

# Powered two-wheleers (PTWs\*) in LMICs: research update

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Unità di Ricerca  
**Psicologia del Traffico**

# PTWs\* in LMICs....Plus and Minus aspects

## Positive aspects of PTWs

Easy access and affordable

Easy to use and maintain

Provide employment

Used as public transport in rural areas

Saving time in congested traffic



# PTWs\* in LMICs....Plus and Minus aspects



## Negative aspects of PTWs

Crashes, fatalities and injuries

Risk factor:

Non-use or use of low-standard helmets

Other risk-taking behaviours:

Drinking and driving

Mobile phone use while riding

Overspeeding and braking errors

Rider's age and level of experience

There's a need for new data to develop...

Specific laws

Specific enforcement

Specific education:

driving licence curriculum

training of trainers

driving test reliable and effective



# Informal Document No. 3

## Principles for Governance

Guidance should encourage data collection

Guidance should include education  
for the driver and passengers

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Informal document No. 3

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**Economic Commission for Europe**

Inland Transport Committee

**Global Forum for Road Traffic Safety**

Eighty-fourth session

Geneva, 7-11 March 2022

Item 5 (b) of the provisional agenda

Consolidated Resolution on Road Traffic (R.E.1)

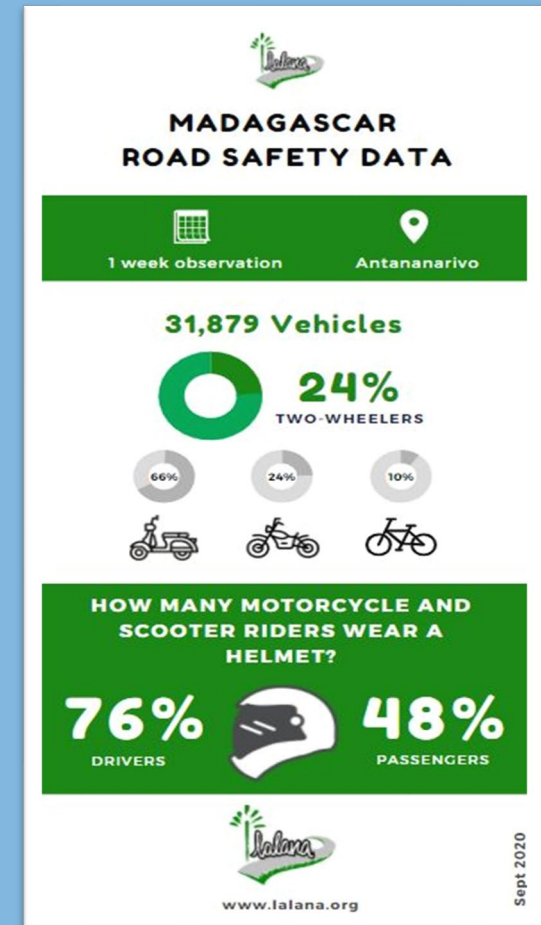
**Policies for Vulnerable Road Users (VRU)- focus on road safety challenges in low- and middle-income countries as identified during the South-East Asia project**

**Submitted by Italy, IRTE, University of Birmingham (UK), and Johns Hopkins**

This informal document, optimizing the outcomes of the webinar held in March 2021, has elaborated some guidance references to address non-regulated transport modes commonly used in South-East Asia and other regions. WP.1 is invited to consider these guidelines in the context of the prominent role played by non-regulated transport modes in the regions where such transport is commonly utilized due to economic and social necessities.

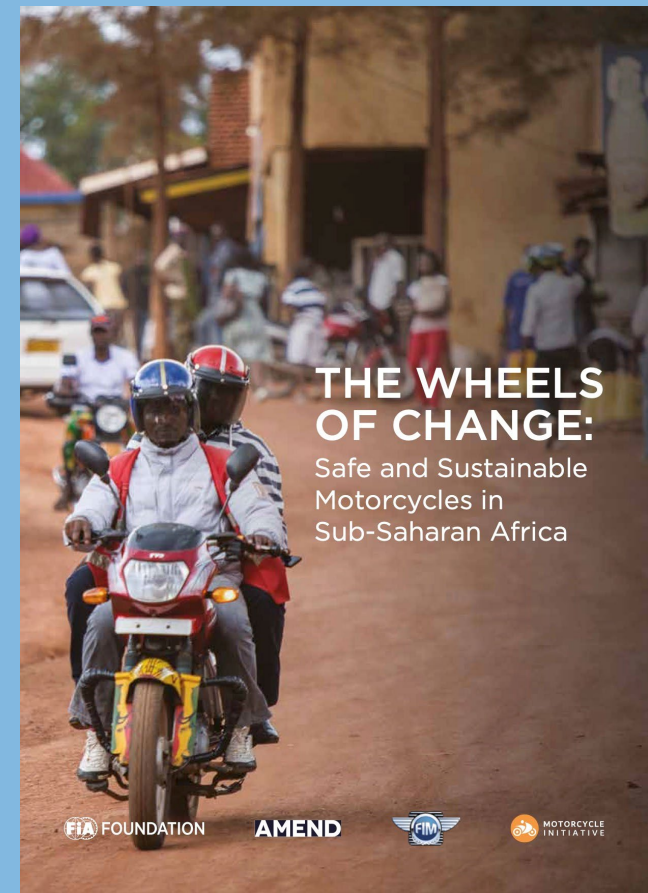
New data...

Helmet wearing rate (WHO 2018)



New data...

**THE WHEELS OF CHANGE:  
Safe and Sustainable Motorcycles  
in Sub-Saharan Africa  
(Bishop & Courtright 2022)**



# New data...

## Knowledge, attitudes of rider behaviour (Perego & Biassoni 2016)

Conference Proceedings  
SARF/IRE/PIARC Regional Conference for Africa 2018

### *Bodaboda drivers' behaviour*

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**Abstract** In Tanzania between 2006 and 2014, the number of registrations for 2 or 3 wheeled vehicles has been climbing, with 20,117 in 2006 and 185,100 in 2014. In 2014 more than 50% of registered vehicles were motorized 2 and 3 wheelers, and 22% of the deaths caused by crash accidents were drivers of this kind of vehicle. One of the great challenges for countries as Tanzania, is to confront the fatalistic beliefs of commercial (called 'Bodaboda') and recreational African motorcycle drivers and improve their knowledge of the road. This study is the second part of a traffic psychology project for Bodaboda drivers of the Arusha region in Tanzania. A first version of the questionnaire was distributed in Arusha city in March-April 2016. A final version of the BbQ was written in Swahili after a focus group with Swahili-English speakers and was distributed to 513 Bodaboda drivers in Arusha in December 2016. The distribution was carried out by 14 trained interviewers. The 513 subjects replied to 46 questions to investigate 7 different sections: demographic information, protective equipment, passengers, maintenance of motorcycle, police fines and bribes, driver's crash history and reason. 47.9% of the Bodaboda drivers have been involved in a crash, the most frequent cause of is poor driving skill (56.1%) and for 10.5% of the subject crash-avoidance was impossible because crashes are predestined. The Bodaboda drivers was also recorded with a video camera in Arusha in August 2017 in order to understand the gap between questionnaire's answers and real driving behaviors.

**Keywords:** road safety; taxi motorcycle; driver's behavior; questionnaire.

#### I. INTRODUCTION

Every year, more than 1.2 million deaths are directly caused by road crashes [1], and more than 75 million road users are injured and a further fifty million road users are seriously injured [2]. The severity of these injuries and fatalities is not homogeneously distributed throughout countries in the world. The low- and middle-income countries (LMIC) register more than 90 percent of the world's traffic fatalities but they only account for 50 percent of motorized traffic in the world [1]. In sub-Saharan Africa the average mortality rate per 100,000 population is 26.6, while the global average is 17.4. In the country of Tanzania, the situation is even more alarming, the WHO estimates that more than 16,000 people are killed in traffic each year, which equals 32.9 traffic deaths per 100,000 population [3]. The Tanzanian Traffic Police reports that the highest share (33%) of the road related fatalities in Tanzania in 2015 consisted of motorcycle riders [4]. While these numbers are alarming by themselves, the number of injured and killed motorcycle riders is projected to increase. There were approximately 800,000 motorcycles registered in Tanzania in 2014, and their number increases by 148,000 every year [1][5]. The high number of motorcycle rider fatalities and the rapid increase in the number of motorcycles calls for effective measures to be undertaken to improve the road safety of

motorcycle riders in Tanzania. This is why researchers and road safety NGOs have started to investigate critical road user behavior that influences road safety and to try to defeat one of the great challenges for countries as Tanzania, confront the fatalistic beliefs of commercial and recreational African motorcycle drivers and improve their knowledge of the road [6]. Increased attention has been given to the role of so called Bodaboda drivers, who use their motorcycles commercially to transport goods or passengers. Since 2010, Bodaboda drivers are obligated to register with a Bodaboda organization, which allows directed targeting of safety relevant behavior of Bodaboda drivers through these organizations [7]. Existing regulations mandate that Bodaboda drivers are only allowed to transport one passenger, need to wear a high visibility safety vest, use a motorcycle helmet, and only transport passengers that also use a helmet. Road traffic legislation, regulation, and strict police enforcement are proven to be effective methods to increase road safety [8]. Through Bodaboda organizations, commercial motorcycle drivers in Tanzania are subject to special regulations and they are therefore a useful object of study. Prior research has shown an impact of road safety education of the Bodaboda drivers on their use of motorcycle helmets, safety vests, and the number of the crashes they are involved in [5][9]. This study aims to investigate safety relevant road behavior of Bodaboda drivers in detail. The Bodaboda questionnaire can help researchers in low-and middle-income countries to better understand the relationship between behavior, fatalistic beliefs, mental representation of risk and safety in commercial motorcycle drivers, and thereby allow targeted road safety programs and legislation [10]. Ultimately the better understanding of motorcycle drivers' behavior can prevent an increase in the number of road crashes.

#### II. METHOD

The Bodaboda questionnaire was developed in an iterative process as part of a project on road safety in Tanzania undertaken by researchers from the Università Cattolica del Sacro Cuore di Milano, from Center for Accident Research and Road Safety of Queensland (CARRS-Q) and from Technische Universität of Berlin. A first version of the questionnaire with 37 items was developed from the ground up in English and then translated to Swahili. This version was divided in 6 different sections: socio-demographic information, use of the protective equipment as helmet and vest, behavior of the passengers, maintenance of the motorcycle, number of the police fines and driver's crash history. This first draft of the Bodaboda questionnaire (BbQ) was distributed to 54 Bodaboda drivers in Arusha city during the months of March and April 2016. The results of the data analysis of the first version highlighted some problems of understanding the questions and also some



## Bodaboda Questionnaire Results

27.5 years old (SD=5.67), 62% married, and 59% have children  
42% declared to use 'always' the helmet.

17 passengers per day (SD=5.60), and 23% declared to carry more than one passenger 'often'

69% took fines, and 48% bribed the police

49% were involved in a crashes

3.3% identified 'Lack of Attention' as the reason of crashes



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# New data and research update

## Motorcycle Rider Behaviour Questionnaire (MRBQ) (Elliot et al. 2007)

Demographic information

Crash information

Different type of motorcycle behaviours

- Traffic errors
- Speed violations
- Stunts
- Safety equipment
- Controll errors



# Partnerships

Tanzania

Arusha Technical College



Swahili

Nigeria

Federal University of Kashere



Hausa

Madagascar

ONG Lalana



Malagasy

# Procedure

Context and culture

30	Wear body armour (elbow pads, shoulder pads, knee pads, etc)	
	NO	

39	Have trouble with your visor or goggles fogging up	
	NO	

9	Attempt to overtake someone that you had not noticed to be signalling a right turn	
	Attempt to overtake someone that you had not noticed to be signalling a left turn	

41	Ride when you suspect you might be over the legal limit for alcohol	
	Ride when you suspect you might be drunk	

Done

Translation

and back translation

23	Attempt to do, or actually do, a wheelie	
23	Gwada yin, ko kuma yin tuki a bisa tayan baya kadai	

Done

Distribution of MRBQ and data analysis

Work in Progress

# Work in Progress

Tanzania Arusha Technical College



208

Nigeria Federal University of Kashere



154

Madagascar ONG Lalana



177

## Issues faced

The reluctance of the riders to answer. They believe that the interviewer is an agent of the local administration or the Police to spy on motorbikes or to target drivers without a driving licence.

Many riders leave without being able to answer the questionnaire until the end if a customer asks them for a ride.

## Summary of the Preliminary Results

The state of the road infrastructure impacts the driving style of motorcyclists.

Use of brand new roads by young people to test the power of their motorbikes, to speed, to organise running events.

Non-existence of laws and texts regulating the use of motorbikes.

## Summary of the Preliminary Results

There is a lack of adequate training centres.

Many motorcyclists do not have a proper licence to ride a motorbike.

Many motorcyclists do not know how to ride a motorbike.

Increase in uneducated and unqualified people working as motorbike taxi drivers.



# Thank you

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