 1997. (Chapter 6: Access to Transport: Gender Issues in Transport)
- United Nations.1991. The Impacts or Subsidies, Regulation and Different Forms of Ownership on the Quality and Operational Efficiency of Urban Bus Services in Latin America. Naciones Unidas: Comision Economica para America Latina y el Caribe -- Cepal.

- US Department of Transportation. 1997. Community Empowerment Program: Nurturing Public Involvement in the Transportation Planning Process. Washington, D.C.: STPP.
- Wachs, Martin. 1998. "Men, Women and Urban Travel: the Persistence of Separate Spheres." Los Angeles: Graduate School of Architecture and Urban Planning, UCLA, 1998
- Walsh, Margaret. 1996. "Not Rosie the riveter - Women's diverse roles in the making of the American long-distance bus industry." The Journal of Transport History. March 1996, Series 3, vol 17, no.1, pp.43-56.
- Willard, Frances. 1991. How I learned to Ride the Bicycle - Reflections of an influential 19th Century woman. Sunnyvale, California: Fair Oaks Publishing (Revised edition of "A Wheel Within a Wheel." 1895. Edited by Carol O'Hare.)
- World Bank. 1996. Sustainable Transport: Priorities for Policy Reform. Washington, D.C.: The World Bank
- World Bank, 1996b. Morocco: Impact Evaluation Report: Socioeconomic Influence of Rural Roads Washington, D.C.: World Bank
- World Bank. 1996c. Bogota: Urban Transport Project: Staff Appraisal Report Washington, D.C.: World Bank
- World Bank. 1996d. Poverty Reduction and the World Bank: Progress and Challenges in the 1990s (Washington, D.C.: World Bank)
- World Bank. 1994a. Enhancing Women's Participation in Economic Development. Washington, D.C.: The World Bank.
- World Bank. 1994b. Staff Appraisal Report: Peru: Transport Rehabilitation Report. Washington, D.C.: World Bank.
- World Bank. 1995. Non-Motorized Vehicles in Ten Asian Cities Washington, D.C.: World Bank
- World Bank. 1991. Bangladesh Transport Sector Review, Report No. 9414. BD Infrastructure Operations Div., Asia Regional Office. Washington, D.C.: World Bank.

9. Annex I: IFRTD's Seminar "Balancing the Load": Full list of contributions

Case studies – Asia

- Transport issues for different categories of self-employed women, India - *Rekha Barve*
- Report card of poor rural women on rural transportation, India - *Mihir Bhatt*
- Rural transport policy and gender: the case of Nepal - *John David Seddon*
- Spatial mobility and women's empowerment: implications for developing rural transport in Bangladesh - *Nilufar Matin and Mahjabeen Choudhary*
- Reducing the burden of fuelwood transport in the Eastern Plateau of India - *P. K. Mishra and Vineta Dhara*
- Transportation of rural women to and from the Calcutta Metropolis, India - *Mahua Mukherjee*
- Mapping interplay of women, water and transportation in arid areas, India - *Reema Nanavaty*
- Community transport and gender, Philippines - *Maureen Pagaduan and Anna Dizon*
- Cycling into the future: the Pudukottai experience in Tamil Nadu, India - *Nitya Rao*
- Transport and gender relations: Sandhai Women of South Bihar - *Nitya Rao*
- Impact of infrastructure intervention on the health status of women: a case study of a village in Udodumbara, Sri Lanka - *Darshini Samaranayake and Kusumu Kuruppu*
- Gender issues in rural transport in Nepal - *John David Seddon y Ava Shresta*
- Gender and transport issues among cashew processors - *Kusala Wettasinghe and Upali Pannila*

Case studies – Africa

- Gender issues in rural travel and transport: the case of Kano Closed Settled Zone (KCSZ), Nigeria - *Nurudeen Abubakar*
- The impact of road rehabilitation on transport and accessibility in rural Soba and Ikara Districts of Nigeria - *E. M. Shaibu-Imodagbe*
- Transport load sharing among rural households in Nigeria - *Mohammed Bello-Yunusa*
- Contrasting gender needs and access to rural transport in the Yatenga Province of Burkina Faso - the case of Tuya, Burkina Faso - *Amadou Ouedraogo*
- Women and rural transport in Rotto, Burkina Faso - *Aminata Ouedraogo*
- Household garbage collection around Ouagadougou, Burkina Faso - *Honorine Damiba*
- Impact of the lack of a bridge on travel and marketing by men and women of Kiangua, Kenya - *Pascal Kaumbutho*
- Transport infrastructure provision in Kenya: a practical view through the eyes of women of Keruwosa, Kenia - *Justina Nthenge and Cecilia Kinutia Njenga*
- Impact of bicycles/motorcycles taxi 'Boda-Boda' on women's travel needs -the case of Mpigi District in Uganda - *Harriet Iga*
- Gender responsive planning and implementation in rural transport: the case of Uganda - *Charles Kaira*
- Safety issues and gender in rural transport in Busia District, Uganda - *Paul Kwamusi*
- Rural transport interventions - are we reaching rural women?, Tanzania - *Josephine Mwankusye*
- Gender aspects of the adoption of donkey traction in the provision of rural transport. Study of two districts in the Lusaka Province, Zambia - *Peter Nindi*

Gender aspects in the provision of rural infrastructure: a case study of the use and maintenance of village paths, tracks and footbridges in two villages in Zambia - *Mukuka Lilian N. Zimba*

Gender issues in rural transport in Provista De Gaza, Mozambique - *Alexandrina Sabela*

A gender perspective on off-road transport and accessibility issues: the case of women traders in coastal Ghana - *Gina Porter*

Incorporating women's views on accessibility and rural transport into distance education material and internet communication, Ghana - *Jeff Turner*

Gender issues in rural transport in Sudan - *Suad Mustafa*

Impact of intermediate means of transport on allocation of transport and gender relations –the case of ITDGs transport project in Zimbabwe - *Dorris Chinghozo*

10. Annex II

Conclusions presented in the final report for the seminar “Gender and Transport: Promoting an International Partnership,” April 22 1999 in Washington D.C. organized by the World Bank’s Gender and Transport Thematic Group:

The role of women in transport

Women play a major, but frequently unrecognized or under-valued role in the transport sector.

We must recognize that women are the producers or suppliers of transport services and not just consumers.

Many women are very instrumental in transport planning, particularly at the community level.

We should address women’s participation in other transport sectors such as ports, air and rail.

We need to address the gender dimensions of road safety.

Intra-household resource allocations and women’s time burden

We need to understand how resources are controlled and allocated within the household and the constraints on women’s access to household transport resources.

Transport burdens fall disproportionately on women.

The intra-household allocation of transport resources is inefficient.

We need to study the intra-household control of resources.

Involving women and other stakeholders in project planning and management

Systematic procedures should be put in place to give women a greater role in the planning and management of transport projects.

We need to bring women into the planning and production process through targeting and affirmative action.

We must determine how to change who produces and provides transport goods and services.

Local stakeholders must be involved, which may require affirmative action (setting aside a certain percentage of the participants), to ensure women participate.

Local researchers must be empowered by giving them a greater stake in how their research is used.

The need for social assessment and gender analysis

There is a need to develop and use instruments such as social assessments to provide systematic information on women’s transport needs and roles.

Social assessments need to be carried out in the transport sector. The Social Assessment Thematic Group provides resources for this purpose.

We must understand and correct the stereotyping of women that we bring into the field.

Better instruments and information are needed to address the gender dimensions.

The importance of gender analysis needs to be documented.

Better tools and techniques need to be provided for social assessments.

Because most transport professionals assume that transport outcomes are gender neutral, awareness must be raised that this is untrue.

Analyses would reveal the cultural constraints on women's mobility, which, in countries like Bangladesh, is severely curtailed. Also, that there is a gender dimension to accidents: many of these are not directly on roads, but on dangerous footpaths which women must take, because they have no alternative.

Sustainability of gender-responsive approaches

It is essential to plan and design gender interventions so as to ensure that they will be sustainable and will continue to produce benefits

Because it is difficult to sustain a gender agenda throughout the project cycle, it is important to monitor and report on women's participation.

The sustainable livelihoods approach requires that we examine micro-level impacts on households and individuals.

F. Social and economic impacts of transport

More research is required on the factors determining the social and economic impacts of transport interventions.

Externalities should be considered. Women's access to transport has significant social benefits that are traditionally not counted.

A challenge with micro case studies is how to generalize their results.

The macro-contribution of rural transport, with respect to jobs, needs to be studied.

Role of the World Bank

The Bank's role should be to promote gender awareness among its transport staff and clients. Provide framework for better incorporating gender into transport projects.

Operationalizing gender responsive approaches

Different approaches that promote the link between gender and transport need to be field tested. For example, projects that introduce "minimal" technologies, such as providing women with wheel-barrow and carts, have had great impact, as these can be used to haul inputs to the fields, crops to market, and even people to hospitals. In addition, instead of providing transport, other approaches focus on bringing water, fuel or grinding mills to villages, to free up women's time for growing more crops (to sell in markets) find other employment or simply improve their social well-being.

Where projects are providing credit for low-income women to buy bicycles, all those involved should pressure the government to reduce taxes—they are sometimes classified as luxury items—to ultimately lower their cost. Further, in projects that have hired women to construct or maintain rural roads and paths, technical support is needed to get more women involved. Also, the issue about how they are paid, which until now, has often been with food instead of wages, needs to be explored.

Because the notion that the benefits of and access to transport are linked with gender is new, it is essential to form and strengthen networks of transport professionals and organizations through which information can be shared. To this end, electronic networks should be created and interested researchers, etc. should also tap into the broader gender networks.

Finally, it is crucial that both men's and women's awareness of the connection between gender and transport be raised.

Research and analysis issues

In order to understand how transport services, non-motorized devices and safety issues affect men and women differently, it is important to disaggregate the data on: (a) who uses the services and if women are not, why? (b) if road accidents involving pedestrians are more numerous among women than men, why? and (c) if the rural and urban poor are using non-motorized transport, such as bicycles and carts, do men and women own them equally or at least have equal access?

Second, it is essential to assess the value-added from gender interventions, whether informal sector development, pilot projects, dissemination and communication.

Third, since numbers are a powerful tool, statistics must be collected where they are lacking.