

WOMEN AND RURAL TRANSPORT IN DEVELOPMENT

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Objectives of the paper

Abstract

The UK Government's 1997 White Paper on International Development states that a commitment to equality between men and women 'is an integral and essential part of our approach to development', that it is '...based on principles of human rights and social justice', and that poverty cannot be eliminated '...until men and women have equal access to the resources and services necessary to achieve their individual potential and fulfil their obligations to the household, community, and more broadly, society'. The Global Platform for Action at the 1995 World Conference on Women in Beijing agreed that a more strategic approach is required to promote full equality between all men and women, as opposed to the former efforts of focusing on women's practical needs through a reduction of the burden placed on them by poverty and their multiple roles in society.

This paper is intended to draw on the experiences of various organisations, including the Department for International Development, World Bank and International Forum for Rural Transport Development (IFRTD). Its purpose is to discuss gender and transport issues and identify some interventions which can be adopted to alleviate the transport burden of rural women.

Key issues

- In most societies men and women have distinct economic and social roles and responsibilities, and consequently there are significant gender differences in travel and transport needs.
- Transport projects have been particularly remiss in addressing these gender differences.
- Women in developing countries (particularly in Africa) spend more time in transport activities than men. For many women the transport workload has increased. Extensification of cultivation and increased cash cropping have led to greater need for transport of inputs and produce. Changing demographic and land-use patterns have made the distance to fields, water and firewood sources greater, increasing travel times to these sources.
- Economic analysis, and other conventional transport planning methodologies tend to seriously underestimate the economic and social value of women's time, and consequently have not recognized the economic benefits from reducing women's travel time and load burden.
- The use of more efficient transport technologies can potentially reduce the time and energy that women spend on transport tasks. However, because women in most developing countries have less access to assets their ability to own and acquire appropriate time saving transport technologies is restricted.
- Cultural norms and gender power relations can also inhibit the adoption of transport technologies by women.

Key topic areas

- A rationale for action: the World Bank perspective
- Agricultural activities of women involving transport
- Domestic activities of women involving transport
- Marketing activities of women involving transport
- Non-agricultural income earning activities of women involving transport
- Reducing women's transport burden
- Integrating gender into rural transport interventions

1. INTRODUCTION

This paper concentrates on women in development, but makes reference to gender disparities in rural transport, including access to transport modes and division of labour. In rural transport, one of the main reasons for the failure of interventions intended to benefit women is that they ignore gender relations at the household and community level. Consequently, men tend to monopolise IMT's intended to benefit women, or will refuse to allow their wives to use them if they are seen as a threat to the man's position in the household. Gender-analysis, monitoring and evaluation will help identify the economic and social divisions of labour at the level of the household and community. It will also recognise the cultural, economic and social factors constraining women's access to economic opportunities, and will help identify intervention strategies which are more likely to gain the support of male members of the household and the community. For more information on gender and transport issues, refer to the World Bank Gender and Transport Thematic Group (GTTG) website at: www.worldbank.org/gender/transport and the Gender and Rural Transport Initiative (GRTI) website at: www.grti.org.zw.

This paper provides a review of women and rural transport in Sub-Saharan Africa based on the nature of material available at the time of production. It is anticipated that experiences from Asia and Latin America will supplement future versions of the Knowledge Base document.

2. A RATIONALE FOR ACTION: THE WORLD BANK PERSPECTIVE

The time and energy burden of transport for rural women is well documented. In addition to their major productive roles, women are almost exclusively responsible for household and child-rearing tasks, so they have numerous and diverse travel and transport needs. Women also suffer the physical and health burdens of headloading a large proportion of fuel, water and produce. Yet cultural traditions and male-control of household resources mean that women have even less access than men to the available means of non-motorized and motorized transport. The combination of 'multi-tasking' and poor service and vehicle access severely limits the time available for, and timing of other activities.

While these patterns are disturbing, they are not a sufficient basis for policy. More knowledge is needed about the consequences of the transport burden for rural women's availability for employment and access to markets and social services, and about the economic losses that result. Making transport policy more responsive to the needs of women requires developing a structured approach to understand their needs, identifying instruments to address their needs, analysing the costs and benefits of those instruments, and establishing an appropriate policy framework.

The majority of transport infrastructure projects are subject to a cost-benefit analysis comparing capital costs and incremental maintenance costs of the new infrastructure with the reductions in vehicle operating costs, accident costs, and time costs resulting from the project. However, conventional analytical methods tend to undervalue the transport needs of women by inadequately reflecting the opportunity cost of their time. The transport activities of rural women, and the implications on their time availability will also be explored further.

Analytical approaches that require the valuing of transport time may be particularly difficult to apply in developing countries with a high proportion of subsistence employment, particularly in rural areas. A time saving approach should take into account such issues as the value of time saved in especially arduous tasks, such as carrying of water and fuelwood; and the value of time saved by women engaged in domestic activities.

The trade offs between the private and social benefits of improved transportation services including improved access to health and education services, economic and social empowerment of women, social inclusion of marginal rural populations, are also often not accounted for in evaluations of transport projects. The impact of better transport on women's labour participation and wage rates, impacts on social standing and empowerment, and indirect impacts on family health are also issues which tend to be excluded from projects.

In terms of formulating effective gender focused transport strategies, the issue is whether the benefits of gender specific interventions are worth their costs. It may be clear that women have worse or more expensive transport than men, but this may be the result of more general gender inequality, for example, in terms of access to the household budget of private transport, rather than biases in transport service provision. In practice, many transport interventions can be designed to help the most vulnerable, including women; the first stage of the design process in rural road projects should be to prioritise the transport needs of rural women, and identify the potential for time and cost savings of appropriate interventions.

3. AGRICULTURAL ACTIVITIES OF WOMEN AND TRANSPORT

Agricultural production is one of the activities for which rural household labour has to meet time allocation requirements. Women's participation in agriculture is principally concerned with subsistence crop production, whilst men undertake cash crop cultivation and animal husbandry. The practised division of labour tends to assign heavy physical activities to men, and more burdensome and time-consuming activities to women. A critical issue in many rural areas is that men frequently control income from agricultural production, so that women both have limited control over financial resources, and limited incentives to participate in many kinds of agricultural production.

Seasonal variations in labour demand due to peak and slack agricultural periods also affect the time allocation of household members. A Kenya survey (Ahmed, 1985) found that women spend an average of 4.5 hours per day on the farm during the low season, and between 6 and 9 hours per day during the peak season. Women's workload during slack agricultural seasons is only slightly less demanding. During the low season, when the number of hours spent in the field is lower, the number of hours spent on other activities such as water and fuelwood collection increases.

The transport requirements associated with specific agricultural calendars and prevailing crop arrangements are determined by the number of movements required during the cultivation of each crop. These movements are influenced by:

- Distances between fields

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- Transport means used
 - Loads carried
 - Topography
 - Travel speed
 - Health status of travelling person

Women are frequently required to make more trips than men as they must combine their agricultural activities with the domestic responsibilities (such as preparing meals for the household, collecting fuel and water, and child-care).

Distances between the home and the field can range between 1 and 20km. The configuration of fields is also determined by the types of crops cultivated. In general, food crops tend to be further away than cash crop plots from the farmstead, which implies that due to the division of labour, women must travel further than men in order to cultivate their fields. Crop specific travel times can range from 0.3 to 2.4 hours per trip, and therefore travel to and from fields can absorb a significant part of daily working time. The transport involved in harvesting is usually undertaken by women who tend to headload low volumes of produce (20kg) per trip.

The marketing of agricultural produce will frequently involve much longer trips. Women's more limited access to motorized transport places an added burden on them and can also result in significant post-harvest losses when part of their produce rots due to lack of transport. Access to such simple equipment as a wheel-barrow or bicycle may more than double the volume of produce that women can transport to market.

The condition of the transport routes that are used by rural households also determines the amount of time and effort that is spent on transport activities. A study in Makete, Tanzania, revealed that the present condition of the path network in and around villages presents many obstacles to safe, all-year-round access on the most direct routes to sites of agricultural activities (Barwell and Malmberg Calvo, 1989).

Indeed, path and track problems are one of the factors that make travel and transport by walking and headloading arduous, time-consuming, dangerous and inefficient due to the limited load being carried.

4. DOMESTIC ACTIVITIES OF WOMEN AND TRANSPORT

In rural areas, women have a large domestic responsibility, and therefore have to combine farm and household activities, often on a daily basis. As a result of limited access to transport and a need to balance these different activities, the degree to which they can engage in agricultural activities is limited.

Domestic activities are generally performed by women on a daily basis, and include:

- Collection of water and firewood
- Preparation and cooking of meals
- Food processing and storage
- Child rearing
- Cleaning and washing

- Household purchases and errands

These activities have a high economic and social value, yet this is not captured in conventional economic analysis, hence the importance of domestic work for the livelihoods of the household is grossly underestimated. Domestic activities are almost exclusively carried out by women, who perform 80% of the work involved, and therefore bear the brunt of corresponding transport tasks. The transport task associated with domestic activities is virtually inflexible, and the timing of different transport requirements results in women having to choose between conflicting responsibilities. During the peak of the agricultural season, women have to choose between giving priority to the immediate need for water and fuelwood, or the longer term need of ensuring that food is available for the next season.

The results of the Village Level Transport and Travel Surveys (VLTTTS) commissioned by the World Bank in Tanzania, Ghana and Zambia, revealed that domestic travel is the most time consuming activity, ranging from 31% in Ghana to 63% in Zambia. Domestic travel also accounted for an overwhelming proportion of the effort dedicated to transport, with approximately 90% of all energy spend on load carrying in Makete, Tanga and Zambia involving the movement of water, firewood and food for grinding (Malmberg Calvo, 1994).

4.1. Water and Fuelwood Collection

The most time consuming domestic activities are the collection of water and firewood. Water carrying tasks fall mainly on women and children, as do firewood collecting tasks, where women provide nearly 90% of wood that is consumed by the household, but only 70% of wood collected for sale (Urasa, 1990). Travel time for water collection, excluding the time spent queuing at the source lie between 2-4 hours per day, with a significant increase in the number of trips for water collection in the wet season; this may be as a result of households curtailing their water consumption when its procurement involves unacceptably high amounts of time and effort.

Firewood is important for meeting energy demands in rural areas, as it is used for cooking, heating and food processing. Other energy sources tend to be too expensive or unavailable to rural households. The transport task involved with collecting firewood is rapidly becoming more arduous and time consuming as a result of the depletion of firewood reserves through deforestation.

The transport burden of firewood collection also depends on the location of the source, where firewood collection in the vicinity of cultivated fields can be combined with trips for agricultural purposes. Firewood tends to be transported by headloading, and is collected a few times a week, and is a regular activity throughout the year.

Transport constraints are further exacerbated when fuelwood sources close to the village become depleted over time, and therefore cause women (as principle firewood collectors) to travel further, as evidence from Ghana suggests (Dawson and Barwell, 1993). A consequent reduction in trip frequency due to an increase in time and distance, also impacts negatively on nutrition and health, especially when fewer cooked meals are had. In an attempt to substitute traditional wood sources with agricultural residues such as cow dung and cassava stalk, cultivatable land is being

denied valuable fertiliser, hence reducing the potential for surplus crop production (Momsen, 1992).

4.2. Food Processing and Preparation

Food processing and preparation, including all activities between acquisition and consumption involve high labour and transport burdens, which principally fall upon women. Trips to the grinding mill or hammer mill to process maize, cassava, wheat, millet, etc. are usually undertaken on foot. Distance to hammer mills tends to be further than to grinding mills which can sometimes be found within the village. The VLTTTS revealed that households tend to go to the grinding mill from two to eight times per month. In Tanga, the overall distance was shown to be 3-9km, with average weights of 18kg per trip. As is the case with the transportation of firewood, the high transport requirements of preparing the staple food results in women serving fewer cooked meals in a day.

4.3. Childcare

Lastly, all the time and energy consumed in these domestic activities is further exacerbated by the equally onerous task of childcare, particularly when load carrying weights are increased when transporting water, firewood and unprocessed maize. Indeed, Howe and Fahy Bryceson (1993) express some concern over the inefficiency of 'passenger traffic' on women's productivity. The presence of a child is incidental and its weight goes unrecorded; hence women are undertaking load carrying with additional weight, which further increases their travel time and imposes health implications related to overloading, and risk of injury.

In addition, women are required to expend more time walking children to school and health clinics. In many cultures girl children cannot walk to school on their own, and will often be accompanied by an adult, most commonly female. Often women will have to travel home from the farm or market at midday to feed children, again adding to the travel burden and complexities of multi-tasking.

It is clear that domestic transport needs exert serious pressure on women's time and energy, and improved access could free up considerable resources for other more productive and welfare enhancing activities. For most rural women, the process of travel is more of an obstacle than a facilitator to their daily activities, but there is potential for IMTs to reduce their transport burden.

5. MARKETING ACTIVITIES OF WOMEN AND TRANSPORT

The majority of travel external to the village in Sub-Saharan Africa, including trips to the market place, is undertaken by men, yet women still play a major role in this type of transportation, especially in West Africa where it has been estimated that four out of five women engage in crop marketing (Urasa, 1990). Women tend not to be involved in marketing initiatives, especially if the infrastructure and transport means to reach marketing facilities with surplus produce is inefficient. Please note that in South East Asia, including much of India, rural women travel extensively outside the village and may also have the major responsibility for marketing.

Crop marketing is generally performed at certain periods of the year, usually in trips that occur once or twice a month. Higher trip frequencies tend to occur with internal marketing. Men tend to capture all external contacts, and have responsibility for marketing activities outside the local sphere (with the exception of women who dominate marketing and transport in Nigeria and elsewhere in West Africa). Consequently, trip rates for women are high, but they have shorter distances to cover and shorter travel times than those of men.

Farm to market distances vary according to the permanent or periodic character of markets. With the exception of coastal settings, 90% of rural households travel a distance of 10-13km to reach a permanent market. In the Makete study, women in 80% of households made the principle trips to the market, although 80% of crops are marketed within the villages.

6. NON-AGRICULTURAL INCOME EARNING ACTIVITIES AND TRANSPORT

Increasing landlessness in combination with other economic and demographic forces has created a compelling need for the expansion of non-agricultural employment in rural areas. Women tend to be particularly vulnerable to displacement from land by commercialisation of agriculture.

Women engage in non-agricultural occupations as a subsidiary to, rather than in competition with agricultural work. A combination of an increase in female headed households in Sub-Saharan Africa (22% of households), and the need for women to generate a surplus income with which to pay for basic household items, such as soap, salt, matches and clothes, and school and health centre admission fees, have contributed to an increase in non-agricultural occupations, particularly when agricultural production labour demands are low.

A large majority of income earning activities carried out by women require significant inputs of water and firewood, and hence become more time consuming as a result of the transport involved in fetching these resources.

Throughout much of Sub-Saharan Africa, fuel availability and distance to fuelwood sources affect women's ability to earn income directly, as much of the important artisanal activities in which they engage (such as food processing, beer brewing and pottery) are fuel intensive. Of the 73% of women studied in Tanzania who brewed the local beer, 75% of them said it was their primary source of income. Each preparation of the 'pombe' requires as much firewood as the weekly requirement for cooking, resulting in two extra trips per week to collect wood, hence detracting an average 9.6 hours per week from women's time budgets (Urasa, 1990).

7. REDUCING WOMEN'S TRANSPORT BURDEN

7.1. Transport Interventions

This section focuses principally on viable transport interventions in very remote areas of rural Sub-Saharan Africa where transport services linking rural and urban

communities become obsolete because of inadequate infrastructure; and Intermediate Means of Transport (IMT's) are virtually the only operable modes of transport.

Traditional means of transport such as headloading, whilst having huge direct costs that are not taken into consideration in economic analysis; also have enormous indirect costs in terms of diversion of time and effort from productive work, and in terms of ill-health. A strategy to improve the transport capabilities of rural women with the implementation of appropriate interventions whose performance matches needs, and whose cost is sensible in relation to income is clearly required.

Appropriate interventions, including IMT's must therefore be able to meet local needs and be capable of generating income. Their cost must also be compatible with incomes, and they must be capable of manufacture and maintenance using indigenous skills and resources.

Issues regarding IMTs relate to a range of problems in transport and accessibility to it, and for women in particular the issue is mobility in general. Many transport problems may be best solved through non-transport approaches (eg, water reticulation, improved village infrastructure and services) and may also be addressed through a combination of human walking/carrying and large-scale motor transport. Although IMTs are clearly useful in many different situations, they are not a universal panacea (World Bank, 1998).

Innovations in IMT manufacture can be far reaching, but all too often their adoption is hindered by the absence of an effective demand and supply relationship, particularly in rural settings. Bicycles with simple carriers are very widely and increasingly used for personal transport and some load carrying. Ox carts and donkey carts, using automotive technologies, are increasingly used in the rural areas of Sub-Saharan Africa, particularly in semi-arid areas. Pack donkeys can have important local roles, assisting women and men, particularly in dry zones and hilly areas. To date, most carts and bicycles, however, are owned and used by men, their use by women remains relatively low.

Bicycles can be especially beneficial to women, who perform triple roles as income earners, homekeepers and community managers. Rural women's responsibility for water and fuelwood collection is much more effectively carried out by bicycle.

Motorised IMTs have yet to be widely adopted in Africa. Power tillers are most likely to be successful in areas of irrigated rice production and high population density, close to towns where many motors are maintained. Other motorized IMTs are most likely to be successful in peri-urban areas with economic demand and supporting infrastructure, and tend to be used almost exclusively by men.

IMT use and diversity is shown to be much less in rural Sub-Saharan Africa. Processes of innovation and adoption take longer, affected by lower economic activity, lower availability of certain materials, fewer cultural exchanges, smaller information flows, higher seasonality of cash flows and transport demand, and continued concentration on traditional economic uses. Rural development programmes need to be reoriented to create some of the conditions that favour IMT

adoption, concentrating on developing viable support services near important local markets and communities where women's needs can be more directly addressed.

There are major gender inequalities in access to IMTs, as most are owned and used by men. Most transport programmes and IMT initiatives are determined by men, designed for men, and men are the major beneficiaries. Men are also much more likely to adopt new intermediate forms of transport than women. Women are marginalised from the use of IMTs because of their lack of purchasing power relative to men, and because their acquisition of IMTs is circumscribed by notions of cultural impropriety.

In many areas, there are IMTs (such as bicycles and ox carts) which are considered 'male' domains. Women generally have less access to information, capital, credit, cash incomes and profitable transport activities. As a result their viewpoints are less heard and few transport projects have incorporated gender analysis in designing IMT components. Integrating gender into IMT strategies requires ways of identifying gender differences in transport needs and priorities as well as ways in which the gender inequalities in transport interventions can be addressed. There is a need to involve women and women's perspectives in decision making processes concerning transport policies and IMTs initiatives at national level, at decentralised regional level and within communities.

The adoption of IMTs is strongly influenced by their cost and their potential to provide economic benefits. Their overall affordability and sustainability may depend on income generation prospects. Provided funds or credit are available to allow the process to start, the potential to gain income, rather than actual cost may be the more crucial issue.

One implication for IMT programs is that efforts must be made to keep the costs of IMTs low. Other options may include support to develop low cost manufacture, marketing and distribution systems with initiatives including bulk purchases of materials/components for resale to small workshops. In addition, IMT programmes should endeavour to identify or stimulate income-generating activities for IMT users, both men and women.

The low adoption of IMTs in Sub-Saharan Africa is related to problems of availability and supply. In many cases, the problem of supply may be linked to the low purchasing power of the users (women are particularly susceptible). Suppliers will not invest in manufacturing or stocks if they do not believe there is an economic market (as opposed to a felt need). Such situations may be overcome through credit provision, income-generating schemes (including labour-intensive road construction) or subsidies.

Finally, for some IMTs, there are differences in the design requirements for women and men users. Since the market for IMTs has been dominated by sales to men, there have been few economic incentives to produce designs more appropriate to the needs of women. Currently, the supply of IMTs is almost exclusively to men who rarely relinquish its usage for domestic purposes. IMT programmes need to address this issue, create a 'critical mass' of women users that will justify the manufacture and sale of suitable IMT designs, and break the male-dominated cycle of IMT use.

Lastly, transport planners and decision makers should not underestimate the potential for women as transport entrepreneurs and contractors in road maintenance, particularly in West Africa. One of the points raised in gender and transport studies in countries like Senegal and Niger is that there are biases against women entrepreneurs making it difficult for them to win road construction and maintenance contracts. For example, small women-owned firms may find it difficult to raise the deposit which must be paid when bidding for contracts. Likewise, in the practice of labour based construction and maintenance, women tend to be excluded from employment opportunities due to cultural inappropriateness and other primary responsibilities. In an attempt to increase opportunities for women working in road maintenance, donors and government agencies in countries like Zambia and Lesotho, are starting to require that a certain proportion of the labour force for road maintenance must be women.

7.2. Non-transport Interventions

The burden in time and effort expended by women in the transporting of a task such as water collection is high because of having to headload it; but the major features determining the magnitude of the transport task may have little to do with the direct transport constraints, but rather access and availability of the goods to be transported. This is particularly the case with water and fuel, and crop processing.

There are various alternative interventions to relieve transport problems associated with water and fuelwood collection and crop processing. These include a range of equipment and technologies to help process food crops, collect and store water supplies, and to reduce the amount of firewood and charcoal needed for cooking and heating.

It is unlikely that these technologies will eliminate the more burdensome tasks in which women in rural Africa are involved. Indeed, it is highly probable that the demand and supply of such equipment is even less than that of IMTs which have the advantage of use for multi-tasking. In addition, rural planners would be as well to focus their resources in optimising access to basic facilities and services such as water wells and bore holes, woodlots, schools and health centres, so as to reduce the time and energy expended by women on a daily basis. This approach would of course require thorough consultation with service users, and would ideally interact with other sectors, in particular transport, with which all rural activities are connected.

8. EFFECTIVE STRATEGIES FOR ADVOCATING GENDER BASED TRANSPORT INTERVENTIONS

This section looks briefly at policy strategies for alleviating the transport burden of women, which should involve an integrated approach at the national, regional and district, and project levels. It identifies key requisites for effective implementation of policies and strategies aimed at removing gender disparities in the rural transport sector.

8.1. National Policy Level

- Gender capacity building within ministries to raise awareness of the issues, to ensure gender equality and hiring and promotion, and to develop expertise in gender analysis and participatory planning;
- Broadening the focus of economic and other transport planning tools to capture and value women's economic contribution and hence the value of their time;
- Co-ordination between sectoral agencies such as education, health and agriculture;
- Ensuring that gender-sensitive approaches to rural transport are incorporated into national Poverty Reduction Strategy Papers (PRSP).

8.2. Regional and District Level

- Establishing interagency co-ordinating committees such as the Rural Travel and Transport Programme (RTTP) to address issues of how to finance transport services for education, health and economic development which involve different agencies
- Promotion of gender-sensitive participatory planning and consultations.

8.3. Project Level

The lack of a gender focus among transport technologists and planners is often the result of a low participation by women in the planning and design of interventions and of the 'economic' argument that continues to dominate planning (Fernando, 1998).

The Action-Research Programme (ARP) initiated in 1998 as part of the Government of Tanzania's Village Travel and Transport Programme in Morogoro Rural District, is an example of a project which advocates community empowerment for planning, self organisation and implementation of appropriate interventions. Furthermore, the programme promotes gender mainstreaming as a pre-requisite necessity for effective community empowerment. Though in its infancy, the ARP has so far been successful in stimulating self development of the most vulnerable groups, including women.

The following approaches are required to fully advocate women's involvement in transport development programmes.

- **Better identification of the problem:** including better gender disaggregated data and research to provide more information on rural transport problems, needs and priorities.
- **More interventions:** which are appropriately designed and disseminated to address inherent gender inequalities.
- **Greater understanding of impact:** There is little evidence of the impact that transport and non-transport interventions (ie. Those that bring facilities and services closer to people) have on women's transport burden or of how conventional transport projects have affected women's lives and livelihoods.
- **Increased women's participation:** There remains the need for an expanded role for women in decision-making about transport policies, priorities and investments at the national level, and the decentralised (district) level, and within communities. Without such participation, it is difficult to see how rural transport strategies can include gender issues in ways that can have practical implications for the lives of women.

9. CONCLUSION

Rural transport studies show that there continues to be gender inequality in the transport burden and in the types of interventions designed to alleviate the burden. Time and again, transport projects have been implemented without addressing fully, the gender differences in transport needs. Subsequently, interventions become accessible only to men, due to the constraints of credit acquisition, and cultural barriers imposed on IMT use by women. Women spend more time and energy than men on transport tasks and have less access to the technologies that help reduce this effort. As a result, there is a considerable waste of human energy on low productive activity. It is certainly clear that effective advocacy requires awareness amongst policy makers and transport planners, to ensure that women are represented in user-based participatory planning.

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