

# **USING STANDARDIZED WORK TO PREVENT CONSTRUCTION ACCIDENTS**

**Lesiba George Mollo and Fidelis Emuze**

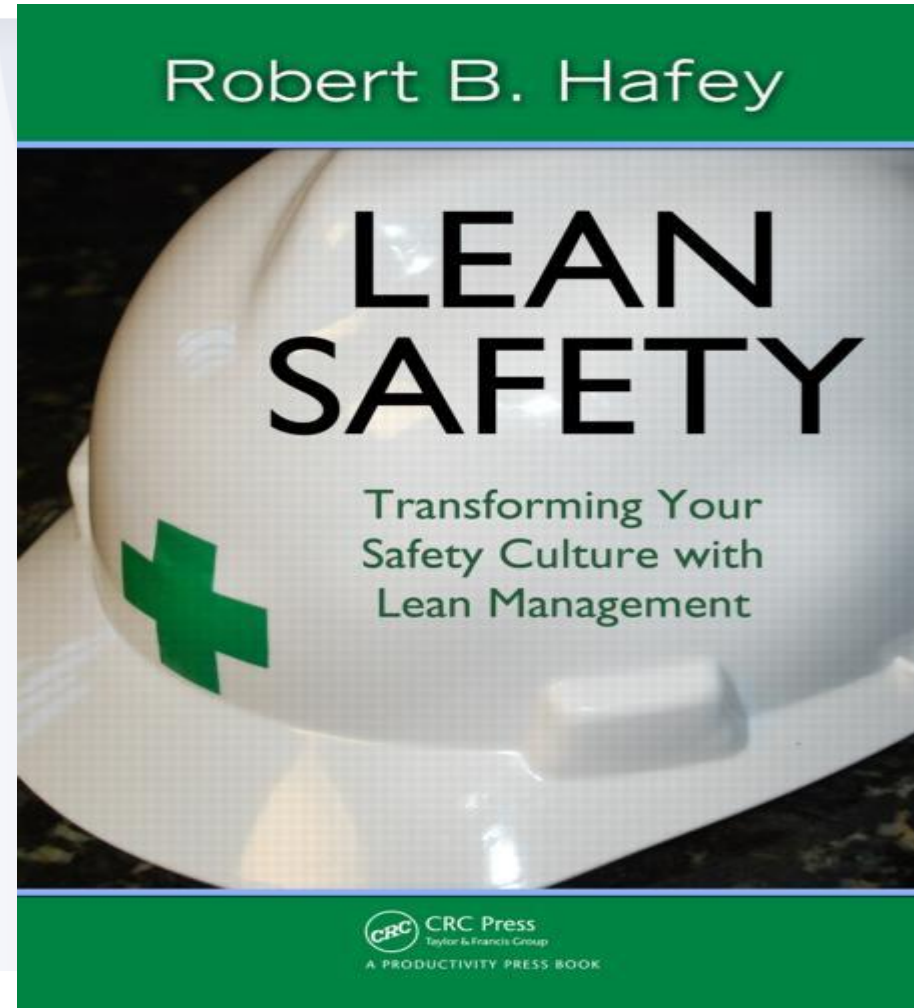
**Department of Built Environment, CUT**

**John Smallwood**

**Department of Construction Management, NMU**

- The work done on construction sites is **high risk, unsafe** and could result in **work-related accidents**
- Accidents causes **poor productivity** and increases the **project cost**

# Background



# Accident statistics

2014	2015	2016	2017	2018
<i>Fatal 67</i>	<i>Fatal 74</i>	<i>Fatal 69</i>	<i>Fatal 82</i>	<i>Fatal 58</i>
<i>Accidents 8514</i>	<i>Accidents 8455</i>	<i>Accidents 7560</i>	<i>Accidents 8364</i>	<i>Accidents 7779</i>
<i>Total cost R240 656 724</i>	<i>Total cost R250 902 125</i>	<i>Total cost R247 922 640</i>	<i>Total cost R321 344 880</i>	<i>Total Cost R301 218 438</i>



# Recent H&S Incidents (i)

## Quick-thinking colleagues save man trapped in trench

2019-05-31 19:28

Jenni Evans

news24



Quick-thinking workers have saved the life of a colleague when a trench he was digging collapsed on him in Pretoria on Friday.

Netcare 911 spokesperson Shawn Herbst said another worker was killed when the two-metre deep trench collapsed in Oaktree Street, Hazelwood.

Seeing only the top of their trapped colleague's head, the workers scrambled to remove sand to enable him to breathe while waiting for help to arrive.

"One of the workers, an adult male, tragically sustained fatal injuries when the trench collapsed," said Herbst.

He added that the second man was freed from the collapsed trench, stabilized and taken to hospital for further treatment.



(Supplied by Netcare 911)

[Multimedia](#) · [User Galleries](#) · [News in Pictures](#)  
[Send us your pictures](#) · [Send us your stories](#)

### Related Links

- One dead, another injured in wall collapse in Gauteng
- Probe after boy, 6, dies falling into unfinished Giyani water project trench
- Construction worker dies after being buried in collapsed trench

## Probe after boy, 6, dies falling into unfinished Giyani water project trench

2019-01-14 22:03

Tammy Petersen

news24

A construction and engineering company will "fully co-operate" with investigations after the death of a six-year-old child who fell into one of the manhole chambers left incomplete after engineering works on the Giyani Bulk Water Project.

Nsuku Mhlongo died when he fell and his body was reportedly retrieved on Saturday.

Khato Holdings group CEO Mongezi Mnyani said in a statement on Monday that Mhlongo's death was "tragic and regrettable".

The company dispatched its own team to investigate the incident, Mnyani said.

"Our team is also working round the clock in conjunction with Mopani District Municipality to find out what happened and prevent a recurrence of [a] similar incident in future. We are equally inquiring to find out the truth because we pulled out of site in September due to non-payment by the employer. Therefore, for four months to date, there has been no activities on site and no maintenance and safeguarding of the pipelines.

It would be "readily available" and would fully co-operate with authorities during the probe, Mnyani said.

According to EWN, the project, worth billions, was intended to supply water to Giyani and surrounding villages. It was abandoned after the Department of Water and Sanitation allegedly failed to pay the contractor.

"What we want to see at the end of the day is for that project to be completed and be handed over to us so that we can start supply water to our communities," Mopani Municipality's spokesperson, Witness Tiva, told the radio broadcaster.

KEEP UPDATED on the latest news by subscribing to our FREE newsletter.

- FOLLOW News24 on Twitter



The trench that was left incomplete at the Giyani Bulk Water Project.

[Multimedia](#) · [User Galleries](#) · [News in Pictures](#)  
[Send us your pictures](#) · [Send us your stories](#)

### Related Links

- Mr President, please intervene before Giyani's water issues turn deadly
- Child dies in blaze after truck, tractor collide
- Child dies in 9th floor Durban apartment plunge



# Recent H&S Incidents (ii)

## Construction worker dies after being buried in collapsed trench

2018-01-30 20:50

Holly Charlton

news24



Durban – A 46-year-old construction worker died after being trapped in a 10m-deep trench in Giyani, Limpopo, the Hawks said on Tuesday.

Three workers were working in the trench when it caved in, burying them under soil on Monday. They had been working on a construction site for a new mall, spokesperson Lieutenant Colonel Robert Netshiunda said.

"It is alleged that other colleagues tried to help the trapped workers, but only two were rescued alive. The third worker was certified dead at the scene."

The other two workers who were trapped in the trench suffered injuries and are recovering in hospital.

An inquest into the worker's death has been opened.

"The question of whether the worker was wearing



(iStock)

## 3 construction workers injured as formwork collapses

2018-06-30 18:38

Tammy Petersen

news24



Three construction workers are in hospital after being injured when formwork collapsed on top of them in KwaZulu-Natal on Saturday, paramedics say.

Netcare 911 spokesperson Shawn Herbst said its paramedics responded to reports of a building that had collapsed in the Bluff, Durban at 15:00.

"Reports from the scene indicate that three construction workers were injured when formwork collapsed on top of them. The patients were pulled to safety," Herbst said.



The injured w  
transported to



(Supplied by Netcare 911)

# Recent H&S Incidents (iii)

## Man dies in construction accident

2015-07-20 21:58

Ahmed Areff, News24

news24



Pretoria - A man died after a trench collapsed on him at a construction site in Brooklyn, Pretoria on Monday, Tshwane emergency services said.

"He was in the trench at the construction site when it collapsed. Unfortunately he died in the incident," spokesperson Johan Pieterse said.

It took one and a half hours for emergency services to dig up the body of the 30-year-old worker.

It was not clear which construction company was responsible for the site.

Pieterse said the Department of Labour would be investigating the cause of the accident.

The Department of Labour could not be immediately reached for comment on Monday night.



(Joe Stolley, News24)

## KZN construction worker dies after falling from fourth floor

2017-11-07 12:23

Mxolisi Mngadi

news24



Durban - A 29-year-old man has died after falling from the fourth floor at a construction site in Umhlanga, north of Durban, KwaZulu-Natal police said on Tuesday.

"It is alleged that at about 08:00 today (Tuesday), a man slipped and fell from the fourth floor whilst removing shutter boards at a construction site. He was declared dead at the scene by paramedics," said Colonel Thembeke Mbhele.

**ALSO READ: Worker falls 3 storeys at Fourways construction site**

An inquest docket is being investigated by Durban North police, Mbhele said.

"The circumstances surrounding the incident are being investigated," she said.

Netcare 911 spokesperson Nick Dollman said reports from the scene allege that the worker fell approximately 12 metres from scaffolding.



Netcare 911 (Picture: Supplied)



# Recent H&S Incidents (iv)

## Worker falls 3 storeys at Fourways construction site

2017-02-25 14:40

Jenni Evans, News24

news24



A construction worker is rescued after a fall in Fourways. (Supplied)

## Bakkie overturns, lands on construction site, killing 2

2017-01-30 15:32

Tammy Petersen, News24

news24



Cape Town - A construction worker and the passenger of a bakkie were killed in a crash on the N1 on Monday afternoon, the City of Cape Town's traffic services said.

The bakkie, belonging to a plumbing company, overturned and landed on a construction site after the Jip de Jager turnoff in Cape Town's northern suburbs around 12:30, spokesperson Maxine Bezuidenhout said.

It smashed into the worker. The passenger in the bakkie was killed. The driver was taken to hospital with serious injuries.

The accident resulted in heavy congestion on the N1 inbound before Old Oak Road and on the N1 outbound at Giel Basson.



A bakkie overturned on the N1. (Supplied)

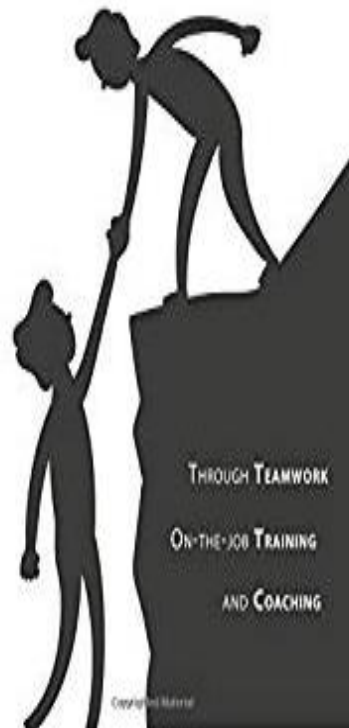


Central University of  
Technology, Free State



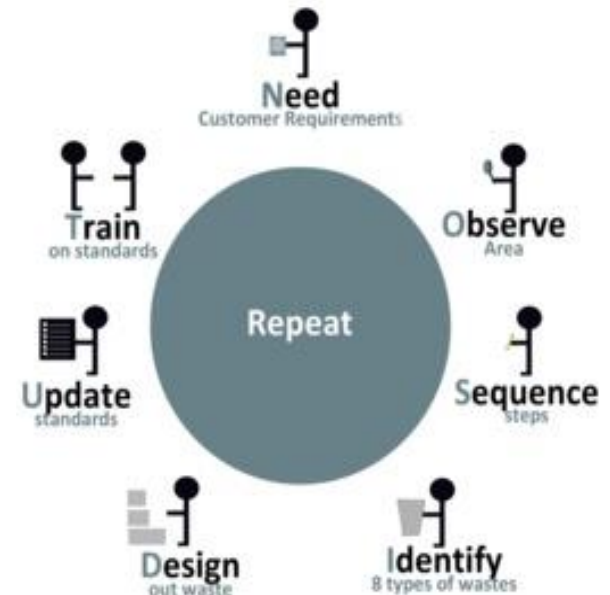
## SUCCESSING WITH STANDARDIZED WORK

OSKAR OLOFSSON



# Concept

## STANDARD WORK the steps





# Research Method

- **Question**
  - How standardized work prevents accidents on construction sites?
- **Method**
  - Single case design approach deployed in Bloemfontein
- **Data**
  - Semi-structured interviews
  - Focus group interviews
  - Nine participants

# Participants

Table 1: Research sample

Participants		Number	Percentage
Project leaders	Construction manager	1	56%
	Site engineer	1	
	Safety manager	1	
	Senior foreman	1	
	Junior foreman	1	
Artisans	Bricklayers	3	44%
	Plaster	1	
Total participants		9	100%

# Findings [1]

- What contribute to accidents on construction sites?
  - The **working conditions** are often enthused by the desire of the workers to reach a high level of productivity
  - The results of **poor working conditions** are influenced by numerous factors such as limited **working space** on the sites
  - The impact of **little spaces on sites** forces construction managers to design **a complex site layout**
  - **The weather conditions** are another factor contributing to **poor working conditions**, especially during the summer periods

# Findings [2]

- There are various **risks** and **hazards** which are experienced by the workers while **working on scaffolds**
- The scaffold erectors must always check and test the **resilience of scaffold equipment** upon erecting the scaffolds
- Failure to control **the working conditions** of the workers at height, especially those who are **working on a scaffold** is **hazardous** to the workers at the lower levels
- **The worker's medical fitness** helps safety managers to know the **health status of individuals** and those who will be **able to work at height**



# ■ How standardized work could prevent accidents?

Important steps	Key points	Reasons
<b>Step 1:</b> Identify the causes of the problems. (For instance, <b>poor working conditions</b> )	You must breakdown the construction activities or task and identify hazards which might cause injury or accidents in the workplace. (For instance, it is reported that <b>poor housekeeping, limited working spaces</b> and <b>extreme weather conditions</b> might cause errors and violations on site)	This will help in the discovery of the root causes of the reported problems (construction accidents).
<b>Step 2:</b> Prepare the workers to solve the problems (For instance, <b>the workers must be taught about the safety regulations and how to identify hazards and risks when working on sites</b> )	It is important <b>to improve the skills and knowledge</b> of the workers through training.	This will prepare the workers to have the skills and knowledge of the work.
<b>Step 3:</b> Improve the operations (For instance, <b>allow housekeeping to form part of the job task</b> )	The workers must be given <b>the jobs task</b> and be corrected if an error is experienced.	Introduce continuous improvement for the job task.



Central University of  
Technology, Free State

- Construction management practice as part of critical path method
- The adaptive construction steps
- The preliminary

## Conclusion

The housekeeping  
designing the

work to solve the reported  
allow the three important

work could also help construction  
baseline to promote safety by  
violations

