Rural household transport in Africa: Reducing the burden on women?

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Rural Household Transport in Africa:
Reducing the Burden on Women?

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Summary. — Rural household travel patterns have been largely ignored in African transport studies. Over the past 10 years, however, village-level surveys have been undertaken which reveal the predominance of female porterage in rural transport. Donor agencies are now focusing efforts on “appropriate” technology interventions to directly enhance rural mobility and to indirectly improve agricultural productivity. Preliminary evidence, however, suggests that men rather than women are the main beneficiaries of appropriate transport technology. This paper asks why and suggests a number of methodological refinements to future rural transport studies to generate the information necessary for devising programs with a higher likelihood of effective assistance to rural women transporters.

1. INTRODUCTION
The recorded transport history of sub-Saharan Africa over this century has dwelt on the establishment of “modern” rural and road networks. Early European colonial efforts to establish rail lines to facilitate the export of major crash crops such as coffee, sisal and cotton resulted mainly in hinterland outlets to the sea of bulky export commodities. During the latter years of colonial rule and early post-independence, more than 10,000 km of new rail line were laid, but the export orientation remained. Over the last three decades emphasis has shifted to road building, directed first at establishing a more extensive main road network and then rural feeder roads. In most countries, the result of road and rail investments is a skeletal network with the majority of rural communities beyond the effective reach of modern transport services, to say nothing of the difficulties of maintaining the existing network in a usable state. Nonetheless, the focus of transport studies over the last three decades has been these “modern” transport networks, their development, maintenance and function in terms of commodity movement. Analysis of the modern transport system has been pursued to the exclusion of the study of rural household transport characteristics.

Recently, however, three separate strands of development literature have converged to highlight the significance of African women’s role in rural transport. During the last two decades, feminist study of the female working day in sub-Saharan African (SSA) has generated a profuse literature, pointing to the centrality of women in African agricultural production systems and the serious labor constraint most rural women producers face. Curiously, the transport element of female labor-time expenditure has rarely received either careful observation or measurement. In the mid-1980s, growing interest in intravillage and household travel patterns led transport planners into data collection that revealed the remarkable preeminence of women in rural load carrying. The fact that these findings arose amid development agencies’ programs to address the African agricultural crisis led in turn to the proposition that a reduction in female transport time and effort could be redirected at improving agricultural production and rural household welfare.

This paper reviews literature relevant to the field of African rural household transport, highlighting findings on rural household transport demand emanating from surveys in East and West Africa. This documentation will henceforth be referred to as the African Rural Transport (ART) literature. Evidence

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of the extent of women’s participation in rural transport and attitudes toward this role are discussed, before considering the concept of rural household transport demand. The array of policy interventions currently being proposed and tested by different development agencies are outlined. Finally, the authors offer a critique of the research methodology and policy proposals that have been advanced to alleviate African rural women’s transport burden, arguing for a “reposturing” of external agency involvement in line with the perspective of African women transport suppliers. Certain vital dimensions of female transport work are not incorporated in current survey methods and their omission is likely to have a distorting effect on policy proposals and, ultimately, a detrimental effect on African women transporters.

2. REVIEW OF “ART” LITERATURE

(a) Village and household travel studies:

A 1987 survey in the Ashanti, Volta and Northern regions of Ghana, using a specially developed methodology for measuring rural household transport demand, revealed just how inconsequential the modern transport system was to rural dwellers’ travel patterns. Only 27% of the survey households owned any form of transport, i.e. bicycles, and these were overwhelmingly concentrated in the Northern region. None of the households owned motorized vehicles and there was a total of only 10 motor vehicles found in the nine survey villages comprising some 21,000 people. Collection of water and firewood, and trips to the fields for crop production and harvesting were done exclusively by walking and head loading. Even for external marketing, more produce was carried by head load (3.7 ton/household) than by motor vehicle (0.8 ton).

Considering travel by household members, 73% was internal to the village, with load carrying travel even more weighted toward the village (76% of the total). Most external travel from villages was in fact to places in the surrounding area. Longer distance travel accounted for an insignificant proportion of total trips (less than 0.6%). The majority of load transport by weight was devoted to basic needs provisioning, notably water and firewood collection. An average household of 11.4 members (6.5 adults) transported over 220 ton-kms per year, taking approximately 4,800 hours (equivalent to more than half a year of day and night effort) to do so. This can be visualized as seven-tone lorry load transported over a distance of approximately 31 kms. The load-carrying effort between regions ranged from 160 to 300 ton/kms amounting to 2,740–6,210 hours per household per annum.

The same methodology was applied to a study of village transport in Makete district, Tanzania. Makete is a remote mountainous area where cash cropping is not highly developed. Sample surveys in 1986 and 1987 reinforced the finding that motorized travel on roads and long-distance travel generally is extremely limited. Ninety percent of all trips, 80% of time spent on transport, 95% of the total weight of goods and 80% of load carrying effort was transport within and around the village. Walking was the predominate form of transport with only an insignificant number of households owning bicycles or donkeys. Travel by bus or other motor vehicles was restricted to trips outside the district. Household transport activities have a roughly similar functional pattern in Makete compared with Ghana. Transport for basic needs provisioning dominates. On a per capita basis Makete households, however, have to devote more time and effort to fulfilling their transport requirements. The average Makete household size is 5.0 members (2.5 adults), less than half that of the Ghanaian households, yet transport activities occupied about 2,500 hours per annum, i.e. 48 hours per week, the equivalent of an eight-hour job for six days a week. Thus, assuming that all children under 15 represent a 0.25 adult equivalent, transport activities occupy 15.4 hours per capita per week in Makete compared to 11.9 hours in Ghana. It is noteworthy that the Makete villages were located in more difficult physical terrain and had a more subsistence-based agricultural economy.

(b) Quantifying women’s transport contribution

Estimates of average per capita transport time allocation are misleading since household transport activities are not equally divided among adult members. Responsibility for transport is based primarily on local consensus regarding the sexual division of labor in the household. In this respect, women are allocated the bulk of travel, especially load carrying. Indocritnation and physical training for the role of transporter is introduced early in a young girl’s life. By adulthood, women are extremely adept load carriers accustomed to transporting daily 25 kg or more on their heads and/or backs over considerable distances.

Women’s importance as household transporters is clearly evidenced in the Ghanaian village transport survey. Men allocated about 35% of the time women did to transport activities and, in terms of tonnage transported, their effort was only equivalent to 25% of women’s carrying performance (Figure 1). Men’s main transport contribution was in association with crop establishment, weeding and especially helping with the transport of harvested crops. Women, however, were more active in these tasks than men, as
The men of Makete were even less involved in transport than Ghanaian men. They contributed only about 25% of the time women did to transport and were performing approximately 11% of the load carrying effort (Figure 2). Like their counterparts in Ghana, the majority of their transport time was associated with agricultural activity. They refrained, however, from active involvement in harvested crop carrying. This could be related to the relative absence of significant amounts of cash crops requiring transport from the field and men's custom of leaving women fully responsible for food provisioning, from its production in the field, transport to homestead as well as preparation and cooking.

Rural African women's role in transport has long been apparent to even the casual visitor. Numerous detailed studies of women's labor time allocation, however, documenting their arduous workday in agricultural tasks and basic needs provisioning, have nonetheless overlooked the transport element. Time spent transporting goods and services is subsumed into a categorization of tasks based on net output. Thus, transport of water becomes "water collection," travel to fields becomes "agricultural activity," etc.

Recently, researchers have begun to distinguish transport time and load carrying effort within output-directed activities such as water and firewood collection. The findings complement the village field study data reported above. Curtis cites data from rural Kenya showing round trip water collection time ranging from less than one hour (9% of those sampled) to over six hours (27% of the sample) during the dry season. Cecelski's worldwide review of fuel collection studies reveals time variability of between one hour per household per week in a forested area of Nigeria to 38 hours in Uttar Pradesh. Fikerte Haile's study focuses on women fuel carriers supplying Addis Abba. On average individuals carried firewood 11.7 kms which weighed 36.2 kgs, amounting to a load of 75% of body weight. Seventeen percent of the women were carrying loads heavier than their body weight. Mehretu and Mutambirwa's Zimbabwe field evidence reveals adult women logging over 20 hours per week on trips for water and firewood collection, laundry, livestock tending and marketing.

What is evident in these studies is not only the sheer volume of goods being transported by women vis à vis the local economy and environment, but the material duress under which this work takes place. Curtis is attentive to the physical side of women's efforts, examining the different postures for load carrying, their relative efficiency and the damage that can be inflicted on women's physique. She cites the high incidence of backache among Maasai women as well as the treatment of "Kibuyu bursa," an osteoarthritis of the soft tissue of the knee caused by load carrying. Similarily, the women fuelwood carriers in the Ethiopian survey complained of eye, chest and back pains, high rates of miscarriage and the danger of falling down.
(c) Why is transport regarded as women's work?

In view of women's already onerous workload with respect to agricultural production and basic needs provisioning, it is worth asking why human porterage in Africa is so restrictively women's work? In most other cultures in the developing world, not necessarily characterized by considerate attitudes toward women, men are expected to take the brunt of physical load carrying. In contrast, African rural dwellers tend to discount transport as a discrete task, and submerge its costs in the use value of a more specific object-oriented activity. Skjonsberg, in her study of labor allocation in a Zambian village reports that the attitude of villagers is: "[f]irewood and water are women's responsibility. Men can and do, of course, help, but it is not their job. It is a women's job for they have stronger necks than men." It is interesting that physical strength is used as a rationalization, but the notion is qualified: "[m]en are stronger than women and that is why they do all the important work. Women have stronger necks than men and that is why they must carry things on the head." "Anthropologists speculate that the sexual division of labor was more balanced before colonialism when men were hunting and defending their villages from intruders. With the disappearance of these activities, men have not rechanneled their time into agricultural pursuits and homestead maintenance to the degree required to balance the workload between the sexes. But an explanation which rests on historical residuals is unlikely to provide the full explanation. Current social, economic, political and legal factors no doubt are contributory causes. In patrilineal societies, African women themselves frequently express the view that the imbalance arises from the fact that rural men pay brideprice which imposes labor obligations on wives. In this respect, a women's load carrying is merely another service that she is expected to perform for her husband and household.

The historical roots of women's designated responsibility for head loading are highly speculative. It is clear that at present a woman's position as a transporter is inextricably linked to her role as the household's primary basic need provisioner of food, water and fuel. In many parts of Africa, the colo-
The determination of transport demand stopped at this stage, with individual members meeting their own need for transport services, it might be valid to speak of the aggregate as an amalgamated household transport demand. The measurement of individual demand would coincide with individual members' transport needs, adding up to a total household demand. In the second stage, however, the demand for transport services within the household is exerted on specific members of the household who are designated as the main transport suppliers. As the surveys have invariably revealed these transport suppliers are primarily women. Through their transport activities, they express a measurable transport demand which reflects their specific transport service demands as well as the service demands of other household members.

Under the existing household transport demand model, it is assumed that task performance by individual households meets a household demand with undifferentiated apportionment of the benefits and costs of this work performance to household members. In reality, by serving as the actual means of transport, women experience a disproportionate share of transport costs and only some of the benefits. By treating all household members as consumers of transport, the issue of gender bias at the intrahousehold level does not arise. It surfaces at an interhousehold level instead. Concern is expressed for the impact of restricted access to intermediate means of transport (IMT) on female heads of households as opposed to male heads of households, rather than considering the dilemma as it exists between husbands and wives and other male and female members within the household.

Ultimately, these misperceptions can be traced to applying a market demand model to what is largely a subsistence-producing household which allocates its survival tasks on the basis of cultural norms rather than the optimizing principles of the market place. Contrary to conventional economic theory, the transport demand of African rural households is relatively unresponsive to the "price" of transport suppliers' increasing energy expenditure. Within the household, members who are relatively free of culturally-ordained transport responsibilities can demand transport services while remaining insensitive to the costs incurred by the female members' intensified efforts as transport suppliers. Thus, the supply and demand feedback mechanism is stymied by cultural dictates. As energy costs steepen, African women's transport supply remains inelastic or increases perversely because they are compelled by community sanctions regarding the sexual division of labor. They often feel obliged to raise their supply efforts in the face of adversity to fulfill their role as household caretakers.
4. TRANSPORT INTERVENTIONS

Outside agency attempts to improve rural transport at the household level are still in their infancy. The Makete Integrated Rural Transport Program and World Bank financed efforts in Ghana are to date the most comprehensive attempts. There is as yet no evaluation documentation available on them or any other household and village level rural transport improvement programs. The literature that exists is primarily one of advocacy regarding the importance of addressing rural household transport constraints. Emphasis is on the narrowness of conventional transport analysis and the expense and gross inadequacies of developing a modern road network which has virtually no direct and limited indirect impact on peasant producers.

(a) Appropriate technology

Operational programs to improve rural transport are being developed firmly within the framework of an appropriate technology approach. Transport improvement is seen as two-pronged: to increase accessibility and to enhance mobility using local materials and skills as much as possible. The former entails the spatial planning of villages and village installations so as to minimize transport distance. Characteristically, the provision of village wells, woodlots and grinding mills proximate to settlements are recommended. It is recognized, however, that villagization programs that nucleate settlement around schools, dispensaries and other social and physical services may result in villagers having to travel further to their agricultural fields. Daily travel and load carrying by household members between homestead and agricultural fields can cumulatively add up to more time and effort than the less frequent visits to dispensaries and other centralized services. Thus, there is a travel time trade-off in any program to rationalize African rural settlement. Local conditions and villagers’ activity schedules have to be taken into account in trying to plan interventions which actually improve accessibility.

The issue of enhancing rural mobility revolves around promoting the more widespread availability of “appropriate” means of transport or “intermediate means of transport” (IMT) which offer an improvement over human porterage. Hand carts, wheel barrows, bicycles, improved animal panniers, animal-drawn carts, mechanically powered vehicles such as motor bikes potentially provide better performance than head or back loading. Appropriateness is decided in terms of the local terrain, type of usage, affordability, local maintenance capability and cultural preference.

There are four main components to the introduction of these new or improved means of transport. First, it is generally assumed that distribution will be on an individual rather than group basis and that it will take place through the market place. The ILO/World Bank Rural Travel and Transport Project has adopted this as one of three key working hypotheses. Second, efforts are made to provide suitable transport infrastructure, notably track improvement. Third, provision is often made for skills training to both make and maintain the transport devices. Fourth, improvements are targeted for local-level transport, especially the short-range, drudgerous, encumbered transport that burden women and which constitute the bulk of rural transport activities.

(b) Women’s access to improved means of transport

What is emerging very quickly from the literature is that men are much more likely to adopt new intermediate forms of transport than women. Some of the reasons for this pattern have already been mentioned, namely women’s lack of purchasing power relative to men and secondarily, in some places but by no means all, women’s acquisition of improved means of transport is circumscribed by notions of cultural impropriety. The bicycle is a case in point. In rural Eastern Uganda where bicycle usage is very prevalent, very few women ride bicycles and those that do are considered “too liberated” and “acting like men.” Male bicycles with crossbars are almost exclusively available which exacerbates the fact that African women’s normal clothing, i.e. long waist-cloth wrap-around skirts, does not make it easy for them to ride a cycle.

Despite impediments to women’s adoption of improved means of transport, it has been observed that in some cases men who adopt a transport innovation take on functions that were previously shouldered by women. Furthermore, with the spread of the innovation, its novelty and scarcity value decline and women gradually get direct access. This process has been described for the spread of ox-plough usage. Gender transfer seems most effective in rural areas of male emigration where women take over men’s productive roles in their entirety. In less feminized settings, the process of gender transfer is more a hypothesis than a proven fact.

The theory that men take over women’s transport tasks when availed improved means of transport requires further scrutiny. It has been recognized that men’s possession of IMT is often triggered by status consciousness rather than practicality. Bicycle usage is again illustrative. In several parts of SSA where bicycles are used, it is men, particularly younger men, who monopolize ownership. Bicycle ownership can be compared with sports car possession in the industrialized world. The vehicle is not used for fuelwood, water or crop transport if the pur-
pose of ownership is to impress. Wear and tear imposed on the vehicle would seriously depreciate its value as a status symbol.

If and when men acquire IMT with the practical objectives of load carrying in mind, it is normally with commercial intentions. Wheelbarrows, hand carts and ox carts are used on a hire basis for firewood and water collection as well as crop transport. This could serve to alleviate women's load carrying burden indirectly, but it is likely to do so selectively. Women from wealthier households will be able to pay for the service, whereas women from lower income families, less integrated in the cash economy, will not. It also introduces the disconcerting prospect that low-income women load carriers will have to compete with male commercial agents for the communities "free goods," with the likelihood that the men's enhanced mobility will win the race to water supplies and firewood stocks.

Growing evidence from rural Africa suggests that both the impetus for and acquisition of IMT is tied almost exclusively to commercial market usage. The corollary is that men rather than women gain access to the IMT and rarely relinquish its usage for domestic purposes. A striking example of this is the widespread reliance on bicycle transport in rural Eastern Uganda documented by Malmberg-Calvo. In the majority of cases the bicycles have been purchased and are utilized solely by men in their business pursuits, notably transport of trading commodities or back seat passengers. This development has not arisen due to women's ignorance of the bicycles' potential for relieving drudgerous labor. Rather the main hindrance is the capital outlay required for purchase. What is increasingly apparent is that from the perspective of African rural dwellers, particularly female rural dwellers, most IMT are not low cost. In rural Tanzania, for example, a new bicycle costs the equivalent of almost a year's minimum wages, to say nothing of the cost of inner tubes, tyres and other spare parts needed to keep it in working order. Similarly, the price of wheel barrows, hand carts and ox carts is prohibitive for farmers who are primarily subsistence producers. Hathway and Mandel argue that ox-cart hiring is essential if ownership is to be an investment in animal-drawn carts. In his review of IMT case studies, de Leyser concludes that "[t]he single greatest factor inhibiting the wider ownership and use of the various forms of IMT is that of affordability."

Thus, there is a possible contradiction in the rural transport alleviation efforts of development agencies with respect to the introduction of IMT. International agency commitment to the market dissemination of IMT could operate to derail the target of addressing women's drudgerous, load-carrying work. It is apparent that local infrastructure development efforts, especially path improvement, are more likely to beneficially affect women, regardless of their income standing.

5. METHODOLOGICAL REFINEMENTS

The household transport demand methodology has brought into focus African rural women's efforts. This section will argue, however, that certain key aspects of women's transport work have not yet been taken into account. Thus, the formulation of policies on the basis of these partial findings could exacerbate rather than alleviate women's constraints, by widening the gap between the transport capabilities of men and women, and in the process, fail to address the gulf between their socially defined household transport responsibilities. The deficiencies in the methodology are rooted in its underlying assumptions regarding African rural households and female labor. As argued in section 3, household transport demand is not disaggregated by individual household members nor is it sufficiently distinguished from female transport supply.

(a) Transport supply analysis

Recognizing the household as the focus of transport demand and supply would constitute a step forward in rural transport studies. Once analysis switches to the supply side there is a far wider range of transport features which can be probed. Apart from who supplies transport services within the household, how far they travel and the main purpose for their travel there is the extremely important matter of how they supply these services. A large body of literature on this issue exists in conventional transport analysis. The supply considerations and logistics of road and rail haulier firms has received detailed attention. In marked contrast, and despite evidence of the dominance of women as transport suppliers, the ART studies have not given sufficient analytical weight to the nature and logistics of female load carrying. This would require going beyond household level enquiries to research travel and load carrying from the decision-making perspective of women themselves.

Many questions immediately arise once the issue of women and transport logistics is raised. What methods are women using to carry loads? What types of materials are used — cloth harnesses, baskets, clay pots, plastic buckets, etc.? What types of loads are women carrying in terms of weight, bulkiness, number, etc.? How do they schedule load carrying, seasonally, weekly and on a daily basis? Does
temperature and weather affect load carrying? For example, do women try to avoid carrying loads during the daytime heat? How are loads carried during the rainy season, when paths are especially slippery? Do women engage in group transport and is cooperative load carrying a regular feature of the rural economy? Most critically, how do women manage their transport and load-carrying activities amid other housekeeping and childcare tasks?

Women's transport activities are embedded in a complex web of multitasking. None of the above logistical questions can be taken for granted by women transport suppliers. The seeming naturalness of female load carrying for African rural producers, and its ubiquity should not be confused with effortlessness. African women's load carrying requires foresight, planning and opportunity costs which results in many disbenefits to the women themselves.

Ignorance and lack of concern for women as transport suppliers can reach an extreme. Goe reports that Zimbabwean men with animal carts, when given a choice between conserving the energy of their animals or their womenfolk favored the animals. In the men's eyes, women were not only a means of transport on a par with draught animals, they were a comparatively free means of transport, considered to be more enduring and hence more exploitable.

ART studies implicitly incorporate the cultural biases of the community. The sexual division of labor, which allocates rural women in Africa the role of load carrier, is taken as immutable and unaddressable within the household. While women's transport contribution is amply recognized, complacency with the household and community status quo, leads to the formulation of untargeted measures for improvement of local transport. The outcome is predictable. Men will garner the direct benefits of transport interventions with, perhaps, a slow trickle-down of indirect benefits to women.

Without a careful study of women transport suppliers' decision making and logistics, there is little possibility of formulating policies that meet their needs let alone implementing them in a way that actually benefits women. A first step in reforming the policy formulation process would be the insertion of women's logistical transport needs and objectives into the methodology of ART studies. This requires situating women transporters in the context of household transport capacity as a whole, which begs a wider perspective on the functions of the household.

(b) Transport capabilities within the household

The goal of maximizing agricultural output, particularly commercial agricultural output has, according to many international agencies, gained heightened importance under conditions of African debt and structural adjustment programs. It is not, however, necessarily the tactical or even strategic objective of African producers themselves, be they female or male. The most recent and far-reaching ART studies have been carried out within the context of international agencies' preoccupation with increasing African agricultural productivity, especially cash crops. The household transport model has been constructed around the concept of the household as, first and foremost, an agricultural production unit. Dropping this limiting assumption adds complexity and insight into the analysis of household transport.

Once the multifunctioning of the household is acknowledged, there are a number of areas of enquiry that open up. Perhaps most pertinent to ART studies is the question of the household's transport output. ART development policy has so far tended to implicitly assume that external inputs, either in the form of spatial planning interventions to enhance accessibility or the introduction of IMT, are key to local level transport improvements. What is overlooked is the household's internal management of transport and what improvements can be effected through internal adjustments to the organization of transport activities. It has already been argued that there is a disjuncture between the allocation of transport responsibilities between adult male and female members of the household and their transport capabilities. It is worth comparing the mobility of men and women in more detail to assess the rationality of the present division of transport activities between the sexes and the potential for future organizational reform.

Excluding the strong neck theory of women's comparative advantage as transporters, existing evidence suggests that women's mobility is disadvantaged relative to men's with respect to: access to mobility aids; spatial and temporal impediments to mobility; and the social attitudes of the community. Women's inferior purchasing power gives them less ability to acquire IMT through the market. The ART household interviews asked about ownership of IMT by the household, but there is no data on who within the household owns and/or controls the usage of these means of transport. If men own bicycles, for example, are their wives allowed to use them? Why or why not? These are essential questions that must be answered before any program for IMT dissemination is initiated.

In the Eastern Uganda study of IMT usage, interviews, in women's groups revealed that their husbands did not wish to "loan" their bicycles to them for fear of damage. Nor were men reported to be eager to lighten their wives' workload by performing some of their carrying tasks. Bicycle usage was largely off-limits for women. Nonetheless, the women hoped that through their sons' acquisition of
bicycles they could benefit indirectly. In the society’s sexual and age pyramid, women, as mothers, could send their sons on cycling errands which had the potential of easing their load carrying tasks.\(^49\)

Second, women's housekeeping and childrearing responsibilities constantly impinge on their mobility. This operates to reduce the distance range and increase the frequency of their trips both within and outside the village. In the village, women's childcare and cooking activities often necessitate their return home during the day from agricultural field work. Heidemann and Barth's\(^50\) research findings show women were making more frequent trips between field and home sites than men, resulting in cumulatively more travel time. Men are more likely to travel outside of the village. Skjønsberg attributes this to the fact that men have less household responsibilities and more time and flexibility.\(^31\) Men's surplus time can be deployed not only on travel per se but also on waiting for unreliable buses and off-chance lifts from passing lorries and cars. Much more research, harkening back to classic time and motion studies, has to be done on daily female mobility patterns, to show where the bottlenecks are. How can women's travel and load transport activities be streamlined? How can women's transport activities be rationalized in view of the continuous multitasking that constitutes the average rural women's workday?

The most important stumbling block, however, to improvements in rural household transport is attitudinal. The gender allocation of responsibility for transport activities within the household is drastically out of balance with transport capability by sex. Ideological principles rather than pragmatism underlies the allocation. Broadly, load carrying is considered women's work, an essential duty of a wife under any circumstances.\(^52\) Head and back loading is synonymous with female exertion, part of their "natural role" as women, whereas men can be observed actively engaged in device-facilitated load transport.\(^53\)

(c) Passengers in rural transport

One evident omission in the ART literature is that passenger traffic is rarely mentioned. Despite the ubiquitous presence of babies tied to their mothers' backs while they travel to and from fields, work in the fields and transport large loads on their heads, this trademark of rural Africa has yet to be included in the ART studies.

With some of the highest fertility rates in the world recorded in parts of rural SSA,\(^54\) and with almost sole reliance on breast as opposed to bottle feeding, at any one time a large percentage of the rural female population has an unweaned child who must be immediately proximate to her.\(^55\) In an Ethiopian rural time allocation study, 55% of the West Gojjam women interviewed spent an average of 3.8 hours per day carrying a child. Taking the sampled women as a whole, an average of 2.4 hours of child carrying was the norm. Child carrying came second only to food preparation as the most time-consuming activity women performed.\(^56\) It should be noted that child carrying was cotemporaneous with other work activities. Furthermore, sometimes there was also a child in the womb, to add to the weight a woman was carrying.

Managing the trade-off between child-carrying capacity and mobility is a very old dilemma for women on the African continent.\(^57\) But it is not simply a matter of balancing child-carrying capacity with mobility, rural women are carrying children in addition to other loads. The nature of women's multitasking at any one moment in her work day dictates that she has to carry an assortment of tools, raw materials, and other goods while transporting her child.

When a woman is carrying a child in addition to a load, it is the child who receives priority. The weight and size of the items to be carried have to be adjusted to accommodate the child. In ART studies, load measurements have been based on the "main purpose of journey." Thus, the presence of the child is incidental and its weight goes unrecorded, a direct inversion of the priority that the woman transporter places on the component parts of her total load.

In recent years, passenger transport studies have given prominence to the issue of safety. The absence of observation of rural women's bodily transport of children in SSA has not provided information for the safety issue to be raised with respect to children, and only rarely has the health and safety of the transporter herself been mentioned in the ART literature. Overloading can cause long-term back, neck and knee problems for women. In a more immediate sense, women's bodily transport of children over rutted and slippery paths, especially in steep terrain, can lead to serious falls causing injury to themselves and the children they are carrying.

Women's bodily transport has direct implications for IMT. The usual ironic twists prevail with respect to the distribution of baby transport technology between the North and South. Parents in industrialized countries, where fertility rates are relatively low, are availed a wide array of devices and means of transport which facilitate the joint mobility of their babies and themselves. Baby strollers, back harnesses, baby seats for bicycles and baby seats on shopping carts are taken for granted. The authors know of no examples of designs of IMT destined for rural Africa that have incorporated features for baby transport.

Baby seat accommodation on IMT disseminated in rural Africa could be extremely beneficial, making
the IMT more appropriate for women. It is likely that an IMT vehicle with a built-in baby seat would be perceived very differently from one without. Men might question its value as a status symbol and feel less inclined to acquire it whereas women might be better able to claim access, if not ownership.

6. FUTURE POLICY ORIENTATION

In summary, the recent appearance of ART literature represents an important breakthrough in transport studies. The findings have revealed the dominance of human porterage and the centrality of women as load carriers in African rural transport. This paper argues that various economic, demographic, political and social factors have combined to maintain and indeed intensify women's load carrying responsibilities and work effort during this century.

As household transport requirements have grown, cultural norms in rural SSA have remained in a traditional mold which dictates that women's responsibilities are: to do the travel and load carrying connected with household basic need provisioning; and to head load or back load any goods in the absence of transport device-assisted options. These two underlying precepts of the sexual division of labor not only stand in the way of a more rational intrahousehold distribution of work effort, but also thwart the equitable distribution of benefits between male and female household members in external agency transport improvement interventions aimed at replacing arduous human porterage.

The danger embedded in these interventions is that rural women's physical and economic position could deteriorate further relative to men. Men would gain enhanced mobility with few household transport responsibilities while women would have little or no access to the innovation and remain responsible for the bulk of household transport work.58 The interventions would fundamentally fail because female human porterage would not be displaced by the transport improvements. International agencies, in general, have been reluctant to challenge the "cultural preferences of the community,"59 even though these give rise to gross inequities between the sexes and impose a workload that could jeopardize women's physical health.60

The partial analysis of African rural transport to date, i.e. the almost exclusive focus on "household demand," rather than in-depth research from the perspective of the women transport suppliers, has resulted in international agency interventions being pursued largely on the basis of a very restricted informational base. There is a need for a more comprehensive research approach which: (a) discards assumptions about the unity of household demand and household welfare; (b) widens the analysis to a consideration of women transport suppliers' decision making and logistics; (c) addresses the social and economic constraints on women's transport capabilities; and (d) recognizes the multitasking and childcare dimensions of women's transport strategies.

Can development agencies justifiably avoid the issue of cultural norms regarding the sexual allocation of transport work within the household? The argument for avoiding confrontation runs as follows: development efforts must be culturally acceptable to the community. The sexual division of labor in transport accords women the bulk of responsibility which should not be subjected to external agency interference. The counterarguments for agency intervention are listed as follows in order of their degree of conviction to women's interests:

- Productivity argument: To fail to address the cultural dimensions of African rural household transport will undermine any technical attempts at transport and agricultural improvement. Women transport suppliers' access to the improvements will be marginalized while their transport responsibilities will remain the same. As a result little or no release of women's time can be anticipated thereby precluding any possibility that part of their transport work effort can be rechanneled productively.

- Rural welfare argument: Without a redefinition of women's transport responsibilities and with disadvantaged access to project improvements, women's workload could actually increase with a wide array of economic and physical disbenefits to themselves as well as to the welfare of their children. Just as water supply programs characteristically include education in better usage of water supplies and avoidance of contaminated water, efforts to improve rural transport should provide education in the health and safety dangers of physically overloading women with household transport tasks.

- Feminist and human rights argument: Boldly stated, at present, the "cultural preferences of the community" condemn women to being beasts of burden in the service of men. The feminist issue of "who controls women's bodies" is pertinent here, not in the usual context of the debate on reproduction, but rather in terms of production.

Thus, improvements to ease African rural women's load carrying can be rationalized on efficiency, welfare or moral grounds vis-à-vis the rural households or women themselves. This paper is not advocating any one posture over another. What is at issue is the development of transport programs which are of value to African rural women trans
porters. This depends on the design of programs for women transporters with measures to ensure their health and safety as well as the safety of their passenger children and optimize their labor time and effort from the perspective of the women themselves.

Historians often refer to the significance of “transport revolutions” in changing the economic course of nation-states. Given the pervasiveness of human porterage in African rural economies, it is possible that successful rural transport programs in Africa could not only improve women’s welfare, but additionally, lessen household production constraints, improve the local economy and have reverberations for the country as a whole. Ultimately this could have continental significance. But before any of this is possible, attitudes toward women as natural load carriers have to be challenged.

NOTES

4. To name just a few see Hafkin and Bay (1976), Bukh (1979) and Bay (1982).
7. The Makete Integrated Rural Transport Project, initiated in 1986 under the sponsorship of the ILO with funding from Swiss Development Cooperation, consists of research and sustained follow-up development work. The project has been operating for seven years and continues at the time of writing (April 1993).
9. Children were reported to be responsible for roughly 12% of household transport activities (Barwell and Calvo (1988), p. 81).
10. For a comprehensive review of the findings of labour time allocation studies see Goldschmidt-Clermont (1987).
18. Quote of Mr. Sandikonda Daka (Kefa villager) in Skjonsberg (1989), p. 140. Kaberry’s interviews in the Cameroons revealed that men held the view that women were better suited to load carrying because they had “stronger foreheads” (Kaberry, 1952).
24. Defined as “those means of transport which are intermediate, in terms of initial cost and transport characteristics — payload, range, speed of travel and route requirements — between the traditional methods of walking and head loading, and conventional motor vehicles . . . [and] . . . intermediate in time, i.e. they are a stage in the process of developing from a traditional to a modern transport system” (Bryceson and Howe (1989), p. 1).
25. The hypothesis is “[t]hat the returns on such investments in appropriate low-cost infrastructure and intermediate means of transport (IMT) — ranging from wheelbarrow to motorcycles — to farm families themselves are so high that they will be undertaken by private individuals, and that government’s role can therefore be largely facilitative and promotional rather than requiring direct investment (sic.)” Urasa (1990).
26. Local level transport is defined as “the means whereby the majority of the rural population transport themselves, their families and their goods,” or “that which people in rural communities use in their attempts to fulfill basic needs for shelter, food, water, clothing, health services, education and markets for produce” (Howe, 1983).
32. e.g., Dawson and Zille (1989).


39. Doran (1990), pp. 75–76.


42. e.g., Edwards and Bayliss (1971) and Harrison (1963).

43. A useful guide in this line of enquiry is Anderson (1984).

44. Dixon-Fyle and Frieling (1990, p. 15) document that during the rainy season in Makete, women have to negotiate the steep, muddy slopes in a sitting position.

45. Skjonsberg (1989, pp. 62, 75) notes that women often travel and transport in groups to expedite transport work rather than for merely socializing: “Because water-carrying is a tough job women help each other, not for love, but because they want other women to help them in turn... Two persons are needed to lift a head load from the ground. When a group of women carry maize, trotting in a line, encouraging each other to endure and shortening distances by shouts and even laughter, even a load of 50 kilograms seems bearable.”

46. For a graphic description of women’s “juggling” of work activities see Obbo (1990).


48. For documentation of this familiar pattern with regard to general agricultural development interventions see Jiggins (1980).


53. “It is only head load transport that is women’s work. The moment oxen, combustion engines, or even bicycles enter the rural scene, transport is no longer considered a women’s affair but that of men” (Skjonsberg, 1989, p. 62).

54. In low and middle-income countries of sub-Saharan Africa the total fertility rate (1990) was 6.5 compared with 2.7 for East Asia and the Pacific, 4.2 for S. Asia, 5.7 for the Middle East and North Africa and 3.3 for Latin America and the Caribbean.

55. But proximity of young children is not just a matter of reeding. Psychologists have watched mother-child interaction in Western society and noted the toddler’s lack of self-locomotion. According to Leach (1991, pp. 491–494): “We regard walking as a means of moving along, and getting from one place to another but toddlers do not. Not only do they naturally tend to go and come to a seated mother, they are quite incapable of following, or moving along with, a moving mother. The infants observed... tended to ask for transport as soon as the mother signalled her intention of moving on. If a pushchair was offered, they climbed willingly into it. If there was no pushchair, they at once held up their arms to be carried. When mothers tried to make the toddlers walk along with them there was invariably trouble. Holding the mother’s hand, and with her walking extremely slowly, the infant might manage for a few yards. But after that either the mother would lose her patience and drag the child by the arm, or he would move deliberately and directly in front of her, and stand holding up his arms, demanding to be carried.”


57. Lee’s 1960s case study of the !Kung of Southern Africa recorded women gatherers walking approximately 2,400 km per year. Carrying a child for four years required a work input of 72.3 ton/km (Lee, 1969, pp. 310–329).


60. With respect to gender inequalities, Sen (1985, p. 44) has forcefully argued that “problems of conflict within the family tend to get hidden by adapted perceptions both of ‘mutuality’ of interests (going well beyond the actual elements of congruence that do, of course, importantly exist) and of ‘legitimacy’ of inequalities of treatment. As a result no policy analysis in this area can be complete without taking up the question of political education and understanding. This is an area in which social illusions nestle closely to reality, and terrible inequalities are cloaked firmly in perceived legitimacy. The importance of information and analysis in breaking the grip of traditional arrangements is hard to exaggerate.”


62. In 1922, Lord Lugard asserted that the development of Africa could be summed up in one word, “transport” (Lugard, 1922, p. 11).

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