

**Emancipating the Rural Population from Isolation
Intermediate Means of Transport (IMTs)
The Case of Ethiopia in Sub-Saharan Africa**

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Teferra Mengesha

W.T Consult PLC

☎ 011 5 53 12 15 Fax 011 5 51 32 46

E-mail : wttefe@ethionet.et

Addis Ababa, Ethiopia

Abstract

In this paper, an attempt is made to review the trends in the development of rural transport services in Ethiopia, with emphasis on the uptake of Intermediate Means of Transport (IMTs) in the Pilot Weredas of the Ethiopian Rural Travel and Transport Program (ERTTP). The paper critically assesses the existing situation on the basis of international experience, and suggests a range of specific improvements. Results from various research activities and surveys are briefly reviewed to illustrate valuable lessons. While motorization is not expected to be sustained to meet the nature and level of mobility needs at the local level (within and between rural villages), there is a rationale for a more rapid adaption and use of IMTs. There is a strong sense of optimism surrounding the potential for improving rural transport in the framework of the five-year Growth and Transformation Plan (2010/11 – 2014/15). A holistic approach is proposed to emancipate the rural population from isolation.

1 INTRODUCTION

1.1 Subject

The paper is concerned with the critical issue of rural transport services in Ethiopia, with emphasis on the role of Intermediate Means of Transport (IMTs). This is in the context of more than thirty years of efforts at disseminating the knowledge base on isolation and its implications for developing countries in general and Sub-Saharan Africa in particular.

1.2 Scope and purpose

The purpose of the paper is to demonstrate the critical importance of rural transport in Ethiopia, the limited success in the adoption and wider use of IMTs, and why it should be a development agenda. It argues that the way forward would depend on consensus among stakeholders about the need for the development of low cost means of transport and the understanding that a road and car-centered approach has limited impact at the local level. Based on surveys in Ethiopia, the paper demonstrates that costs associated with IMTs are prohibitive, and changes in design and methods of manufacturing are required. At a broader level, a well conceived policy and strategy is necessary to guide the way forward.

1.3 Plan of development of the subject matter in the paper

The paper draws on a brief review of the issues and the wider range of solutions based on international experience. This is followed by highlights of the dimensions of the problems of rural accessibility and mobility in Ethiopia, the initiatives that have been taken so far and the viable options in the form of IMTs. A holistic approach comprising regulatory reforms, institutional arrangements, incentives, credit financing, design and production methods, environment, gender, etc. is also presented.

1.4 Value to the reader

It is thought that the reader of the paper will be able to appreciate that tackling the rural transport problem looks daunting, but is achievable provided that stakeholders come up with a clear framework and demonstrate long term commitment.

2 RURAL TRANSPORT IN A WIDER RURAL ACCESSIBILITY CONCEPT

2.1 The concept

The concept of rural transport evolved over the last 30 years, following recognition that millions of people in Africa and Asia lack rural transport to access basic services. A number of studies that had been carried out in the late 1980's suggested that transport policies and programmes that concentrated on roads and conventional motorized means of transport failed to address the critical problem of rural mobility. Studies by Barwell et al 1985, Edmond and Relf 1987, and Barth and Heidman in 1987 identified the underlying factors such as neglect of maintenance of transport infrastructure, shortcomings in optimizing rural road standards and the slow pace of motorization.

2.2 Studies and research

In recognition of the serious inadequate rural transport and poor accessibility constraints to rural livelihoods and development, the International Labour Organization (ILO), in collaboration with the Intermediate Technology Development Group (ITDG) supported a number of Village-Level transport studies in Africa. In the early 1990's a World Bank Technical Paper, proposed new policy directions and specified needs (Riverson, J. and S.Carapetis, 1991). The paper drew attention to the predominance of head-loading and the substantial magnitude of time used in rural transport activities, the impact of transport constraints on food production and the role of IMTs. It used data collected from surveys in Kenya, Tanzania and Ghana that illustrated the magnitude of the transport burden. According to the paper, the average total time spent by village households on transport ranged between 1875 hours a year (for about 80 ton-kilometres in southwest Tanzania, with an average household size of 4.5) and 4830 hours per year (for about 216 ton-kilometres in study villages in Ashanti, Northern and Volta regions of Ghana, with an average household size of 11.9). It was also reported that internal trips (for water and firewood collection, crop production and marketing, to local market and grinding mills accounted for about 75 percent of total time and ton-kilometres spent on transport respectively in Ghana and Tanzanian studies). Additionally, the paper noted that the transport burden is particularly taxing for women, as they carried more than 70 percent of transport time and ton-kilometres. Other sources noted that poor rural transportation has dis-benefited women through carrying heavier loads, often by head-loading. It was stated that women typically work 12-13 hours more per week than men in Africa, Asia and the Pacific (Fernando and Porter, 2002). According to Doran, surveys in a number of African countries have shown that women account for about 65 percent of all household time spent in transport activities and between 66-84% of all energy expended (Doran, 1996). Related studies in African countries show that 70 percent of goods from the village are carried by women as they are not accessible even by Intermediate Means of Transport (IMTs).

In 1993, a book titled, "Roads are Not Enough" (Dawson J, and Barwell I,1993) questioned the conventional approach to transport planning. The book's relevance lies in the analysis of village-level transport surveys, and the significance and magnitude of human-powered transport. The major theme of the book is that in spite of large scale investment in infrastructure, there have been limited impacts as rural people continue to walk long distances each day carrying heavy loads such as water, firewood, grains, agricultural produce and other goods to markets. Consequently, the focus on 'roads and cars' has been criticized since the 1980's, as the transport needs of rural households, comprising two thirds of the population are neglected.

A Transport and Road Research Laboratory (TRRL) report titled "Key Issues in Rural Transport in Developing Countries", attempted to draw together the main problems and constraints in rural transport by drawing on available literature together with the author's own research in Thailand, Sri Lanka, Ghana, Zimbabwe and Pakistan (Ellis S.D, 1997). It made reference to studies that had

shown the large magnitude of off-road transport burden in short distance transport, particularly relating to the collection of firewood and water, and the differential impact on women. Additionally, the review noted that many Sub-Saharan African countries make little effort to support low cost transport means (animals, wheelbarrows, bicycles, etc...) to ease the burden. The three major themes of the review included the following:

- i. Efficient supply of rural transport services is essential to accessibility and the speeding up of economic growth;
- ii. The current emphasis on roads fail to address the problem of rural mobility, and
- iii. The market has an important role in the provision of rural transport services.

Various other studies also emphasized that the goal of universal motorized travel in rural areas has not been successful, and that there are overwhelming indications that unless there are substantial changes in approach to provide appropriate and affordable means of transport, a large majority of the population would continue to remain critically disadvantaged.

A synopsis paper by Lema and Njenga et al (2006) vividly pointed out that due to the limitations in understanding the impacts of rural roads, a new approach that shows the interrelationships between the transport patterns and needs of the rural population and affordable mobility would be required. In presenting his viewpoint regarding the findings from the study in Makete district of Tanzania, Niklas Sieber stated that the eurocentric focus on motorized transport does not reflect the production constraints of African rural households. Sieber in his paper "Transporting the Yield – Appropriate Transport for Agricultural Production and Marketing in Sub-Saharan Africa", revealed that agricultural transport is mostly by foot, which implies large diseconomies characterized by time consuming and high transport cost, significant losses due to low carrying capacities, missed opportunities in the production of more profitable crops, and substantial loss in energy associated with walking and head/back loading, which could be diverted to productive use on the fields (Sieber N.,1999). Sieber stressed that the standardized transport planning approach that focuses on roads and motorized vehicles, though essential, does not address mobility needs within and around the village, where farmers transport inputs to the field, crops from the field to storage facilities, and to collection points and local markets. A paper by John Hine and S.D Ellis (2001), argues that there is potential for larger use of IMTs for agricultural production, which is determined by distance to markets. Hine and Ellis point out that there is optimum range of distance for the efficient use of a range IMTs, and that the most important criterion for modal choice is transport cost. Further, the World Bank's Technical Paper, "Improving Rural Mobility: Options for Developing Motorized and Non-motorized Transport in Rural Areas, " highlights that poor access to transport constrains economic and social development and contributes to poverty (Starkey P. et al 2002). Starkey et al pointed out that efforts to improve rural transport services must consider many issues (need to develop mobility on roads, market not responding to low demand for transport, challenges in achieving critical mass of users, operations and suppliers, population density and income levels and patterns of transport services adoption), as well as gender differences in transport needs, unfavourable regulatory environment, etc.

2.3 Dissemination of rural transport knowledge

The dissemination of emerging knowledge on rural transport has been carried out by various institutions, notably:

- ✦ The International Labour Organization (ILO);
- ✦ The World Bank;
- ✦ The International Forum for Rural Transport and Development (IFRTD);
- ✦ The Animal Traction Network of Eastern and Southern Africa (ATNESA);
- ✦ The Food and Agriculture Organization (FAO);
- ✦ The International Fund for Agricultural Development (IFAD);

- ✦ The Intermediate Technology Development Group (ITDG);and
- ✦ The German Appropriate Technology Exchange (GATE).

The Rural Travel and Transport Project (RTTP), a component of the Sub-Saharan Africa Transport Policy Program (SSATP), a joint undertaking of the United Nations Economic Commission for Africa (UNECA) and several development agencies, coordinated by the World Bank has intended to assist countries to carry out policy reforms to promote, among other aspects, appropriate transport solutions to address rural transport constraints. A new development perspective has emerged over time, providing a more holistic and responsive concept of the 'Rural Travel and Transport System', comprising different types of access infrastructure, transport means and services, meeting varying types and levels of need. In spite of the acknowledgement of the crucial role of rural transport in the quest for sustainable livelihoods at the international forums, good intentions have yet to be translated into practical initiatives.

2.4 IMT options

Various studies have proposed a wide range of Intermediate Means of Transport (IMTs) that are appropriate for the particular mobility needs in sub-Saharan Africa. These include wheelbarrows, hand-drawn carts, bicycles (standard and extended) with simple attachments, tricycles, motorcycle based devices, animal-drawn carts, and motorized three-wheelers. Starkey noted that the use and diversity of IMTs in Sub-Saharan Africa is very low, and identified the key constraints that include low economic activity, inadequate supply of components and materials, limited information exchange, lack of expertise in design, production facilities and skills in manufacturing, as well as high seasonality of cash flows and transport demand. Of primary importance is, however, lack of progress towards achieving 'critical mass', to make ownership cost-effective and financially sound, and to justify the establishment of service providers, and credit financing schemes that are essential to pursue production, operation, repair and maintenance.

2.5 Concluding remarks

By way of summary, the widely held belief that roads would stimulate rural development has had its limitations, as the mobility needs of local people have not been met. The findings of several studies carried out in Africa and Asia have shown that lack of access is a major constraint on human resource development and efficiency of productive activities, a significant challenge to the reduction of poverty and economic growth. Although the transport targets and indicators related to the Millennium Development Goals (MDGs) in Africa, adopted by the African Ministers of Transport and Infrastructure during their meeting held in Addis Ababa on April 06, 2005 constitute a step in the right direction, there is a persistent tendency to overlook the role of rural transport services in general and IMTs in particular. In general, the factors that give rise to low mobility are also at the root of the problem of lack of capacity of rural people in developing sustainable livelihoods. Low levels of income and savings tend to dictate the choice of means of transport, involving heavy reliance on walking and carrying at the expense of considerations for introducing the wide range of technological options that are available. In several cases, the introduction of rural transport solutions that are not well adapted to local social, economic and environmental conditions become unsustainable. This is the result of what Starkey P. refers to as 'patchy distribution of transport technologies' that illustrates unreliability.

3 ETHIOPIA – RURAL TRANSPORT TRENDS – THE ETHIOPIAN RURAL TRAVEL AND TRANSPORT PROGRAM (ERTTP) PILOT WEREDAS (DISTRICTS)

3.1 The road network in Ethiopia

Covering an area of over 1.1 million km², and with a population of about 82 million, Ethiopia has a classified road network comprising about 48,000kms. Although the classified road network has expanded from about 25,000kms in 1995/96 to about 48,000kms in 2009/10, the road density remains very low with only 44.6 kms/1000km² along with 0.59 km of classified roads per 1000 inhabitants. According to information collected from the Ethiopian Roads Authority, in 2009/10 about 64 percent of the area of Ethiopia is further than 5 km from an all-weather road. Figure 1 shows road density per 1000 inhabitants over the period 1995/96 to 2008/09.

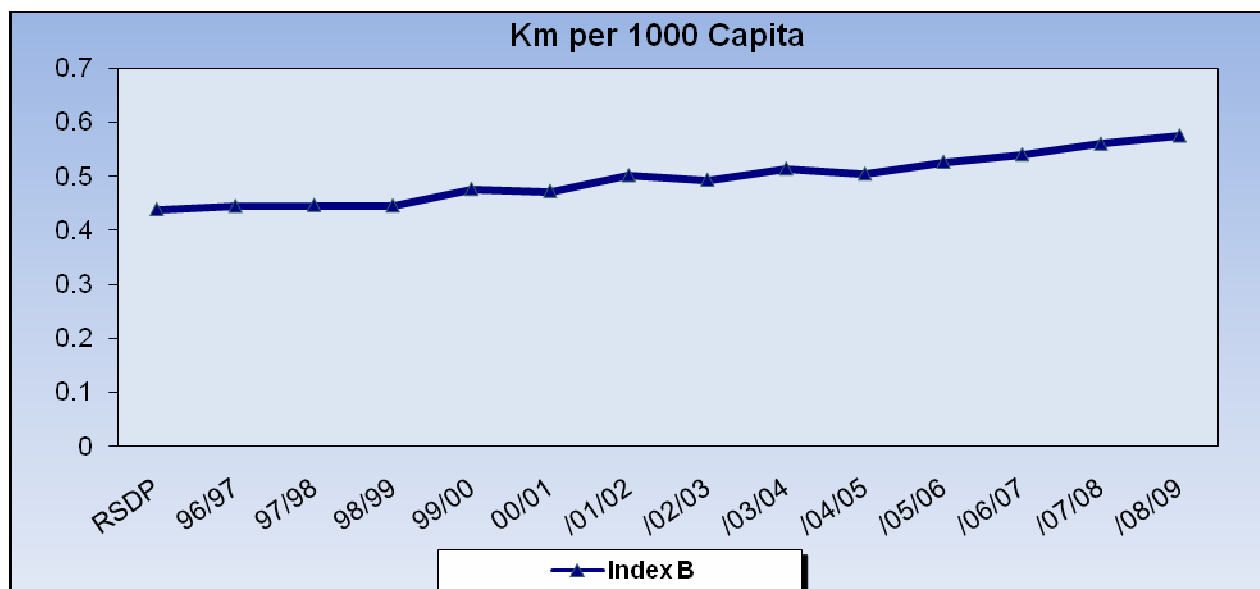


Figure 1: Road Density per 1000 inhabitants

Source: W.T Consult PLC, the Road Sector Development Program (RSDP) and Millennium Development Goals (MDGs) Transport Indicators Report, Ethiopia, P.16.

3.2 Motor Vehicle Fleet

It was estimated that in 2008/09, the total motor vehicle fleet in the country was about 320,000. In 2009/10, it has risen to about 350,000. In 2008/09, the commercial vehicle fleet (in good and fair condition) was about 64,000, of which about 40,870 (63 percent) were freight vehicles, and about 22,588 (37 percent) were passenger vehicles (excluding private automobiles). Details show that over 72 percent of the commercial freight vehicles were light goods vehicles. Although the commercial vehicle fleet has shown a rising trend, the density (including only vehicles in good and fair condition) for the country as a whole is only 0.7 vehicles per 1,000 populations. This shows that the level of motorization in Ethiopia is extremely low. Figure 2 shows the trend in motorization in Ethiopia over the period 1994 to 2009.

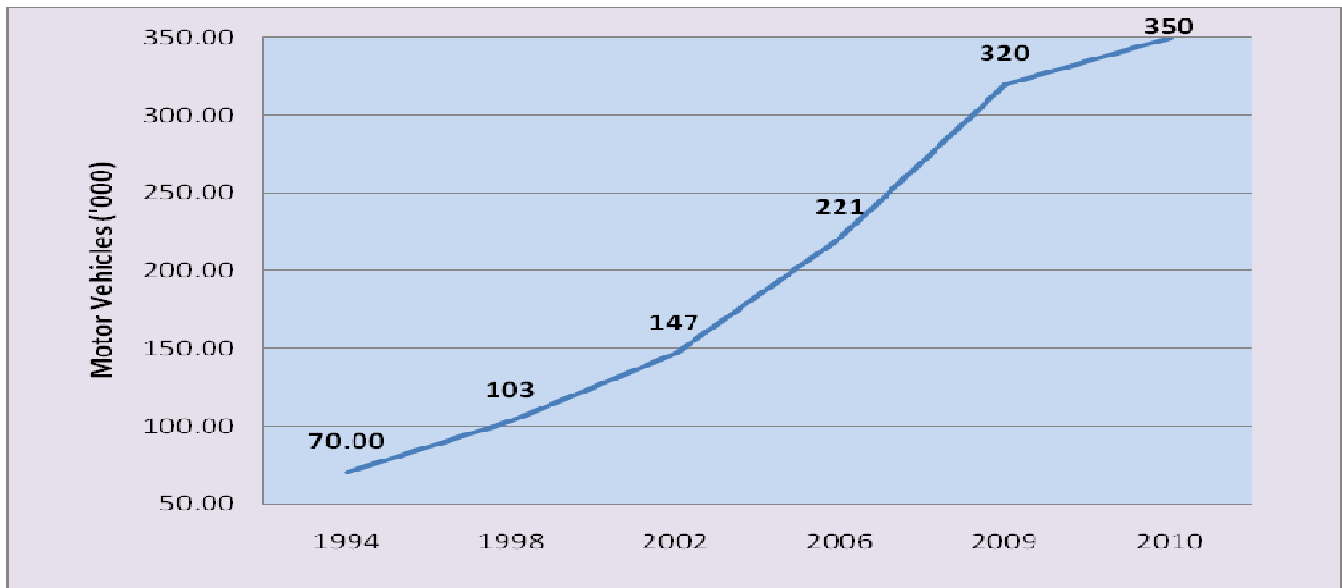


Figure 2: Trend in motorization in Ethiopia

Source: Transport Authority

3.3 Vehicle Operating Costs

The rapid rise in the prices of vehicles, spare parts and petroleum hinder the expansion of the motor vehicle fleet, the replacement of overage commercial vehicles, and the provision of affordable transport services. The rapid rise in transport costs exert upward pressure on the supply of inputs, agricultural outputs and processed goods. Compared to the level in 1996/97, the average price index for a new vehicle has gone up by about 300 percent. The price of diesel had gone up by over 50 percent (from 2003 to 2005) and by over 400 percent between 1996/97 and 2010/11. This trend has implications for freight rates and passenger fares, and hence affordability of transport services. The message is that transport costs are no longer as low as there were in the 1970's, and have become a critical factor in the development of rural transport services. It should be noted that the transport burden on rural households is not generally included in transport costs, and is often overlooked. In reference to transport in general and transport cost in particular in sub-Saharan Africa, a working paper of the Danish Institute for International Studies notes the following:

Most of the research on rural transport has focused on local transport to and from the fields and for fetching water and fuel, which is shown to be responsible for the largest share of rural transport. However, poor transport also makes up the first and often relatively costly link in the transport chains necessary to reach wider and international markets, and it is therefore a major hindrance for the integration of rural areas into the larger national and international markets (Pedesen P.Ove, 2007).

3.4 Intermediate Means of Transport (IMTs) and Access to Basic Services

According to the RSDP Performance and MDG Transport Indicators Report of 2008/09, the percentage of households using IMTs to selected services varied between 0.31 percent for trips to primary schools and 5.7 percent to health facilities. Only about 3.2 percent of households used IMTs to reach pre/post – natal care. Figure 3 shows the percentage distribution of households to the

nearest health facility in rural areas, and figure 4 illustrates the distance of households to the nearest pre/post-natal care (in percent).

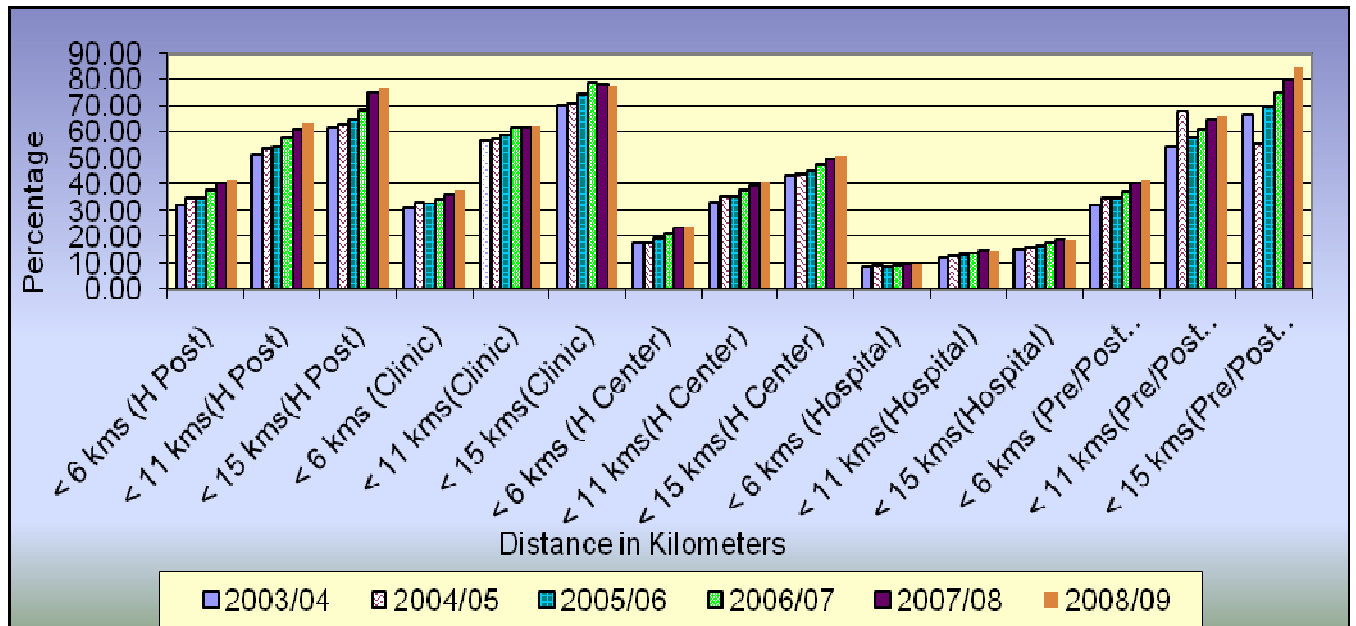


Figure 3: Percentage Distribution of Households to the Nearest Health Facility in Rural Area
 Source: W.T Consult, RSDP Performance and MDG Transport Indicators Report, 2008/09,p.79

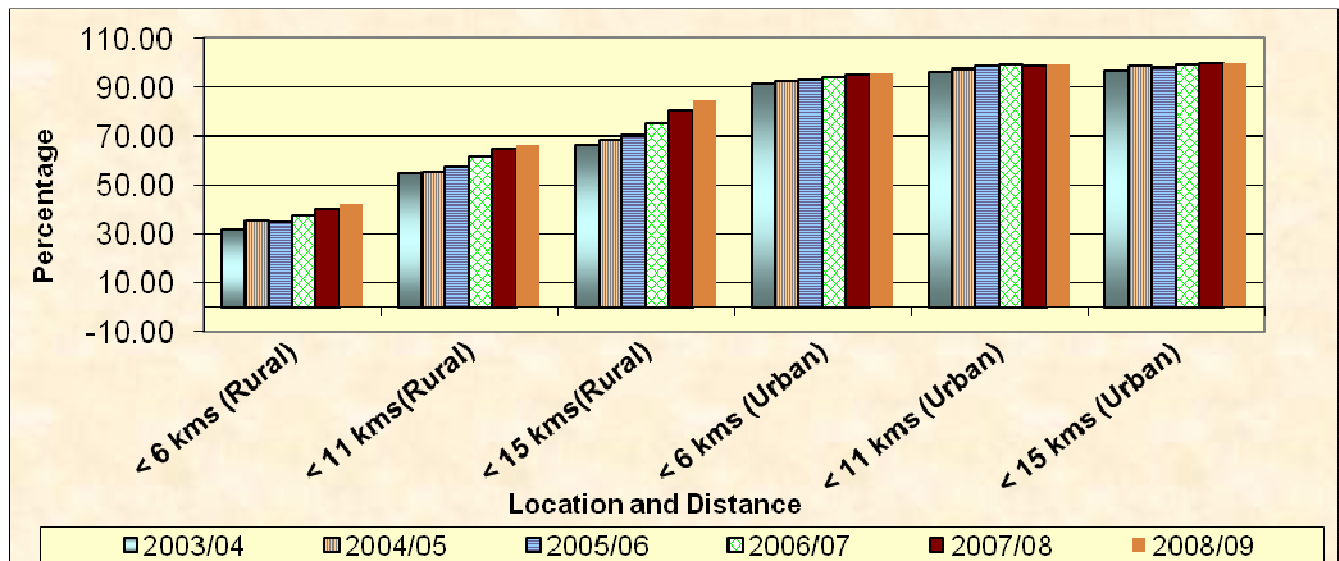


Figure 4: Distance of Households to the Nearest Pre/Post Natal Care (Rural and Urban)
 Source: W.T Consult, RSDP Performance and MDG Transport Indicators Report, 2008/09,p.67

Figure 3 shows that in 2008/09, about 82 percent, 89 percent and over 91 percent of rural households travelled minimum distances of 6 km, 11 km and 15 km respectively to reach a health centre. Over 62 percent of the rural households were within 11 km of a clinic. Only about 42 percent of the households were within 6 km of a health post. As shown in Figure 4, about 15 percent of rural households were further than 15 km of the nearest pre/post-natal care. The RSDP Performance and MDG Transport Indicators Report also highlighted that in 2008/09 only about 6.4 and 8.2 percent of

female-headed households travelled to clinics and health centres respectively using either motorized and non-motorized means of transport.

4 INDICATORS OF IMT SERVICES IN THREE ERTTP PILOT WEREDAS

4.1 *Brief Profile of the Three Weredas*

4.1.1 Atsbi Womberta Wereda

Atsbi Womberta Wereda has an area of 1758.11 km² and total population of about 150,000. Its topography is predominantly characterized by rolling and hilly terrain. Its road network comprises 266 km; of which 145 km (55 percent) are regional roads and 121 km (45 percent) are community roads.

4.1.2 Yem Special Wereda

Yem Special Wereda has an area of 647.9 km², and total population of about 91,000. The special wereda's topography constitutes hills and mountains that inhibit the development of transport infrastructure and intermediate means of transport. The road network comprises about 149 km of classified and un-classified roads, of which 9 km (6 percent) are trunk paved roads, 61 km (41 percent) are gravel-surfaced roads and the remaining 79 km (53 percent) are unclassified dry-weather roads.

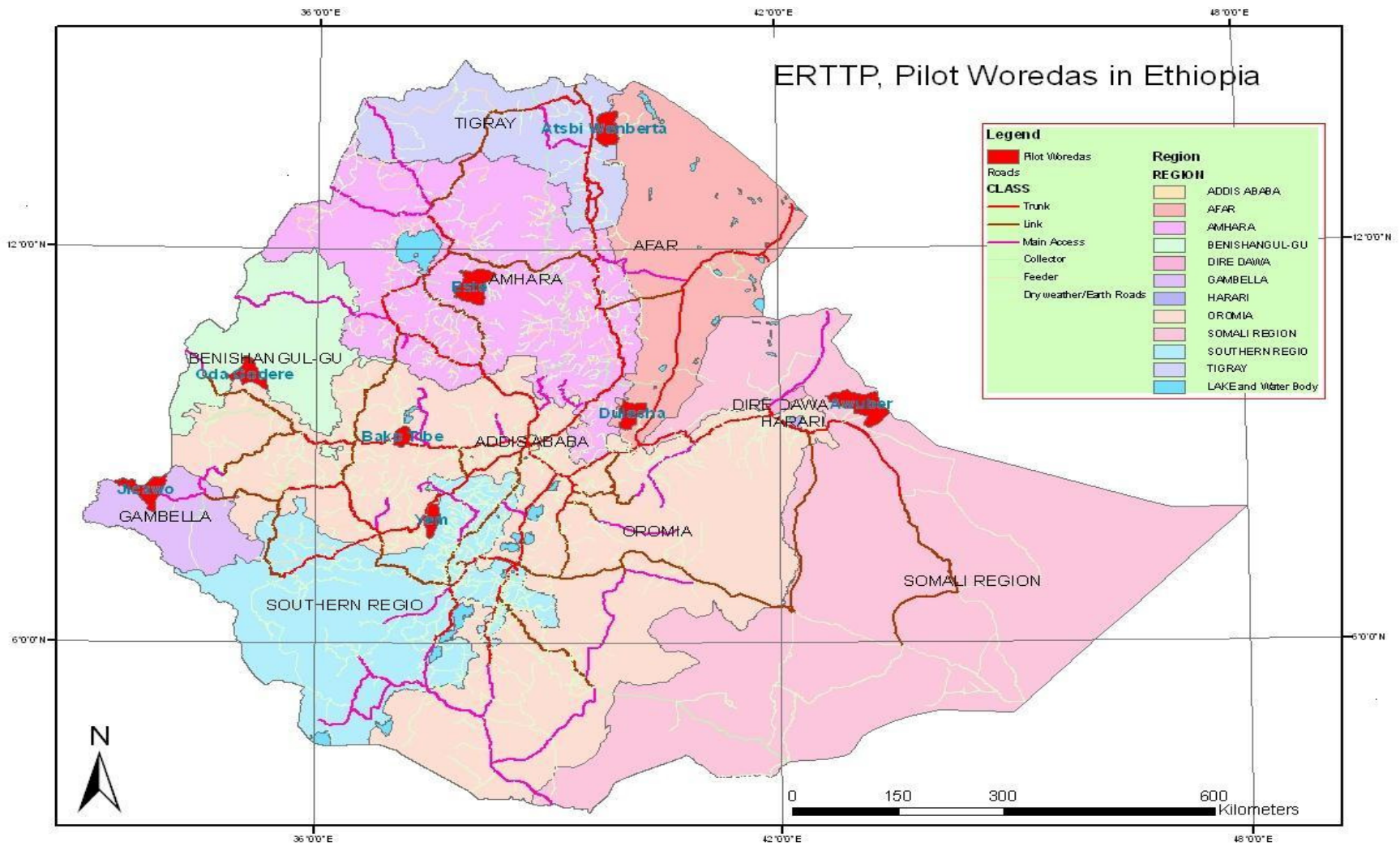
4.1.3 Bako Tibe Wereda

The total area of Bako Tibe wereda is 638.21 km². Its total population is estimated to be about 150,000. A large proportion of the wereda is characterized by rolling and hilly terrain. The road network in the wereda consist of 196 km, of which 31 km (about 16 percent) are paved, 12 km (6 percent) are all-weather main gravel-surfaced roads, 28 km (14 percent) are all weather rural roads and 125 km (about 64 percent) are unclassified dry weather roads.

The map on page 10 shows the location of the eight pilot weredas.

EMANCIPATING THE RURAL POPULATION FROM ISOLATION, W.T CONSULT PLC FOR AFCAP

ERTTP, Pilot Woredas in Ethiopia



Map 1: Pilot Weredas – Ethiopian Rural Travel & Transport Program

4.2 Number of IMTs

The number of IMTs has increased in the three pilot weredas of Atsbi Womberta, Yem and Bako Tibe, as shown in Table 1.

Table 1: Number of IMTs in the Three Pilot Weredas, 2003/04 and 2009/10

Weredas	Number of IMTs							
	ADCs*		Bicycles		Motorcycles		Bajajs	
	2003/04	2009/10	2003/04	2009/10	2003/04	2009/10	2003/2004	2009/10
Atsbi Womberta	5	27	50	315	-	40	-	-
Yem	-	5**	11	36	10	35	-	2
Bako Tibe	60	165	28	100	15	46	-	3

* ADCs = Animal Drawn Carts

** Only one is operational

Source: Survey for Study on Mobility and Transport Services.

As shown in Table 1, the number of animal-drawn carts in the three pilot weredas in aggregate has increased from 65 in 2003/04 (baseline) to 197 in 2009/10, with an average growth rate of about 29 percent per annum. The bicycle fleet had risen from 89 in 2003/04 to 451 in 2009/10, an increase by about 58 percent per year, which could be explained by lower prices for Chinese made bicycles. Similarly, the motorcycle fleet had gone up by about 55 percent per year. It should be noted that the entire fleet of motorcycles is owned and operated by Wereda Offices, predominantly by the Wereda Offices of Agriculture and Rural Development (WOFED). In general, although the data shows that there has been an increase in the number of IMTs, the fleet is extremely low compared to the areas and populations of the three weredas, as shown by the following ratios:

Atsbi Womberta Wereda

2.09 bicycles for 1000 population

0.18 animal-drawn carts for 1,000 populations

Yem Special Wereda

0.39 bicycles for 1,000 populations

0.11 animal-drawn carts for 1,000 populations

Bako Tibe Wereda

0.67 bicycles for 1,000 populations

1.1 animal-drawn carts for 1,000 populations

Atsbi Womberta Wereda has had relative success in increasing the use of bicycles, and that two traders have managed to sustainably provide rental services at Indaselassie, the wereda centre. On the contrary, Bako Tibe has more effectively promoted animal-drawn carts, though at a slow pace. The role of the Bako Agricultural Technology Promotion Centre in producing purpose-built animal-drawn carts and selling them to farmers at a discount has been the most critical factor for the development of IMTs in Bako Tibe pilot wereda. Also important was the involvement of Mekanissa Technical Centre, by way of promoting specially fabricated animal-drawn carts and disseminating them in the areas adjacent to Bako.

4.3 Average Utilization of Animal-Drawn Carts

4.3.1 Atsbi Womberta Wereda

The average daily utilization of an animal-drawn cart in Atsbi Womberta is estimated to be about 4.5 km (3 trips per day, 1.5 km per trip and 200 days per year). The average load carried by an animal-drawn cart is about 2.5 tonnes per day (for carts produced from scrapped vehicles), and about 2.1 tonnes per day for carts especially manufactured under the pilot. In Wukro and Agula, in close proximity to Atsbi Wemberta and on the Mekelle – Wukro – Adigrat – Zalambessa trunk road, four wheel horse-drawn carts are used for moving construction materials and in the disposal of garbage, the latter under contract between the operators and the municipality. The first section of the Indeselassie – Dera – Idagahmus road constructed under the Pilot Wereda Implementation of the ERTTP is used by animal-drawn carts, bicycles and motorcycles. However, the irregularities of the surface have become an inhibiting factor on the performance of animal-drawn carts.

4.3.2 Yem Special Wereda

The only one operational cart in Yem wereda is used for carrying loads. The average capacity of an animal-drawn cart is estimated to be 0.3 tonnes, while the average load carried is about 1.2 tonnes per day. Each cart is utilized about 15 days in a month. It was reported during field survey that none of the roads constructed under the Pilot Wereda Implementation of the ERTTP are used by animal-drawn carts.

4.3.3 Bako Tibe wereda

According to data provided by operators of IMTs, the average daily utilization of animal-drawn carts (for both specially manufactured and produced from scrapped vehicles) is 8 hours and 20 km each. It was also estimated that the average load carried annually by an animal-drawn cart is about 240 to 300 tonnes, the upper limit for animal-drawn carts produced at the Bako Agricultural Technology Promotion Centre.

4.4 Equine Population

The total equine herd (donkeys, mules, horses and camels) in the three pilot weredas is estimated to be about 26,000, of which about 13,490 (about 52 percent) is for Atsbi Wemberta Wereda, 8,900 (about 34 percent) is for Yem Special Wereda and 3,062 (11.8 percent) is for Bako Tibe Wereda. One of the challenges in the use of the equine herd is feed supply, due to competition for the use of land for farming. Land is a critical asset and its sustainable management also becomes a rural transport issue. However, it is only one of several building blocks in a multi-sectoral strategy aimed at addressing land and conservation issues that is pivotal in sustainable rural development.

4.5 Passenger Fares and Freight Rates

4.5.1 Atsbi Womberta Wereda

There are wide variations in average freight of animal-drawn carts, depending on the type and weight of the load and the distance travelled. It is striking that the rate varies between Birr 3.33/ton/km and Birr 20/ton/km. In general, the shorter the distance and the bulkier the load, the higher the rate on a unit basis (tonne/kilometre). In comparison, the average freight rate for an Isuzu truck (Medium truck) on the Indaselassie – Dera road is about Birr 6.60/ton/km, which is very high due to the short distance (18 km), and the effect of low load factor (outbound and inbound trips combined). As the average passenger fare for a mini bus operating from Indaselassie (center of Atsbi Womberta Wereda) to Dera (15km) is Birr 0.53/Pass./km, animal-drawn carts could not provide competitive services along the route.

The findings of the study indicate that the attributes of animal–drawn carts make them cost effective on short trips (say up to 5 to 7 km), particularly in urban and peri-urban environments. This could be explained by the poor design of the carts, and the geometric and surfacing features of transport infrastructure that link weredas to kebeles. This might be a key factor for possibly many false starts and wasted effort.

4.5.2 Yem Special Wereda

Only one of the animal-drawn carts is currently operational in the pilot wereda, primarily due to the rugged nature of the topography in general, and the dual effects of rolling and gradient resistance in particular. According to the consultant’s estimates, the most recent freight rate for animal-drawn carts was between Birr 15 to Birr 20/tonne/km. The maximum capacity of the most common cargo cart is 0.5 tonnes, which is not generally achievable due to shocks and impacts associated with the surface of roads and lack of power needed to lift the cart carrying load on steep inclines. The specifications of animal-drawn carts for use in the pilot wereda should re-examine the power requirements for the specific terrain characteristics.

4.5.3 Bako Tibe Pilot Wereda

According to data collected by the Consultant, the average freight rate for an animal-drawn cart in Bako Tibe Wereda is between Birr 4 per tonne/km and Birr 7.5 tonne/km, depending on the type of load, the space occupied and distance. Mini buses and bajajs are the most common means of transport in urban areas, the former also providing services on all–weather gravel roads.

4.6 Prices of Typical IMTs in the Three Pilot Weredas

In general, the current prices of the most common IMTs are given in Table 2.

Table 2: Prices of Most Common IMTs in Atsbi Womberta, Yem and Bako Tibe Weredas

Weredas	Price of IMTs (Birr)					
	ADCs		Bicycles		Motorcycles	
	2 - Wheel	4 - Wheel	Most Common	Higher Quality	Most Common	High Standard
Atsbi Womberta	3500 to 14000	8500 to 9500	1200 - 1500	2300 - 2500	35,000 – 40,000	65,000
Yem	1300 – 4000	-	1200 – 1500	2200 – 2500	35,000 – 40,000	63,000
Bako Tibe	856 - 3681	-	1100 - 1500	2100 - 2500	33,500 – 40,000	63,000

Source: Survey for Study on Mobility and Transport Services

As shown in Table 2, a dual-purpose animal-drawn cart, specially produced (of the same standard provided under the Pilot Wereda Implementation of the ERTTP) currently costs about Birr 14,000. A passenger cart, produced from wrecked vehicles at Wukro, Mekelle and Dessie is estimated to cost between Birr 3,500 and Birr 4,000. A four–wheeled animal-drawn cart for carrying loads in the Mekelle – Wukro area is estimated to cost about Birr 8,500 to Birr 9,000. An animal-drawn cart (two – wheels) manufactured at the Jima Rural Technology Promotion Centre costs Birr 4,000, with a provision for discount of 20 percent for farmers.

The survey carried out by the Consultant has shown that there are four types of animal-drawn cargo carts in Bako Tibe Wereda, which include the following:

- Donkey-drawn cart (0.3 tonnes capacity) produced from wrecked vehicle costs Birr 856;

- Donkey-drawn cart (0.4 tonnes capacity), purpose-built by the Bako Agricultural Mechanization Center costs Birr 735;
- Mule/horse-drawn cart (0.5 tonnes capacity) built from a wrecked vehicle cost Birr 3,680;
- Mule/horse – drawn cart (0.6 tonnes capacity) purpose built at the Bako Agricultural Mechanization Centre costs Birr 3,457.

Chinese-made bicycles have become competitive in all three weredas, while some users prefer higher standard bicycles that cost more (Birr 2,300).

The price of the most durable motorcycle (Yamaha 175cc) that is more appropriate to the Ethiopian rural environment is about Birr 62,000, not a viable option for use by the large majority. Such motorcycles are most commonly used by the Wereda Offices of Agriculture and Rural Development.

In general, the price of IMTs is a critical factor and their use by many people would depend on affordability. The high cost of animal-drawn carts and bicycles prohibits the rural population from using them in reducing their travel and transport burden.

4.7 Credit Financing

There are no appropriate credit financing schemes to facilitate and enable the acquisition and operation of IMTs in all three pilot weredas. There is a pressing need to tailor existing rural credit schemes to respond to needs for improved rural transport.

4.8 Comparison of Revenue and Expenditure Operations of Animal-Drawn Carts

The available evidence suggests that operators of animal-drawn carts have managed to generate sufficient earnings to meet their financial obligations and make profit. In Atsbi Wemberta, Yem and Bako Tibe weredas, the net daily income of an operator of an animal-drawn cart is about Birr 14, Birr 23 and Birr 17 respectively. Net daily operating income of an operator of an animal-drawn passenger cart in urban areas is between Birr 15 to Birr 25.

4.9 Rural Transport Chain and Prices of Goods.

Primary data collected in the three pilot weredas shows that there are variations in the prices of goods (grain, sugar, coffee, soap, cooking oil, etc), as illustrated as follows:

- On the Indaselassie – Dera – Idaghamus – Adigrat route, by about 4.5 to 25 percent;
- In Yem wereda by about 7.7 percent to 67 percent; and
- In Bako Tibe Wereda between 4.5 percent to 66 percent.

In general, lack of transport services contributes to high marketing margins. While several interrelated factors (storage, warehousing, market places, etc) affect the rural logistics and supply chain, rural access and farm to market logistics are critically important. The photographs on page 15 show the most common means of transport in rural Ethiopia.



Pic. 1: Walking is the Primary Mode



Pic. 2: Walking & Carrying a Child



Pic. 3: Donkeys have a Great Role in Transport



Pic. 4: Four Whell Hours Drawn Cargo Cart



Pic. 5: Hours Drawn Passenger Cart



Pic. 6: Motorcycles



Pic. 7: Tractor

5 THE WAY FORWARD

The Mobility and Transport Services Study has shown that although IMTs offer a viable option for short to medium distance transport in rural Ethiopia, they are not yet developed and widely used. As the development of affordable rural transport has a critical catalytic role in reducing rural poverty and enhancing agricultural growth, Ethiopia should develop a clear Policy and Strategy to facilitate the production/assembly, import and use to IMTs. A holistic approach to the development of IMTs should include the following eleven Broad Categories.

- Formal recognition of IMTs as complimentary to the conventional motorized means of transport;
- Incorporate the development of IMTs in Sector-Wide Development Programs in general, and Agricultural Development Programs in Particular;
- Develop and Implement legal and regulatory instruments, defining the roles of appropriate federal, regional and wereda level governmental bodies, and providing an inclusive and favourable environment for the production, assembly, import and operation of IMTs.
- Support the reduction of cost of manufacture assembly and import of IMTs components and materials to promote affordability;
- Stimulate income-generating schemes for IMT users;
- Support women to meet their special mobility needs;
- Expand, improve and adequately maintain Rural Transport Infrastructure (RTI);
- Design and implement an institutional setting that would facilitate the adopting and development of IMTs;
- Establish environmental guidelines and management principles;
- Integrate planning for the development of IMTs; and
- Incorporate HIV/AIDS mitigation measures.

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KEY WORDS

- ◆ Intermediate
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- ◆ Rural
- ◆ Transport
- ◆ Mobility