GLOBAL ROAD SAFETY PARTNERSHIP

Africa Road Safety 2017

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Data Capturing and Management Challenges in Africa

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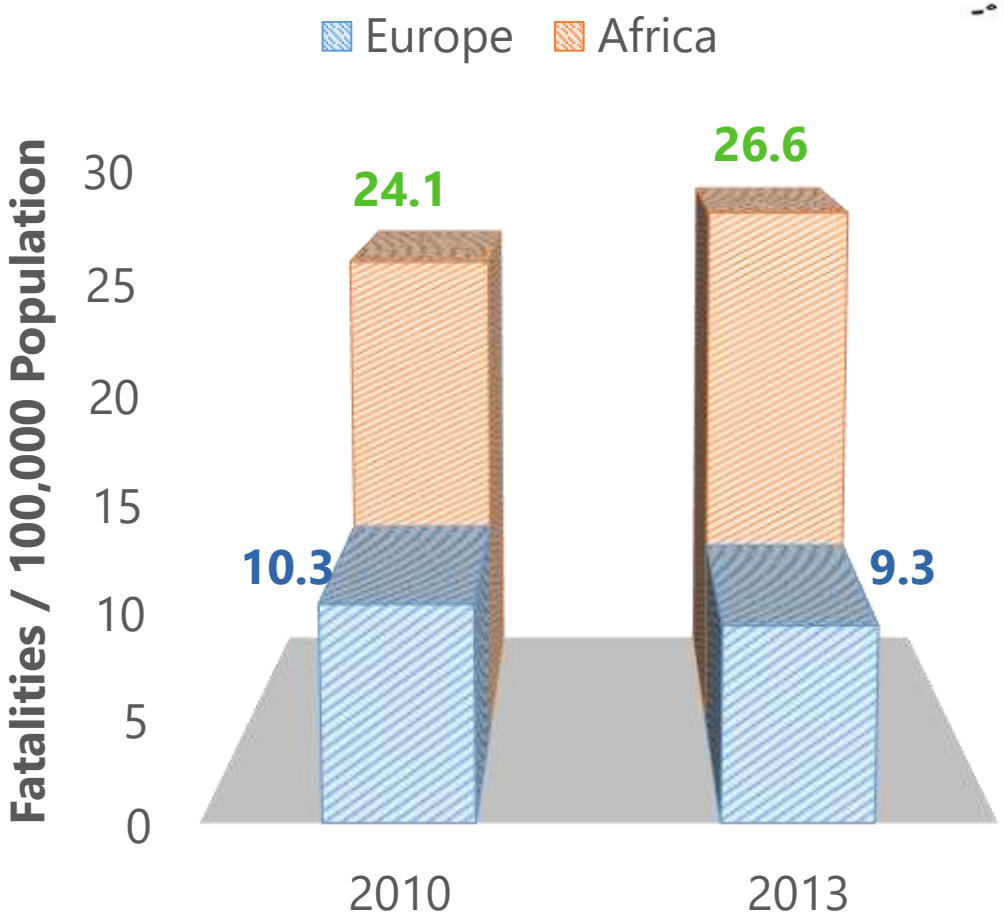
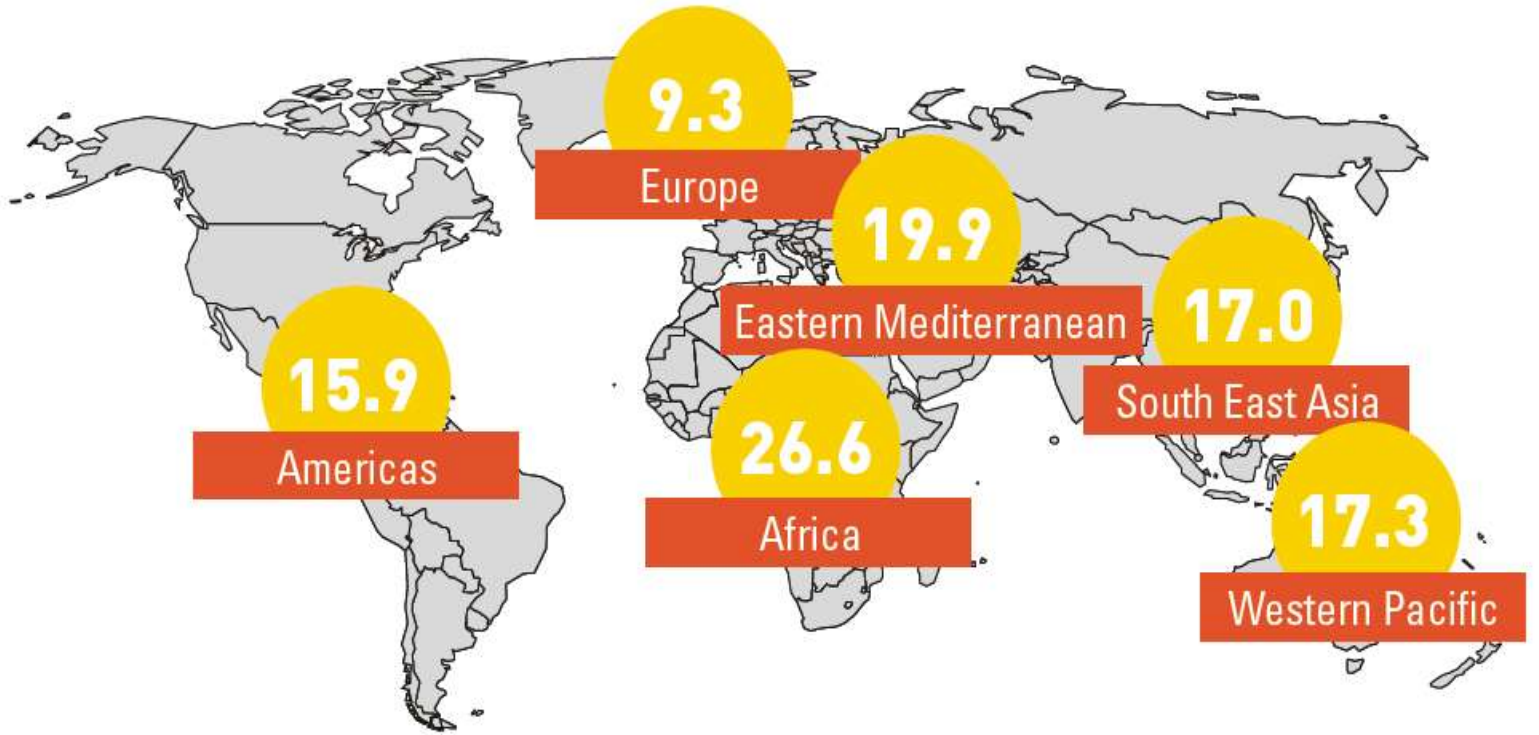
Road Safety in Africa

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

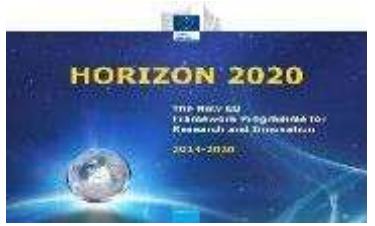




Africa presents the **highest traffic fatality rates** globally, with almost three times higher fatality risk than Europe

The SaferAfrica Project

- Funded under the **Horizon 2020 Mobility for Growth**
- Title: SaferAfrica - *Innovating Dialogue and Problems Appraisal for a Safer Africa*
- Duration: **36 months** (Oct 2016 – Sep 2019)
- Project Leader: **University of Roma – La Sapienza**



- **SaferAfrica Objectives:**
  Create favorable conditions and opportunities for the effective implementation of actions for road safety and traffic management in African countries, by setting up:
  - a **Dialogue Platform** between Africa and Europe
  - the African **Road Safety Observatory**

SAFER AFRICA

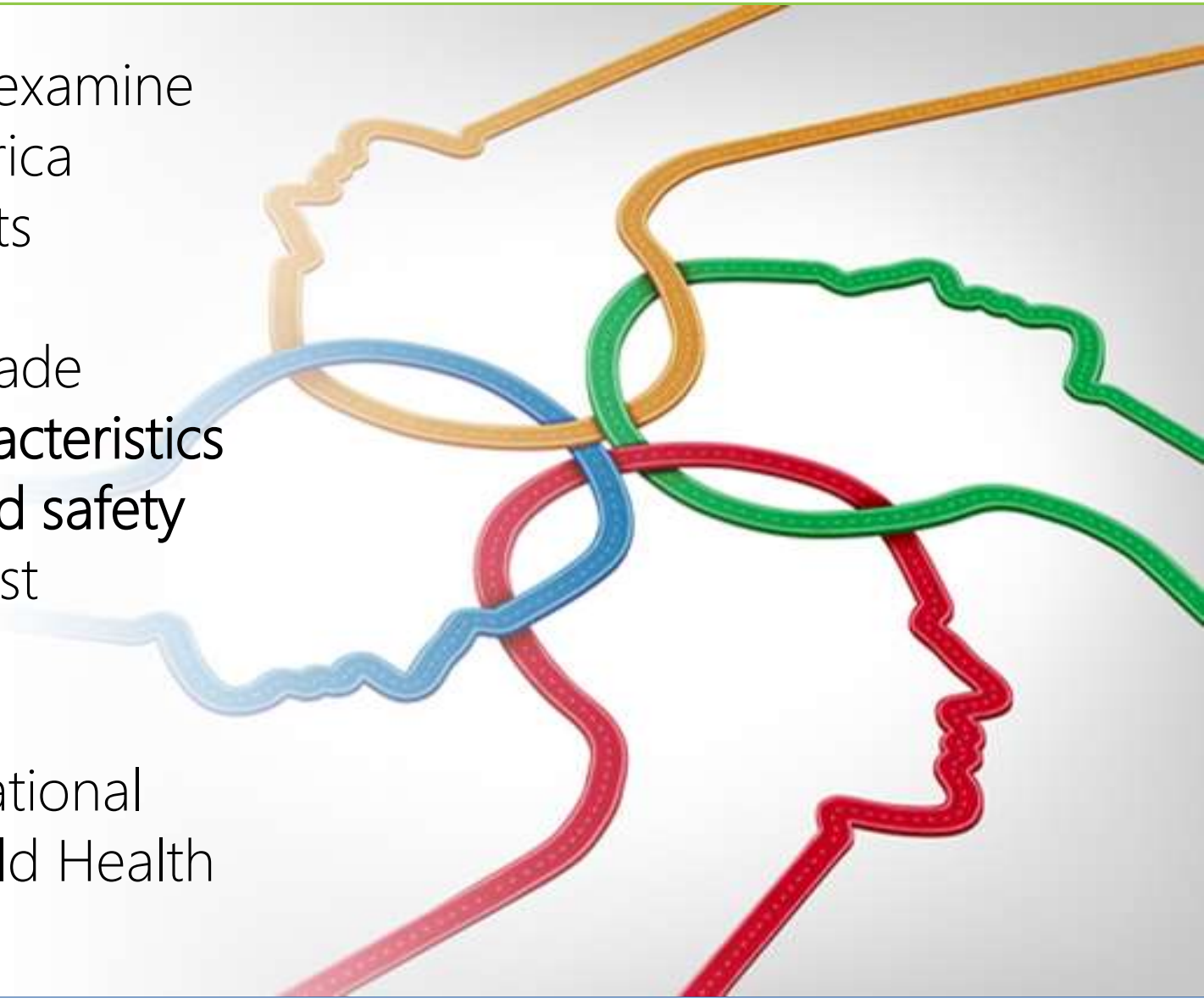
Partner		Country
1	CTL	Italy
2	NTUA	Greece
3	IBSR	Belgium
4	IRF	Switzerland
5	IFSTTAR	France
6	LOUGH	UK
7	LNEC	Portugal
8	SWOV	Netherlands
9	SITRASS	France
10	APRE	Italy
11	SAFER	Sweden
12	ENSTP	Cameroon
13	HI	Belgium
14	OCAL	Benin
15	ICI	Burkina Faso
16	SSATP	Kenya
17	CITA	Belgium

Objective - Methodology

- The **objective** of this research is to examine the road safety phenomenon in Africa by presenting basic road safety facts

- **Road accident fatalities** for the decade 2005-2014, as well as data on **characteristics of road network, exposure and road safety performance indicators** for the latest available year have been collected

- The **international databases** International Road Federation (IRF) and the World Health Organisation (WHO) were used



Importance of Road Safety Data Collection and Storage

- Highlight high-risk sites, hierarchize needs and plan necessary improvements
- Investigate the impact of various factors (geometric characteristics, parking, driver training, enforcements, etc.) on accidents reduction
- In the documentation of projects (e.g. signaling, lighting, signage, etc.) and actions (e.g. increased enforcement, parking ban) in order to improve road safety
- In "before and after" studies in order to determine the effect of an intervention at a road section or intersection
- Performing an expert's report on a particular accident

Problems when Recording Road Accidents

- Unclear determination of road accident location
- Insufficient or incorrect recording
- Insufficient accident coverage

Road Safety Data in African Countries

- There is a serious lack of road safety data in African countries
- Only a few countries have full-time series of fatality data
- Little information exists concerning data collection systems, data definitions, etc.

Road Fatality Data in Africa – WHO (1/2)

- **Three types of fatality data** are included in the WHO reports:
  1) Reported numbers of road deaths
  2) Reported numbers of road deaths adjusted to 30-days definition
  3) Estimated number of road deaths based on statistical modelling

- In the **WHO database** there are available data only for 2013
- Data on the number of road fatalities for 2010 and 2007 are available in the **published WHO reports**
- **43 out of 47 African countries** have participated in the last WHO report (2015)

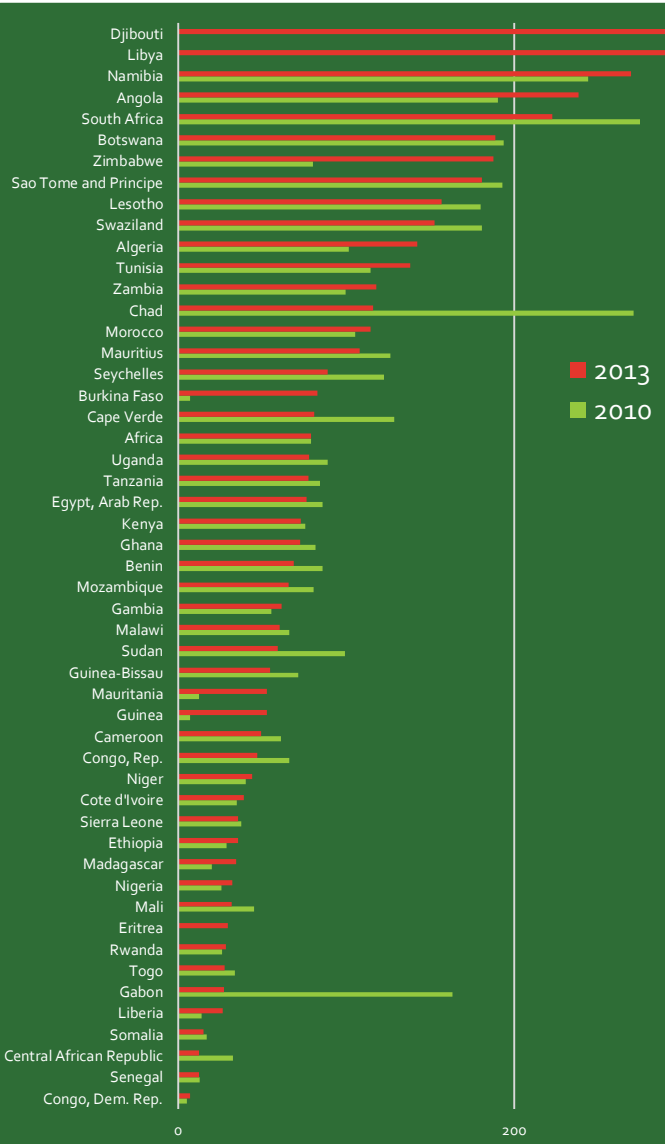
Road Fatality Data in Africa – WHO (2/2)

- **Distribution** of road deaths
  - By road user type
    - drivers/passengers of 4-wheeled vehicles
    - drivers/passengers of 2- or 3- wheeled vehicles
    - cyclists, pedestrians and other
    - unspecified user
  - By gender

- **Different road fatality definitions** are used by African authorities, according to WHO report

Definitions used by African Authorities	Number of African countries
at crash scene	6
24 hours	1
48 hours	2
7 days	4
30 days	24
1 year	4
unlimited time period	5
no definition	1

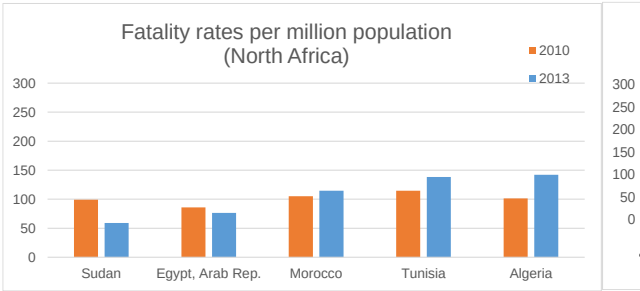
Road Fatality Rates in Africa

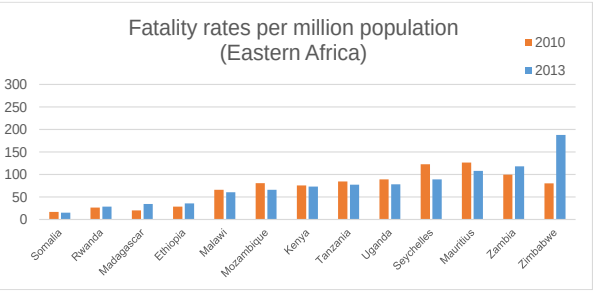


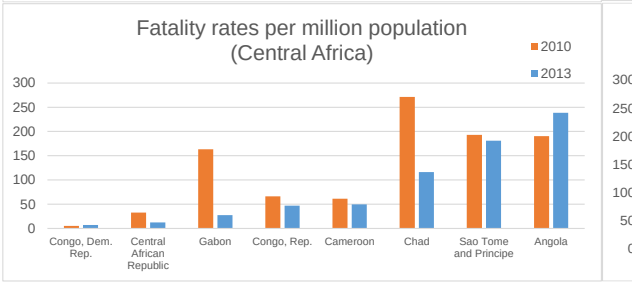
- The **estimated number of fatalities is much higher compared to the respective reported number** in almost all countries
- For **Angola, Botswana, Egypt, Libya, Mauritius, Seychelles and South Africa** the estimated number of fatalities is close to the reported one
- For the remaining countries, the estimation of WHO is about **2 to 13 times higher** than the reported number of fatalities
- For **Djibouti** the estimated number of fatalities by WHO is **20% of the reported**
- These differences affect the **ranking of the countries** concerning their road safety performance

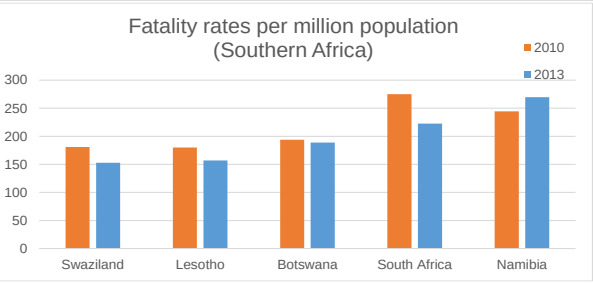
Road Fatality Rates in African Regions

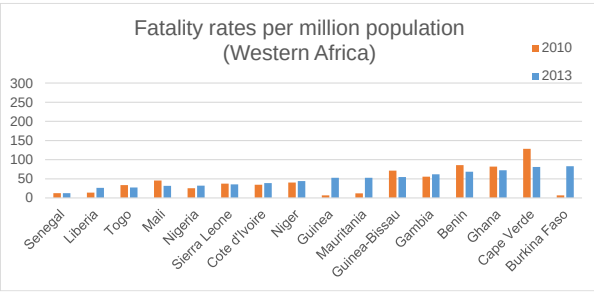
- In **North Africa**, fatality rates ranged between 59 – 142 killed persons per million population in Sudan and Algeria respectively
- In **Eastern Africa**, fatality rates ranged between 15 – 188 killed persons per million population in Somalia and Zimbabwe respectively
- In **Central Africa**, fatality rates ranged between 7 – 238 killed persons per million population in D.R. of the Congo and Angola respectively
- In **Southern Africa**, fatality rates ranged between 153 – 270 killed persons per million population in Swaziland and Namibia respectively
- In **Western Africa**, fatality rates ranged between 12 – 83 killed persons per million population in Senegal and Burkina Faso respectively





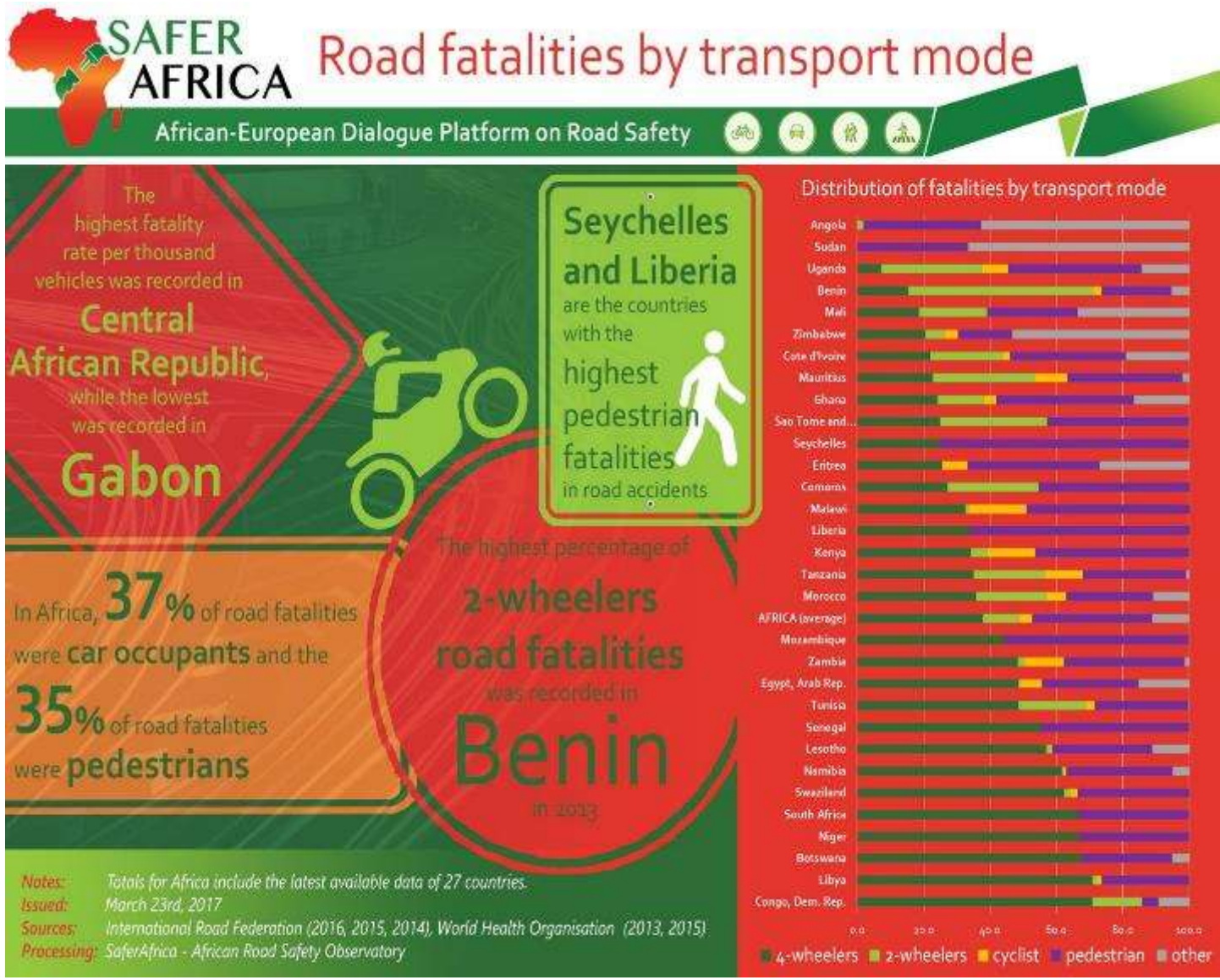






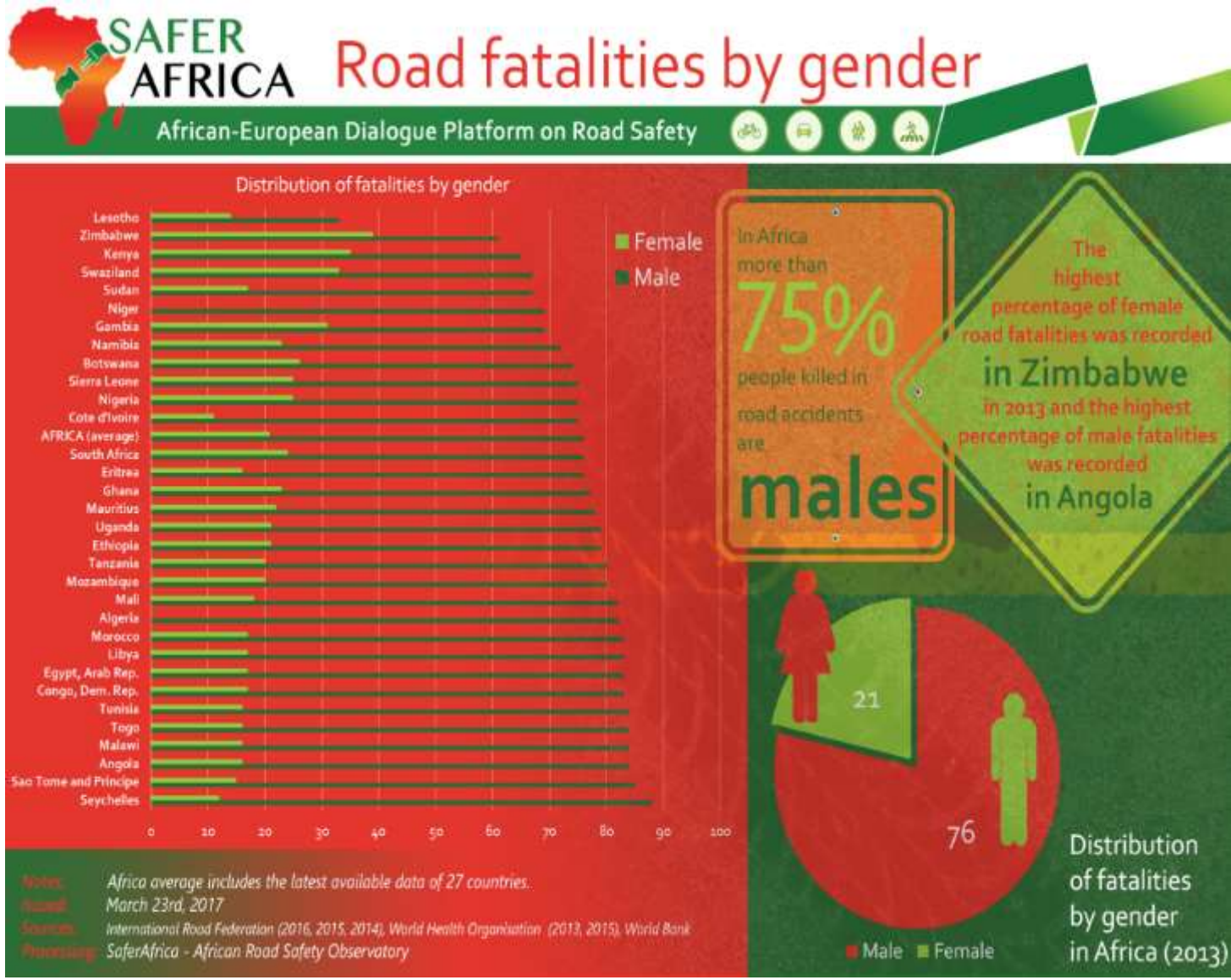
Road Fatalities by Transport Mode in Africa

- **31 countries** have provided WHO with fatality data by transport mode
- 37% of people killed in road accidents were travelling by **4-wheeled vehicles**
- 35% of fatalities in 2013 concerned **pedestrians**
- 11% of fatalities were **2-wheelers' riders**
- Highest percentages of pedestrian fatalities were recorded in **Liberia (66%), Mozambique (56%) and Malawi (49%)**
- The **Democratic Republic of Congo** and **Libya** had the most 4-wheelers fatalities
- In **Uganda** only 7% of killed persons were travelling by 4-wheeled vehicles



Road Fatalities by Gender in Africa

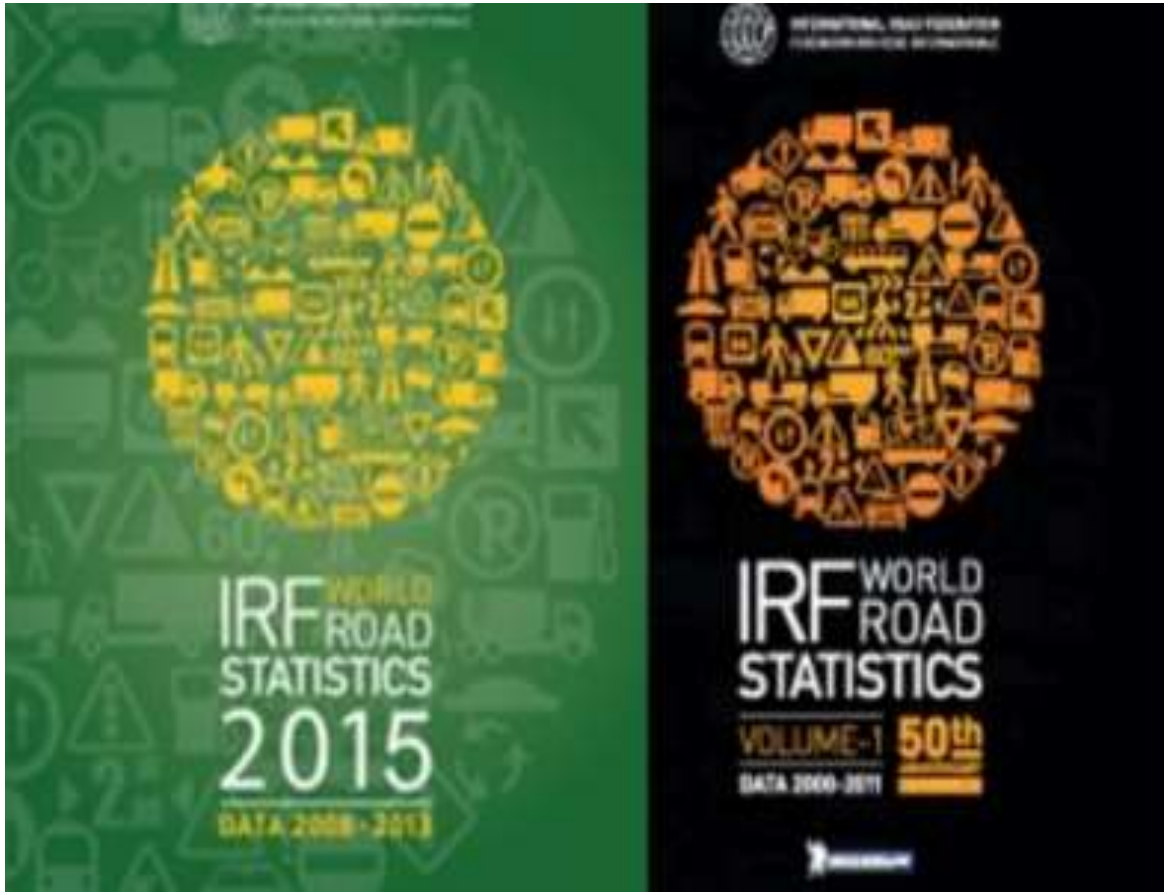
- **30 countries** have provided WHO with fatality data by gender
- **76% of the fatalities were male**
- In 12 countries, the percentage of male fatalities was **higher than 80%**
- **Algeria and Niger** have not provided data on female fatalities



Road Fatality Data in Africa – IRF (1/2)

- Data published in IRF
  are those **reported by the national sources**
  which use different definitions

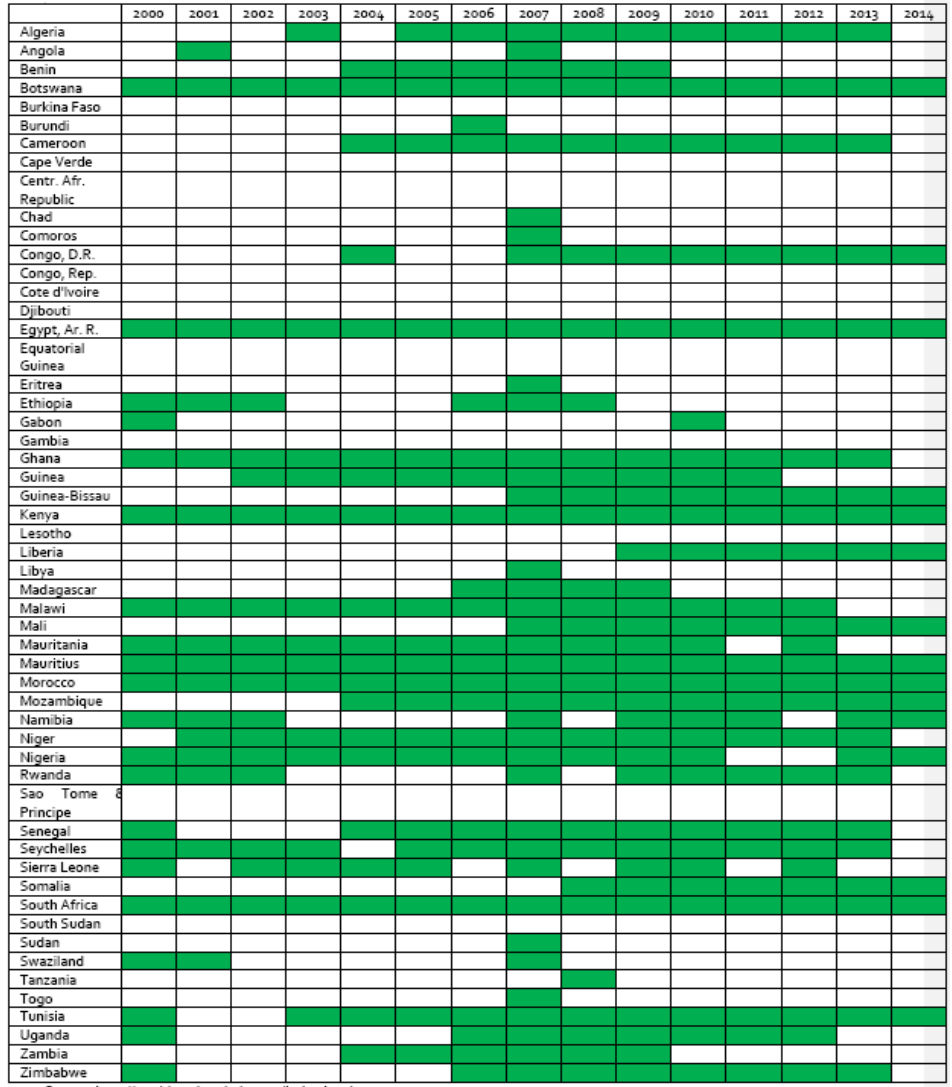
- Indicators
  - Reported number of road traffic deaths
  - Road accident figures and rates
  - Total number of injury accidents
  - Total number of persons injured in road accidents
  - Total number of persons killed in road accidents
  - Persons killed in road accidents per 100.000 people
  - Injury accidents per 100.000 people
  - Injury accidents per 100 million Veh-Km



Road Fatality Data in Africa – IRF (2/2)

- 6 countries have provided the IRF with road accident **data for the whole period 2000-2014** (Botswana, Egypt, Kenya, Mauritius, Morocco and South Africa)
- 11 countries have **no accident data** or are not participating in the surveys
- 12 countries have **more than 60% availability** of road accident data over this period, ranging between 93% (Ghana) and 67% (Algeria, Cameroon and Guinea)
- However, **this is not the case for all road accident indicators**, (e.g. data may be available for a country for a specific year on the number of injury accidents but not on the number of killed or injured persons)

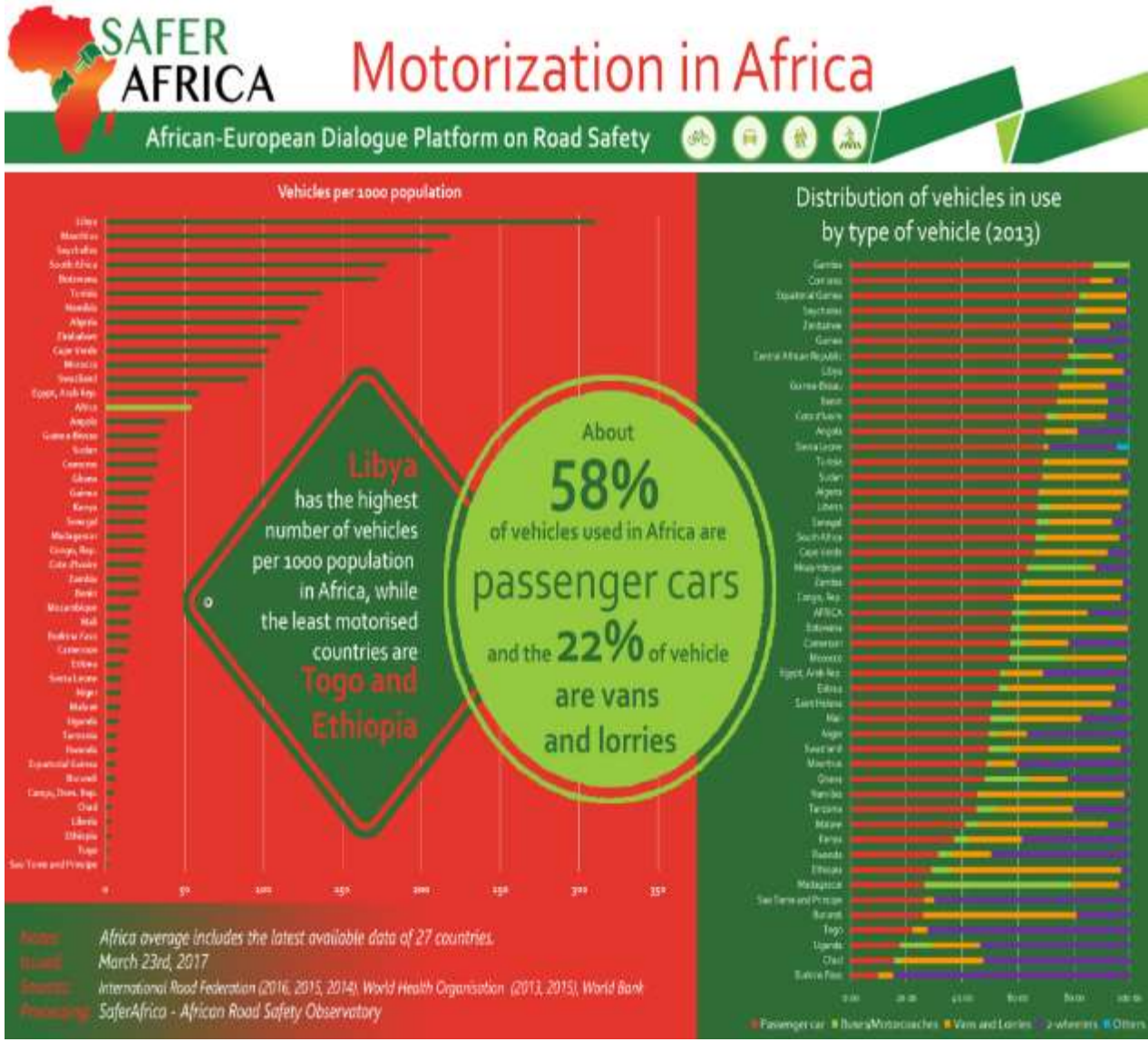
Availability of road accident data by country and year in the IRF database



Source: http://worldroadstatistics.org/index.html

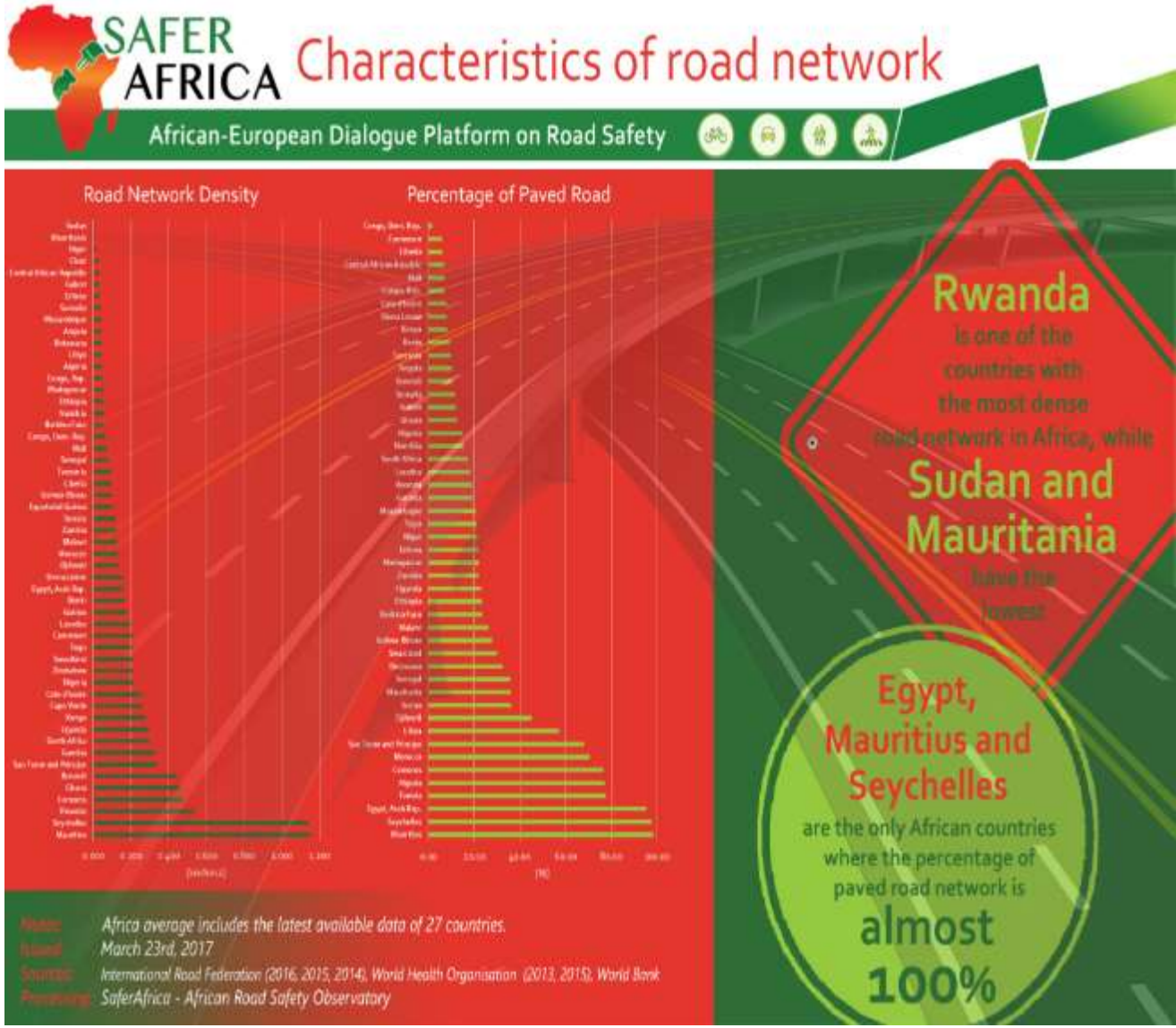
Motorization in Africa

- Data on number of vehicles by type come mainly from **IRF database**
- The latest available data have been used for each country
- **32 out of 45 countries** have vehicle rates lower than the average African rate
- **Libya** has the **highest vehicle rate** (310 vehicles per 1000 population) followed by Seychelles, Mauritius and South Africa
- **Sao Tome and Principe, Togo, Ethiopia** and **Liberia** have the **lowest vehicle rate**
- 58% of vehicles in Africa are **passenger cars** and 22% are vans and lorries
- The **motorized two-wheelers** constitute 15% of the total vehicle fleet
- Gambia has the highest percentage of passenger cars, while in Burkina Faso most vehicles in use are motorized two-wheelers



Road Network Characteristics in Africa

- Data are provided from **IRF database**
- For each country data refer to the **latest available year** (year 2000 most common)
- Only **19 countries** have provided IRF with data referring to 2010 and later
- Among the large countries, Sudan, Mauritania and Niger have the **lowest road network density**
- South Africa, Kenya and Nigeria have the **highest density road network**
- Egypt, Tunisia and Algeria have the **highest percentages of paved roads**
- The D. R. of the Congo has the **lowest percentage of paved roads**



Road Safety Performance Indicators in Africa

- Data are provided from **WHO database**
- Disaggregate rates may **not refer to the same year** nor come from the same source
- 16 countries have **data** on the **use of seat-belts for drivers** and for **front seats**
- **Total seat-belt and rear seat-belt usage rates** are available only for 9 and 7 countries respectively
- Only 16 countries have provided data related to **helmet usage**
- **Helmet usage rates for drivers** are above 90% for Eritrea, Seychelles, Swaziland, South Africa and Botswana

Conclusions (1/3)

- Significant differences regarding **data availability and collection** exist between African countries

- Only **few countries have full time series of road fatality data** and especially for the latest available decade 2005-2014, only 21 African countries have available data for more than 5 years

- Reliable **comparison** of the countries safety performance **even** regarding **fatality rates is not possible**, due to **different definitions** used per country

Conclusions (2/3)

- **Comparability** issues between international databases
  - WHO
    - **provides** the primary **data as received** by the national sources, which adjust them to the 30-days definition
    - **data** are **not directly comparable** due to **differences** in the **quality** of data collection process among countries
    - **statistical models** have been developed to estimate the number of fatalities in order to **incorporate under-reporting** issues and **achieve comparability**
  - IRF
    - although 30-days definition for the fatalities in road accidents is utilized, **published data** are **given by** the **national sources**, which have **different definitions**

Conclusions (3/3)

- Attention when **using international databases in a complementary way**
- Greatest lack in data concerns **risk exposure and safety performance indicators**
- Risk exposure and safety performance indicators data **not** totally **reliable**
  - Data refer to different years (cases with more than 10 years difference)
  - Inadequate information on the collection methods

Recommendations (1/4)

Minimum set of data elements and common collection system for all types of data

- 2 step approach
  - **Improvement** and **harmonisation** of the existing data and methods
  - **Collection** of new harmonised data
- Road accident data
  - Major role of **police** in collection process
- Road fatalities
  - International **30-days definition** to be adopted
  - Countries not currently complying should **modify** the **data collection process** and **develop** appropriate **conversion factors**
  - **Underreporting** tackled by linking police data with hospital data

Recommendations (2/4)

Common accident data system

- Define **minimum data elements** based on
  - Selection criteria concerning the usefulness of the selected variables and values
  - Level of disaggregation
  - Difficulty of their collection
- All variables and values should refer to **casualty road accidents**
- **Accident data** structure is suggested to comprise **4 categories** of variables
  - Crash
  - Road
  - Vehicle
  - Road user characteristics

Recommendations (3/4)

Exposure indicators

- Respective **variables and values** to be **compatible** to accident data

- 2 groups of data
  - Road traffic estimates
  - Road user at risk estimates

- Collection processes examined
  - Travel surveys
  - Traffic count systems

Recommendations (4/4)

Road safety performance indicators

- Respective **variables and values** to be **compatible** to accident data
- 2 data collection methods
  - Observational techniques
  - National statistics and data collected by national registers
- Define survey requirements (design requirements, etc.)
- Perform data analysis
- Document and report final results

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