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Bridging the Road Safety Gap in Africa – an educational framework for professionals

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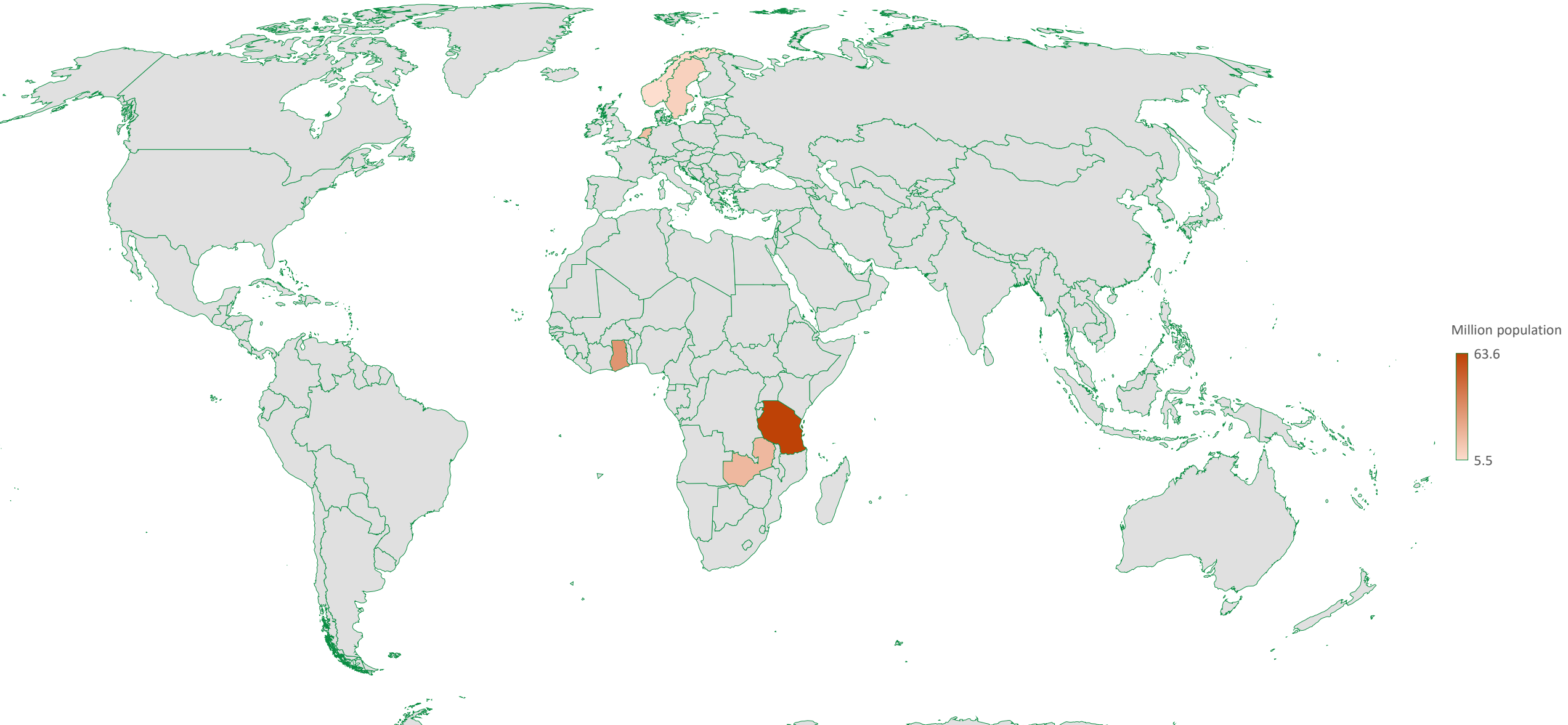
2nd afrosafe confererence

Winneba, Ghana

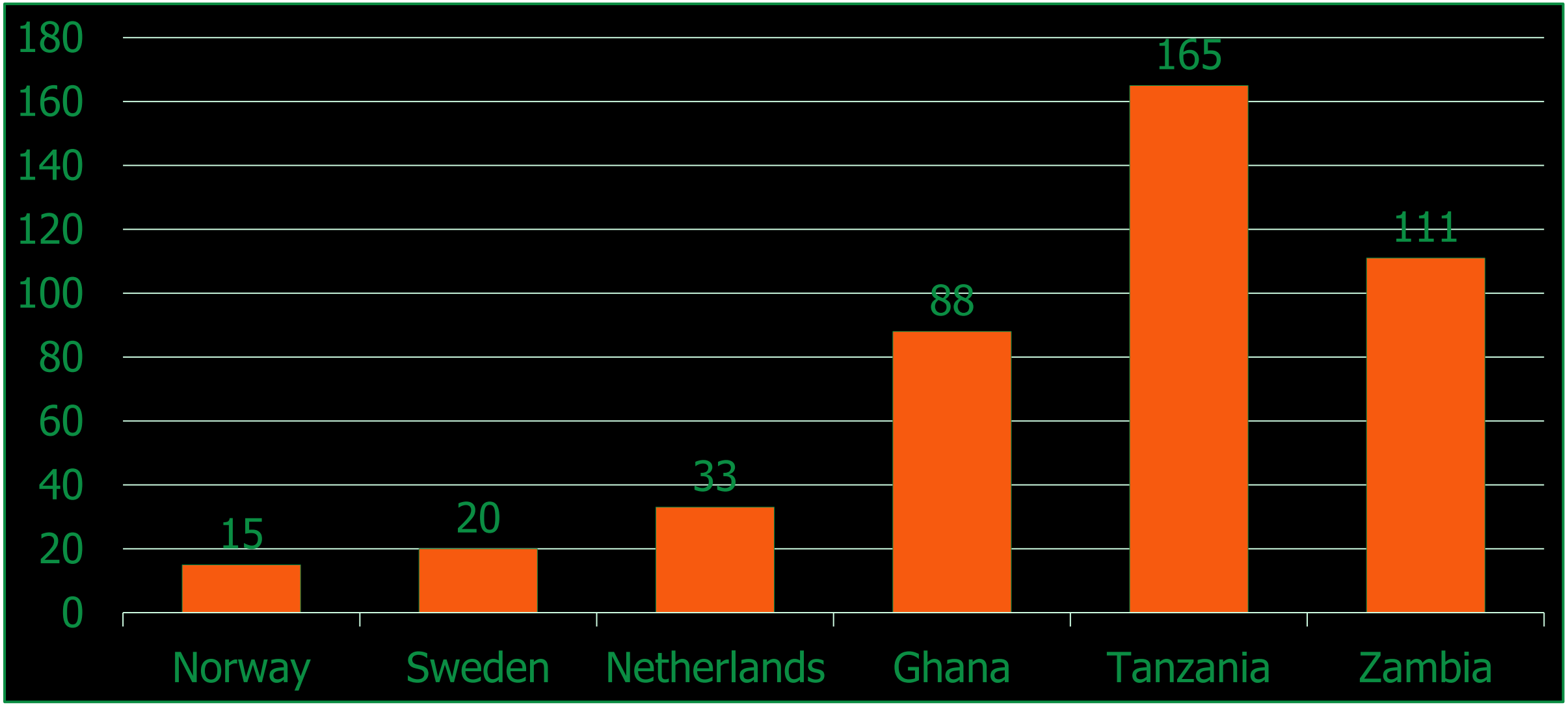

Wow!
Listen to this guy, he's got a really interesting story to tell!
Hmmm…
Really?
I am not convinced
ZZZZZ


And I have some
important things waiting
for me on TikTok

The AfroSafe partner countries

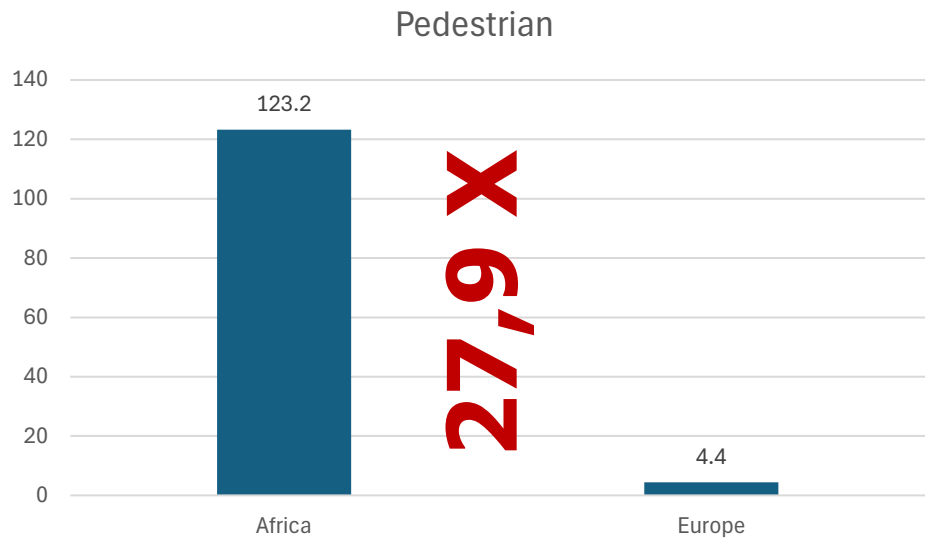


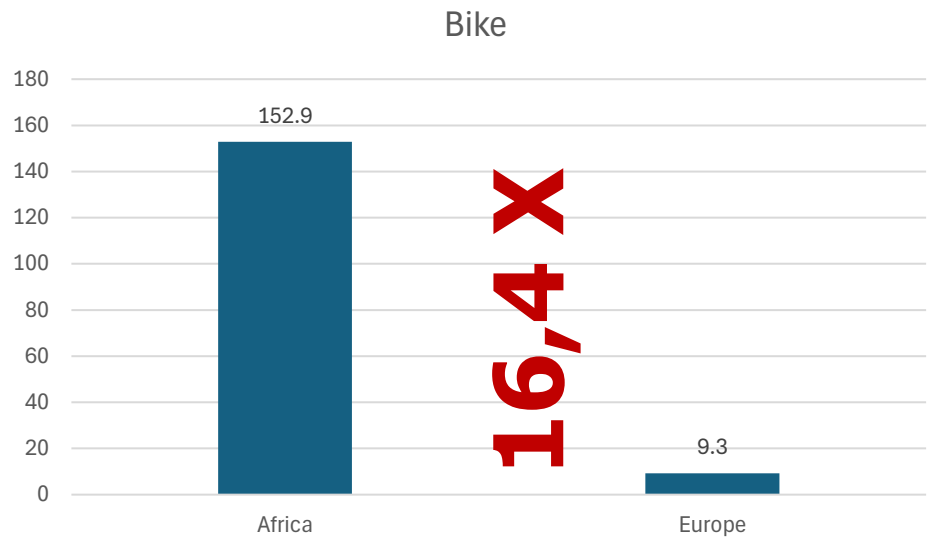
Road fatalities per million inhabitants.



Relative VRU Risk in Europe and Africa

per billion kms travelled





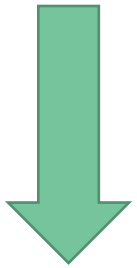
AfroSafe – a Safe Systems approach

- ✓ Promoting the Safe Systems approach in Africa
  - ✓ a system free from death and serious injury
- ✓ Translate tools and practices from Europe to Africa
- ✓ Sharing knowledge, tools and methods for road safety improvement
  - ✓ But adjusted to African conditions
  - ✓ in tight cooperation with the local actors.

UN Safe System Pillars

Aim of the study

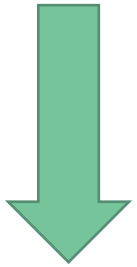
Identify the biggest gaps in road safety training in African countries



Device a training program

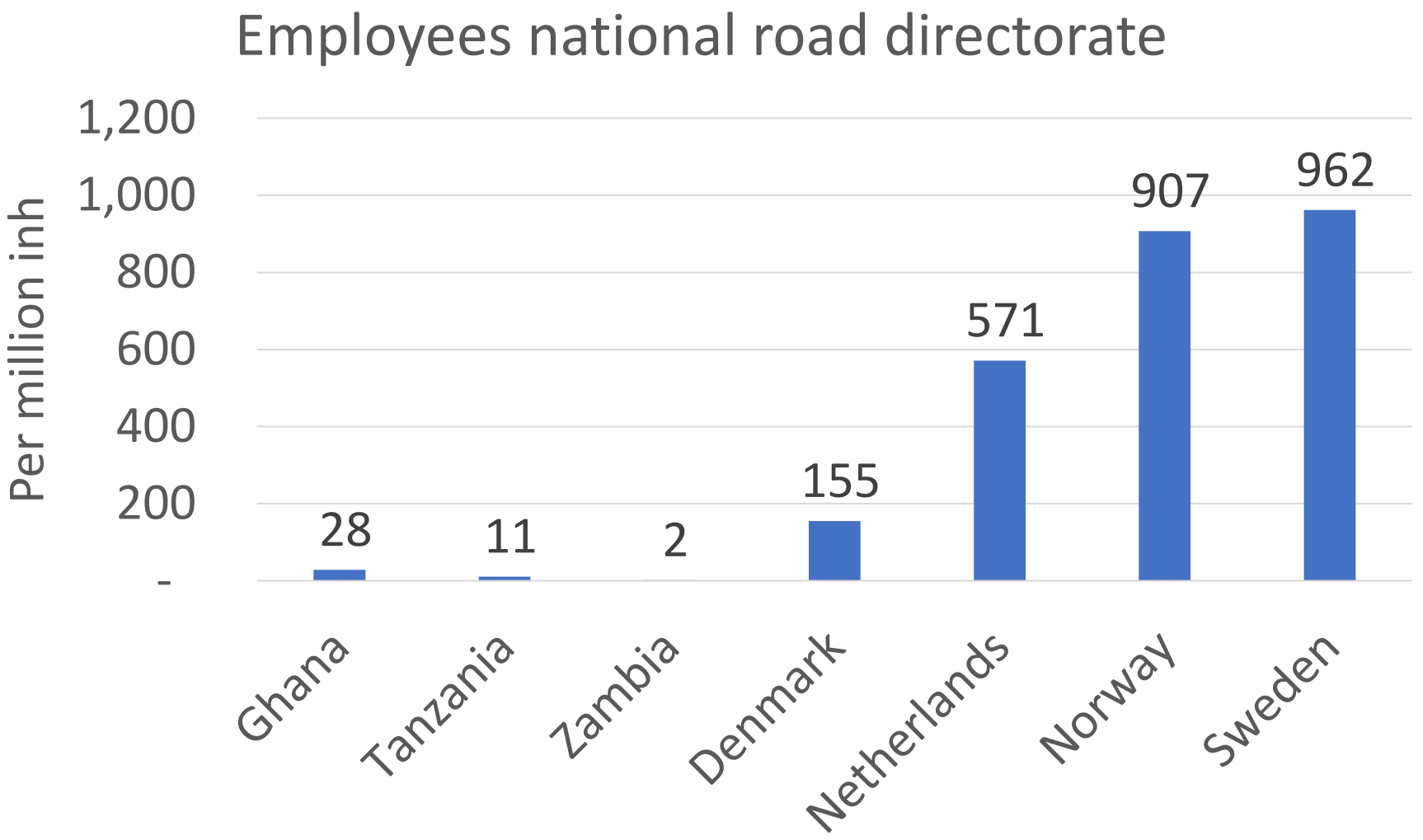
Research question

- How many trained road safety professionals per million inhabitants are there in European and African countries?

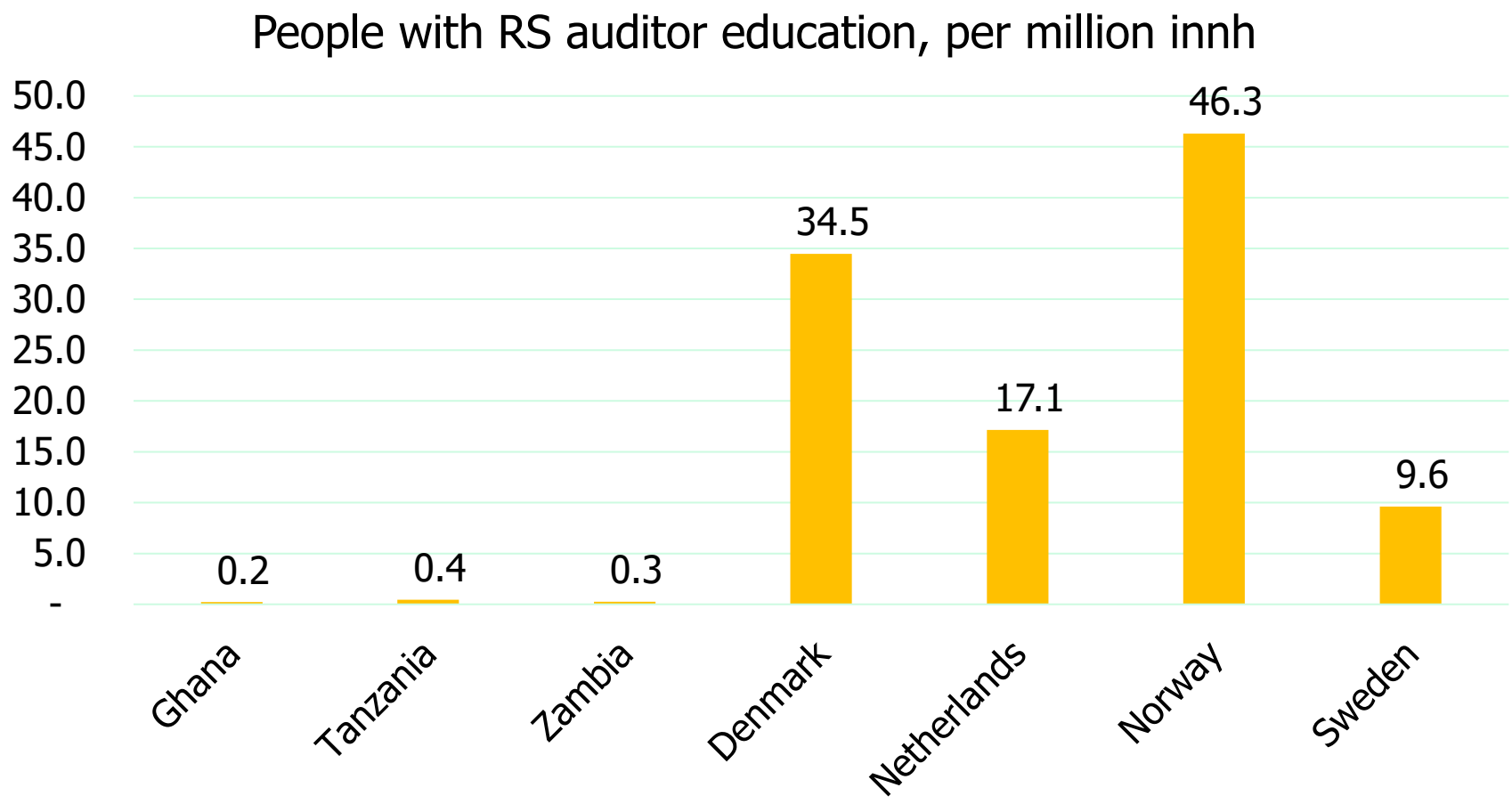


- Where are the largest gaps *in numbers*?

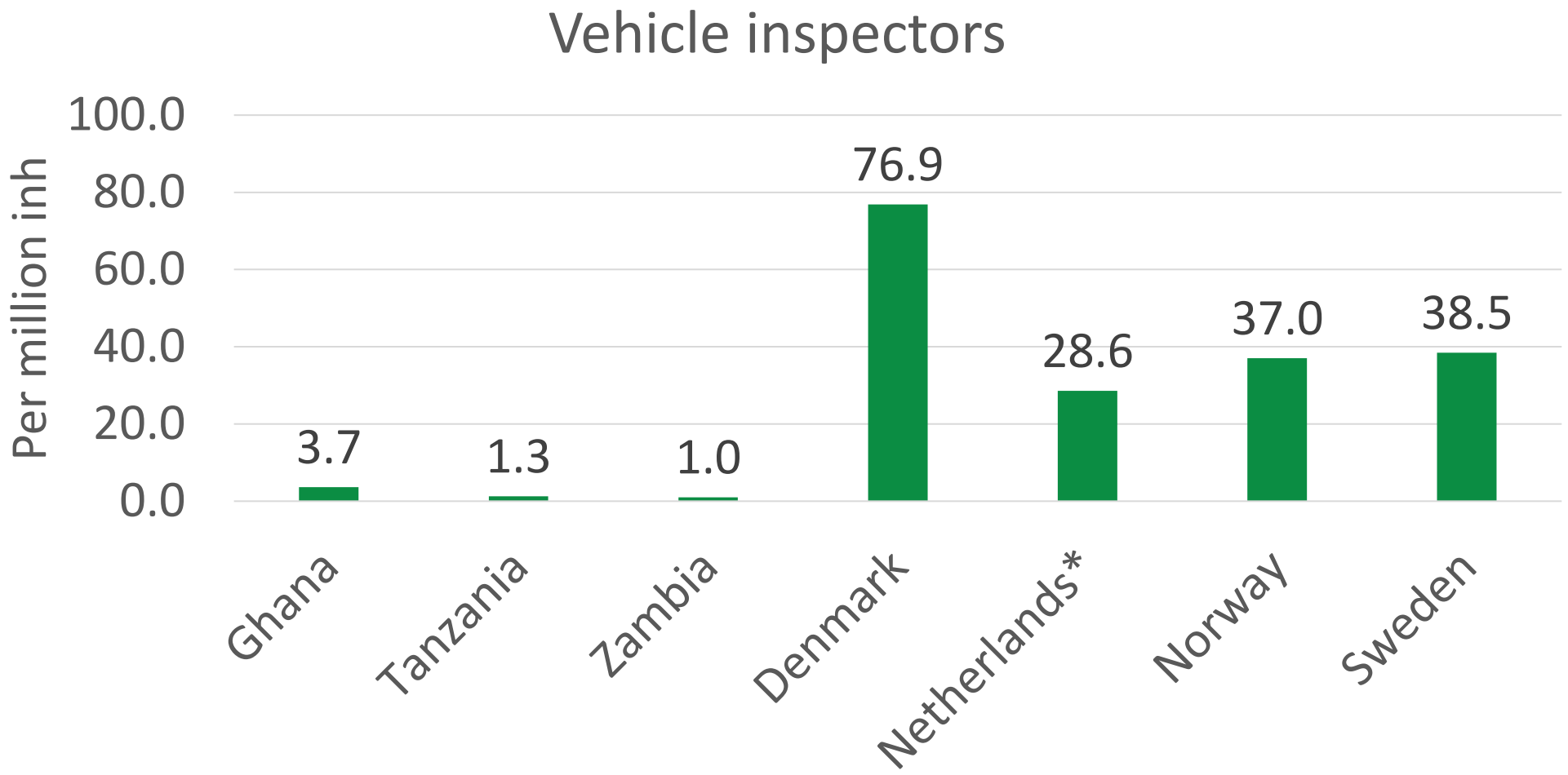
Road authority staff



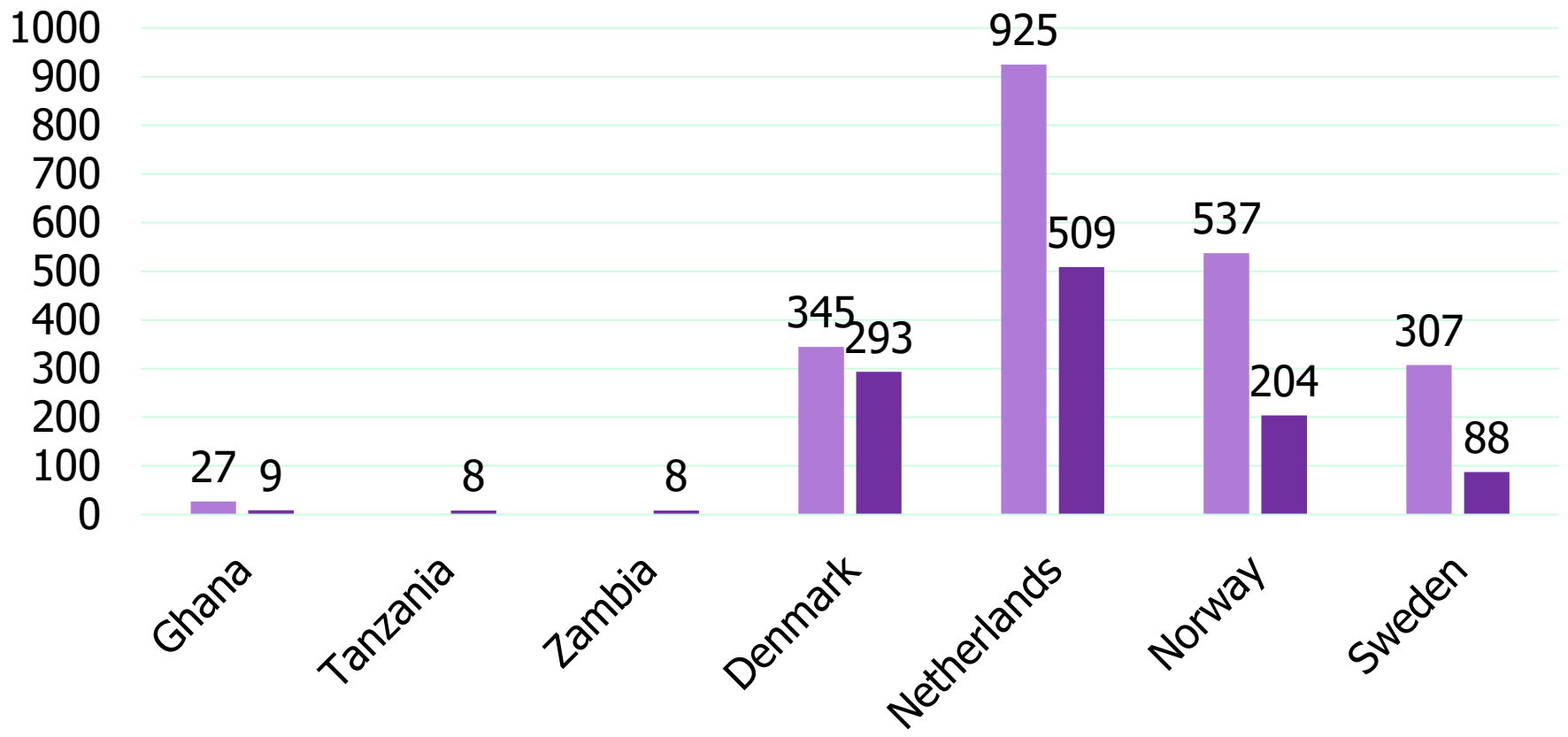
Road safety auditors



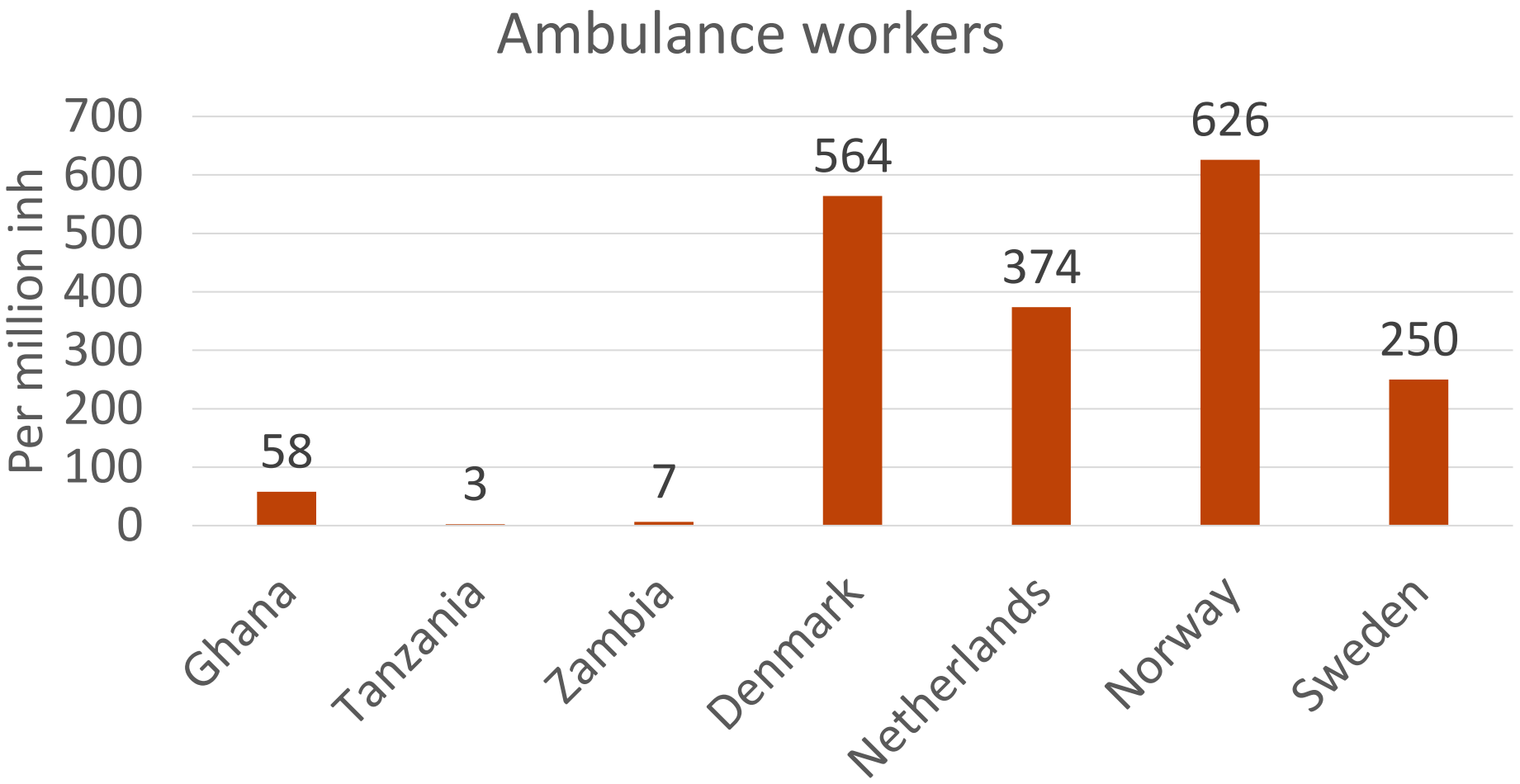
Vehicle inspectors



Driving teachers and schools



Ambulance workers (paramedics and others)

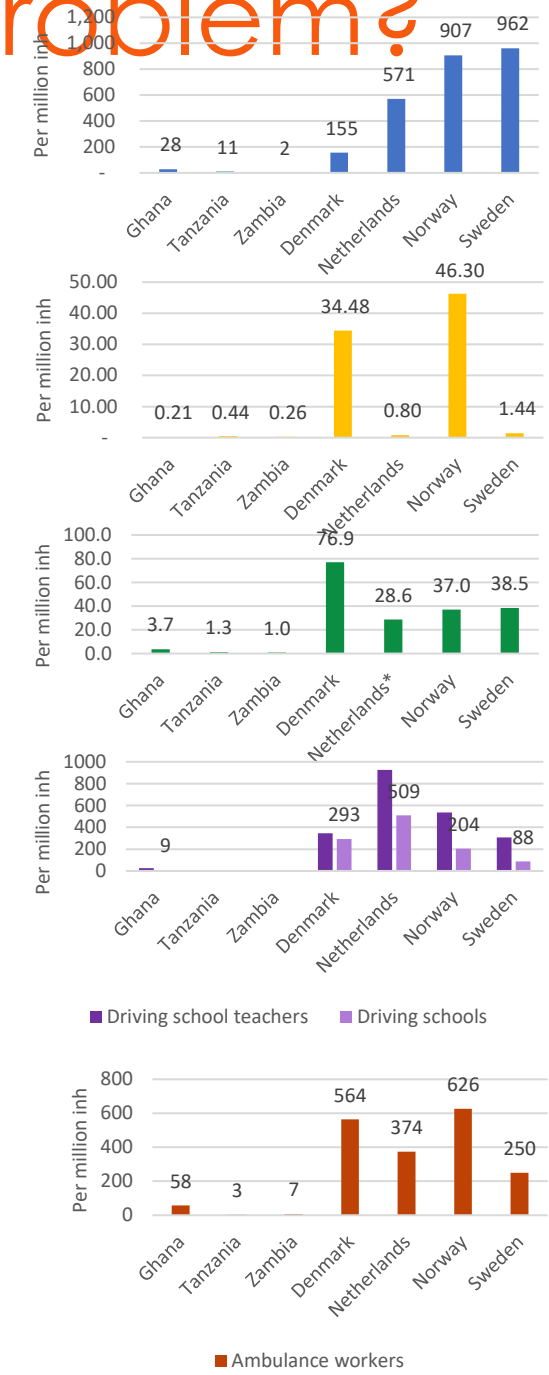


Is training among professionals a problem?

- Yes, there is a large gap in **numbers**
- The largest gap is safe vehicles

AND

- Even if regulations and curricula are comparable to European standards…
- …they are not followed



From numbers to actions

The AfroSafe Academy curriculum

- ✓ Structured short course templates
- ✓ Based on research and state of the art knowledge
- ✓ Follows «Blooms taxonomy»
- ✓ 12/24 modules already developed

AFRO SAFE ACADEMY

Blooms taxonomy

Remember

Understand

Apply

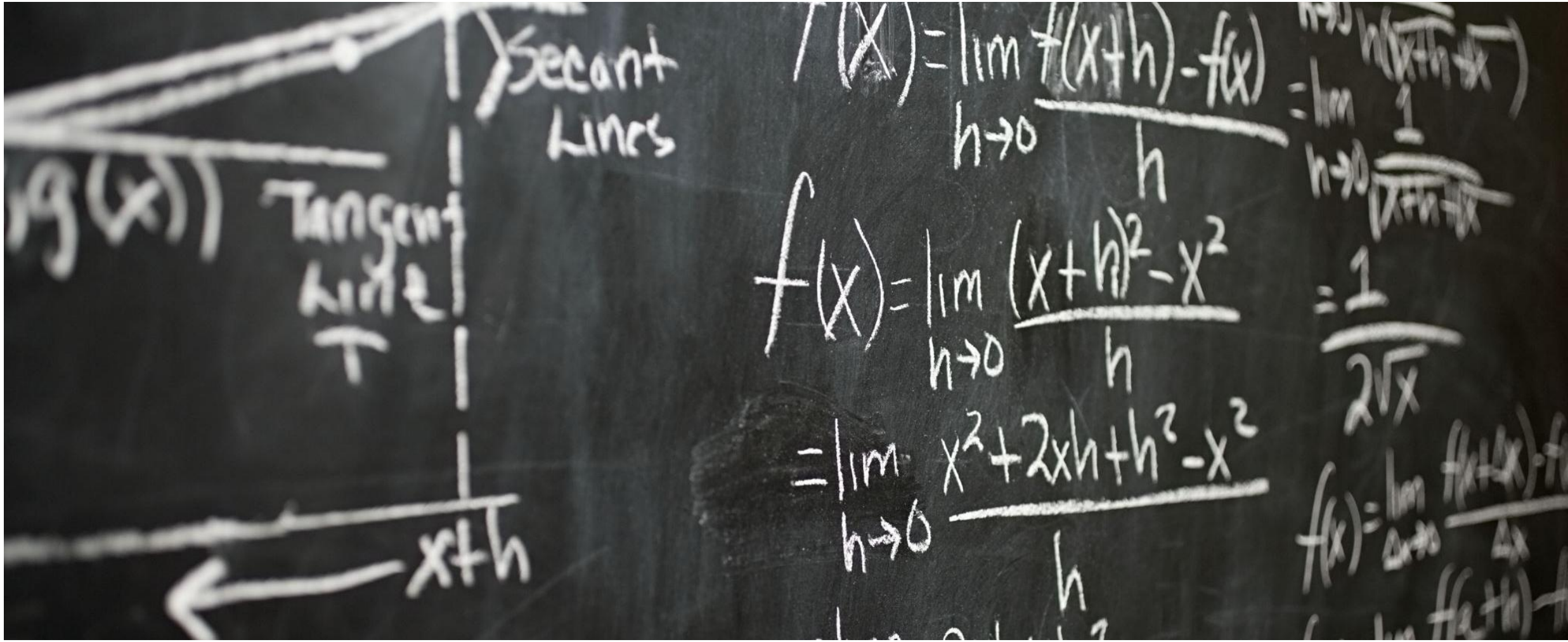
Analyse

Evaluate

Create

AFRO SAFE ACADEMY

An example


Secant
Lines
Tangent
Line
x+h
$f'(x) = \lim_{h\to 0} \frac{f(x+h)-f(x)}{h}$
$f(x) = \lim_{h\to 0} \frac{(x+h)^2-x^2}{h}$
$= \lim_{h\to 0} \frac{x^2+2xh+h^2-x^2}{h}$
$= \frac{1}{2\sqrt{x}}$

9. Traffic safety measures

Introduction

Traffic safety measures (TSMs) are intended t… …y and severity. Not all safety measures are effective, and som… …ety despite the good original intentions. Before introducing … …portant to consult available TSM catalogues to find the mo… …ffectiveness (and costs). Having a limited budget, the most co… … prioritized for implementation.

Learning …

After completin… …e, the students should be able to:

Remembering
- find catalogues of traffic safety measures
- find individual TSMs and their effects in the catalogues

Understanding
- interpret the documented effects of TSMs
- understand uncertainty related to estimated TSM effects
- understand complexity of estimating combined effects of TSMs
- understand the difference between 'subjectively expected' and 'ob… effects of a TSM and mechanisms explaining the phenomenon
- understand the principles of TSM classification taxono…

Applying
- convert CMF and accident reduction indicator…
- classify potential TSM for a give… …ifferent taxonomies

Analysing
- using the knowledge fr… …e actual accident/injury reduction for a gi…
- apply di… …xonomies to address a given safety pr… …layers' of a given taxonomy for which no

Evalua…
- …e from TSM catalogues to make informed decisions and set …long a list of suggested measures based on their effectiveness and …ffectiveness
- suggest a complex solutions to a given traffic safety problem, based on multiple TSMs, with set priorities in their implementation based on their effectiveness and cost-effectiveness

Key messages to learners

- Strictly speaking, there is not much difference between 'accident contributing factors' and 'traffic safety measures'. Both affect the probability (or/and severity) of accidents. Absence of a known measure that reduces accident risk could be seen as an accident contributing factor.
- There are many ways for traffic safety measures to be classified, such as Haddon's matrix (before-during-after accident), active vs. passive vehicle safety features, immediate vs. system-level measures, in relation to the risk-exposure-consequences dimensions, causality chain, time line, etc. Their practical value is in helping to think about 'what else' can be done to address a particular traffic safety problem.
- …Safe System approach encourages to apply multiple protection measures for each safety … single measure cannot guarantee 100% safety, but together they 'support' each other …n to develop into fatalities/injuries (Swiss cheese model).
- …easure is often expressed as a 'crash modification factor (CMF)', …er cent'. These two indicators are easily convertible into each other… …has different effect on different accident types, severity levels, etc… …itions (e.g. traffic flow, geometry, etc.). It is more correct to talk … …that can account for that, but practically we seldom have enough …
- There is always an uncertainty involved in est… …not possible to say with certainty whether a measure is positive or n… …The priority in implementation should always be given to measur… safety effects.
- CMFs are usually available for a measure used on its own. Estimation of safety ef… measures used simultaneously is complex. If an accident is prevented by the first mea… …t should not be double-counted as also prevented by the second measure. Therefore, the added safety effect of the second measure will be lower compared to if it was used on its own.
- Quite often, there is a discrepancy in subjective expectation of how a measure will contribute to safety and its actual, objective effect. This can often be attributed to the 'behavioural adaptation', i.e. people starting to behave differently (often riskier or less careful) due to the measure presence. Therefore, proper evaluation of measures is very important. Often, the better is the quality of the evaluation study design, the less is the objective safety effect is found.
- The costs of traffic safety measure introduction is another important aspect to consider. With a limited budget for traffic safety improvements, one should start with the most cost-effective measures to ensure the highest return (lives saved per money invested)
- There is a significant bulk of knowledge … …(and costs) of various traffic safe… …ovided in the

Crash modification factors

Haddons matrix

Objective and subjective safety

Cost effectiveness

Example: A particular road section has high number of fatalities occurring at night-time, mostly due to single drive-off-road accidents

	Pre-crash	During crash	Post-crash
Road user			
Vehicle			
Infrastructure			

Thank you!

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