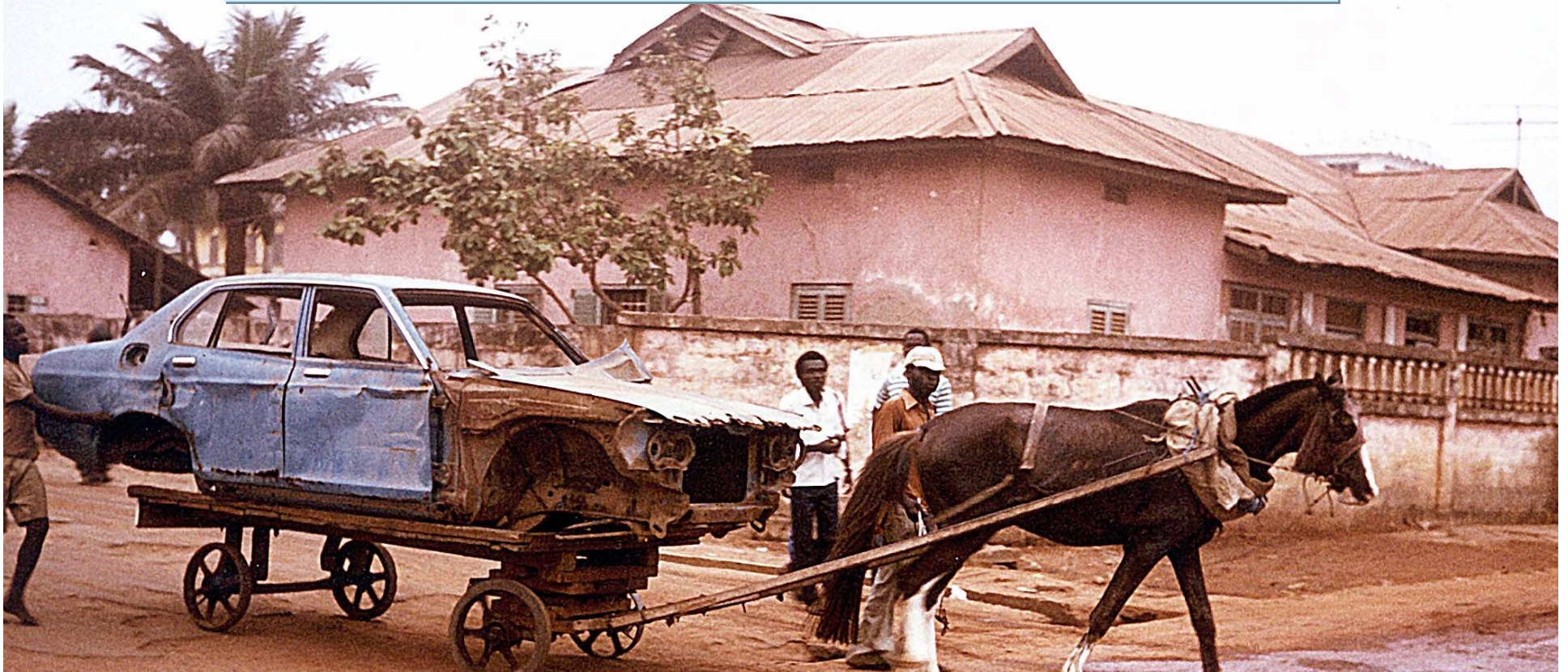


The Socio-economic Impact of Non-motorised Transport in Africa



Presentation at the *Velo Mondial Conference*, Cape Town 2006

by

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What's to discuss?

- I. Transport and development
- II. Transport in Africa: An increasing problem
- III. Why to invest in NMT?
- IV. Why it's so difficult?
- V. Research approach, results and related findings
- VI. Recommendations



I. Transport and development

**Poverty and
MDGs**

Interdependancy

Transport

➔ Transport is one of the most important factor of socio-economic development of any society and for competing on the global markets

➔ **Access through proximity or mobility?** Means of transport improves access to employment, education, communication and medical facilities if the related regional and local infrastructure is inadequate

➔ Transport is an unalterable pre-condition for every individual household for water and firewood collection, marketing of agricultural and non-agricultural products, formal and informal business

II. Transport in Africa: An increasing problem

Poverty: 3/4 of the world poorest countries are in Africa (low global market integration) and more than 50% are living below poverty line

Population Growth: Increases transport demand in rural, urban and peri-urban regions and especially increases demand of poor population groups for low-cost mobility

Urbanisation, Suburbanisation and Migration:

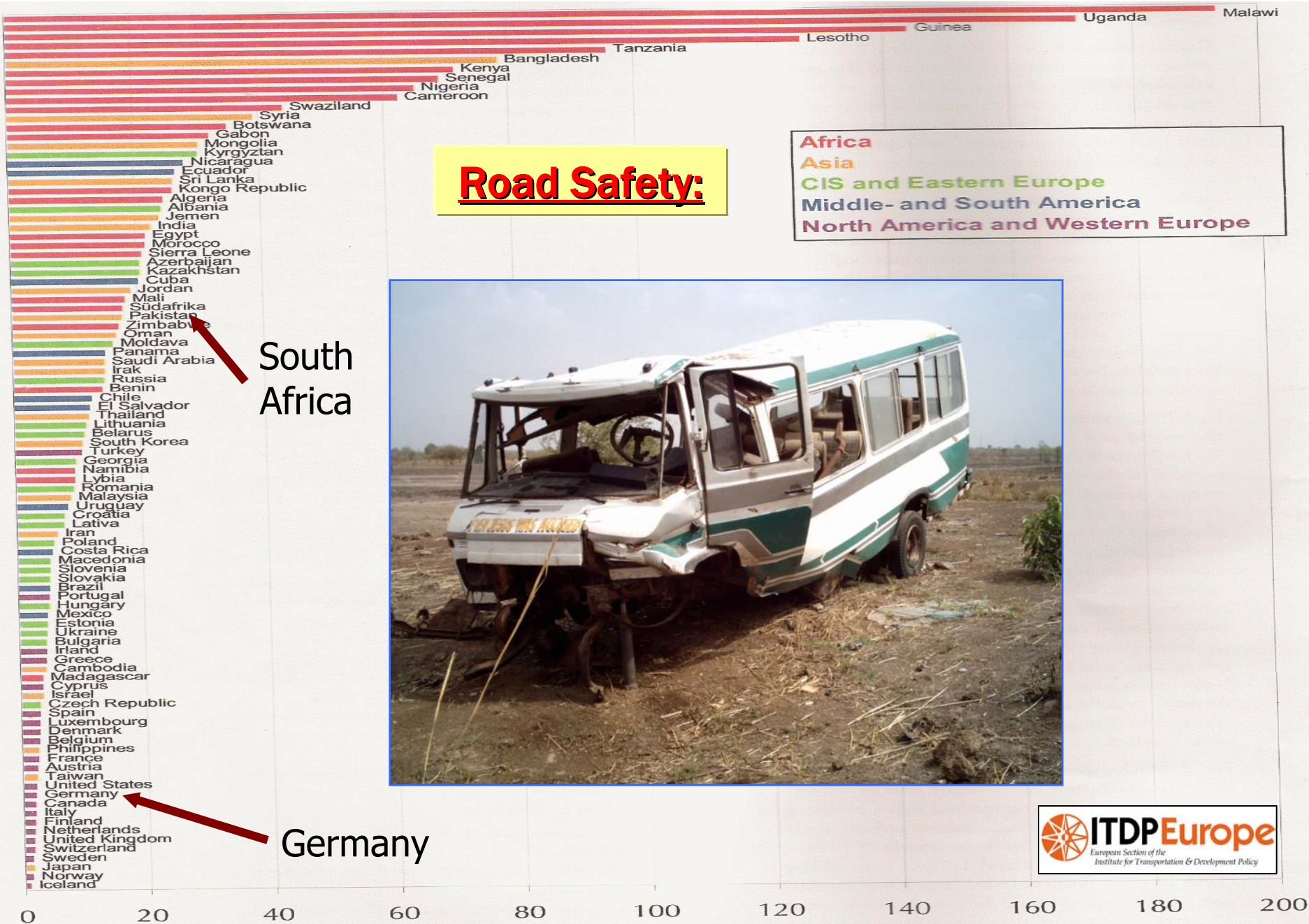
- 4,5%: highest rate worldwide
- highest rate within the poor part of the population
- suburbanisation increases distance for low-income earners, settling at the outskirts of the city

However: 75% are still living in rural areas, inhabiting the risk of an increase of regional disparities if productive parts of the rural population migrate to urban areas

II. Transport in Africa: An increasing problem

Environment: The transport sector is responsible for 86% of the air pollution in developing cities and is the fastest growing source of climate changing CO₂-emissions worldwide





Road Safety:

Africa
 Asia
 CIS and Eastern Europe
 Middle- and South America
 North America and Western Europe

South Africa



Germany



People killed in road accidents per 10000 vehicles

Fatal cases per 10000 vehicles

III. Why to invest in NMT?

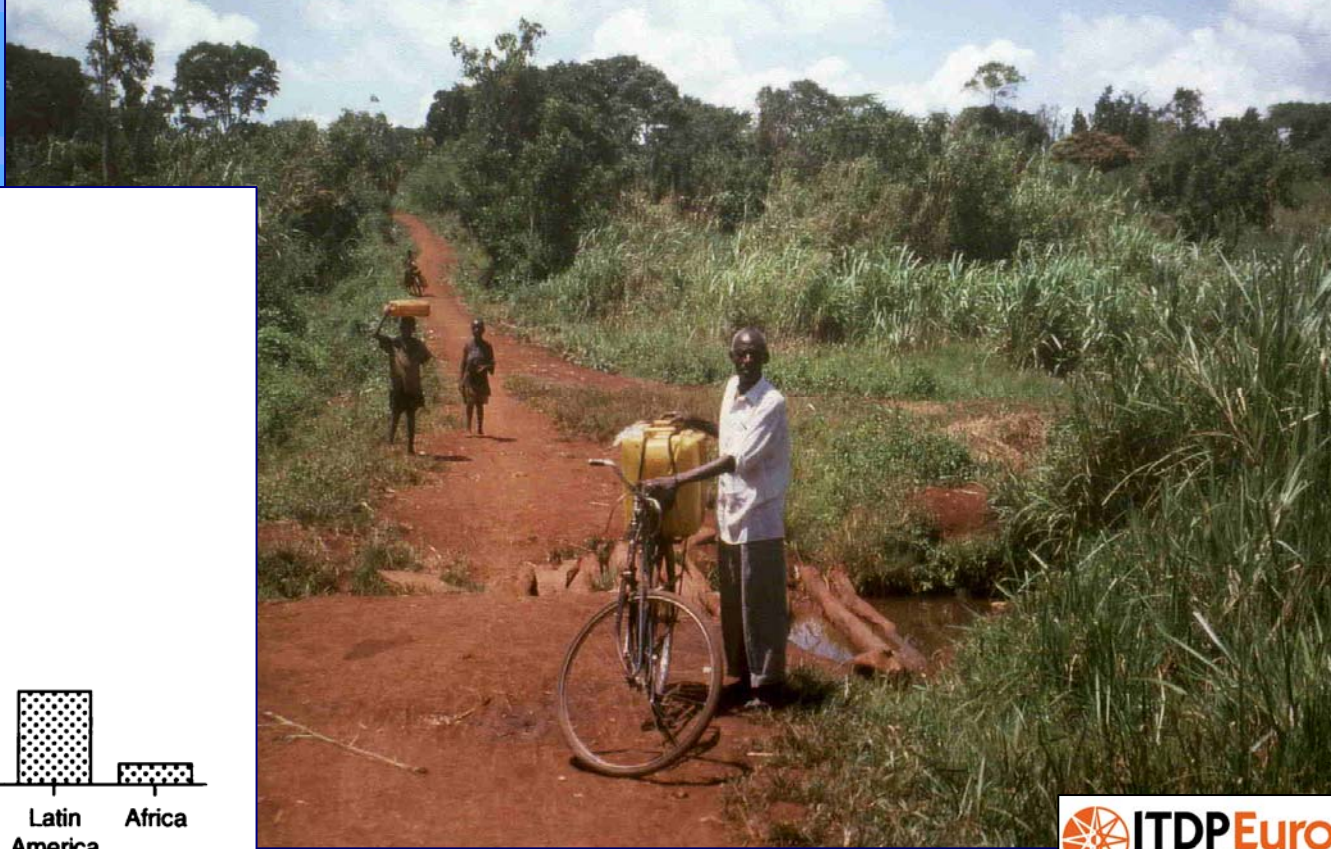
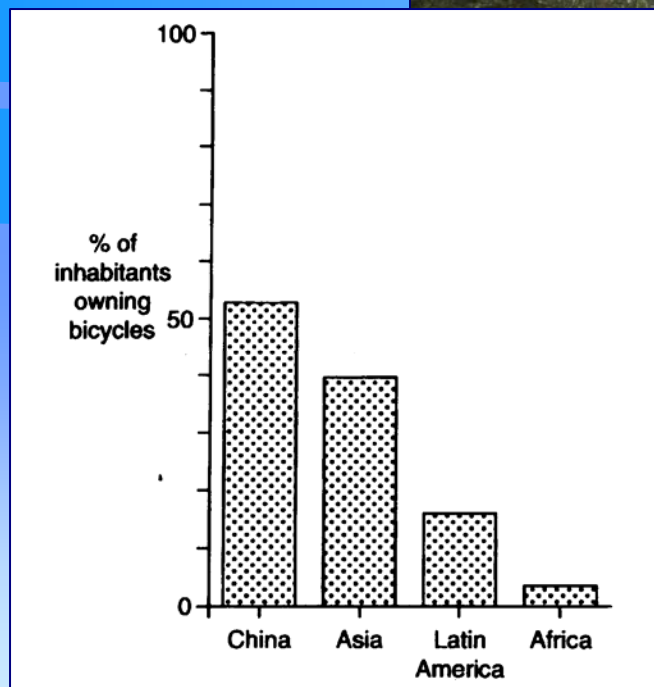
NMTs fills the Gap in the Transport Chain: The majority of urban and rural trips are within a radius of 6 km and trips are combined with the transport of relatively small quantities.

Unit costs of travel per passenger-kilometre RWEBANGIRA 2000	
Mode of transport	US\$-cents per passenger-km
Bicycle	2
Walking	3
Public transport (bus)	4
Individual motorised transport (car)	30

III. Why to invest in NMT?

Undiscovered Markets:

Availability of simple and appropriate means of transport is poor: 3 - 4% of all Africans own a bicycle (compared with 40% of Latin-Americans and 60% of Asians).



III. Why to invest in NMT?



Employment: The transport sector itself offers numerous job opportunities for the poor and the unemployed youth

IV. Why it's so difficult?

Cultural Constraints

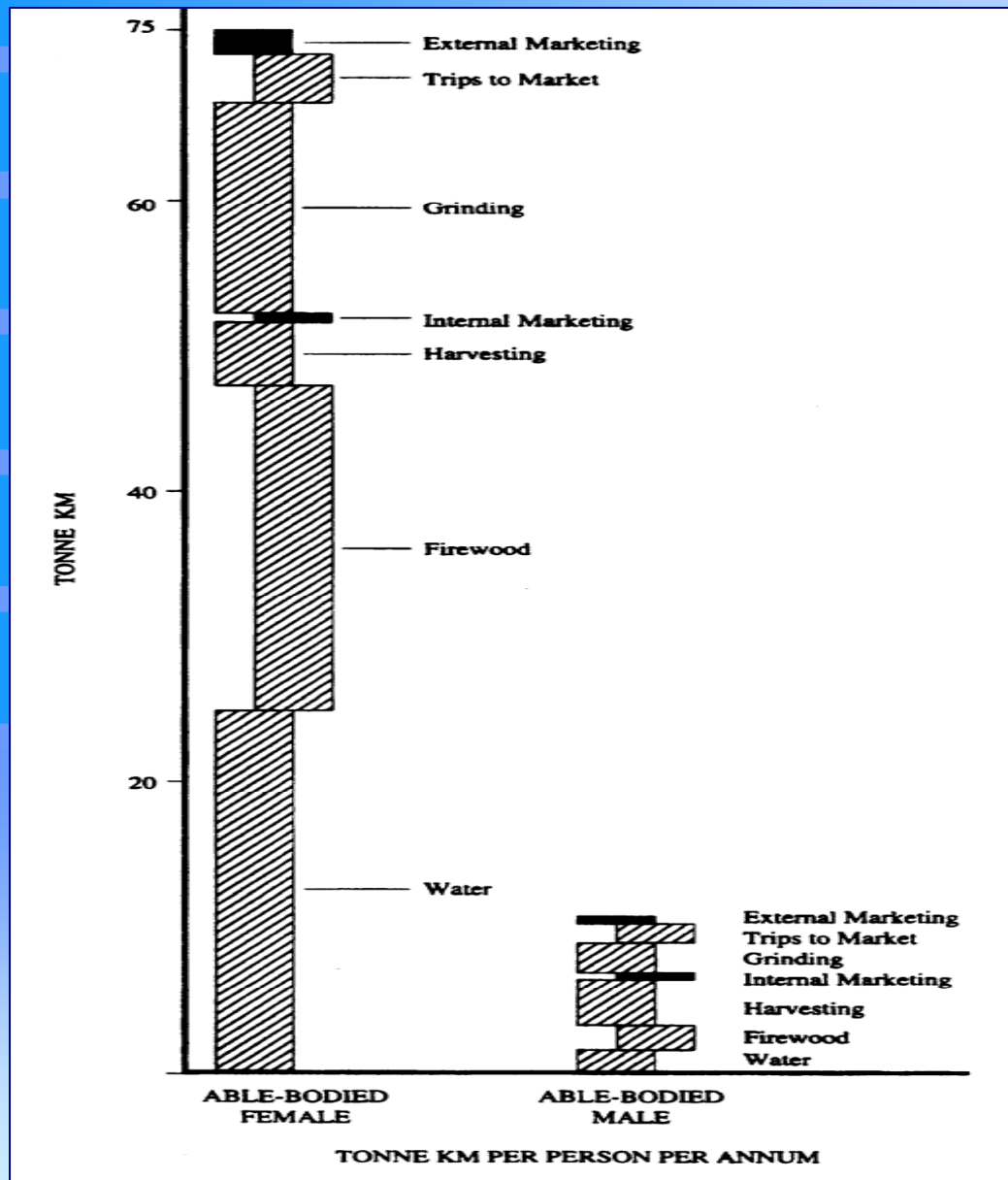
The average urban cyclist is a 25-35 old men, employed and relatively well off (middle class): Delhi/India 81%, Leon/Nicaragua: 89%
(Exceptions: China, Vietnam)

Walking is predominant for women : Culture and tradition often don't allow them to use NMVs, forcing them to walk or use expensive motorised alternatives if existing



In rural regions women are carrying the largest portion of the transport tasks.

IV. Why it's so difficult?



Comparison of transport-load between men and women
(Ghana / source: BARWELL 1987, p.12)

IV. Why it's so difficult?

Absence of a cycling culture leads to a significant increase of motorised two wheelers...



IV. Why it's so difficult?

The majority of communities are unable to cope with the transport problems in their city –

A reliable institutional, legal and technical framework is missing, transport regulation mechanisms are not existing

Limited Communal Capacities ...



Proposals for NMV routes superceded by the development in the motorised sector:

- Elevated city roads interfere with NMT networks
- Introduction of minibuses lead to a decrease of NMV volumes

(Cities on the Move - A World Bank Urban Transport Strategy Review, 2004)

V. Research approach, results and related findings

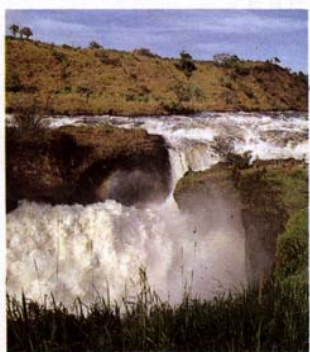
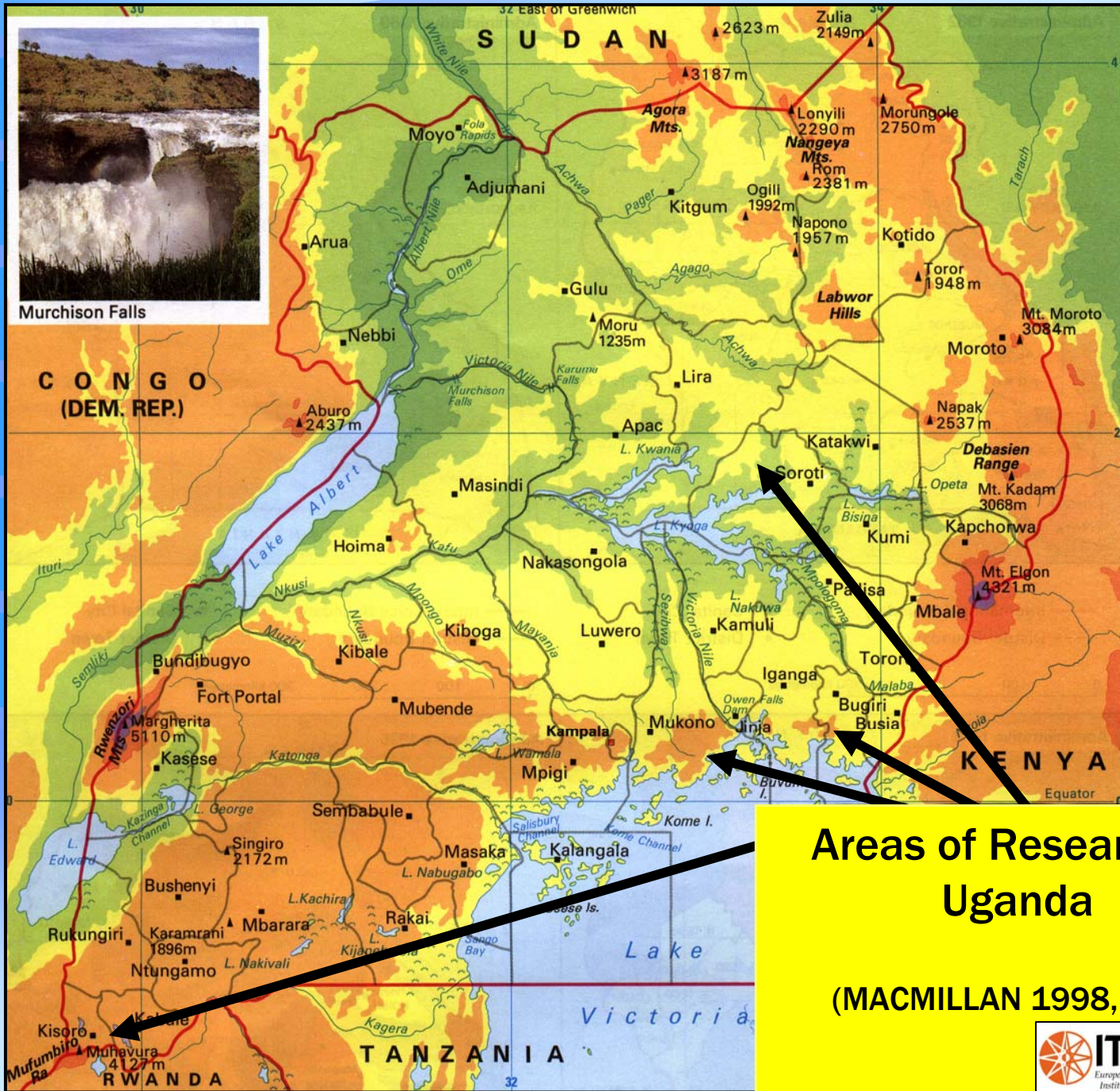
Analysis of the Influence of Bicycle-Ownership of Poor Households



1. Investigation of changes in the activity-space

2. Investigation of changes in income-structure

3. Investigation of the cost-benefit-ratio of the bicycle



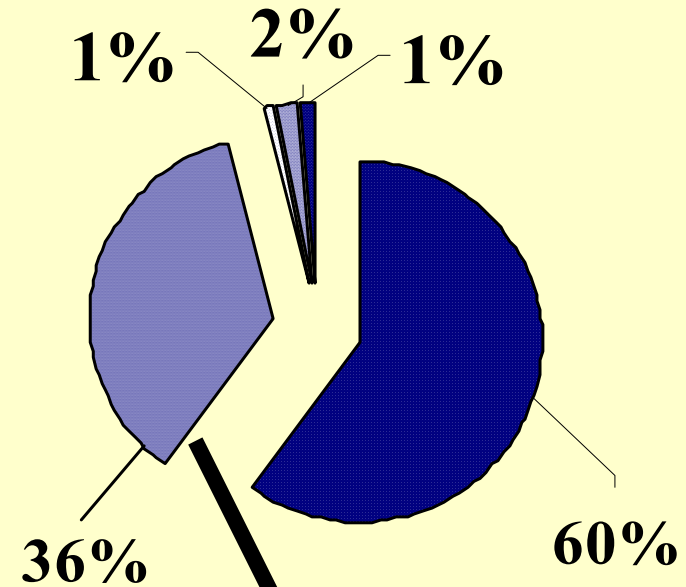
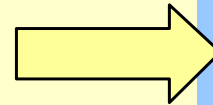
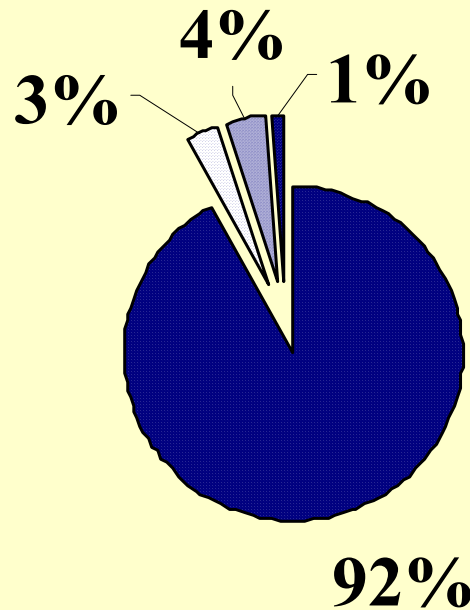
Murchison Falls

Areas of Research in Uganda
 (MACMILLAN 1998, p.21)

V. Research approach, results and related findings

Modal Split of the Households

(all research-areas / source: own data)

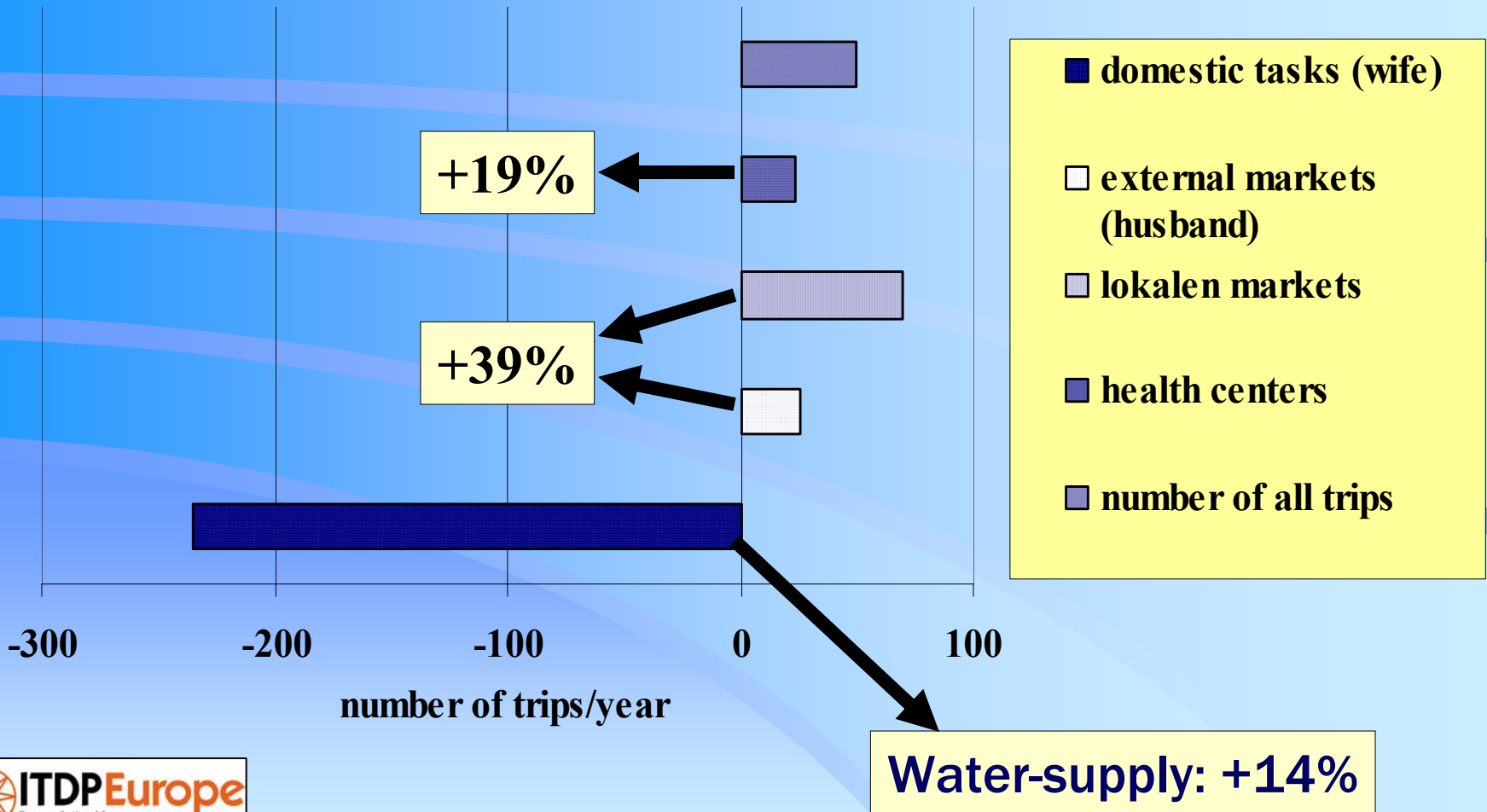


Increase of activity-space:
40km

- footing
- own bicycle
- borrowed bicycle
- motorised transport
- others

V. Research approach, results and related findings

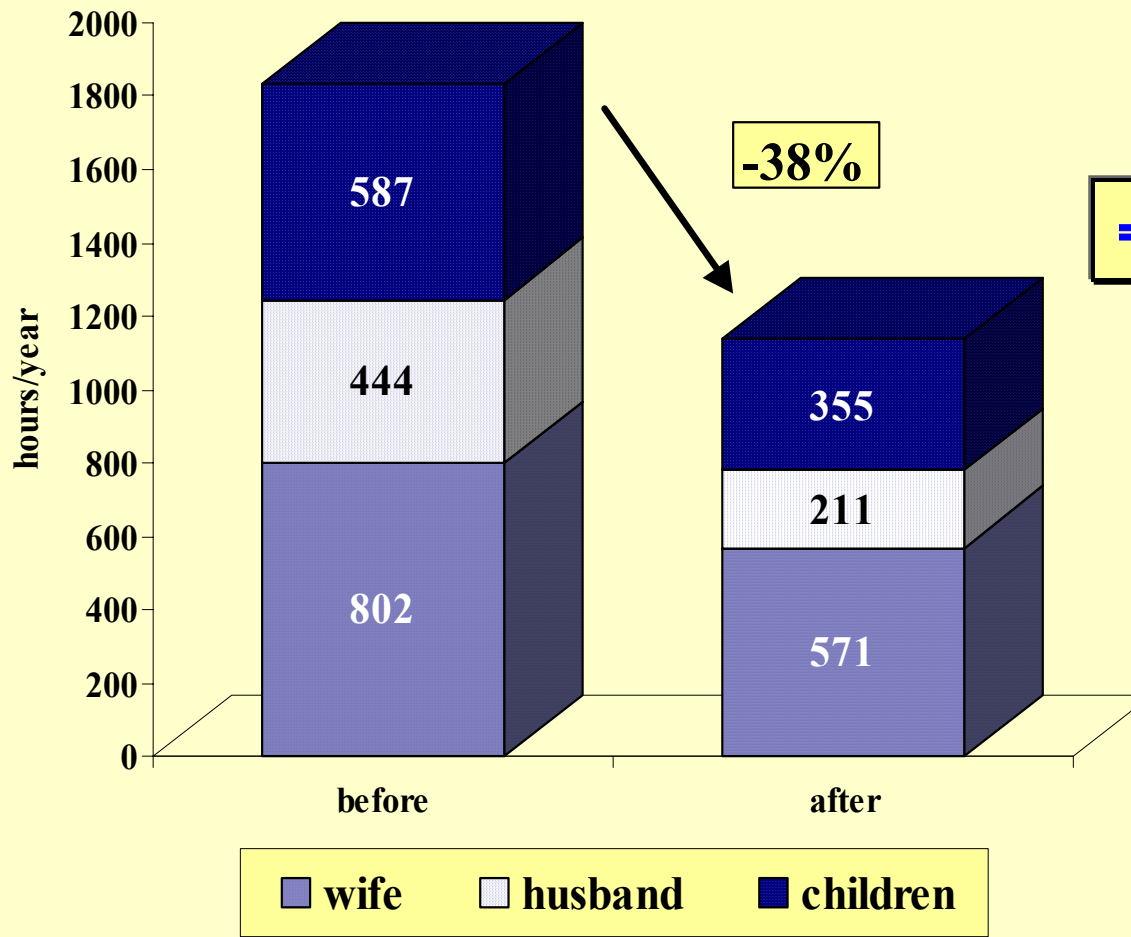
Changes in Trip-Frequency (all research-areas / source: own data) h



V. Research approach, results and related findings

Time-Reduction for Walking

(all research-areas / source: own data)

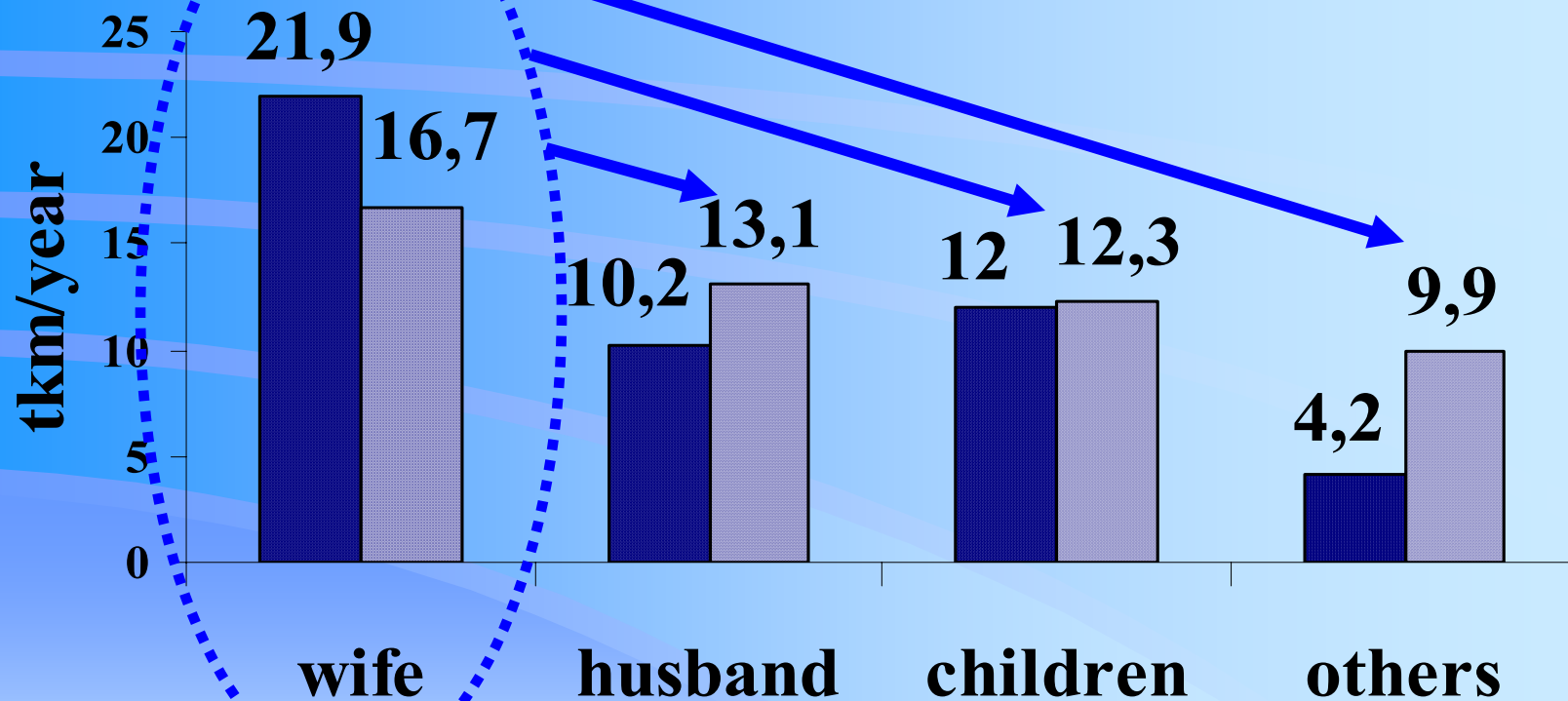


= 2 hrs./HH/day

V. Research approach, results and related findings

Transport-Load of Household Members

(all research-areas / source: own data)

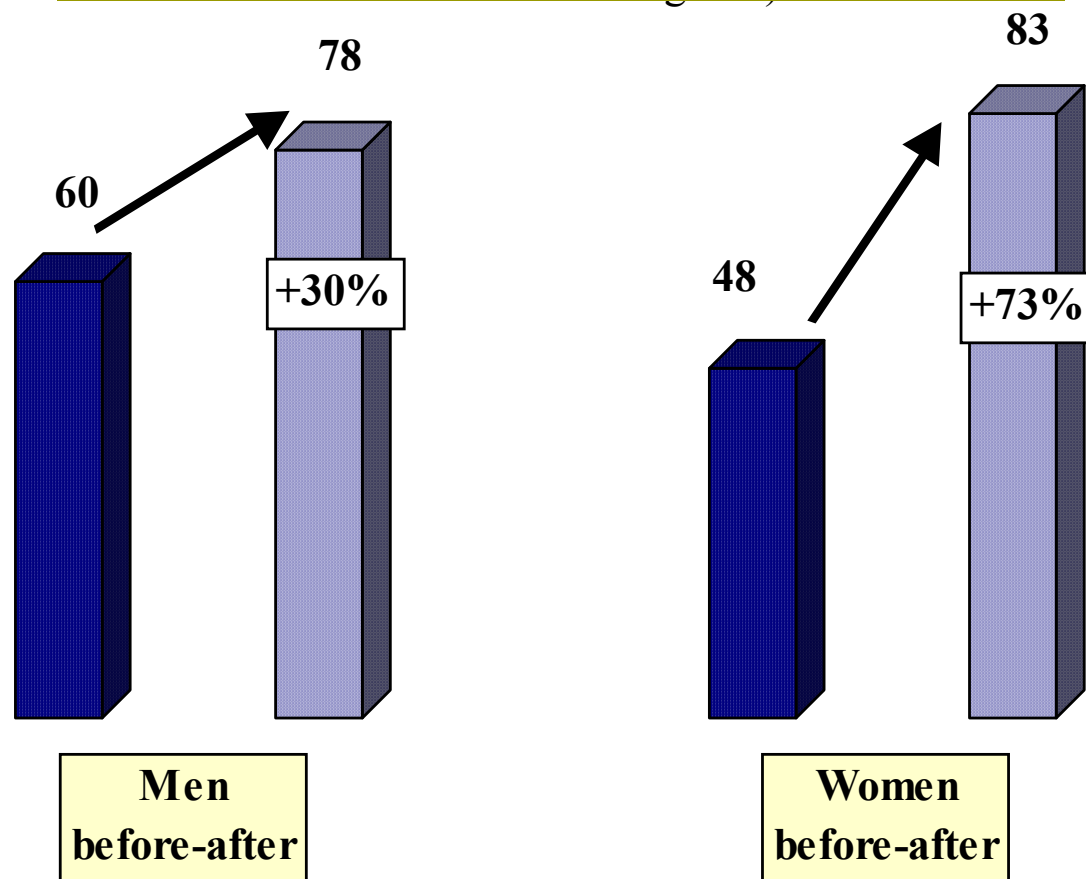


= Reduction/headload/wife: 44%

V. Research approach, results and related findings

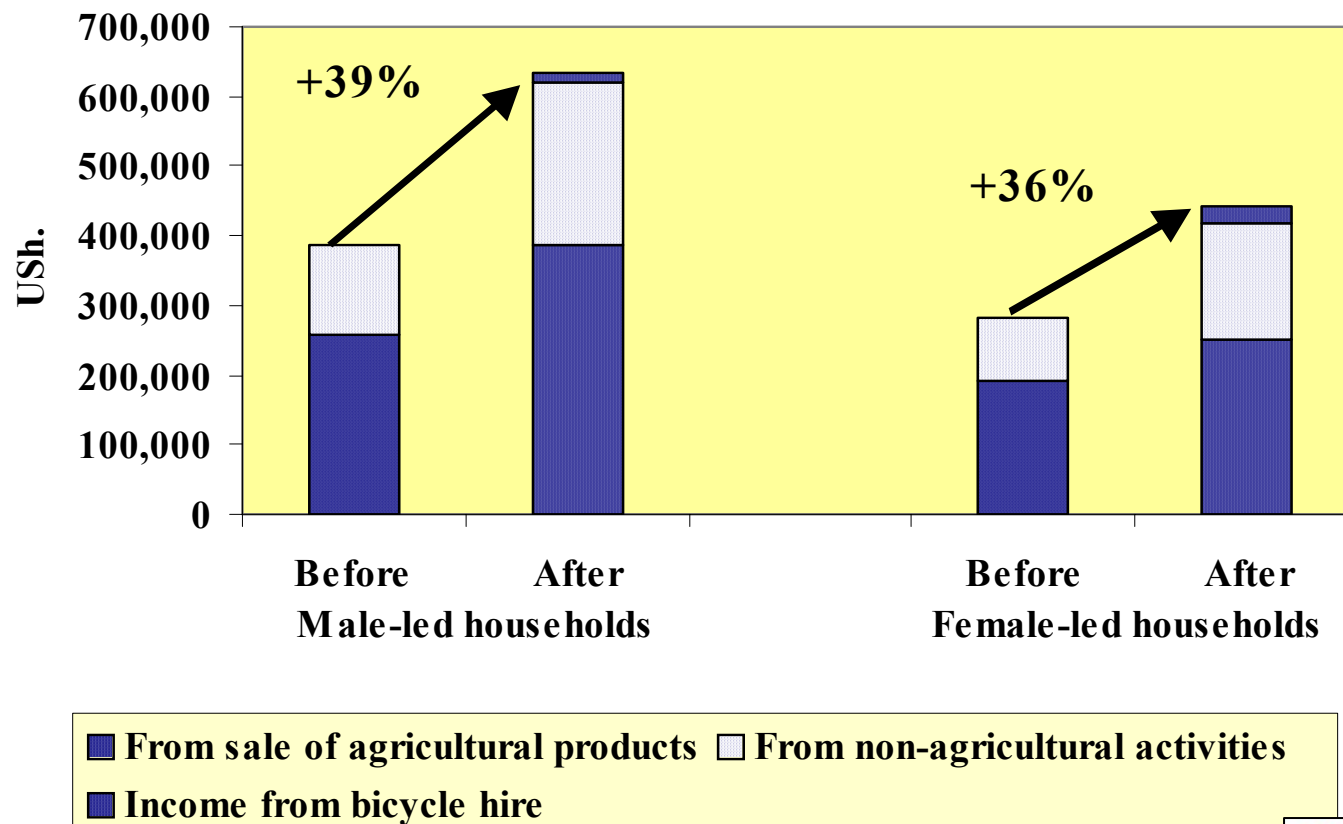
Informal Activities

(% of all hh / all research-areas / source: own data)



V. Research approach, results and related findings

Development of Total Income (all research-areas / source: own data)



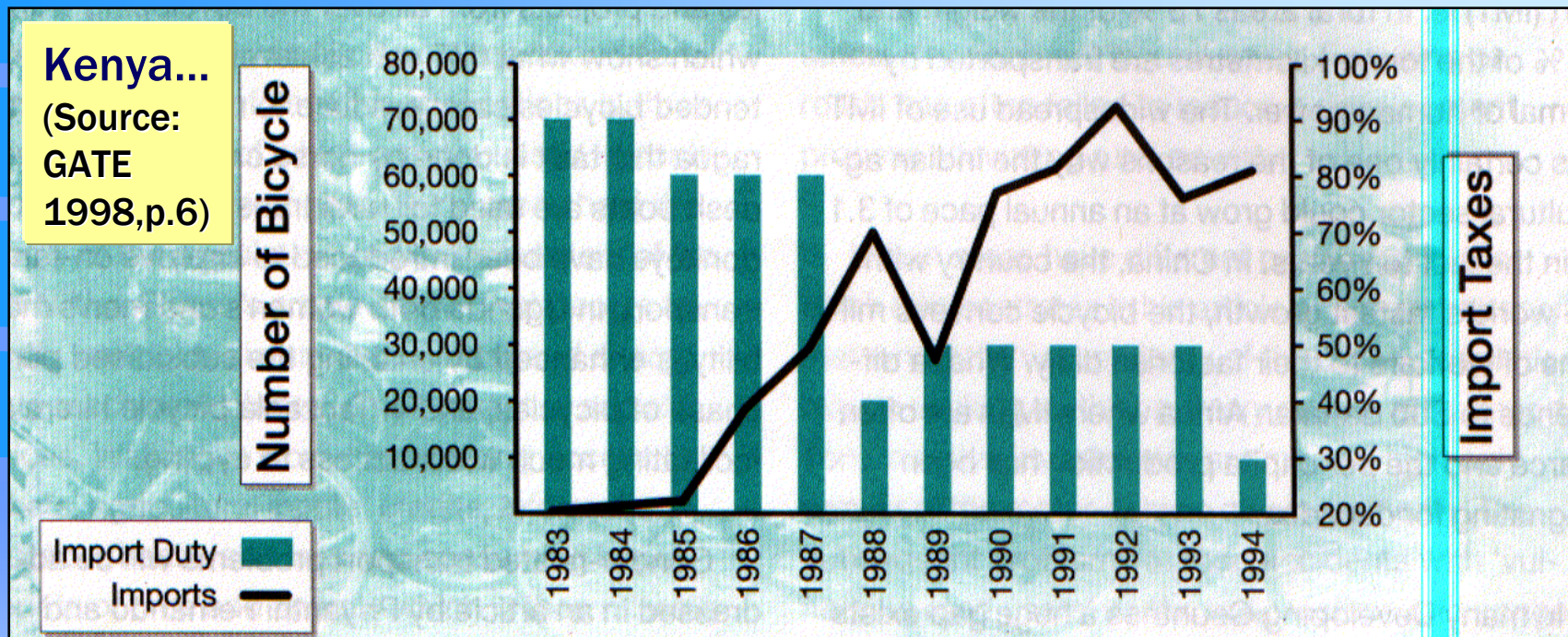
V. Research approach, results and related findings

Related Findings



V. Research approach, results and related findings

Availability: Elasticity of Demand for Bicycles in Relation to Import Duty



...when Ghana eliminated its tariff on the importation of bikes, bike imports skyrocketed 1000%.

(Source: Dealers in Kisumu / MACHARIA, internal communication)

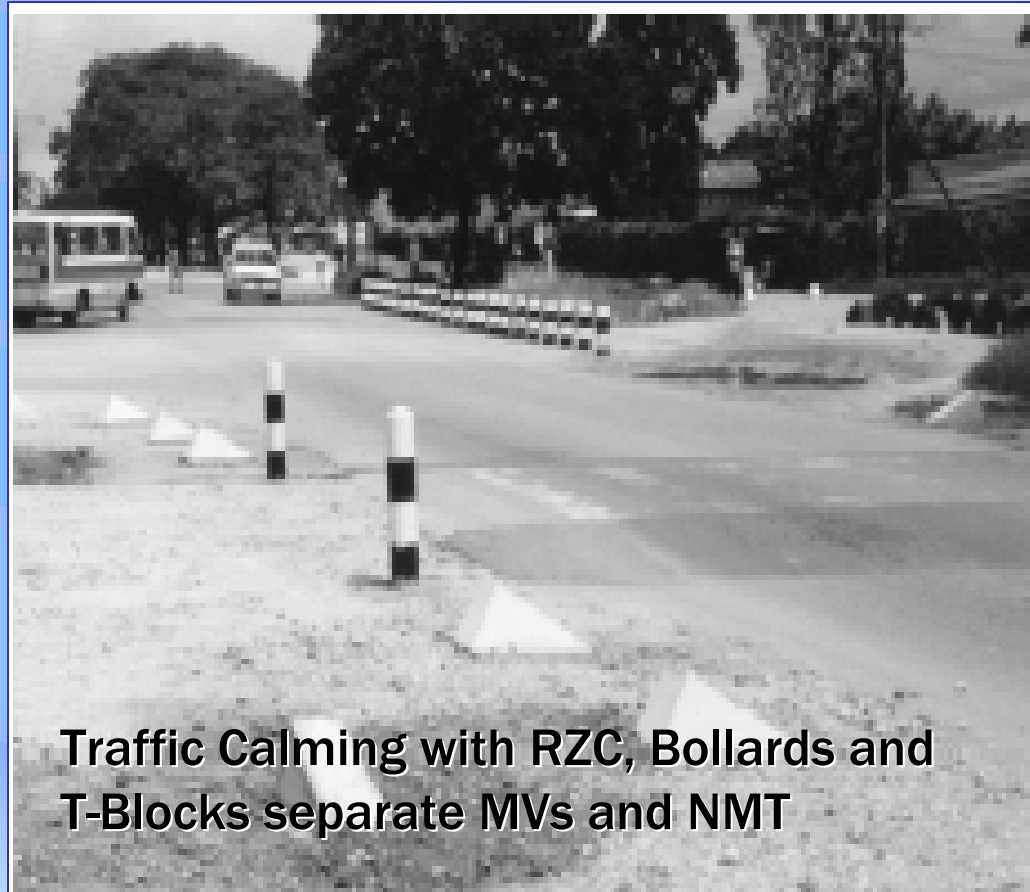
V. Research approach, results and related findings

Safety and Infrastructure

SSATP Projects

(Eldoret, Dar Es Salaam and Nairobi)

Serious traffic accidents with cyclists and pedestrians can almost be eliminated by a suitable road and intersection redesign.



Traffic Calming with RZC, Bollards and T-Blocks separate MVs and NMT

V. Research approach, results and related findings

Boda-Boda Bike Taxis

The Boda-Boda - whose travel-distance is 2,5 km on average - carry up to **2500 passengers per year**, which is 70% of their trips and 385 tonne-kilometer per year. **30% is covered by transport of goods** (165 tonne-kilometre per year).

It has also been shown that 6 people depend for a proportion of their livelihoods on the earnings of a typical Boda-Boda operator. Nation-wide the **total dependency is estimated at 1.6 million**, or about 7% of the population (Howe 2001). The operators themselves earned nearly twice the money of a driver who had to borrow the bike.

VI. Recommendations

**Integration of the NMT
issue in African
transport policies**

**Improving non
motorized vehicle
technology**

**Designing
infrastructure to
be compatible
with safe NMT**

**Promoting and
marketing of non-
motorized mobility**

**Sustainable
financing of NMT
infrastructure**

**Improving availability
and affordability of non-
motorized vehicles**

VI. Recommendations

Initial Pilot Projects

1) Participatory approach

2) Ownership and main responsibility on side of the community (incl. co-financing)

3) Efficient work and as quick implementation of first interventions

4) Transparent communication of progress and barriers

5) Monitoring of planning, implementation and impact

6) Further external technical support and exchange of know-how and lessons learned

A woman in a brown dress stands in the center of the frame, holding a bicycle. The bicycle is heavily loaded with several large yellow plastic jugs, likely for water. She is standing on a dirt path in a rural, open landscape with sparse vegetation and a blue sky with scattered white clouds. In the background, another person is visible, also with a bicycle, and a fallen bicycle lies on the ground to the left.

**Thank you
for your
attention !**