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

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Outline

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1. INTRODUCTION

1.1 Subject

Paper concerned with critical Issue of Rural Transport. Developed from Study Commissioned by the Ethiopian Roads Authority (ERA), supported by DFID of U.K.

1.2 Scope and Purpose

The Purpose of Paper – is to Present the Role of IMTs in Ethiopia in a Multi-Modal Rural Transport System, and Why It Should Be a Development Agenda.

Summarize the Main Issues Surrounding Rural Transport and Provides a Range of Regulatory/Legal, Institutional, Infrastructure, Socio-Cultural, Environmental, Financial and Technical Measures.

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Based on:

- Primarily Survey in "8" Pilot Weredas of the Ethiopian Rural Travel and Transport Program (ERTTP);
- Also, the Village – Level Travel and Transport Surveys in Three Weredas (1999);
- Additional Eight Pilot Wereda Studies (Out of about 137 weredas in all regions); and
- Review of Literature and Documents.

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Relatedly, An Appreciation of the Government of Ethiopia's Agenda:

- Rapid and Significant Reduction in Poverty;
- Achievement of the MDGs; and
- Faster Economic Growth.

- Greater Productivity in Agriculture and Stimulating Industrialization;
- Reducing Infrastructure Deficit; and
- Improving Service Delivery for Human Development.

1.3 The Presentation is Structured in Ten Parts

- Shown in Outline.

2. HIGHLIGHTS OF KEY LESSONS – REVIEW OF LITERATURE AND DOCUMENTS

2.1 Scope of the Review

- Definitions of Rural Transport System and IMTs;
- Characteristics of Rural Transport;
- Why Roads are Not Enough;
- Types and Performance Characteristics of IMTs;

- Options for Developing Motorized and Non-Motorized Transport in Rural Areas, and Guiding Principles for Patterns of Adaption and Use;
- Comparative Picture of Trips by Mode of Transport (Africa and Asia);
- Design of Animal – Drawn Carts;
- Design of Rural Transport Infrastructure;
- Key Constraints for Lack of Success in the Wider Use of Animal Powered Transport ;

- Criteria For The Successful Expansion of Animal-Drawn Transport;
- Rural Motorized Three-Wheelers in Asia and Crete;
- Drawing-up Specifications for Carts Design Rules, Features and Manufacturing; and
- Proposals for Design of Policy and Strategy.

2.2. A Number of Institutions and Individuals Are Credited with Providing Insight in to Rural Transport.

A) Institutions

- The International Labour Organization (ILO);
- The World Bank;
- The Department for International Development – DFID (U.K);
- The International Forum for Rural Transport Development (IFRTD)

- The Global Transport Knowledge Partnership;
- The Animal Traction Network for Eastern and Southern Africa (ATNESA);
- The Sub-Saharan Africa Transport Policy Programme (SSATP);
- The Institute for Transport and Development Policy (ITDP);

- The Ethiopian Roads Authority (ERA);
- The Transport and Road Research Laboratory (TRRL);
- I.T Transport Ltd; and
- Others

B) Individuals

The works of the following individuals have to be recognized:

- Adeoti, J.S
- Ali – Nejadfard F
- Booth D; Hammer L.; and Lovell. E
- Bryceson, D.F.
- Dawson, J; and Barwell I.

- Dennis,R.
- Hine, J.L; and Ellis, S.D
- Howe,J.
- Justice.S.
- Lebo J, and Schelling D.
- Meier.A
- Oram, C.E
- Petts R., Cook J, and Salter D.

- Riverson, J and Carapetis, S
- Sieber, N.
- Sims B.G, Inns.F, and O'Neill D.O
- Starkey P.
- Wendroff A.P; and
- Many More.

2.3. Highlights of Lessons – Literature and Document Review

a) Over-Cautiousness in Formal Recognition of IMTs;

b) Difficulty in achieving Coordination Between Agriculture and Rural Transport and other Sectors;

c) High Cost of IMTs and Unaffordability;

d) Overemphasis on Road Investment;

e) Lack of Appreciation of Concept of Multi-Modal Rural Transport;

f) Gap in Institutional Arrangement;

g) Shortcomings in Legal and Regulatory Considerations;

h) Slow pace in the Improvement of Rural Transport Infrastructure – Low Cost Interventions Overlooked;

i) Lack of Guidelines for Environmental Impact Assessment and Management;

j) Scarcity of Materials for the Manufacture of Animal – Drawn Carts;

k) Absence of Appropriate Rural Credit for Development of Rural Transport Services;

l) Overlooking Socio – Cultural Considerations in Adaption of IMTs (The Gender Dimension!);

m) “Turnkey” Approaches in the Development of IMTs;

n) Some Transport Solutions Not Market-Oriented; and

o) Lack of Resources to Set Up Non-Financial Services.

3. RURAL MOBILITY PATTERN - ETHIOPIA

The Following are the Major Characteristics of Rural Mobility:

- Village – level trips account for over 80 percent of total trips (as High as 90 percent and more in some weredas);
- Walking – the Primary Means for Trips to Markets Outside Villages (75 to 98 percent);

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- Household Trip Lengths vary Significantly (As Low As 2 kms and As High As 90 kms);
- Travel Time Per Person Per Day Also Varied (2 to more than 3 Hours);
- As a Large Proportion of Trips are Short Trips, To Meet Domestic Basic Needs Conventional Motorized Means Not Viable;

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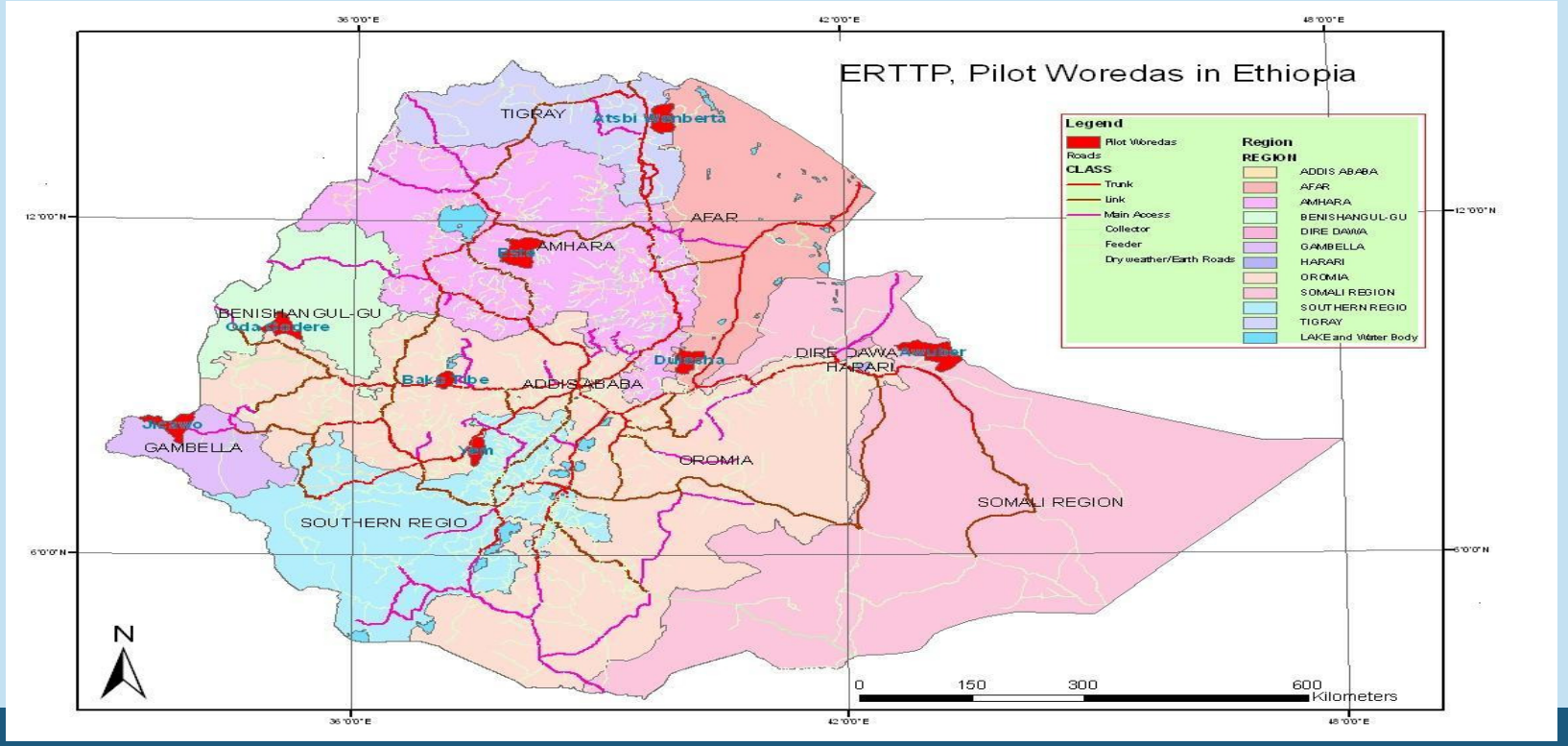
- Travel Time and Effort Particularly Taxing – For Women; and

- Majority of Agricultural Transport Demands Relate To Production and Harvesting.

4. LOCATION AND BRIEF PROFILE OF THE FOUR PILOT WEREDAS

A) Location – Map of the Eight ERTTP Pilot Weredas



B) Profile of the Four Pilot Weredas

	Atsbi Wemberta	Yem	BakoTibe	Oda Bildigilu
Area (Km^2)	1758.14km^2	647.9 km^2	638.2 km^2	1518 km^2
Population '000	150	91	150	44
Topography	Rolling and Hilly	Hill and Mountains	Rolling and Hill	Largely Hill
Road Network	266 km	149 km	196 km	116 km
Equine Population	13485	3062	8900	1260

Equine Population Comprises Donkeys, Mules, Horses & Camels.

5. INDICATORS OF DEVELOPMENT OF IMTS IN THE PILOT WEREDAS

5.1. Technical Description of Typical IMTs in Ethiopia/Pilot Wereda

ADCs for Cargo		Motorcycles	Bicycles
2 - wheel	4 - Wheel		
✣ Single wheel axle, Roller Bearing, No breaks and 16 or 13 inch pneumatic tires.	✣ Two wheel-axle, Roller bearing, No breaks and 16 inch pneumatic tire.	✣ Single cylinder engine type ✣ Single disk breaks.	✣ Bigger, medium and small size.

Pictures of Typical IMTs

(A) Four wheel horse - drawn cargo cart

(B) Two wheel donkey- drawn cargo cart

(C) Bicycle in use

(D) Motorcycles

5.2. Number of IMTs

Weredas	ADCs*		Bicycles		Motorcycles		Bajajs		Wheel Barrows	
	2003/04	2009/10	2003/04	2009/10	2003/04	2009/10	2003/04	2009/10	2003/04	2009/10
Atsbi	5	27	50	315	0	40	-	-	-	-
Yem	-	5**	11	365	15	35	-	2	-	-
Bako Tibe	60	165	28	100	10	46	-	3	50	200
Oda Bildigu	26	75	5	19	8	11	-	-	4	18

* ADCs - Animal - Drawn Cart.

** Only One is Operational.

Number of Bicycles and Animal – Drawn Cart has increased in Atsbi Womberta and Bako Tibe Weredas respectively.

5.3. Cost of Typical IMTs

Weredas	ADCs	
	2 - Wheel	4 - Wheel
Atsbi	Birr 3,500 - 14,000	Birr 8,500 - 9,500
Yem	Birr 1,300 - 4,000	
Bako Tibe	Birr 856 - 3,681	
Oda Bildigilu	Birr 1800 - 2200	-

* There is a large Variation of prices in ADCs except for Bicycles and Motorcycles.

5.4. Average Utilization of Animal Drawn Carts

Weredas	Type of IMT	Operation Perday
Atsbi	Animal Drawn Cargo Cart (Moving Construction and Disposable Garbage)	4.5 Kilometer Per day 2.5 tonnes per day
Yem	Only one operational cargo cart	15 days in a month 1.2 tonnes per day
Bako Tibe	* Animal Drawn Cart	20 Kilometers per day 240 – 300 tonnes
Oda Bildigilu	Two wheel donkey-drawn cargo cart	8 Kilometers per day 300 kgs per day

*** Only One is Operational Out of Five.**

5.5. Passenger Fares and Freight Rates

Weredas	Average Freight Rate.
Atsbi	Birr 3.33 - 20 tonne/km
Yem	Birr15 - 20 tonne/km
Bako Tibe	Birr 4- 7.5 tonne/km
Oda Bildigilu	Birr 30 to 50 tonne/km

- The freight rate varies depending on type and weight of load, and distance traveled.
- Average Passenger Fares for ADCs in Urban Areas Birr 0.35 to Birr 0.45/Passenger/km.

5.6. Prices of Agricultural and Processed Goods

Name of Pilot Weredas	Location (Distance in km)	Name of Selected Commodities	Price Variability of the Selected Commodities in percent
Atsbi	Atsbi – Dera (18km)	Coffee	4%
		Sugar	11%
		Cooking Oil	8%
Yem	Fofa – Gesi (20km)	Teff	11%
		Maize	16%
		Tomato	67%

…. Ctd

Name of Pilot Weredas	Location (Distance in km)	Name of Selected Commodity	Price Variability of the Selected Commodities in percent
Bako Tibe	(10 – 25 km)	Sorghum	86%
		Teff	33%
		Coffee	13%
Oda Bildigilu	Oda – Godar (8 km)	Sesame Seed	7%
		Haricot Beans	83%
		Cooking Oil	15%

Partly Lack of Transport Service Explain Variation in Prices in the Pilot Weredas.

5.7. Credit Financing and Non-Financing Services

constraints

- Lack of awareness of available Source of finance;
- A single formal source of financing;
- Lack of provision of essential non-financial services;
- There are problems related to repayment conditions and collateral requirements; and
- Loans provided by MFI are inappropriate since loans are small and use group lending.

5.8. Non-Financial Service (Maintenance Workshops)

Name of Pilot Weredas	Number of Maintenance Workshops
Atsbi Wemberta	4
Yem	3
Bako Tibe	3
Oda Bildigilu	1

6. DESIGN OF ANIMAL-DRAWN CARTS (ADCS)

6.1. Two Broad Categories.

- Those Produced From Scrapped Vehicles;
- Those Purpose – Built.

6.2. Two and Four-Wheeled-Predominantly For Cargo, Except in Urban Areas.

6.3. Main Constraints.

A). ADCs Produced From Scrapped Vehicles

- Most of Those Produced From Scrapped Vehicles Are Too Heavy, Crude Axle-Wheel Assembly;
- Wheels Are Made Without Bearings and Are Generally Inefficient; and
- Scarcity of Wheels and Axle Systems.

B). Purpose – Built ADCs

- Design Rules, Features and Manufacturing Methods Not Standardized and Simplified;
- High Cost of Materials; and
- Unaffordability.

7. THE ROAD TRANSPORT SCENE IN ETHIOPIA

7.1 Road Network

- In 2009/10 – About 48,000 kms of Roads – Density of only 44.6 kms/1000 km^2 and 0.59 kms of roads per 1,000 inhabitant's;

- About 64 percent of the area of Ethiopia Further than 5 kms from All-weather Road.

7.2 Motor Vehicle Fleet

- Total Motor Vehicle Fleet Estimated at About 350,000 (About 4.2 Vehicles/1000 people);
- In 2008/09 Commercial Vehicle Fleet Estimated To be About 64,000, of which 40,870 (63 percents) were Freight Vehicles and about 22,588 (37 percent) were Passenger Vehicles;

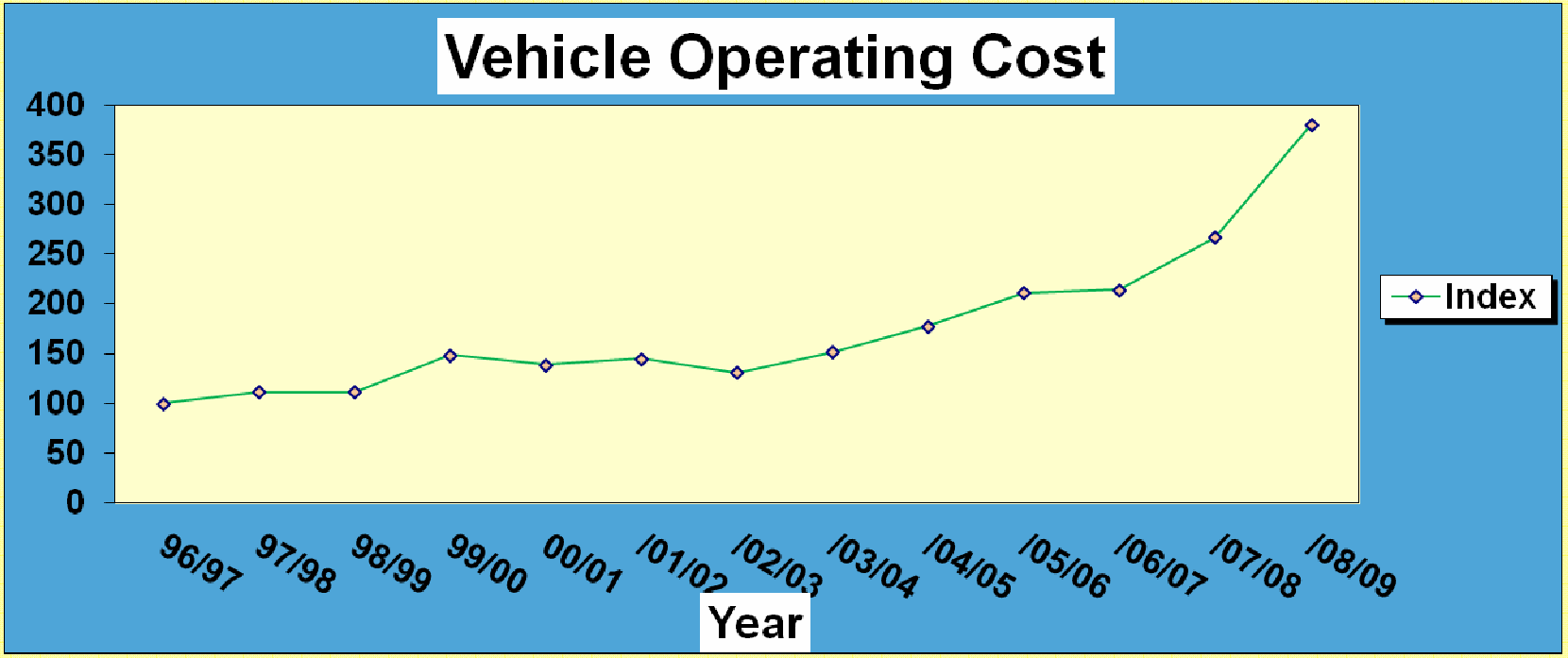
- Light Goods Vehicles Dominant – with About 72 percent of Total Number of Commercial Vehicles;

- The Commercial Vehicle Fleet Density – Only About 0.8 Vehicle per 1000 Inhabitants.

7.3. Vehicle Operating Cost (VOC)

- In 2008/09, the average price index for one new vehicle, a tire, a liter of fuel, a liter of lubricant, an hour of workshop cost, one working hour for crew showed increase of 280 percent, about three fold compared with 1996/97;

- The VOC indices for all types vehicles has been rising since baseline (1996/97) with an aggregate average annual growth rate of 23 percent;



- The rise in VOC is attributed to the continuous increase in purchase price of vehicles and variable costs such as maintenance and repair, fuel, lubricants and tires.

7.4. Non – Motorized Vehicles and Access to Basic Services

According to the Road Sector Development Program Performance and MDG Transport Indicators Report for Ethiopia (2008/09):

- The Percentage of Households Using IMTs to Selected Services Varied From 0.31 Percent (to Primary School) To 5.7 percent to Health Center;
- Only About 3.2 Percent of Households Used IMTs to Reach Pre/Post Natal Care;

- The Proportion of Household Expenditure Spent on Transport By Extreme Poor and Poor in Rural Areas Too Low (in Aggregate Only About 0.8 Percent); and
- The Average Person Expenditure on Transport For the Extreme Poor and Poor Had Shown a Decline (About Birr 14 in 2003/04 To about Birr 12.4 in 2008/09).

8. ISSUES IN THE DEVELOPMENT OF IMTS IN ETHIOPIA

- Lack of Awareness of Rural Mobility Pattern and Available Options;
- High Cost;
- Functional Separation of Agriculture and Rural Transport;
- Gaps in Regulatory Provisions;
- Limited Access to Micro – Finance;

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- Lack of Income for Potential Users of IMTs;
- Interventions Not Tailored To Special Mobility Needs of Women;
- Lack of Sufficient Attention to RTI;
- Weaknesses in Institutional Arrangements; and
- Capacity Constraints.

9. THE GROWTH AND TRANSFORMATION PLAN (2010/11-2014/15)

9.1. Linkages to Rural Transport

Five of the Seven Pillars Have Specific Linkages To Rural Transport:

- Achieve Rapid, Sustainable and Equitable Growth;
- Agriculture to Be the Engine of Growth;

- Industry To Have An Increasing Role;
- Infrastructure To Be Further Expanded and Its Quality Improved; and
- Social Development To Be Expanded and Its Quality Improved.

9.2. Agricultural Production and Rural Transport

- Agriculture Production to Double Over the Five – Year Plan;
- Promotion of Synergies Between Rural and Urban Areas;
- Commercialization of Agriculture and the Integration of Markets.

9.3 The Interdependence of Agriculture and Manufacturing; and Rural Transport.

- Plan anticipates – Agriculture Production To Double;
- Demand for Transport Services Expected To Rise with Extension of Input – Output Relationships.

10. THE WAY FORWARD

- Formal Recognition of IMTs;
- Incorporate IMTs in Sector – wide Development Programmes;
- Develop and Implement legal and regulatory instruments;
- Support the reduction of costs of IMTs;

- Stimulate income – generating schemes for IMT users;
- Improve the condition of RTI;
- Establish Environmental guidelines; and
- Incorporate HIV/AIDS mitigative measures.

THANK
YOU