SaferAfrica
Evidences & Recommendations
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NTUAthens

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Road Safety in Africa

• Road traffic fatality rates per 100,000 population (WHO 2015)

• Africa presents the highest traffic fatality rates globally, with almost three times higher fatality risk than Europe
WP4 Objectives

• Provision of **recommendations** and **guidelines** for a minimum set of **harmonised data** collection procedures and **standard definitions**
  – minimum set of data elements
  – common collection system

• Attempt to deliver **accurate** and **comparable** road safety data for **evidence-based decision making**

• Applied in the short- to medium term to **improve** African data collection systems
Methodology

- Analysis of existing systems and of the findings of the survey in Africa
  - US-NHTSA FARS – NASS Systems
  - Survey in the context of Safer Africa project
    - road safety data
    - data collection systems
    - definitions
Type of Data Assessed

- 3 types of data
  - Accident data
  - Exposure data
  - Road safety performance indicators

- Limitations in the collection process
  - experience
  - unavailability
  - lack of standardization

- 2-fold priorities scenario / data type proposed
  - usefulness
  - easiness to collect
Accident Data

• **Common dataset**
  composed of minimum data elements (variables) acts as key tool for ensuring the appropriateness of data captured

• **Uniformity** of accident data crucial for subnational - international comparisons

• 2-step approach for developing common data collection system
  – improvement and harmonisation of existing data and methods
  – collection of new harmonised data
Common Accident Data Collection System

- Minimum set of standardised data elements makes available
  - comparable road accident data available in Africa
    - serve national needs (organizations, authorities, etc.)
    - compatible with international data
  - transferability of knowledge and best practices from developed countries
    - taking into account particular local needs and conditions
Accident Data - Definitions and Standards

- Road fatalities

  - **international definition:** “the persons who died within 30 days from the day of the accident”

  - at present this definition is **used by a number of African countries** and is suggested to be adopted by the remaining ones

  - some countries have to **modify** the data collection process and **develop** appropriate conversion factors, **prior** to the adoption of the common definition
Accident Data - Definitions and Standards

- Injury severity
  - **minimum injury** for which an accident is recorded by the Police is **different** in each country
  - **important differences** among countries between **seriously** and **slightly injured** persons
Limitations for International Comparisons of Road Accident Data

- Incompatibility of data
  - different collection procedures
  - different definitions
    of the variables and values utilized

- Sources of data incompatibility:
  - missing or incomplete national definitions
    (e.g. for weather conditions)
  - different definitions in different countries
    (e.g. for road types)
Limitations for International Comparisons of Road Accident Data

• Underreporting
  – issue of **general concern** in Africa
  – affects the **degree** to which the **statistical output** of a country’s data system **reveals** the **actual situation** of road safety
  – road accident databases that **link Police and hospital data** may serve as a **potential solution**
Limitations for International Comparisons of Road Accident Data

• Additional inaccuracies

  – **conditions** under which the primary information is **collected** by the police officer

  – the **way** this information is **filled-in** later on

  – **inadequate training** of the Police collecting the information
Accident Data Collection Process

• Police reports
  – key role in the accident data collection process
  – responsible for providing the authorities with the collected data
  – main tool: accident data collection form with clear instructions
    • filling process
    • data transmission process to the national data file

• Hospital data
  – necessity for clear guidelines on the collection and coding of variables to be included in Hospital data
  – identifiers should match hospital and police data

• In-depth accident investigations
  – high level of detail about each accident and how this can be related to a number of outcomes
  – aimed at the cause of the accident, not who was to blame
Accident Data Collection Priorities

• Common road accident databases in a uniform format
  – continuously updated (compatible - comparable data)
  – allowing for more reliable analyses and assessments across the African countries

• Selection criteria for defining minimum data elements
  – data elements - values useful for road accident analysis at both national and international level
  – level of detail of the variables - values corresponds to all data useful for macroscopic data analysis
  – data elements - values comprehensive and concise
  – data difficult to collect should not be included
  – all variables and values refer to casualty road accident

• Data structure to follow the structure proposed in the WHO (2011) manual
## Proposed Data Structure of the Common Road Accident Data Set

<table>
<thead>
<tr>
<th>Accident related variables</th>
<th>Road related variables</th>
<th>Vehicle related variables</th>
<th>Person related variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; priority</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; priority</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; priority</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; priority</td>
</tr>
<tr>
<td>Accident ID</td>
<td>Impact type</td>
<td>Type of roadway</td>
<td>Speed limit</td>
</tr>
<tr>
<td>Accident date</td>
<td></td>
<td>Road functional class</td>
<td>Road obstacles</td>
</tr>
<tr>
<td>Accident time</td>
<td></td>
<td>Junction</td>
<td>Road surface conditions</td>
</tr>
<tr>
<td>Accident region - municipality</td>
<td></td>
<td>Traffic control at junction</td>
<td>Vehicle make</td>
</tr>
<tr>
<td>Accident location</td>
<td></td>
<td>Road curve</td>
<td>Vehicle model</td>
</tr>
<tr>
<td>Accident type</td>
<td></td>
<td>Road segment grade</td>
<td>Vehicle model year</td>
</tr>
<tr>
<td>Weather conditions</td>
<td></td>
<td></td>
<td>Driving licence issue date</td>
</tr>
<tr>
<td>Light conditions</td>
<td></td>
<td></td>
<td>Age</td>
</tr>
<tr>
<td>Accident severity</td>
<td></td>
<td></td>
<td>Alcohol use suspected</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drug use</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
Exposure Data

• Road traffic estimates
  – road length
  – vehicle kilometres
  – vehicle fleet

• Road user at risk estimates
  – person kilometres
  – population
  – number of trips
  – time in traffic
  – driver population

• Data recorded systematically by most countries
  – vehicle fleet, driver population and road length
Exposure Data

• Basic requirements
  – travel/mobility surveys
  – traffic counts
  – common vehicle classification
  – common method for calculating vehicle-kilometres

• In Africa, only 7 countries were found to have collected exposure data

• 2-step approach for developing common exposure data collection system
  – improvement and harmonisation of existing data and methods
  – collection of new harmonised data
Exposure Data Collection Priorities

- Establishment of a common framework for collecting exposure data
  - consistent
  - comparable
    at both continent and international level

- Main methodologies expensive, difficult to organize, need time

- Certain exposure indicators more available
  - collection process is managed systematically from national governmental bodies
# Proposed Exposure Data Collection Structure

<table>
<thead>
<tr>
<th>1&lt;sup&gt;st&lt;/sup&gt; priority</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Road length</td>
</tr>
<tr>
<td>Driver population</td>
<td>Vehicle kilometres</td>
</tr>
<tr>
<td>Vehicle fleet</td>
<td>Person kilometres</td>
</tr>
</tbody>
</table>

1. Priorities
2. PRIORiTiES
3. 1. 2. 3.
Road Safety Performance Indicators

• Measures, reflecting those operational conditions of the road traffic system, which influence the system’s safety performance

• Serve as tools for
  – assessing current safety conditions of a road traffic system
  – monitoring the progress
  – measuring impacts of various safety interventions
  – making comparisons

• Divided into 4 pillars
  – road
  – vehicle
  – road user
  – post-accident care
Road Safety Performance Indicators

• In Africa, SPIs focus mainly on behavioural aspects

• Although highly prioritised by the questioned experts, rather limited data available

• Establishment of a common framework and areas for producing SPIs based on
  – survey results
  – minimum requirements from international practice (WHO, IRF)
Road Safety Performance Indicators Collection Methodology

- Observational techniques
  - sampling customized to the available resources

- National statistics and data
  - collected centrally by national registers
  - more easy to implement
  - far more available in many African countries
## Proposed Road SPI Collection Structure

<table>
<thead>
<tr>
<th>1st priority</th>
<th>2nd priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vehicles by year of manufacture (or registration year)</td>
<td>% of drivers over legal limits</td>
</tr>
<tr>
<td>Number of vehicles by vehicle type</td>
<td>% of severe or fatally injuries attributed to alcohol</td>
</tr>
<tr>
<td>Speeding</td>
<td>Daytime wearing rates of seat-belts</td>
</tr>
<tr>
<td></td>
<td>Front seats (passenger cars+vans)</td>
</tr>
<tr>
<td></td>
<td>Rear seats (passenger cars+vans)</td>
</tr>
<tr>
<td></td>
<td>Child restraint systems (children &lt;12 y.o.)</td>
</tr>
<tr>
<td></td>
<td>Front seats (hgos)</td>
</tr>
<tr>
<td></td>
<td>Daytime wearing rates of helmets</td>
</tr>
<tr>
<td></td>
<td>Motorcyclists</td>
</tr>
<tr>
<td></td>
<td>Moped riders</td>
</tr>
<tr>
<td></td>
<td>Cyclists</td>
</tr>
</tbody>
</table>
Implementation Roadmap

• Establishment of capacity at the National Authorities
  – collect, process and analyse data
  – support decision making
  – overall intention to develop a culture of substantiated decision making on all the organizations involved

• bodies to be involved
  • police
  • hospitals
  • public organizations involved in surveys for exposure data - SPIs

• special emphasis in the underreporting of road accident data
  • tackled by linking Police and hospital data
Implementation Roadmap

• Sampling and costing
  – data elements should be comprehensive, concise, and refer to casualty road accidents
  – demanding data (time, cost, collection barriers etc.) to be avoided regardless of their value for road accident analysis
  – 2-stage priorities scenarios proposed
  – 1st priority data, no significant cost, data expected to be available in national databases
  – 2nd priority data, cost of surveys depends on country size
  – exposure and SPIs surveys required for the 2nd priority
    • alcohol survey
    • speed survey
    • use of protection systems survey
Implementation Roadmap

• Adopt standard data definitions and standard data collection processes
  
  – data elements - values must be useful for road accident analysis
    • national level
    • international level

  – collection process performed and standardised
    • upon road accident (accident data)
    • on a periodic basis (exposure data – SPI surveys)
Implementation Roadmap

• Dedicated budget
  – Countries with dedicated road safety budget usually demonstrate higher operational level of road safety

• Need for a Pan-African coordination organization
  – assess the standardization level of the data collection process
  – define data collection priority areas for further improvement
  – coordinate the data collection management
  – support monitoring, analysis and publishing process of the data
SaferAfrica Implementation Roadmap

• Recommendations need to be rapidly conversed to the involved local authorities of each African country through a **network of national experts**

• SaferAfrica **coordinator** in charge to manage
  – distribution of recommendations
  – address needs of the other project activities

• Steps
  – identify data set needed as well as costs
  – secure funding
  – carry out regular data collection
  – process (data base) and analyse
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