

# **ONE-DAY ACHASM GAUTENG 2018 CONSTRUCTION HEALTH AND SAFETY (H&S) SYMPOSIUM**

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**MOTOR VEHICLE ACCIDENTS (MVAs) DURING CONSTRUCTION**

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## Personal journey (1)

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- Smallwood, J.J. (2002) Traffic accidents contribute substantially to fatalities in construction. *SA Builder*, September, p. 9.
- Smallwood, J.J. (2002) Traffic safety in construction, *MBA Bulletin*, 1 October, p. 3.
- Traffic safety in construction: The deadly iceberg, *Safety Management*, November / December, p. 8.
- Emuze, F.A. and Smallwood, J.J. (2012) Construction Motor Vehicle Accidents in South Africa: Preliminary Findings. In: *Proceedings of CIB W099 International Conference 2012: Modelling and Building Health and Safety*, 10-11 September 2012, Singapore, 203-208.

## Personal journey (2)

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- **Emuze, F.A. and Smallwood, J.J. (2013) Construction Motor Vehicle Accidents in South Africa: Causes and Impact. In: *Proceedings of the 29th Annual Association of Researchers in Construction Management (ARCOM) Conference*, 2-4 September, Reading, UK, pp. 311-321.**

## Background (1)

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- **MVAs are reported to be the dominating cause of fatalities in South African construction – 47% (cidb, 2009)**
- **43 / 69 (62.3%) of fatalities in 2017 are attributable to MVAs during construction (FEM, 2018)**
- **MVAs contribute greatly to fatalities and injuries in construction because of common unsafe transport / traffic practices (Smallwood, 2002) - such practices are not limited to:**
  - **Workers sitting on the sides and beds of vehicles**
  - **Workers mounting or dismounting from moving vehicles**
  - **Overloading of vehicles**
  - **Non-wearing of seat belts**
  - **Unroadworthiness of vehicles**

## Background (2)

Year	Accidents		Consequence (No.)	
	%	No.	Fatality	Permanent Disability
2011	12.47	892	23	25
2010	10.85	984	63	57
2009	9.18	949	31	51
2008	8.35	910	31	30
2007	8.30	871	30	37
2006	6.95	629	34	29
2005	7.54	674	26	24
2004	7.66	624	28	26
2003	7.55	557	36	30
2002	8.15	561	33	29
2001	4.26	278	26	11
2000	3.59	264	15	11

**Table 1: MVAs in South African construction from 2000 to 2011 (FEM in Emuze and Smallwood , 2012).**

## Background (3)

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- **Between 2000 and 2011, the number of accidents increased from 264 to 892 per annum:**
  - **Percentage contribution has increased from 3.6% to 12.5%**
  - **Invariably, the MVA incidence rate has increased**

# Legislation

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- **Regulation 21 (2) (i) of the Construction Regulations gazetted in July 2003 states that vehicles used to transport workers must have seats firmly secured and adequate for the number of employees to be carried (Republic of South Africa, 2014)**
- **National Road Traffic Regulation 2000, Regulation 247 states that no person shall operate on a public road a goods vehicle conveying persons unless that portion of the vehicle in which such persons are being conveyed is enclosed to a height of at least 350mm above the surface upon which such person is seated or at least 900mm above the surface on which such person is standing, in a manner and with a material of sufficient strength to prevent such person from falling from such vehicle when it is in motion (Republic of South Africa, 2000)**

## Visuals of MVAs during construction (1)



**Photo 1: Overturned RMC Truck, Garsfontein Road, 14 November 2012 (Eye Witness News)**



## Visuals of MVAs during construction (2)



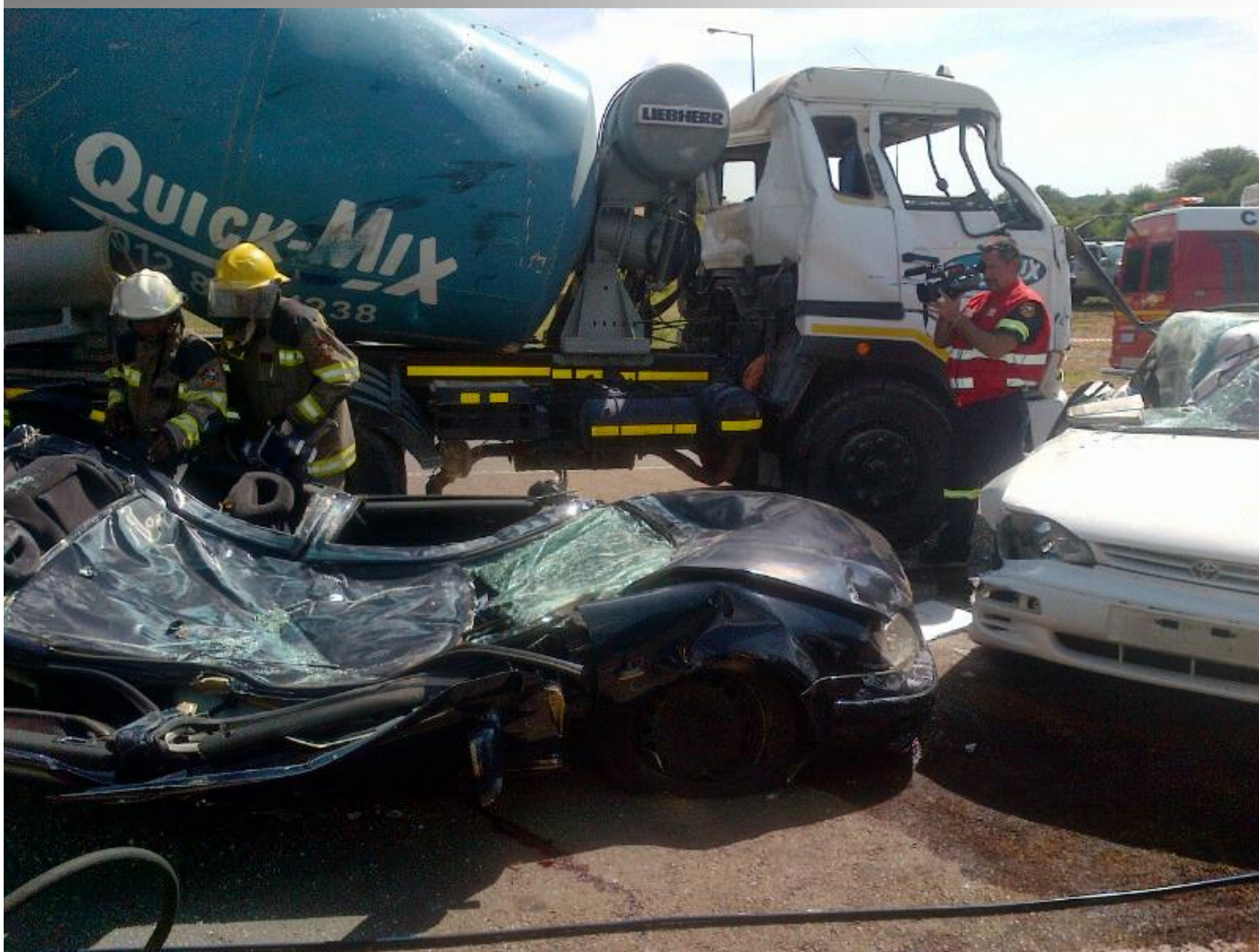
**Photo 2: Overturned RMC Truck, Garsfontein Road, 14 November 2012 (Eye Witness News)**

## Visuals of MVAs during construction (3)



**Photo 3: Overturned RMC Truck, Garsfontein Road, 14 November 2012 (Eye Witness News)**

## Visuals of MVAs during construction (4)



**Photo 4: Overturned RMC Truck, Garsfontein Road, 14 November 2012 (Eye Witness News)**



## Visuals of MVAs during construction (5)



**Photo 5: Non-secured load fatality, Oudshoorn, 25 April 2012 (buildsafe, 2012)**

## Visuals of MVAs during construction (6)



**Photo 6: Rescue workers start to free a car trapped under a RMC truck  
(La Grange, 2009)**



## Examples of behaviour (1)



**Photo 7: Worker tied down to back of LDV (Mtola in cidb, 2009)**

## Examples of behaviour (2)



**Photo 8: 'Riding' a RMC truck, Cape Town, 14 July 2016 (Anonymous, 2016)**

# Research objectives

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- The statistics underscore the need for an empirical study
- The objectives of the study are to:
  - Determine why MVA related fatalities occur
  - Determine why MVA related fatalities have increased
  - Evolve strategies that could address the problem



# Research method

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- **Exploratory study**
- **Convenience sample**
- **15 General contractor (GC) members of the East Cape Master Builders Association (ECMBA) responded to the survey**

# Research findings (1)

Category	Response (%)						MS	Rank
	Unsure	Minor.....Major						
		1	2	3	4	5		
Drivers / Operators	6.7	6.7	13.3	26.7	26.7	20.0	3.43	1
General workers	0.0	26.7	6.7	20.0	20.0	26.7	3.13	2
Semi-skilled workers	0.0	20.0	13.3	33.3	20.0	13.3	2.93	3
Skilled workers	0.0	20.0	40.0	13.3	13.3	13.3	2.60	4
Site management (supervisors, foremen)	0.0	42.9	14.3	28.6	7.1	7.1	2.21	5

Table 2: Extent of the exposure or vulnerability of categories of personnel to MVAs (MS = 1.00 to 5.00)  
(Emuze & Smallwood, 2013)

## Research findings (2)

Practice	Response (%)						MS	Rank
	Un- sure	Minor.....Major						
		1	2	3	4	5		
Overloading of vehicles	7.1	7.1	0.0	14.3	7.1	64.3	4.31	1
Non-roadworthiness of vehicles / unsafe vehicles	14.3	7.1	7.1	7.1	14.3	50.0	4.08	2
Workers sitting on sides / or beds of vehicles	6.7	6.7	0.0	20.0	20.0	46.7	4.07	3
Worn tyres	6.7	13.3	6.7	13.3	26.7	33.3	3.64	4
Misjudgement / disregarding traffic control	21.4	0.0	21.4	7.1	28.6	21.4	3.64	5
Workers mounting / dismounting vehicles in motion	7.1	7.1	14.3	21.4	14.3	35.7	3.62	6
Inattentive driving of vehicles	21.4	7.1	7.1	21.4	21.4	21.4	3.55	7
Loss of vehicle control due to driver tiredness	28.6	7.1	28.6	7.1	14.3	14.3	3.00	8
Loss of vehicle control due to unsecured loads	7.1	28.6	0.0	28.6	28.6	7.1	2.85	9
Loss of vehicle control due to alcohol abuse	35.7	14.3	7.1	28.6	7.1	7.1	2.78	10
Loss of vehicle control due to adverse weather	20.0	13.3	26.7	13.3	20.0	6.7	2.75	11
Loss of vehicle control due to brake failure	21.4	21.4	21.4	14.3	7.1	14.3	2.64	12
Lack of adequate construction site signage	28.6	14.3	35.7	14.3	7.1	0.0	2.20	13
Loss of vehicle control due to drug abuse	42.9	28.6	7.1	14.3	0.0	7.1	2.13	14

Table 3: Extent to which unsafe transport / traffic practices contribute to the occurrence of accidents in South African construction (MS = 1.00 to 5.00) (Emuze & Smallwood, 2013)

## Research findings (3)

Contributor	Response (%)						MS	Rank
	Un-sure	Minor.....Major						
		1	2	3	4	5		
Lack of secured seats	20.0	0.0	6.7	6.7	26.7	40.0	4.25	1
Lack of seat belts	21.4	0.0	7.1	7.1	35.7	28.6	4.09	2
Non-wearing of seat belts	13.3	0.0	6.7	20.0	20.0	40.0	4.08	3
Lack of roll over protection	20.0	6.7	13.3	13.3	26.7	20.0	3.50	4
Lack of pre-start up inspections	21.4	21.4	7.1	28.6	21.4	0.0	2.64	5

**Table 4: Extent to which contributors exacerbate the injuries incidental to accidents in South African construction (MS = 1.00 to 5.00) (Emuze & Smallwood, 2013)**

## Research findings (4)

Incident	Response (%)						MS	Rank
	Un-sure	Limited.....Always						
		1	2	3	4	5		
Fall from vehicle in motion while getting on / off	13.3	6.7	6.7	26.7	33.3	13.3	3.46	1
Fall from vehicle in motion	26.7	0.0	13.3	20.0	33.3	6.7	3.45	2
Collision with other vehicles	14.3	14.3	14.3	14.3	35.7	7.1	3.08	3
Collisions between vehicle and other equipment	21.4	0.0	35.7	14.3	28.6	0.0	2.91	4
Crunched / run-over by highway vehicle	42.9	7.1	28.6	14.3	0.0	7.1	2.50	5
Crunched / run-over by manoeuvring vehicle	28.6	28.6	28.6	14.3	0.0	0.0	1.80	6
Worker struck by vehicle exiting work area	21.4	57.1	7.1	0.0	14.3	0.0	1.64	7
Worker struck by vehicle entering work area	21.4	57.1	14.3	0.0	7.1	0.0	1.45	8
Worker struck by vehicle inside work area	14.3	64.3	14.3	0.0	7.1	0.0	1.42	9
Crunched / run-over by vehicle entering the site	21.4	50.0	28.6	0.0	0.0	0.0	1.36	10

Table 5: Extent to which incidents eventuate due to MVAs in South African construction  
(MS = 1.00 to 5.00) (Emuze & Smallwood, 2013)

# Better practice (1)



Photo 9: OJ Construction bus, Namibia (OJ Construction, 2014)



## Better practice (2)



Photo 10: OJ Construction bus, Namibia (OJ Construction, 2014)

## Better practice (3)



Photo 11: Rand Civils bus, Port Elizabeth (Anonymous, 2011)



## Better practice (4)



Photo 12: Rand Civils bus, Port Elizabeth (Anonymous, 2011)

## Conclusions

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- **The South African construction industry is presently (still) grappling with MVA related issues**
- **There has been a steady rise in MVAs in South African construction since 2001**
- **A range of MVAs occur e.g. conveyance of materials**
- **Different types of MVAs occur e.g. overturning, and collisions**
- **A range of losses occur e.g. people, materials, and plant**
- **It can be deduced that there is a lack of HIRA relative to the transporting of people**

# Recommendations

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- **A comprehensive traffic safety programme be implemented in the construction industry, in all construction organisations, and on all projects**
- **Workers must be conveyed in appropriate vehicles**
- **Mixed (materials, plant and equipment, and workers) transportation must be 'banned' in the industry**
- **Industry H&S programmes must focus on transport and traffic safety**
- **Contractors should evolve transport programmes, which include a transport policy**
- **Client BRAs, H&S Specifications, and H&S Plans should address transport and traffic**

## References (1)

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- Construction Industry Development Board (cidb) (2009) *Construction Health & Safety in South Africa Status & Recommendations*. Pretoria: cidb.
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- Emuze, F.A. and Smallwood, J.J. (2013) Construction Motor Vehicle Accidents in South Africa: Causes and Impact. In: *Proceedings of the 29th Annual Association of Researchers in Construction Management (ARCOM) Conference*, 2-4 September, Reading, UK, pp. 311-321.

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- Smallwood, J.J. (2002) Traffic accidents contribute substantially to fatalities in construction. *SA Builder*, September, p. 9.