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The Positive Impact of Speed Enforcement on Traffic Safety

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machine vision people

Agenda

Introduction

Road Safety Facts

Case Studies – Applicable speed management measures

Case Studies

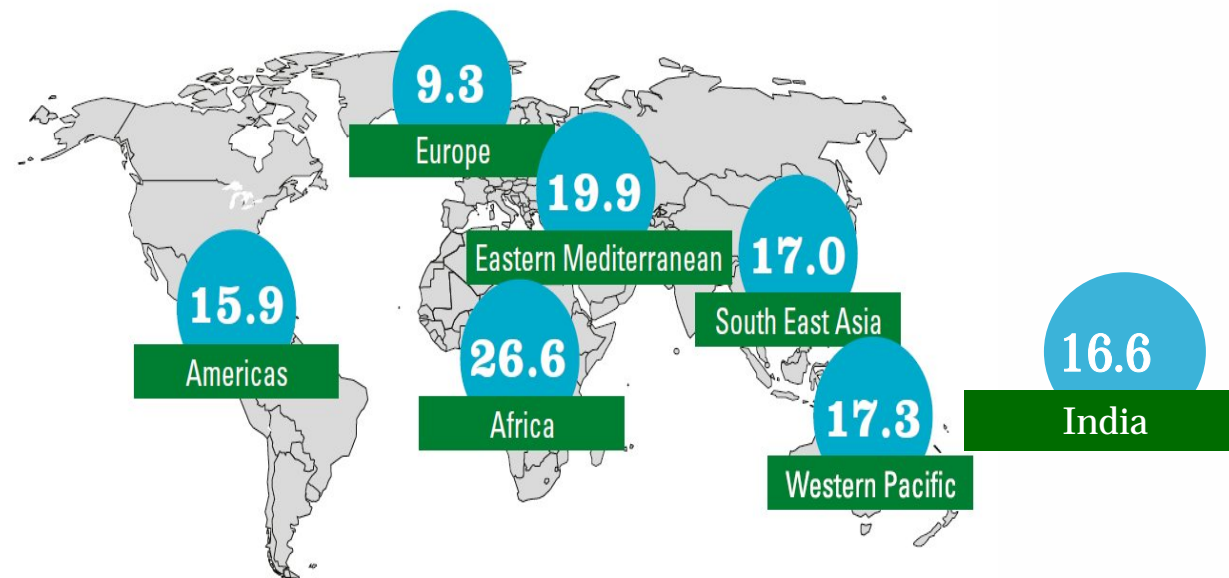
- Maryland – Maryland State Highway Agency Safe Zone Program
- Saudi Arabia – The SAHER System
- Cameroon – Speed Enforcement on the road Port Douala–Yaoundé

Financial Aspects

Conclusion

“Road traffic fatality rates are nearly 2 times lower in Europe compared to India!”

WHO states



Source:
www.who.int/violence_injury_prevention/road_safety_status/2015/en/

Road traffic injuries are a leading cause of preventable death

- 1.25 million road traffic fatalities per year (3400/day)
- 90 % of the world's road fatalities occur in low- and middle-income countries
- #1 cause of death among young people aged 15-29 years
- 75% of traffic death are male persons
- Costs up to 3% of the GDP

Risc facts and main reasons for road traffic injuries

- Unsafe road infrastructure
- Distracted driving
- Driving under influence of drugs and alcohol
- Non-use of motorcycle helmets, seat-belts and child restraints
- Distracted driving
- **Overspeeding**

Source: www.who.int/violence_injury_prevention/publications/road_traffic/world_report/en

Risc facts and main reasons for road traffic injuries

“In high-income countries, speed contributes to about 30% of deaths on the road, while in some low-income and middle income countries, speed is estimated to be the main contributory factor in about half of all road crashes.”

Source: www.who.int/violence_injury_prevention/publications/road_traffic/world_report/en

“Speed is at the core of the global road traffic injury problem”

Dr. Margaret Chan,
Director-General WHO



Speed Enforcement Programs worldwide



Maryland, USA
Work zones on State Highways



Kingdom of Saudi Arabia
Nationwide



Cameroon,
National Road

Applicable speed management measures

	USA	KSA	Cameroon
• Building safer roads that calm traffic (roundabouts and speed bumps)	✓	(✓)	0
• Establishing active and passive safety features in cars (automated emergency breaking)	✓	0	0
• Raising awareness about the dangers of speed	✓	0	0
• Establishing appropriate speed limits	✓	✓	(✓)
• Enforcing speed limits (manual and automated controls)	!	!	!

Road infrastructure planners are always keeping **Vision Zero** in mind.

Maryland, USA

State Facts and Figures

Capital: Annapolis

Population: 6,016,447

GDP: 378.3 Billion USD

Roadways:

29,579 miles of interstate, primary and secondary roads

Est. Road Traffic Death Rate per 100,000 Inhabitants: 7.5



(Centers for Disease Control and Prevention 2014. Published 1/6/2016)

Maryland State Highway Agency Safe Zone Program



Target: Changing driver behaviour in work zones

- In the time between 2000-2009, there has been an average of 12 people killed and 1,484 people injured in work zone-involved crashes each year
- 4 out of every 5 people killed or injured in work zone crashes are drivers or passengers
- Major contributing factors to work zone crashes:
 - not paying attention
 - going too fast for conditions
 - failure to yield right-of-way
 - following too close

Maryland State Highway agency Safe Zone Program

- Managed by Maryland State Highway Administration (SHA), in partnership with Maryland State Police and Maryland Transportation Authority Police
- PPP outsourcing scheme
- 9 mobile LIDAR speed enforcement systems deployed in work zones on State Highways
- Implementation started in 2010

„Maryland work zone fatalities at lowest level in more than a decade“

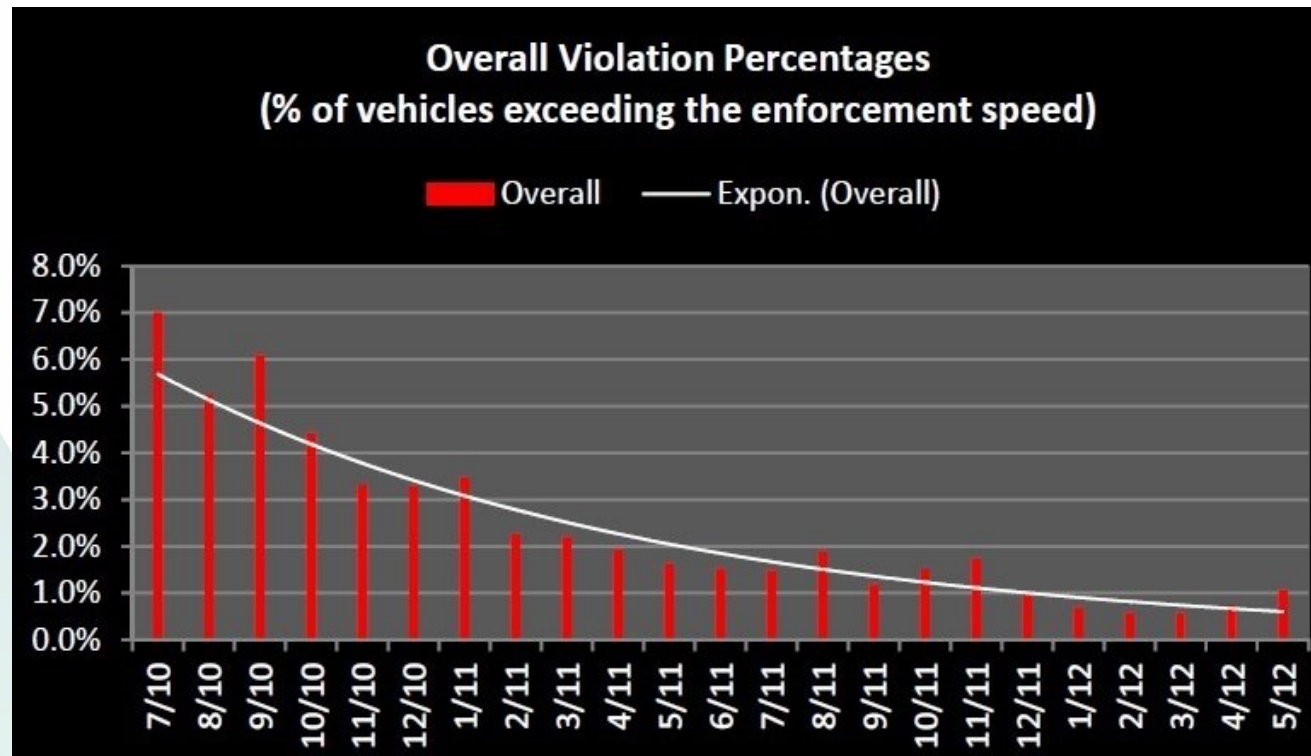


“The Maryland State Highway Administration announced today that work zone-related crashes, fatalities and injuries are at a more than 10-year low according to its finalized 2011 crash data.”

“Based on the last 3 years, fatalities in work-zone crashes decreased by more than half from 9 in 2009 to 3 in 2011.”

Source: News Release on www.safezones.maryland.gov/ (2012)

„Maryland work zone fatalities at lowest level in more than a decade“



Source: www.safezones.maryland.gov/ (2012)

Kingdom of Saudi Arabia

Country Facts and Figures

Capital: Riyadh

Population: 28.3 Million

GDP: 637.8 Billion USD

Roadways:

total: 221,372 km

paved: 47,529 km

unpaved: 173,843 km

Expressways: 3,891 km



Est. Road Traffic Death Rate per 100,000 Inhabitants:
27,3 (2013)

Documented Costs from Road Injuries and Death: 3,47
Billion USD

Road fatalities are a serious problem in Saudi Arabia

Initial situation in 2009 (before implementation of Saher System)

- Very high rate of road fatalities
 - Road Traffic Death Rate per 100,000 Inhabitants: est. 36, 2009)
 - Average of 17 Saudi Arabian residents, primarily male, died on the country's roads each day
- 6,142 traffic fatalities and more than 36,000 injuries in over 485,000 traffic accidents in 2008 and 2009
- 29% of the accidents occurred in Riyadh followed by Makkah with 23%
- 1/3 of the accidents due to red light violation

The SAHER System – one of the biggest implemented ITS Programs in the world

- Saher - Automatic Traffic Violations Administering and Monitoring (ATVAM) Program
- Implemented in KSA to improve road safety and reduce road fatalities
- Saher main objectives = the three **E's**:
 - **E**ngineering of road infrastructure systems
 - **E**ducation of drivers
 - **E**nforcement of traffic laws
- Implementation started in 2010



The Saher System

Overview – Enforcement systems program

- Mobile systems for in vehicle and tripod operation

Central Region R1 = 64

Western Region R2 = 98

Eastern Region R3 = 10

- Fixed systems for urban and interurban roads

Central Region R1 = 67

Eastern Region R3 = 19

- Average Speed Control systems

Western Region R2 = 8

- Red Light Enforcement systems

Eastern Region R3 = 75

- Automatic data transfer and data integrity

- Data download and processing servers



“The introduction of Saher system has reduced the severity of traffic accident injuries by 20 percent and mortality rate by 37.8 percent!”

Sulaiman Al-Ghannam,
Principal Investigator,
King Abdullah International Medical Research Center (KAIMRC), 2017

Speed enforcement

2017: 15.000 – 36.000 detected violations per day in one region

Cameroon

Country Facts and Figures

Capital: Yaoundé

Population: 24.3 Million

GDP: 31 Billion USD

Roadways:

total: 51,350 km

paved: 4,108 km

unpaved: 47,242 km



Est. Road Traffic Death Rate per 100,000 Inhabitants:
27,6 (2013)

Speed enforcement between Port Douala and Yaoundé

Aim of the project was to install speed enforcement systems on the main road between Port Douala and the Capital Yaoundé to increase traffic safety.

- The project was implemented by Vitronic and a local partner
- Time period: started in 2014
- Road length: app. 240 km
- Road type: National road



On the road Port Douala–Yaoundé



Deployment of speed enforcement systems

- System type:
Laser based speed enforcement system POLISCAN
- 3 mobile systems in SUV and/or tripod
- 7 fixed systems for cyclic use in 15 housings
- On the spot issuing of speeding tickets



Violation documentation



Violation documentation

Date / Time	Limit car	Limit truck	Speed	Lane	class	Direction
4/1/14 6:42:00 PM	50 km/h	50 km/h	74 km/h	1	Truck	approaching

System	Image index	Location
PS-690826	1404011833 - 30 - 1	Douala - pont Dibamba - pk227

Speed enforcement between Port Douala and Yaoundé

To speak out of the experience of Cameroon, our speed control LIDAR-systems installed there gave us satisfaction in the experimental phase.“

„[...] during the week of 2016-10-04 to 2016-10-10 16.764 vehicles (were) detected including 2.595 in excess of speed.“

„[...] all the roads qualified as accident-causing will be equipped for the benefit of the users of the road and their protection.“

Members of Ministère des Transports, Cameroun

Conclusion

- Road traffic and transportation is a fast growing sector especially in emerging countries
- Speed Management and Enforcement
 - Integral part of modern traffic infrastructure planning
 - Important element to reach Vision Zero proven in developed and developing countries





Thank you for your attention !