



AFCAP

Road Traffic Injury on Rural Roads in Tanzania:

A study into motorcycle crashes on rural roads

HelpAge / AFCAP Workshop

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Introduction – Amend

- Non-Governmental Organization (NGO) focused on Road Safety from a Public Health Perspective
- Founded in 2005 in the United States
- Working in Tanzania since 2009
- Mission:
 - *Amend works to reduce the incidence of road traffic injury among the most vulnerable road users while helping create an environment for long-term, sustainable injury reduction*

- Annually, almost 1.3 million killed and 50 million injured on roads worldwide
- Africa has world's most dangerous roads
- Globally, number of private motor vehicles forecast to triple by 2050. Two-thirds of this growth will take place in low and middle income countries
- In Tanzania
 - 2008 to 2012: 500,000 new motorcycles registered
 - Motorcycles make up 90% of motorised vehicles on rural roads
 - Motorcycle deaths: 2008 – 309, 2012 – 930
 - Injury rates (per year): General population – 5.5%, Boda-boda drivers – 63.3%

- **Local Government Transport Programme 2 (LGTP2)**
 - Upgrade 14,600 km from ‘non-motorable’ to ‘motorable’, by 2017
 - Support MKUKUTA and Kilimo Kwanza
 - Access to markets, schools, health facilities, etc.
 - Includes support for ministries and LGAs to address safety
- **African Community Access Programme (AFCAP)**
 - Research into low-cost solutions to provide rural access
 - Projects at Bagamoyo and Siha, piloting surface types on rural roads
 - Environmentally Optimised Design and Spot Improvements
 - Whole-life costs. Maintenance

Surface Types Piloted

- Paved surfaces
 - Otta seals
 - Sand seals
 - Double surface dressing
- Concrete surfaces
 - Parallel concrete strip
 - Concrete geocells
- Block surfaces
 - Hand-packed stones
 - Paving bricks
- Engineered and non-engineered natural earth surfaces





Motorcycle Crashes on Rural Roads

- Improved roads → Increased traffic and higher speeds
- Are crashes caused by behavior, road design and condition, other factors, or a combination?
- Research involved:
 - Motorcycle Crash Investigations
 - Motorcycle Safety Risk and Protective Factors Questionnaires
 - Motorcycle Safety Expert Risk Assessments (Driver & Passenger)
 - Roads Engineer Assessments of Surface Types & Cross Sections
 - Motorcycle Speed Surveys
 - Motorcycle Drivers' Opinions of Road Surfaces Questionnaires
 - Motorcycle Passengers Questionnaires
 - Community Surveys

- Actions of motorcycle drivers and other road users contribute to crashes
- Significant association between crashing and:
 - Under 26 years old, unmarried and without children
 - Not owning motorcycle
 - Using mobile phone and racing
- Road design and condition contribute to crashes
 - Parallel strips: Reinforce 'might is right'; Dangerous edges
 - Sealed surfaces: Can be slippery; Can encourage high speeds
 - Stone blocks: Can cause loss of control; Crash can lead to serious injury
- Extending study to include rainy season: report in







- **Road Design and Condition:**
 - Planners and engineers should consider motorcycles in road design, construction and maintenance
 - ‘Design event’ should be a 4-wheel vehicle passing a motorcycle, giving a width of 4.5m
 - Condition of shoulders is very important to motorcyclists – these should be strong, flat, and free of loose stones and vegetation
 - Effective drainage is very important
 - Effective maintenance will be required to ensure the safety of surfaces, especially Parallel Concrete Strips and Hand-Packed Blocks
 - Mean texture depth of less than 1.5mm should be avoided
- **Driver Behaviour:**
 - Improve system of training, testing and licensing
 - Simply dictating lessons does not improve behavior
 - Understand behavioural motivations