FIRE AND RESCUE INTERNATIONAL

Integrated fire, rescue, EMS and incident command technology

Volume 4 No 9

Official magazine of SAESI

KNYSNA FIRES:
LESSONS LEARNT

Western Cape Government

DISASTER MANAGEMENT

AUGUST 10-11TH

CAPE TOWN

ROELAND STREET FIRE STATION

SOUTH AFRICA'S TOUGHEST FIREFIGHTER ALIVE

4 FIREFIGHTERS EXCELLENCE FOUNDATION

TOUGHEST FIREFIGHTER ALIVE SOUTH AFRICA

FIRE AND RESCUE INTERNATIONAL

Contact Mark Smith Email: TFA@fireandrescue.co Cell: 071 676 4272

FIRE AND RESCUE INTERNATIONAL

Official magazine of South African Emergency Services Insitute (SAESI) Volume 4 No 9 SAESI

Contents

Editor
Lee Raath-Brownie
lee@fireandrescue.co
Cell 082 371 0190

Advertising
advertising@fireandrescue.co

Design and layout
Marc Raath
marc@fireandrescue.co

Digital newsletter
Pierre du Plessis
pierre@fireandrescue.co

Accounts and circulation
Vicki Jacob
accounts@fireandrescue.co
subs@fireandrescue.co

Secretary
Vicki Jacob
pa@fireandrescue.co

Administration
Mirriam Moroane

Contributions
SAESI
Melvin Ramlall
Salomé van den Berg
Dino Levendall

USA
Wayne Bailey

Africa
Colin Deiner
Ian Schnetler
Neville van Rensburg
Julius Fleischman
Michelle Kleinhans
Malcolm Procter

Comment

Lee Raath-Brownie

Fire and Rescue International (FRI) proudly presents its 45th edition. Although we are fighting yet another postal strike, we trust the magazine will reach you and that you will find it informative. Enjoy the read!

SAESI News

SAESI president, Melvin Ramlall, provides information from the South African Qualifications Authority (SAQA), which was received by SAESI confirming that the SAQA Board, in terms of the National Qualifications Framework (NQF) Act, approved SAESI's application as a Professional Body and also registered the Professional Designation. Ramlall also reviews the recently held SAQA International Seminar on Qualifications Frameworks.

We also review the LG SETA advocacy workshop for the new NQF4 Occupational Certificate in Fire Fighting held by SAESI in Cape Town as well as providing the results and photos of the SAESI Cape Peninsula Branch and City of Cape Town Fire and Rescue ten pin bowling results.

Water resilience and the fire services

CFO Ian Schnetler shares the lesson learned by City of Cape Town Fire and Rescue during the recent extreme drought conditions and provides tried and tested practical advice on managing and responding to fires during such dry periods.

Wildfires

In our special focus on wildfires, we provide some of the recommendations from the independent reports on the Knysna fires and investigate the lessons learnt (hopefully). There is also information on the 12th Fire Management Symposium, which will be held in George in October 2018 and a review of the GEF FynbosFire Project outcomes.

The #Wildfire Ready Convention will be held in November 2018 in the Western Cape and we share an interesting article written by Malcolm Procter on landscape/risk management approach to mitigate against veld fires. Michelle Kleinhans writes about ICS and looks at a multi-agency incident approach.

Hazardous materials

Colin Deiner looks at hazardous materials: flammable solids, oxidising agents and organic peroxides in this fourth article in our series on responding to specific classes of hazardous materials. Deiner unpacks the health hazards of each and provides practical tactics for responding to and managing these incidents.

Rescue roundup

Neville van Rensburg and Julius Fleischman provide an overview of the changing environment of vehicle technology and provide insight into the issues that emergency responders face when dealing with extrication and accidents scenes.

Fire safety

We report on the fifth annual National Fire Safety and Prevention Summit held by the NDMC in Potchefstroom, North West Province.

A BIG thank you to all our contributors, advertisers and readers for their continued support! Fire and Rescue International is your magazine. Read it, use it and share it!

Lee Raath-Brownie
Publisher

Publisher
Lee Raath-Brownie
FIRE AND RESCUE INTERNATIONAL
Tel 011 452 3135/6 Fax 086 671 6920
Box 8299 Greenstone 1616
www.fireandrescue.co

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This month's FRI Images winner!

Congratulations to

Etienne le Roux for his photograph 'Into the smoke' taken with a Samsung S7.

Well done!

Etienne le Roux wins this months prize money of R2000!

Photo description:
The photo was taken at a flare up at the Cape Point fire, two Volunteer Wildfire Service teams (eight fire fighters, including two crew leaders myself one) worked the line for six hours and contained and extinguished it using only hand tools, using a Pincer attack. Credit to VWS

Best rescue, fire or EMS photo wins R2 000!

WIN R2 000 every month!

Fire and Rescue International's (FRI) monthly photographic competition is open to all its readers and offers youthe opportunity of submitting your digital images of fires, fire fighters, disasters, incidents, emergencies and rescues.

Rules

- All photographs submitted must be high resolution (minimum 1meg) in jpeg format
- Allowed: cropping, curves, levels, colour saturation, contrast, brightness, sharpening but the faithful representation of a natural form, behaviour or phenomenon must be maintained
- Not allowed: cloning, merging/photo stitching, layering of two photos into one final frame, special effects digital filters
- Fire and Rescue International (FRI) reserves the right to publish (printed or digitally) submitted photographs with acknowledgement to the photographer
- Winners will be chosen on the merit of their photograph
- The judge's decision is final and no correspondence will be entered into afterwards

Entries must include:

Name of photographer
Contact details (not for publishing)
Email (not for publishing)
Name of photograph
Brief description of photograph including type of incident
Camera, lens and settings used

All entries must be emailed to:
lee@fireandrescue.co

>> ENTER NOW!

SAESI President's comment

SAESI President Melvin Ramlall

Professional body recognition

I am pleased to announce that the official correspondence from South African Qualifications Authority (SAQA) was received by the Southern African Emergency Services Institute (SAESI) on 23 January 2018 confirming that the SAQA Board, in terms of the National Qualifications Framework (NQF) Act, approved on 6 December 2017 SAESI's application as a Professional Body and also registered the Professional Designation. A copy of the official letter has been published on the SAESI website. I would like to make use of this opportunity to congratulate the task team for achieving this mandate.

SAQA International Seminar on Qualifications Frameworks

Quality frameworks (QFs) are universally accepted mechanisms for the integration of education and training systems within sectors, countries, regions and globally. They are multipurpose education and training reform instruments appropriate for both social development and the development of highly skilled workforces needed in current global knowledge based economies.

Quality frameworks differ in terms of purpose, objectives, structures and forms but share the goal of establishing links between parts of systems. QFs are therefore 'relational devices' and are mechanisms to relate previously silo-like parts of the systems for education, training, development and work. They require the development of 'relational agency' or the willingness to engage with the motives and traditions of others and to proceed on the basis of a common understanding developed as a result. QFs have developed positively over the past 20 years with related success.

Growth in number of QFs

One realisation emerging shows steady growth in the numbers of QFs that exist, almost two thirds of countries in the world have sectoral or a national quality framework. The history and exponential growth also highlights changes where QF development was mainly driven by internal factors and how, over time, the communication between quality frameworks has increased and external drivers linked to the recognition of credentials across contexts have come to the fore. The characteristics attributing to sustainability points to sound mandates or legal basis, the active and committed involvement of stakeholders and visibility to end users.

Increased use of level descriptors and learning outcomes

The use of level descriptors and learning outcomes should not be formulated in narrow restrictive ways that limits as opposed to broaden lifelong learning. In some contexts research is needed to deepen conceptualisation of skills so that understanding is not confined to productive skills but also addresses other areas of human capabilities. The increased demand for 'relevance' and 'employability' or 'vocationalisation' in higher education or 'academisation' promotes the shift to the use of learning outcomes.

Towards and beyond NQFs: Sectoral, national, and emerging regional and transnational QFs

The Mauritian model of sectoral qualifications framework (SQF) experience in re-engineering qualifications in the early childhood sector serves as an instrument for the development, classification and recognition of skills, knowledge and competencies that are in line with level descriptors. It is used to indicate the comparability of qualifications and progression possibilities.

NQF sectors can be strengthened through the development of SQFs especially when a sector needs to be professionalised, upgraded or reconceptualised.

SQF development in Mauritius commenced with the development of a matrix of qualifications and led to the identification of four clear progression pathways. This fine example of strengthening SQFs from the inside has enabled Mauritius to spearhead regional quality enhancement initiative. The increasing number of regional and transitional QFs has relied on inter-national tuning and across country referencing on national level descriptors.

Assessing the impact of qualifications framework

The outcomes of the NQF depend on how well they are aligned to national education and training systems. To maximise their effectiveness, NQFs need to be well integrated into the policy baskets of which they are part. Whilst instruments and approaches are transferable across countries, policies and systems are not as they are culturally and socially embedded. The imprints of NQF also depend on the use of learning outcomes to promote clarity and transparency in systems and to enhance participation through the relevance of learning programmes.

Caution is raised on the narrowness of learning outcomes and the need for learning outcomes to broaden lifelong learning. The potential of QFs are to enhance system reform, harmonise and systematise national systems, provide second and subsequent chance learning and work pathways, and make opportunities visible.


SAQA

CERTIFICATE OF RECOGNITION:
PROFESSIONAL BODY

This is to certify that SAQA has recognised the

Southern African Emergency Services Institute

as a Professional Body and has registered the following professional designation in terms of Section 13(1)(*i*)(ii) of the *National Qualifications Framework Act, 2008* (Act No. 67 of 2008):

Firefighter Practitioner (SA) – FFP (SA)

6 December 2017
Recognition Start Date

5 December 2022
Recognition End Date

Chief Executive Officer

PB 0000504

Methodology for assessing the impact of QFs

Recent studies using Cultural Historical Activity Theory (CHAT) reveals the widespread shifts to learning outcomes, enhanced stakeholder interaction, institutional reforms towards transparency, the bridging of education and training systems, the opening up to the private and informal sectors and the recognition of qualifications across contexts.

Assessing the impacts of QFs need to be understood within the broader political and institutional contexts of the framework and should not be reduced to a question of simple 'objective' causality. In addition, the assessment methodology must be able to capture the informed interpretations and opinions of the main stakeholders involved. In measuring the impact of a QF required, the robust and agreed baselines that needs to involve clarification of the development stages reached, in order to provide a starting point for national assessments where preference for the term 'assessment' over 'measurement' of impact in order to describe the types of quantitative and qualitative analysis used for QFs as complex social systems.

NQFs enhancing system transformation

The SA NQF opened access and created a single integrated quality assurance system, which focuses on fine tuning quality, flexibility, coordination, efficiency, effectiveness, economy and the simplification of the NQF rather than the need to change in direction.

The national coordination of funding of Recognition of Prior Learning (RPL) and strengthening learning pathways and articulation in general, currently key in South Africa were noted as being of central importance in the European Qualifications Framework (EQF) context. Specific mention is made of the need to deepen integration, enhance visibility, promote the further use of learning outcomes, orient quality assurance with a view to comparison across systems and increase the recognition/validation of non-formal/informal learning.

Qualification frameworks as catalysts for connectivity

The commonalities between QFs include enhancing the transparency, comparability, connectivity, quality assurance, learning outcomes and permeability in education and training systems. The current 'vocationalisation' in Higher Education and 'academicisation' in Vocational Education and Training (VET) may signify convergence towards qualification designed for 'holistic' competencies based on theory-practice balance.

The call for a dichotomy between the academic and vocational knowledge stands to be critiqued since education, training and generic competencies ▶

- are multi-faceted and applicable across boundaries, however, VET certificates are competing successfully against academic degrees in labour market contexts that require advanced competencies, where on the other hand, degrees are usually more portable.

The QFs have the potential to enable and act as a catalyst for the competence oriented comparability between VET and Higher Education (HE) offerings. In order to be such reference instruments, they need level descriptors written in such a way that they speak respectfully to both the academic and vocational contexts, competence-oriented credit transfer processes and a respect for the different characters of education and training.

Importance of extended time, stakeholder involvement and inclusivity

It is noted that the quality frameworks have yet to reach maturity and full operational status and overcome implementation challenges of shifting learning to an outcomes approach that require sufficient dialogue between sectors. It was noted that securing trusted qualifications require stable and enduring arrangements, in particular stakeholder ownership, proportionate legislation, institutions with effective capacities and reliable quality assurance mechanisms. Whilst noting the importance of not sacrificing quality in the pursuit of access, the centrality of the principal on inclusivity in the justification of NQFs.

While the development of NQFs in many countries had been influenced by economic considerations, there has also been an equal appreciation by governments through NQFs empowerment tools and processes to recognise non-formal and informal learning and development of learning pathways for marginalised groups.

Qualifications Framework within the New Global Framework for 2030

The major trends impacting on qualification frameworks include the drivers that support or trigger changes in labour markets, education and training economies and society in general. The sustainable development agenda of what qualifications mean and what the United Nations Educational, Scientific and Cultural Organisation (UNESCO) are doing.

Polarisation and access

The polarisation of the labour market indicates that there will be high increase of people that are low-skilled and similarly a high increase in numbers who are highly skilled, while the numbers of those with intermediate skill-levels are shrinking. These realities have implications for the kinds of qualifications needed. QFs need to ensure learning pathways for high skill levels start from the lowest levels.

Centrality of TVET; rights to education; mobility across borders

The UNESCO focal area includes updating Technical and Vocational Educating and Training (TVET) and Higher Education conventions in order to position TVET centrally in the field of learning, implementing normative instruments on the 'Right to Education' and working with stakeholders to advance and support the mobility of learners across borders.

Alignment with the Global Framework

The opportunity to leverage momentum that has been created by the Education 2030 agenda and the call for sustainable development and to reinforce all of the partnerships involved in order to enlist the potential of QFs to contribute to this agenda.

Key overarching lessons learned from these across-context experiences

QFs cannot be 'transplanted' across contexts given the embedded-ness of education and training systems in certain cultures and economies. Commonalities across QFs also show clear links between QFs and socio-economic development as well as links to a more holistic community and personal development. The use of level descriptors and learning outcomes, progression/learning pathways and lifelong learning; quality, access, redress and the recognition of informal and non-formal learning and the importance of the visibility of QFs are encouraged.

The second overarching lesson emerging relates to the need to evaluate the impact of the QFs and the methodologies for going about these impact assessments.

The third lesson concerns the need to address system alignment and the importance of stakeholder involvement for the development and implementation of QFs, whether at sectoral, national or regional levels. Relational agency is needed in the implementation of QFs as relational mechanisms.

Acknowledgements

In closing, I must acknowledge on behalf of all members and prescribed officers the exceptional leadership of the CEO Salomé van den Berg and Tinus Pretorius who motivate and guide their teams to achieve the outcomes emanating from our visions and wishes.

PostNet Suite 248
Private Bag X06
Waterkloof, 0145
SAQA House
1067 Arcadia Street
Hatfield, 0083
Tel + 27 (12) 431-5106
Fax +27 (12) 431-5039
E-mail: jsamuels@saqa.org.za
Website: www.saqa.org.za
Helpdesk: 086 010 3188

22 January 2018

Ms Salome van den Berg
Chief Executive Officer
South African Emergency Services Institute
PO Box 613
KRUGERSDORP
1740

E-mail address: salomevdb@saesi.com

Dear Ms van den Berg

RECOGNITION OF THE SOUTH AFRICAN EMERGENCY SERVICES INSTITUTE AS A PROFESSIONAL BODY AND REGISTRATION OF ITS PROFESSIONAL DESIGNATION ON THE NATIONAL QUALIFICATIONS FRAMEWORK

The South African Qualifications Authority (SAQA) is pleased to inform you that the SAQA Board at its meeting on 6 December 2017 recognised the South African Emergency Services Institute (SAESI) as a professional body and registered the following professional designation on the National Qualifications Framework in terms of Section 13 (1)(i)(ii) of the *National Qualifications Framework Act, 2008* (Act No. 67 of 2008) which states SAQA must "recognise a professional body and register its professional designation if the criteria contemplated in subparagraph (i) have been met;":

- *Firefighter Practitioner (SA) – FFP (SA)*

I trust that the recognition as a professional body will be to the benefit of your sector as a whole, to SAESI, and to the National Qualifications Framework and that it will contribute to skills development and professional service delivery in South Africa.

Kindly refer to copies of the following Annexures:

Annexure A: *Compliance Requirements for Newly Recognised Professional* Bodies; and

Annexure B: *Policy on Usage of SAQA Trademarks by Stakeholders* and the *SAQA trade mark policy acceptance form.*
I look forward to continuing co-operation between SAESI and SAQA.

Yours faithfully,

JOE SAMUELS
CHIEF EXECUTIVE OFFICER
cc : Ms EF Nyaka, Director: Registration and Recognition

SAESI holds LG SETA advocacy workshop for the new NQF4 Occupational Certificate in Fire Fighting

The Southern African Emergency Services' Institute (SAESI) held its first Local Government Sector Education and Training Authority (LG SETA) advocacy workshop for the new NQF4 Occupational Certificate in Fire Fighting in Cape Town on 21 February 2018 to which Etienne van Bergen welcomed attendees, introducing LG SETA's Education and Training Quality Assurance (ETQA) manager, Pumla Mkele. Joining Mkele was Kabelo Moleko, an ETQA practitioner with LG SETA. SAESI's president, Melvin Ramlall, vice president Arlene Wehr and CEO Salomé van den Berg were also in attendance as well as SAESI working group and branch chairpersons and members.

Theresa Geldenhuys provided an outline of the purpose of the workshop, highlighting partnerships with the South African Qualifications Authority (SAQA), who provides the development and implementation of the National Qualifications Framework, Quality Council for Trades and Occupations (QCTO) who oversees the design, implementation, assessment and certification of occupational qualifications, including trades, on the Occupational Qualifications Sub-Framework (OQSF) and LG SETA as Development Quality Partner (DQP) and Assessment Quality Partner (AQP).

Clinton Manuel provided a brief historic overview of the qualification as well as its rationale, saying that the qualification was developed by fire fighters for fire fighters and that a lot of energy went into its development, which included consultation with training providers, both municipal and private, in order to develop a qualification that caters for everybody. "The Further Education and Training Certificate: Fire and Rescue Operations NQF 4 (SAQA ID 57803) provides 148 credits and is benchmarked against the four National Fire Protection Association (NFPA) certificates that deal with entry-level fire fighter requirements namely: Firefighter 1, Firefighter 2, Hazardous materials awareness and Hazardous materials operations and are based on NFPA standards 1001 and 472. The qualification also addresses a need to have qualified entry-level fire fighters who can respond to both structural and incidental emergency situations in South Africa and was developed in compliance with the relevant parts of South African National Standards, particularly Community Protection against Fire (SANS 10090:2003)", said Manuel.

He added, "Entry-level competencies will enable learners to progress in their careers by doing learning programmes that are aligned to NQF Level 5 qualifications in selected specialised routes or career pathways in the context of emergency services." Manuel also explained the rules of combination, knowledge modules, practical skills modules and workplace skills modules.

Kabelo Moleko, an ETQA practitioner with LG SETA, explained the accreditation process of skills development providers (SDPs) saying that the QCTO is responsible for the accreditation. The accredited training centres are the Sol Plaatje Emergency Services Training Centre, Ekurhuleni Emergency Training Academy and the City of Cape Town Fire and Rescue Services Training Academy.

Geldenhuys detailed the training materials and exit level outcomes and explained that the qualification is benchmarked against NFPA 472 (Hazmat), NFPA 1001 (Fire Fighter 1 and 2), NFPA 1006 (Technical Rescuer) NFPA 1035 (Fire and Life Safety Educator 1) and NFPA 1081 (Wildland Fire Fighter 1).

She also explained the Recognition of Prior Learning (RPL) project, saying that it was still in planning phase but that a Memorandum of Understanding (MOU) had been signed. "SAESI will do the assessments through the accredited assessment centres. Shortcomings will be addressed through additional training to ensure compliance with content," added Geldenhuys.

Mkele said that the LG SETA will no longer accredit training providers as this will now be done through the QCTO. She expresses her gratitude towards SAESI for the assistance saying, "We are not experienced in fire fighting. SAESI are the experts." She added, "SAESI will also assist with compiling the examinations," reminding attendees that the qualification has three components namely knowledge, practical and the examinations.

SAESI Cape Peninsula and City of Cape Town

Fire and Rescue Ten pin bowling results

Teams from the SAESI Cape Peninsula Branch and the City of Cape Town Fire and Rescue Service competed in a ten pin bowling event in March 2018. Staff that attended was Divisional commander (DC) Van der Byl, DC Ramedies, DC Wehr, DC Abrahamse, Station commander (SC) L Agulhas, SC Haskell, (PC) Mbasa, Fire fighters Du Plessis and Gilham as well as administrative staff R Dirkenson, R Joubert and R Swanson.

The winners on the day were

First: DC Francis van der Byl (156)
Second: FF Cameron Gilham (139)
Third: DC Denzil Ramedies (116)

The day was a great success and everyone enjoyed the event. The event also afforded opportunity for teambuilding. The standard was high and competition tough for a place in the final with a race was between admin, operational and day shift staff.

Etienne van Bergen joined and thanked all for participating.

I would like to thank all players and SAESI, Mr Etienne van Bergen for the medals, food, vouchers and making this day possible, as well as SAESI vice president, Arlene Wehr, for assisting with the prize giving.

Group one

Group two

Arlene Wehr handing over the prize to winner DC Francis van der Byl

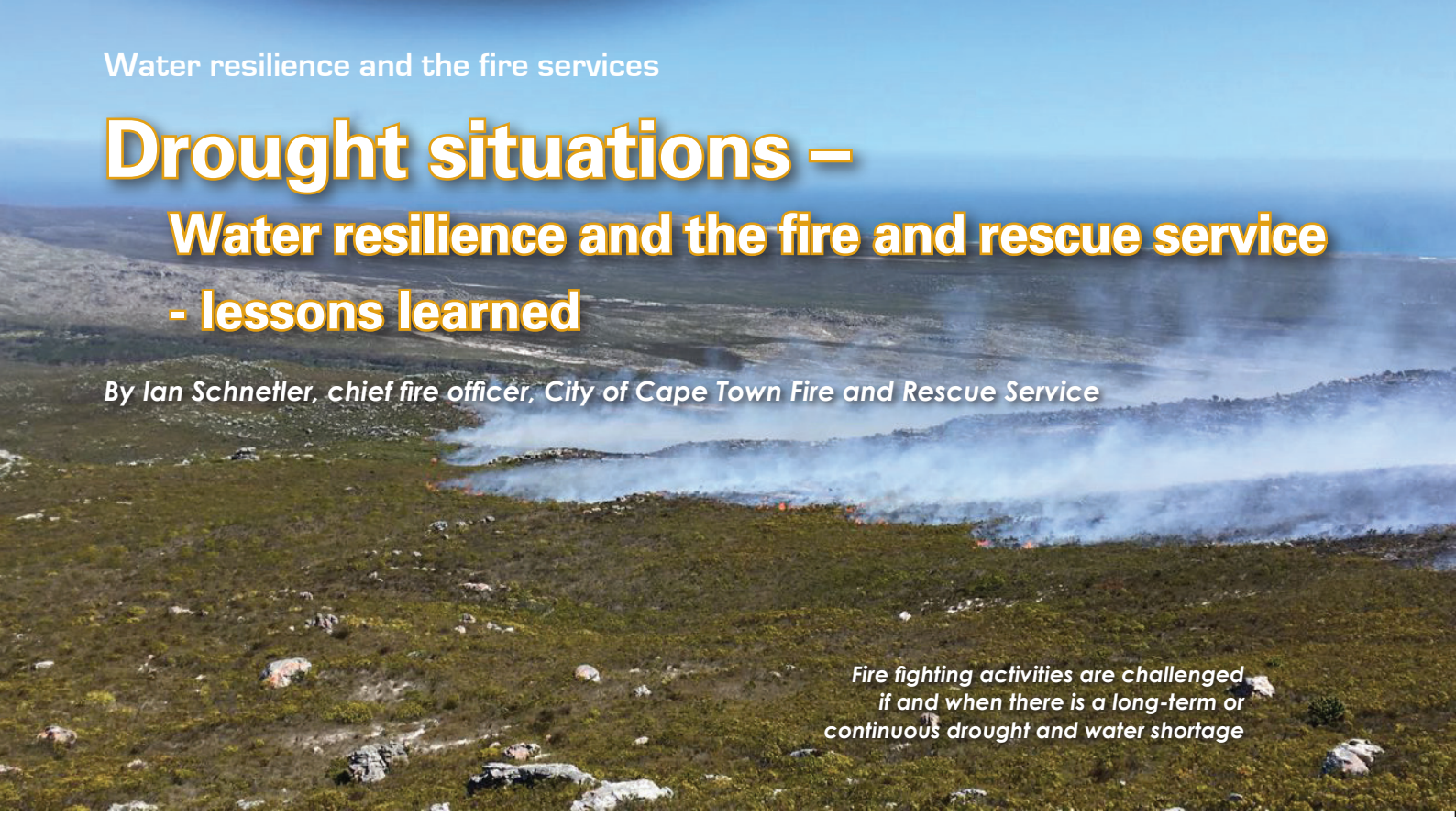
Fire fighter Cameron Gilham receiving his second place prize from Arlene Wehr

DC Denzil Ramedies won third place

The top three winners

Drought situations – Water resilience and the fire and rescue service - lessons learned

By Ian Schnetler, chief fire officer, City of Cape Town Fire and Rescue Service



Fire fighting activities are challenged if and when there is a long-term or continuous drought and water shortage

South Africa's City of Cape Town Fire and Rescue Service resides within the City of Cape Town Metropolitan Municipality Safety and Security Directorate and is tasked with the management and response to all fires, including but not limited to structural, informal settlements, mountain and veld, small vessel and motor vehicle fires. In addition, the City of Cape Town (CoCT) Fire and Rescue Service extends to assistance with medical emergencies and rescue operations, including urban search and rescue, diving, motor vehicle extrications and high angle incidents, as well as hazardous material emergencies.

In this regard, the core responsibilities are:

- The efficient and effective response to emergency incidents or fires in order to protect human life and property
- The provision of search and rescue and motor vehicle extrications
- The establishment of contingency measures to ensure water availability for the execution of normal operations
- The development of contingency measures to source fire water from surface water bodies within the city
- The recruitment and training of volunteers to assist in the combating of fires, rescue and evacuation
- The inspection and verification of existing fire fighting equipment within city facilities and critical infrastructure
- Ensuring applicable fire safety standards are followed
- The identification of external resources for the efficient and effective operation of fire and rescue services
- Representation, engagement and participation within in the activities of the disaster risk management centre (DRMC) during a disaster

Vacuum tankers provide the ability to retrieve water from an open supply in a quicker turn-around time than a conventional hydrant

The maintenance and continuous service delivery of these functions, in particular the fire fighting activities, are challenged if and when there is a long-term or continuous drought and water shortage situation being faced. The natural tendency of any fire and rescue service upon arrival at a fire scene, is that water will always be readily and endlessly available and can be used in copious quantities without really thinking about the consequences.

The advent of a Day Zero being a distinct reality radically changes that and if a chief fire officer glibly passes over such a warning, then he/she is seriously messing with the longevity of a fire and rescue service and abdicating the responsibility of protecting its residents and the environment. Water is our primary extinguishing medium and therefore it should be protected as far as possible ALL the time and not just during drought situations.

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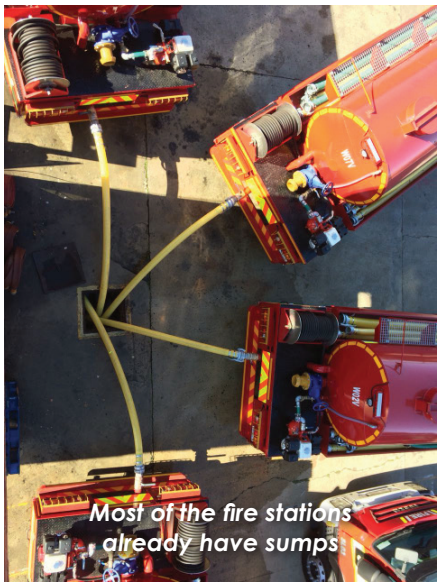
VANGUARD FIRE & SAFETY

Water tankers deployed

More water tankers were procured

The advent of the impending situation facing Cape Town, which manifested itself in late 2015-2016 already, brought about or necessitated a mind-set change within the City of Cape Town Fire and Rescue Service, where it was realised by the CFO and the team that we need to enhance and, at the same time, protect our water sources. As a result, as early as 2016, the following were processes and ideas that were put in place to ensure that our precious potable water resource remained available for much longer than normal.


Most of the fire stations already have sumps

Open water and other sources mapped

The City of Cape Town and the Peninsula is largely bordered by the sea on the Atlantic seaboard around the western areas and the False Bay coastline to the south and east. An abundance of water exists and in terms of the overall Day Zero strategy, the last resort for the fire and rescue service would be to utilise sea water for all fire fighting purposes, even for serial fire fighting purposes if necessary. This was not the ideal, given the implications and medium to long terms effects of the corrosive water supply but was a definite reality should the city have been forced to implement Day Zero within the city borders. However, given this being a last resort, other alternative methods and sources were investigated.

All the districts were tasked to map their available alternate water supplies. This resulted in the individual stations mapping their open water areas such as local small dams and rivers, as well as natural springs that became available. Roeland Street Fire Station was the recipient of continuous water supplies from a building development project, which uncovered an underground stream. Many trips to fill up at this 'spring' resulted, where the impact on potable water for an extended period existed.

Similarly, in Simon's Town, a natural spring was used to fill up, although the time period for this refill process was longer than normal and was not used in emergency situations due to too long turnaround times.

Water storage tanks

Water storage tanks or the proverbial Jo-Jo tanks, with capacities of 5 000 litres or more, were purchased and installed at every fire station in the city; one only needs to think of the larger roof expanses of fire stations and the utter waste of run-off water that occurs during rain periods, which is not harvested. These are being used for purposes other than for drinking, such as refilling of fire engines, washing and cleaning or essential equipment and any other purposes to reduce the burden on the potable water system.

Coupled to this, most of the fire stations already have sumps or deep lift pools on their premises and wherever possible, residents or businesses who decided to empty or close their swimming pools or other alternate water sources, contacted the City of Cape Town Fire and Rescue Service for assistance in doing so. The fire service responded and at every opportunity, kept their sumps and water storage tanks full with water obtained from these sources. What would happen is that the existing water in our water tankers and fire engines, would be dumped into the sumps and the water collected from pools and other sources, would fill the tankers. An interesting note in this regard is that a

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Portable dams were purchased ensuring continuous water supply during incidents

large portion of the residents naturally assumed that Fire and Rescue Services could assist with any water related request and collect water at any time. Some of the collections did prove problematical but as always, CoCT Fire and Rescue being innovative and having a 'can do' attitude, overcame these in most situations.

Vacuum tankers and portable dams

Vacuum tankers provide the ability to retrieve water from an open supply in a quicker turn-around time than a conventional hydrant. A 10 000-litre tanker can be filled in just less than eight minutes from open supply and can essentially retrieve water from any nearby open water supply. The city purchased four of these water tankers and they were strategically placed at each of the four fire districts of the city. The collection of water was easily achieved with the vacuum tankers. The ability to dump a large quantity of water in a short space of time also provides for a quicker turn-around time with these vehicles.

In conjunction with the purchase of the vacuum tankers, portable dams also referred to as 'pumpkins' were purchased so that when at a fire scene, a portable dam could be set up and water transfer from open source to the dam could be accomplished, which in turn does not disrupt fire fighting operations and deplete water supplies. This ensured that a continuous water supply was then available.

Compressed air foam system (CAFS)

Compressed air foam systems utilise virtually a quarter of the water necessary to extinguish a large majority and types of fires and the City of Cape Town is in the process of acquiring more of these vehicles to reduce the impact on available potable water supplies. The service is already in possession of six of these 6 000-litre 4x4 units and the staff is trained to utilise them efficiently.

The current water tanker fleet is ageing and the tender specifications currently being developed for new water tankers and fire engines, will ensure the incorporation of CAF units as a standard on 4x4, 6x6 and 8x4 water tanker units as well as our conventional and 4x4 fire engines.

Fire fighting strategies

In times of drought, especially with regards to veld fires, the lack of water does necessitate a mind-set change and also allows for an opportunity to put veld fire management principles in practice while actively fighting veld fires. On the one hand, rapid and efficient first response and initial attack would limit the need for extended attack. This proved to be effective with a number of fires occurring on the urban edge between the city and the Table Mountain National Park (TMNP). The city's seasonal fire fighters, who operate similarly and largely as a strike team/hotshot crew, worked well with TMNP and their teams to suppress fires in their initial stages, coupled with the early response of an aerial attack.

The other strategy used mainly in the veld fire environment, was quick response and set up of the incident command system (ICS) in consultation with Table Mountain National Park and the nature/environmental agencies, where the risk of fire spread, veld age and other factors were taken into account and where these fires were guided/directed as opposed to being extinguished. Note that this is a risk a chief fire officer takes when making decisions in that pretty easily, your staff could get the wrong impressions in terms of 'letting veld fires burn'. It should be strictly controlled, to ensure that all the risks are taken into account, especially on the urban edge and bordering on the built environment.

At one particular incident alongside the freeway in Glencairn, no potable water was used at all; water tankers collected water from the natural open water vlei and shuttled same to the scene for ground crews to continue their fire fighting operations.

Water storage tanks with capacities of 5 000 litres or more were purchased and installed at every fire station in the city

Filling up with rain water

Development of fire fighting equipment

A dividing breaching, in essence what was christened a 'christmas tree', was developed in order to provide some means of more effective and 'easier' fire fighting for fire fighters. The principle behind this was that especially at veld fires, a larger area could be more effectively covered in a shorter space of time by an attending crew. The photo below shows the rudimentary prototype and finished product.

The principle is thus; instead of a full crew having to work a long 65mm line, utilising two to three or more crew for lightening up, the concept of utilising four x 19mm lines from a single 65mm hoseline, allows three smaller but lighter jets covering a larger area with the same amount of crew. This concept is still developing and will become more effective as time goes by.

Pre-determined attendances

Risk areas were mapped and recorded and pre-determined attendances (PDAs) were reviewed and adapted. The advent of water tankers as a first response to structural fires became the order of the day, to ensure immediate water supply and to have immediate knock down capabilities. Multiple motor pump responses are standard practice to ensure water supplies for immediate fire fighting purposes were (and still are) available.

Reduction of water pressures as a water saving strategy for the City of Cape Town was implemented by the Water and Sanitation and Engineering departments and close liaison with the fire department was maintained on a continuous basis. In the majority of areas, the water pressures and supplies to mainly residential areas were reduced and as far as possible, reduction of pressures at commercial and industrial areas was minimised. Where overlapping areas occurred, close liaison between the control centres was maintained so that if necessary, water pressures could be boosted whilst still on scene. Very ▶

CAFS utilise virtually a quarter of the water necessary to extinguish a large majority and types of fires

few problems were encountered in this respect and the strategies in place with regards to increased PDAs were successful.

'Water-wising' the fire stations

In addition to the other water saving processes, fire stations were requested to become water wise in terms of the following:

- Replacing shower heads with water saving shower heads
- Minimal use of on-site washing machines ie only full loads and no half loads
- Water wise signs placed around all stations, especially in toilets and bathrooms
- Station drills and activities with no water or if water was to be used, to re-direct the run-off water back to the station sumps and storage tanks
- Utilising the water harvesting tanks for other station uses
- The Fire Service Training Academy obtained an aluminium tank from a used road motor tanker, installed it at the academy, coupled it to a portable pump and ferried non potable water from a nearby water source to conduct their continuous fire training drills. This is an on-going practice and will stay an ongoing practice for the foreseeable future.

Swimming pools

Some residents and commercial entities 'closed' their swimming pools and the CoCT Fire and Rescue Services, where possible, collected this water for their storage tanks and underground sumps. At times this needed to be coordinated, especially when the stations' storage tanks, sumps and vehicles were already full and a request was received. The strategy used was to 'dump' the water into any available storage tank or sump and collect the water and retain it in the vehicles/tankers.

Natural water springs

There are some natural water springs around the City of Cape Town and, where applicable, water was collected from these springs. The only 'disadvantage' in this respect was the longer times taken to fill a conventional fire pumper from these springs; to use this system in a rapidly-escalating emergency instances it not a good practice.

Fire station water sumps

Besides the other practices put in place, fire services have generally always been water conscious as it is still our primary extinguishing medium and being self-sufficient to a large extent, is still essential for fire services to be conscious of. As such, from way back already, many of the older fire stations built around the City of Cape Town, have drill towers and connected to these, are underground sumps. The capacities at many of them range from 20 000 to 25 000 litres and these were filled on a regular basis from non-potable water supplies. Water used for drilling purposes and directed at the towers, drain the water back into the sumps for re-use and provide some modicum of self-sufficiency, especially to maintain training on a regular basis. Regular cleaning of the sumps is essential to minimise any environmental and health issues.

In summary

The long-term predictions tend towards global change (of some sort) and fire and rescue services should always be open and adaptable to engage that change. As a result, continuous thought needs to be placed on how we can become more effective in meeting those challenges and dealing with fires that we will continue to encounter.

Although we have been thoughtful and innovative and have adapted in certain areas to minimise the impact on our potable water supplies, our fundamental duty is to still protect lives and property and as such, when these are really at stake, potable water from our hydrants systems is still our first port of call and will be utilised. One cannot compromise in these situations and rapid and effective attack is absolutely necessary.

The City of Cape Town Fire and Rescue Service will continue to adapt and face challenges placed before us and where necessary, will continue to strive to effectively overcome those challenges, remaining cognisant of the fact that no compromise will be tolerated when lives are absolutely at stake.

Knysna fires: Lessons learnt

The Knysna fires saw the largest operational deployment of fire fighting resources and personnel in South Africa in a single incident

The 2017 Knysna Fires will be etched in the minds of many South Africans for years to come. The fires claimed the lives of eight people and caused billions of Rands worth of damage to infrastructure, businesses and homes and had a major impact on the livelihood of this small South African coastal town. The incident resulted 1 059 formal dwellings destroyed or damaged with a further 385 informal dwellings destroyed or damaged.

There have been several reports released since the fires. Each with its own merit (or not). Some were painstakingly researched using factual information, statistics and data.

In this article we will not be debating the cause of the fires or play the blame game but rather look at what can be learnt from this incident. The saying goes, 'Prevention is better than the cure' but could this incident have been prevented? Were the authorities prepared for this large scale disaster? What can you do to prepare yourself, your service/association for similar future incidents? One thing is certain and that is that our climate patterns will test your abilities and resources in the future.

The Knysna Wildfire began the evening of 6 June 2017 and consisted of 26 fires by 7 June 2017

Post incident reports highlight the necessity of a multi-agency incident command system, planning for lack of communication infrastructure, fuel load reduction and management, defensible space, management of social media and early warning systems.

This article contains excerpts from the report 'The Elandskraal Fire, Knysna: A data driven analysis' by the CSIR Meraka Institute and the 'Situational Analysis of the 2017 Knysna Fires: Lessons Learned Report' by Vulcan Wildfire Management.

The 2017 Knysna fires were notable for involving the largest deployment of fire fighters in South Africa to date. A total of 985 fire fighters (excluding volunteer agencies) along with 78 vehicles, 12 helicopters and two fixed-winged bombers were used in combating the fire between 6 June and 10 June 2017.

Operations: WC PDMC

The Western Cape Disaster Management and Fire and Rescue Services cited that the fire started on evening of 6 June 2017 and by 7 June 2018, there were 28 fires burning with four fatalities. "The wildfires were fanned towards residential areas by strong winds from a cyclone to the west. Western Cape Disaster Management ▶


The fires were fanned towards residential areas by strong winds from a cyclone to the west


Eight lives were lost


1 059 formal dwellings and 385 informal dwellings were destroyed


Recommendations included the importance of defensible space in the WUI

and Fire and Rescue Services received the request for assistance received from Eden District Municipality. Evacuations were ordered in Knysna and surrounds and the George Bus Service activated to evacuate residents. 408 formal houses and 200 informal dwellings were destroyed. The Knysna Hospital had to be evacuated and a medical command post and treatment area was established. Provincial mutual aid was activated and 88 additional fire fighters deployed. Cape Nature activated 153 wildland fire fighters and staff and national resources that were activated included 22 Working on Fire teams (535 staff) from other provinces."

"The wildfire reached the urban interface at around 14h00 and took six hours to pass through Knysna. In total 1 059 formal dwellings and 385 informal dwellings were destroyed with fire fighters having to deal with at least one structure/house on fire every minute."

"On 8 June 2017 the South African Air Force joined fire operations and humanitarian support continued. The body of a three-year old child was found and 20 buildings were destroyed in Plettenberg Bay. A Type 1 incident management team (IMT) was deployed in Knysna. There was a fire fighter fatality in the hospital as a result of burns. The fire was 85 percent contained."

"On 10 June 2017 a major flare up resulted in another seven buildings being destroyed. One person died in the fire. The fire was contained by 19h00. From 11 June 2017 onwards the fire remained contained with sporadic flare ups. Structures remained vulnerable to ignition in the wildland-urban interface (WUI) over 12 hours after the initial wildland fire front had moved through the community."

CSIR Meraka Institute Report

The CSIR Meraka Institute Report states that the total burned area is 9 440ha. "A Sentinel-2 of 14 June 2017 was used to map the total burned area of the Elandskraal and Kruisfontein fires and the first estimate of burned area is 9 440ha. There is an underestimation of areas that burned under forest canopies due to the remaining green tree tops that are assessed by the automatic algorithm as unburned areas."

The report also cited "Excessive drying of fuels due to days of berg wind conditions before the 7 June 2017 coupled with a drop in relative humidity to 25 percent and an increase in temperature by five degrees to 25 degrees between 1h09 and 3h00 ensured that the vegetation was fully cured and highly flammable."

Vulcan Wildfire Management report

In the Vulcan Wildfire Management report, the following was conveyed: "On 7 June 2017, the Kruisfontein and Elandskraal wildfires, collectively referred to as the Knysna Fires, had a devastating impact on the Knysna and Plettenberg Bay areas. The scale and destructive nature of these wildfires was almost inconceivable and the Knysna Fires incident will be recorded as one of the most destructive wildfire incidents in South Africa's history."

"An array of natural elements combined to create the 'perfect wildfire storm'. Fuels, drought, Berg winds, low humidity, high temperatures and a cold front with extreme winds contributed to wildfires with an exceptionally high rate of spread and extreme wildfire behaviour."

"As a result of the incomprehensible losses and destruction faced in the aftermath of the Knysna Fires, it was not long before people started

apportioning blame and preparing for litigation. It is essential that this does not become the primary focus as it does little to prevent future disasters of this magnitude. An holistic understanding of the incident is required in order to identify areas where the wildfire industry and public are falling short and how shortcomings can be addressed."

"Wildfire intelligence, planning and risk reduction measures have been well documented in textbooks, international best practice and other wildfire reports in South Africa. Therefore, the tools and strategies, combined with the existing wildfire knowledge and expertise, to avert a disaster of this magnitude already exist. Using the Knysna Fires as a case study, Vulcan Wildfire Management identifies the key challenges in the Eden District that are acting as barriers to the implementation of wildfire management best practice. By understanding the success stories, challenges and the weaknesses in the Eden District, we will be able to adopt and improve approaches, systems and strategies so that future wildfire incidents result in far more positive outcomes."

Part of the expert panel consulted by Vulcan Wildfire Management

The report stated that, "Collectively, the private and public sectors were not prepared for an incident of this scale and ferocity. Wildfire preparation and resilience measures, which are fundamental to averting damage and loss, were either not in place or were insufficient."

CSIR Meraka Institute report recommendations

The CSIR Meraka Institute report recommends that "holdover (smouldering) fires have the potential to flare-up under severe weather conditions with potentially devastating consequences, as was seen in the Knysna fire disaster. In order to reduce the risks of these events in future, the AFIS team recommends the development of a Lightning-Induced Fire Ignition Probability Index for South African conditions. The introduction of such a probability index will allow for the early detection and alerting of positive lightning strikes specifically in areas with very dry vegetation fuels and the subsequent detection of patches of smouldering vegetation."

"Fire risk along the wildland-urban interface (WUI) of the fynbos biome can ▶

Knysna and Bitou was declared disaster areas for fire and the 'Garden Route Rebuild' Programme was established

- be calculated and mapped using the geospatial assessment procedure (or framework) previously demonstrated by the CSIR for specific study areas (Forsyth and Le Maitre 2015). We recommend that the risk assessment procedure be expanded to the entire fynbos biome (or all fire-prone biomes in the country) and augmented by including data of fuel type, fuel load (biomass), fuel moisture and burn history (time since last burn), all of which can already be derived from satellite imagery on an ongoing basis. The local landowners and government should be very well informed about fire risk along the WUI and share the responsibility for mitigating the risk of wildfires (Forsyth and Le Maitre 2015). To this end, fire risks should be continuously assessed, with risk maps being publicly accessible through web-based geographic information systems. Earth Observation and geospatial technologies are sufficiently mature to provide essential fire risk and other fire related information demonstrated in this report, however, sufficient funding is required to take this technology beyond the 'proof-of-concept' or 'pilot' phases towards an operational service. The mitigation of the risk of inevitable wildfires in the fynbos biome, will therefore require:

1. More research on the occurrence and behaviour of lightning-induced holdover fires
2. The development of a system to map the Lightning-Induced Fire Ignition Probability Index based on lightning strike data and satellite data
3. A system for mapping fire risk in WUI and for publicly disseminating these maps
4. Broader communication of fire danger based on weather conditions
5. Sufficient support and funding to maintain these operational, public-good, fire information systems and
6. Close collaboration between local landowners and government by means of fire protection associations to mitigate fire risk.

Vulcan report recommendations

Vulcan Wildfire Management invited the Western Cape fire chiefs and industry experts to a meeting on 26 October 2017 in order to establish an expert panel. The first meeting allowed for input and guidance on key focal points deemed important for analysis. A second meeting was held on 13 February 2018, which offered insight into key research findings, allowing the panel to comment and share further knowledge and professional insight.

Key findings

Objectives identified for the Eden District:

- Develop a system of shared wildfire understanding and responsibility
- Create synergy among those affected by or involved with wildfires
- Establish and develop wildfire resilient communities

Work required to achieve objectives based on the Eden District analysis:

- Developing people and optimising systems within the wildfire context.
- Successful wildfire resilience lies in preparation and risk reduction, not reactive response.
- No single entity or organisation can solve the wildfire problem in isolation. Collaboration and working together to create wildfire resilience are the only ways to succeed.
- Wildfire-specific capacity and capabilities need to be established and supported by all role-players affected by wildfire, if real change is to occur.
- Innovation and cooperation are required to overcome financial roadblocks. Financial constraints can be overcome when there is greater understanding of wildfire risk and good synergy amongst all role-players.
- Landowners and homeowners in the Eden District need to share more responsibility for wildfires. However, they require more information and support from the authorities and wildfire experts if they are to do so.

In the light of the reports, its finding and recommendations, it is obvious that neither the local authorities, public and private sector, were not ready for an incident of this magnitude. But having said that, which town, city or metro can claim that they are prepared for such an event? Are you?

The Western Cape Disaster Management and Fire and Rescue Service managed the incident under extreme weather conditions and should be commended for its unified approach to incident management.

The Knysna Fires should become a case study for all sectors and spheres of Government and its challenges faced, a lessons learnt synopsis that does not gather dust on a shelf but rather becomes a practice outlining standard operating procedures (SOPs) and dictating practical information systems on a national level.

Let us never forget:
Madré Johnston
Tony Johnston
Michael Johnston
Catherine Nyirenda
Enala Manda
Dawie van der Ryst
John Blaauw
Bradley Richards

Sources: Western Cape Disaster Management and Fire and Rescue Service, CSIR Meraka Institute and Vulcan Wildfire Management reports.

12th Fire Management Symposium

The School of Natural Resource Management of the Nelson Mandela University (NMU) invites you to the 12th Fire Management Symposium, which will be held from 3 to 5 October 2018 at the NMU George Campus in the Southern Cape, South Africa. This year's symposium is themed, 'From commitments to action: Ecosystems based fire management for effective disaster risk reduction' and will include a field trip to Knysna, visiting the area that was devastated during the June 2017 wildfires.

Globally, effective wildfire management is impeded by a lack of integration between research results, technological development and efforts by fire managers to prevent, suppress and protect the environment, human wellbeing and assets against wildfire. This event aims to streamline the efforts of natural resource managers, engineers and scientists through an integrated approach to ensure better management throughout the wildfire community by making the different role-players aware of each other's realities. You are invited to join fire managers and authorities from different disciplines and land uses such as nature conservation, agriculture, disaster management, forestry, local authorities, etc for a range of informative presentations and exciting networking opportunities.

Programme

The 2018 Fire Management Symposium promises to be a special event. Not only because of the unique setting of the venue in the heart of the Garden Route but because of the conglomeration of top rated fire management specialists whom will share their expertise in a very practical and applied manner. Dr Guy Preston and Dr Mmaphaka Tau will each be delivering a keynote address and will be supported by local fire specialists such as Prof Winston Trollope, Richard Cowling,

Etienne du Toit, Len du Plessis, Dr Ronald Heath, Dr Tineke Kraaij, Dr Christo Marais, Dr Jaap Steenkamp, Roger Godsmark and many others. The second day of the event will provide the opportunity to visit the Knysna area that was devastated during the June 2017 fires. The Southern Cape Fire Protection Association (SCFPA) will host this day. A range of service providers and equipment manufacturers will have stalls at the event.

This event presents opportunities to people from different entities and parts of South Africa to network. In addition, the world of scientists who are engaged in research will meet that of the hard-core fire manager who gets the smoke of wildfires in his/her eyes. Due to the capacity of the venue, only 200 delegates can be accepted for a specific day of the event. The event dinner will take on the form of a spit braai with live music.

For more information contact Tiaan Pool on email: tiaan.pool@mandela.ac.za or Tel: 044 801 5024 or Sonia Roets on email: sonia.roets@mandela.ac.za or Tel: 044 801 5091.

ICS: Looking at multi-agency incident approach

By Michelle Kleinhans, director, Dynamic Incident Management

What would you say if I told you that we might not fully understand multi-agency incident approach?

Given the nature of wildfires and yes, all other incidents, how quickly it can escalate, the expertise required to manage these types of incident effectively, as well as the numerous needs for these incidents. It is therefore imperative that a multi-agency approach initiative is applied to ensure effective and efficient management of the incident and the incident resources.

A multi-agency relationship is not easy to begin with; it requires time, effort and respect from all agencies for collaboration to work effectively. Multi-agency management and operational collaboration (agreement) is therefore needed to be agreed on for integrated command, control, coordination and communications for managing of all hazard incidents.

Establishing collaboration between agencies can involve the following:

- Creating personal links between the various agency contacts
- Information exchange between agencies
- Multi-agency training, exercises and awareness activities
- Share intelligence and data
- Collaborative structures and processes for a multi-agency approach
- Integrated Incident management teams to be deployed
- But the list goes on and can include: Preparedness plans, integrated command and control, interoperability communication system etc

Overall, small incidents generally only use single agencies responders (own resources) but the larger incidents, however, will require a response from multiple agencies, with each agency often using different procedures, terminology and communication and that is exactly the start of the problem during multi-agency response; there is no common operating picture or approach. A joint approach/ process and one operational plan will simplify working together to manage incidents as efficiently and effectively as possible as one team and not as separate agencies.

To just touch on the emergency operating centre concept (EOC), can be quite confusing for some people. In South Africa, we call it a joint operating centre (JOC). These centres should be activated on complex or large, multiple day incidents, to ensure control and to allow the incident commander and his/her team to manage the incident from the incident command post (ICP) with the EOC's guidance and support of the operations through the ICP.

The Knysna 2017 incident highlighted the importance of multi-agency preparedness and integrated response capabilities for any type and scale of incident in the future. In South Africa, we should take note of the lessons learnt and start to work as one team on incidents.

The successful and maintainable response to such incidents requires a multi-agency approach. Incidents of this magnitude, as well as all other incidents, need to be managed by trained and qualified personnel within the incident command system that provides functional management personnel ie command and general staff, to support and manage the incident operations and its resources; this will allow for one plan, joint decisions and multiple availability of resources.

Dynamic Incident Management specialises in incident management team (IMT) training and provides established IMTs for deployment to assist with incident management on all incidents. Our training focuses on multi-agency incident command system training on all levels and our ICS courses are endorsed by the South African Incident Command System Group (SA ICS) and are FEMA based.

These courses are of great benefit to all levels of agency personnel. They create opportunity of forming relationships among agencies from incident commander to the command and general staff of an incident management team.

We have also developed online ICS certified courses that will enable companies/students to do the theoretical side of ICS and on an agreed date and time, do a multi-agency practical exercise to complete the specific online course.

Our training is for all levels of personnel in the emergency and non-emergency environment.

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Dynamic Incident Management is a LG SETA accredited Training Service Provider and specialise in Integrated Incident/Event Management.

The importance of having trained, competent and prepared response capability from First Response to complex incident/ event management personnel is vital in all agencies for effective and efficient incident and resource management.

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GEF FynbosFire Project outcomes showcased

The United Nations Development Programme (UNDP) and the Department of Environmental Affairs (DEA) recently hosted an event showcasing the innovative outcomes of the GEF FynbosFire Project. The event was held on 15 March 2018 at the Protea Fire and Ice Hotel in Cape Town with FynbosFire Project coordinator, Tessa Oliver, leading the event.

DEA's Dr Christo Marais said in his presentation that the results of the FynbosFire Project were far reaching. "Congratulations to Val Charlton, Tessa Oliver, the FynbosFire Project team and working groups," said Dr Marais.

Val Charlton, managing director of Landworks NPC, explained the name change from Kishugu NPC to Landworks NPC and said that the FynbosFire Project took a lot of effort even prior to the funding.

The key note address by Walid Badawi, UNDP country director for South Africa commended the project steering committee on their sincere commitment adding that the "FireWise project portraits disaster risk reduction in action. Advocacy for disaster risk reduction is everybody's business."

Delegates also had the opportunity of meeting the four new FireWise community project leaders from Kranshoek in Plettenberg Bay, Goedverwacht in Piketberg, Clarkson in Tsitsikamma and Sir Lowry's Pass in the Cape Peninsula. International guests included Michele Steinberg, division manager wildfire at the National Fire Protection Association (NFPA) in the US and Lucian Deaton, project manager, International Partnership Development, Wildland Fire Operations, NFPA US.

With funding provided by the Global Environment Facility's Special Climate Change Fund, the FynbosFire Project is aimed at developing sustainable interventions to radically reform the approach to managing wildfires and to implement strategies to reduce wildfire risks. These strategies include FireWise training and exploring risk-reduction strategies with the insurance industry.

In collaboration with a number of partners, the project has encouraged the implementation of integrated fire management practices and to anticipate the impacts of climate change on wildfires. The project has supported communities living with wildfire to undertake good fire and land management practices, encouraging neighbours to work together and to take strategic action to prevent losses. This will lead to a reduction in the damage to life, property and the environment by wildfires, which in turn leads to reduced poverty and increased security.

FynBosFire Project

South Africa's draft Second National Communication (SNC, 2010) predicts the following general climate change trends for South Africa: (i) Assuming a moderate to high growth in greenhouse gas concentrations, by 2050 the coast is likely to warm by around one to two degrees Celsius and the interior by around two to three degrees Celsius. After 2050, under emissions scenarios that assume little mitigation effort, the rate of warming is projected to reach around three to four degrees Celsius along the coast and six to seven degrees Celsius in the interior and (ii) Rainfall projections for the summer rainfall region of the country show a tendency towards wetting and for the winter rainfall region towards drying.

While wildland fires are a natural feature of fire-driven ecosystems in the country, changes in climate are having adverse effects through altering the future occurrence of wildland fires and the area burned, in various ways that involve weather conditions conducive to combustion,

fuels to burn and ignition agents. The wildland fire situation has worsened significantly across South Africa during the past several years. There have been major and catastrophic fires in many areas. Land use patterns are also changing rapidly under the influence of diverse factors, including the expansion of towns and cities, causing an expanding wildland urban interface (WUI) and exposing more assets to the hazard of wildland fires.

The Fynbos Biome is identified in South Africa's Initial National Communication (INC, 2003) as the most vulnerable region in the country with respect to disaster risks from wildland fire due to patterns of urbanisation, agriculture and potential impacts upon water catchment areas. Project activities are thus spatially focused in the Fynbos Biome.

The project develops the adaptive capacity of:

1. Fire protection associations (FPAs)
2. The individual members of these FPAs
3. Communities at risk in the WUI, to more effectively manage the risks associated with an anticipated increase in impacts of climate-induced wildland fires in the Fynbos Biome.

This adaptive capacity will be improved, as a result of the following suite of complementary project interventions:

1. Expanding FPAs across the landscape and rationalising their configuration and governance arrangements
2. Adopting Integrated Fire Management (IFM) as a strategic adaptation approach to the increase in and impacts of climate-induced wildland fires
3. Equipping, resourcing, staffing, financing and training of FPAs and FPA members to implement IFM
4. Improving the quality of weather data, fire danger forecasting, early fire detection information and fire spread models
5. Mapping of annual pre-fire season risks to facilitate the implementation of mitigation measures to reduce environmental, social and economic risks
6. Developing and implementing a suite of incentives to encourage a behavioural change in landowners and communities at risk
7. Improving the information and decision-support tools required to support the implementation of IFM.

Video clips of the four new FireWise communities sharing their experience are available at: **www.fynbosfire.org.za.**

#Wildfire Ready Convention

to be held in November 2018, Western Cape

Globally, the general public have become accustomed to seeing immense wildfires destroying massive tracts of shrub and forest lands every year. Canada, Portugal, Chile, Russia, USA, Australia, Spain, South Africa and others have all experienced catastrophic fires in the last two years. The severe financial losses caused by these same fires to properties and assets are significant, as cities expand and people continue to relentlessly develop land but more than this, substantial wildfires have a pronounced long term impact on the communities and people that are in the paths of such fires.

The wildland-urban interface (WUI), a transition zone between the built and the unoccupied natural environment, is highly conducive to runaway fires and its footprint is increasing exponentially, while providing the ideal recipe for damaging and dangerous wildfires to impact upon people living and working within the landscape. In South Africa, especially in the Western Cape with its harsh Mediterranean climate, warming temperatures and uncertain rainfall, has caused some of the worst droughts in recorded history, which has sparked a range of water restrictions in many cities and towns. With the inevitable realities of climate change becoming more apparent and residential fire losses associated with wildland fires gaining both national and global attention, the need to create fire resilient communities is essential. Climate change is altering our landscapes through a combination of widespread drought, alien invasive species, poorly managed properties, and an ever increasing number of homes being built in the WUI contribute to the loss of life, property and natural resources.

Wildfires are an important and necessary ecological occurrence in many natural areas of South Africa but also present a risk to homes constructed in or next to, such areas. The growing threat of WUI fires must be addressed if we are to avoid further catastrophe in South Africa. The devastating June 2017 Knysna and Plettenberg Bay fires taught us that under extreme weather conditions, any ignition can turn into an overwhelming fire destroying and consuming everything in its path, if the landscape has not been managed in anticipation of a wildfire event.

Wildland fire managers as well as fire officers from local and district municipalities, metropolitan areas and officials from disaster management authorities will have to ensure that all fire fighters are adequately trained to deal with WUI fires on a daily basis, regardless of what kind of community they serve.

The #Wildfire Ready Convention will present contemporary practical training and dialogue about addressing, mitigating, preventing and fighting fire in today's challenging context, including demonstrations dealing with some of the tangible hazards associated with living in the WUI, how residents can help protect their properties and communities by taking informed steps before and during the wildfire season to make their properties properly defensible from the inevitable threat of fire.

A national system shift towards nationwide wildfire readiness and resilience is possible and the need to create fire resilient communities is now becoming fundamentally essential. Wildland fires are migrating into populated areas with greater frequency and severity and the #Wildfire Ready Convention will concentrate not only on how to fight these fires but share best practices for prevention and mitigation of these fire events.

Integrated fire management (IFM) and its four operational components ie reduction, readiness, response and recovery, linked to the WUI will be the distinct focus.

The #Wildfire Ready Convention focussing on the future of targeting wildfires in WUI will be the first of its kind in the Western Cape and will be hosted on the world-renowned Lourensford Wine Estate, one of the oldest and most historic agricultural farms in South Africa. The convention will proudly host both international (Canada, USA and Europe) and local fire specialists and will also provide an opportunity to discuss the disastrous wildfires that have taken place with relevance to the WUI.

Being held in late November, the convention will coincide with the commencement of the Western Cape's wildfire season where fire authorities will be in final stages of readiness. The annual opening of the Western Cape's wildfire season event will also be held at the convention where the Western Cape MEC for Local Government, Environmental Affairs and Development Planning will open proceedings where dignitaries and the media can witness a live aerial fire fighting and ground crew demonstration.

Programme

- Due to the uniqueness of the event a maximum of 300 delegates will be accepted to attend the two days of the conference
- A pre-convention two day training session on the 'Home ignition zone' will be available for a maximum of 50 participants
- A post-convention one day training session on 'Fireline safety' will be available for a maximum of 50 participants
- The 'Opening of the Western Cape Wildfire Season 2018' will coincide with the two day #Wildfire Ready Convention. This will include an aerial fire fighting and ground crew demonstration
- Selected exhibitors will also be invited to display fire fighting equipment, gear, tools, resources and vehicles during the two day convention

A detailed full programme will be circulated once finalised.

#WILDFIRE READY CONVENTION

SAVE THE DATE

26-30 Nov 2018

Official opening of the Western Cape's Wildfire Season

VENUE : **Lourensford Wine Estate**
Somerset West

LOURENSFORD
ANNO 1700

Bookings & Enquiries: sue@wcufpa.co.za

A landscape/risk management approach to mitigate against veld fires

By Malcolm Procter

The first step that must be taken in any effective risk management effort is the identification and profiling of hazards

When disaster risk is not factored into development decisions, households and farming communities become vulnerable to external threats, including weather extremes. As veld fires cause harm and damage to people, property, infrastructure, economies and the environment, the goals of sustainable development are put to jeopardy. Disaster recovery and rehabilitation efforts require enormous funds that, amidst insufficient contingency funds, are taken out from other development programmes that are planned or underway, thereby impeding development efforts.

The current planning process does not typically consider who either causes the risk or exacerbates the risk across these vast fire-prone areas or even if owners are likely or even able to reduce fuels and thus risk. Therefore, it is important that veld fire mitigation programmes are made an integral part of the developmental programme.

Landowners living in areas that are prone to veld fires face three options when it comes to mitigating against veld fires. They can:

- Solve it
- Live with it
- Minimise it

Solving it is not possible

The many incidents of fire show that attempts to control burning through laws designed to prevent uncontrolled use of fire, have failed. Others have noted that one of the consequences of fire suppression policies is an increased risk of fierce fires due to accumulation of fuel loads.

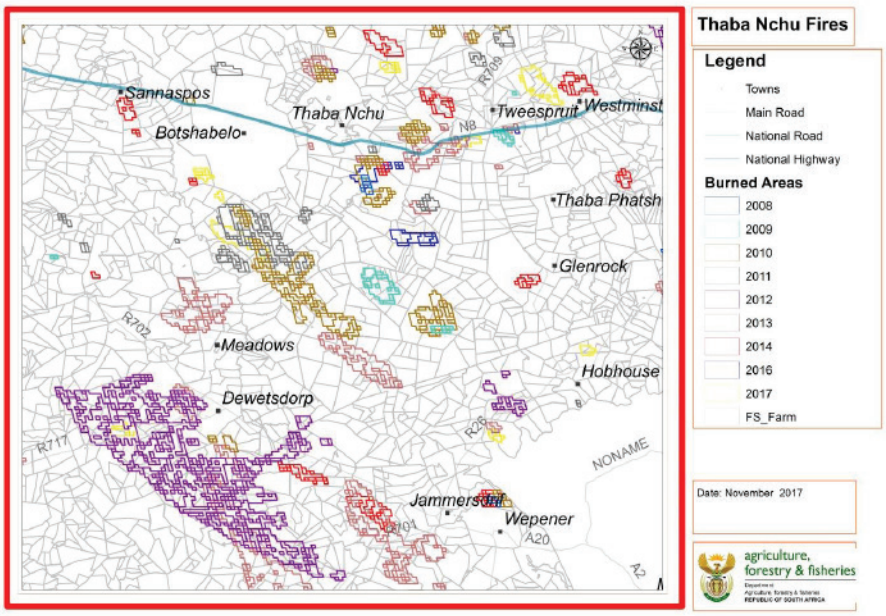
Appealing as the idea may be, there is no 'one size fits all' solution. Given that fire behaviour and resulting severity result from the combination of weather, available fuels and physical setting, the design of site-specific solutions will be highly variable. This is the case when intermittent periods of one or two days or less when the passage of cold fronts to the south and east cause strong westerly winds and very low atmospheric humidity, causing high and extreme fire danger conditions.

Realistically, fire protection associations' (FPAs) budgets are not going to allow us to 'treat' our way out of the problem by reducing fuel and prescribed burning. Furthermore, there is plenty of evidence that firebreaks alone are ineffective during extreme blow-up events that occur with the passage of cold fronts. These increasingly large fires can burn across 30 or more kilometres before they reach a community, along the way raging through a patchwork of fuels and, most significantly, property lines and differing management regimes. According to the 2017 Environmental Guidelines for Forestry Plantations in South Africa, "The current system of external firebreaks on the plantation boundaries with an internal firebreak system is not always the most efficient and cost-effective system".

Simply trying to live with it is not an option

Veld fires have a devastating impact on agriculture, running into millions of rand in damages to property, loss of life, livestock, game and grassland annually. Each time households are faced with fire, their ability to recover is severely depleted. Their assets, both social and physical, are gradually worn away by the continual incidence

of fires and recovery can take time. Even if a household is not directly affected, it may lose social capital, as family and social relations break down when people are forced to resettle or temporarily relocate elsewhere. Among people living in fire-prone areas, there is wide variation both in awareness of veld fire risk and the capacity to reduce it. Current planning efforts don't account for this variation; the area of veld fire exposure around communities is often more than 50 times larger than the community itself.



Map indicating the regular occurrence of veld fires emanating from Thaba Nchu and damaging commercial farms

The only real option is to minimise its adverse impacts

Traditionally, reducing veld fire risk has been treated as a job for the landowners or district fire brigades and planners were happy to stand on the side-lines. That day has passed and planners can and should have a more significant role in protecting communities from veld fire. Planners are uniquely qualified to assist their communities in creating a more comprehensive approach to veld fire risk; one that goes beyond structure and site design to fundamentally change the location, design and type of development in high veld fire risk zones. Exchanging information between planning and emergency preparedness agencies strengthens the work of the former and alerts the latter to elements whose vulnerability will not be reduced by the proposed development activities. The rising toll of fire losses in the wildland/urban interface reflects not just a veld fire problem but a problem of poorly planned development and planners can change that.

The impact of humans on fire regimes depends not only on their ability to manipulate fire but on the importance of this manipulation in the face of other constraints. In reconstructing past fire regimes, we therefore need to know when humans could have altered various fire characteristics and the extent to which these were limiting to fire. Part of the solution involves learning to be very strategic in how we expend the limited funding we have for managing veld fire risk. Being more strategic, starts with taking advantage of the best new science from various disciplines and combining them all together into a landscape/risk management approach.

Effectively addressing veld fire risk to communities on large multi-owner landscapes requires an understanding of the biophysical factors that influence risk, such as fuel loads, topography and weather and social factors such as the capacity and willingness for communities to engage in fire-mitigation activities. Landscape planning combines several strategies into a 'best fit option'. Local municipalities should ensure that new development is located, designed and constructed to withstand natural hazards. They should use information from hazard and risk assessments, land-use plans and zoning regulations to limit development of hazard-prone areas. Compatible uses of floodplains and other hazardous areas should be incorporated into local planning and zoning so that losses are reduced. Such areas could have a high value for recreation, open space or other community use.

Veld fire risk management opportunities can be identified by examining the juxtaposition of veld fire risk transmission and the capacity ▶

Landscape/risk management a holistic approach to managing veld fires

The risk from veld fires is exacerbated when rural housing developments exceed 45 people/km²

and likelihood that landowners will conduct mitigation activities. Biophysical-social assessments within firesheds are a key step in identifying localised comparative advantages in mitigation. Veld fire mitigation planning could partition veld fire risk within firesheds among major land ownerships according to mitigation capability. Locations where veld fire risk transmission and risk mitigation potential coincide would indicate places where the most significant opportunities exist for reducing veld fire risk. Areas where high risk of veld fire transmission coincides with low mitigation potential by landowners could benefit from targeted policy interventions, such as education and technical assistance, to facilitate efforts among private landowners to reduce veld fire hazards. Examples of this include emergency vehicle access such as driveways, turnarounds and emergency access roads, marking of roads and property address markers, approved water sources and adequate water supply.

We must consider the suite of actions required to mitigate the threat of catastrophic veld fires. In this era of big data, precise information is available on past veld fires that allow fine-scale calibration risk, the risk transmission from large fires on fire-prone, fragmented landscapes and the web of social ties among the people and communities who call these forests home. Both realms, trees and people, matter when it comes to nearly any fire risk but especially within the larger context of large fires that can burn hundreds of thousands of acres and cause huge losses around the wildland-urban interface (WUI).

A locally adopted system based on fuel load management designed to create a pattern of adjoining areas/farms that have no fuel or a reduced fuel load that will stop a fire or reduce it to that of a moderate fire and serve as a buffer zone from where successful ground and aerial fire fighting can take place, should be considered. Landscape planning policies are most effectively applied at the local (sector) level when there is cooperation and collaboration between all levels of government. It is important that there is an integrated approach to decision making and a strong partnership between local Government, FPAs and the community. This requires planning at a local or FPA level.

The process must be action-oriented with an evaluation method that is both risk-based and cost effective. Beyond the expected fuel reduction actions, the suite of activities may include changes in policy or procedures at all levels of government. However we proceed, we must look for solutions that yield financial returns that help offset costs. Our goal should be to establish fire-resilient landscapes and fire-adapted communities that can withstand veld fire without the damage and danger currently being experienced.

Ecosystem services are essential in mitigating against risk and vulnerability and building resilience, while changes in these may result in increased exposure to risk and consequently greater vulnerability. Ecosystem management requires a landscape-scale approach to planning, managing and restoring ecosystems and not simply a focus on small-scale site impacts.

A landscape approach recognises the need to include grassland conservation with the management of crop production across the entire landscape. Conservation actions should focus on maintaining the functional ecosystems, the animal and plant assemblages and ecological structures. This means that the grasslands on an estate can be managed and maintained in as near a natural state as is practicable, allowing for connectivity between the grasslands across the landscape through neighbour agreements. This allows the maintenance of ecological structure that operates at a larger scale than just estate level. Even grasslands that have a reduced number of grass species as a result of overgrazing, can still allow for the maintenance of ecological structure.

The first step that must be taken in any effective risk management effort is the identification and profiling of hazards. It is only logical that a manager concerned with treating a community's risk must first know what hazards exist and where they exist. Understandably, it is impossible to plan for or prevent every possible contingency, so most government and other organised emergency management entities will focus their efforts upon those hazards that would be likely to result in the greatest undesirable consequences.

The goal of hazard identification is to establish an exhaustive list of hazards upon which further analysis can be performed. Again, it is not the concern of those identifying the hazards to consider what their likelihood or consequences may be. This is a process in which more is definitely better. It describes a new way of defining veld fire protection planning boundaries based on the scale of veld fire risk, rather than administrative and political boundaries. Communities show their

Landscape management can be used to identify 'Koppies' in the landscape that could be programmatically burnt out in a quarter year rotation creating islands where lower fuel loads exist.

Policies would also identify areas where one can fight veldfires on the terrain of ones choosing.

strength when pulling together after a disaster; the challenge is to revise the way we approach and deal with fire risk so that communities can pull together to take action before a disaster and adopt a proactive approach instead of a reactive one. This hazard data is the foundation on which natural hazard mitigation plans are developed.

Synthesising risk assessment results according to the location dimension allows for the landscape to be zoned according to broad strategic response categories. This process is not dissimilar from past practices that stated objectives and appropriate responses at the administrative fire management unit level but with the explicit intention to create zones that are spatially logical relative to landscape attributes, fire management operations and assessed risks and that therefore translate more clearly to fire management objectives and response guidance.

Highly detailed veld fire risk maps can assist in the planning of desired land uses that reduce communities' veld fire risks. By identifying areas where veld fires are likely to occur, risk maps help prioritise areas of concern and guide decision making efforts. Veld fire risk maps are a data visualisation tool very useful to present the results during the risk assessment process and therefore to establish planning and management guidelines. More specifically fire risk maps offer a format of lighting a more efficient allocation of existing fire-prone areas within a landscape in which management practices are required to reduce the likelihood and potential negative impacts of veld fires. Planning would delineate those areas on a map enabling planners to develop a serial of requirements that all planning strategies within the fire-hazard area must follow.

Land can be designated eg by zoning or classification to reflect the most compatible uses appropriate for the environment. For example, in areas of an identified hazard or high risk, development may be prohibited, restricted or designed in such a way to mitigate impacts. The designated area can then be suitably managed using the direction of the plan or planning scheme and specific development and building controls.

Landscape management planning should ensure that fire plans are up to date and check that fire fighting equipment is operative at the required moment. Such fire plans would include contact details of key people able to assist during the emergency; location of equipment such as all-terrain vehicles, fire beaters etc; prioritisation of key infrastructure and landscapes to protect; location and seasonality of nearby water resources; information of tracks that are suitable or not for dispatching in a given fire event. Thus, fire rescue services can plan in advance by positioning equipment where it is expected to be required and sharing assets across regional borders.

Landscape management planning would promote proactive policies and practices in order to save lives and protect properties and resources before the hazard occurs, while dealing with fundamental practices of mitigation, preparedness, response and recovery. Included in the concept of risk management planning is the basic assumption that the impact of disasters can be avoided or reduced when they have been anticipated during development planning. Mitigation of disasters usually entails reducing the vulnerability of the elements at risk, modifying the hazard-proneness of the site or changing its function. All in all, the necessity to integrate veld fire prediction in territorial-scale planning emerges as it helps to face a more efficient veld fire risk management and share responsibilities among all relevant stakeholders.

It is the FPA and its stakeholders in conjunction with land use planners who are best at assessing their current condition and finding solutions that work; no other entity can accomplish local planning for a community. The resilience and coping mechanisms of communities affected by disasters have demonstrated the importance of local and traditional knowledge in the reduction of risk and the effects of hazards. Landscape/risk management will assist the insurance industry in quantifying the risks ie to life, property and possessions to policyholders of extreme weather-related veld fire events, including the probability of a destructive veld fire, the exposure and vulnerability to that veld fire and the potential cost of being affected by that veld fire.

Hazardous materials: flammable solids, oxidising agents and organic peroxides

By Colin Deiner, chief director, disaster management and fire brigade services, Western Cape Government

The warehouse in Tianjin was storing mainly ammonium nitrate, potassium nitrate and calcium carbide at the time of the blasts. Chemical safety experts said the explosion could have been caused when fire fighters sprayed the calcium carbide with water. More than 50 fire fighters died.

This is the fourth article in our series on responding to specific classes of hazardous materials. I have decided to include two classes in this month's article namely (1) Flammable solids, which also includes substances liable to spontaneously combust and substances that in contact with water emit flammable gasses and (2) Oxidising agents and organic peroxides.

1. Flammable solids

Flammable solids are amongst the most common hazardous materials, yet, a relatively small percentage is included in the UN hazardous substances classification. The first classification includes flammable solids, self-reactive substances and desensitised explosives such as the types that are wetted down with sufficient water, alcohol or plasticiser to suppress their explosive properties eg Trinitrotoulene, Nitroglycerine mixture.

Readily combustible solids include solids that are capable of causing a fire through friction (safety matches) and celluloid. Also included are self-reactive materials that are thermally unstable are prone to undergoing a strong exothermic decomposition even without the presence of oxygen. Materials that meet the UN Transport Regulations definition of explosive, oxidiser or organic peroxide are excluded from this classification.

The second classification of flammable solids includes those solids that are liable to spontaneous combustion. These include substances that are liable to spontaneous heating under normal transport conditions or will have an exothermic reaction when it comes in contact with air.

Spontaneously combustible solids include (1) pyrophoric materials, which are materials that are capable of igniting, without being exposed to any external ignition source, within five minutes of being exposed to air eg UN 1854 Barium alloys, and (2) Those self-heating materials that exhibit spontaneous ignition or can self-heat to temperatures of 200 degrees Celsius during a 24-hour period in the presence of air but without any external energy supply eg UN 2002 celluloid.

The third classification includes substances that emit flammable gasses when they come into contact with water. Example of this classification includes Aluminium phosphide (which releases phosphine gas), Calcium carbide (emits acetylene when in contact with water) and Sodium.

Health hazards

The primary health risk of exposure to flammable solids is the inhalation of dust powder particles of certain types of these materials. Particles such as ▶

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Powered by the A TEAM

A FedEx trailer in Montana, US carrying six one-pound containers of organic peroxide, caught fire and exploded three times before fire fighters arrived at the scene

The most important operational consideration is to make sure that you know what the reaction of the substance will be before deciding to apply any extinguishing agent

- Sodium metals react with the moisture in the lungs to form a caustic solution that will damage sensitive lung tissue.

There is a further risk of chemical burns when certain metallic dusts come into contact with body moisture. It is therefore important for responders to stay clear of any smoke columns that may contain by-products of the burning metal.

Managing the incident

The most important operational consideration would be to make sure that you know what the reaction of the substance will be before deciding to apply any extinguishing agent. Make sure that the relevant safety data information for the product is at hand and that the correct extinguishing or controlling agent is available in sufficient quantities before starting the operation.

A flammable solid spill can be relatively easily managed by covering the spilled product with tarps or heavy plastic sheeting and to ensure that it does not come into contact with water. Regardless of the condition of the product (fire, dust) always ensure that responders have adequate respiratory protection available.

Most actions involving flammable solids will be based on letting the incident stabilise through fire or just exercising control over the spilled product and could be handled relatively easily.
A dust propagation will increase the surface area of a combustible solid and enhance the ease of ignition. A flammable gas-air mixture can form within certain limits and the resulting explosion will be similar to a gas explosion. Although dust explosions are rare, they can propagate an enormous energy release.

Preventing a possible dust explosion in a flammable solid environment will require a strict control of the environment where the spillage occurred. Firstly, all ignition sources need to be eliminated. Try to avoid or limit disturbing the dust and attempt to control the dust concentrations. This can be done by using hoselines to 'water down' the particles of a product that is non-water reactive.

2. Oxidising agents and organic peroxides

The best known oxidising agent we know is air, which is necessary for all combustion to take place. There are, however, a number of other substances that are able to propagate large volumes of oxygen, thereby accelerating a burning process and, if uncontrolled, have disastrous results.

Oxidising agents are generally defined as 'substances that supply oxygen to another substance' or 'substances that supply any supporter of combustion to another substance'. The first definition would be more relevant to our purposes, however, large quantities of other supporters of combustion ie Chlorine, Fluorine and Bromine may also be encountered and should therefore form part of the preparedness planning for fire department hazardous materials (hazmat) teams.

In order for a product to be classified as an oxidising agent, it must conform to the following criteria:
- It must itself contain oxygen and
- It must be capable of supplying oxygen to another substance

Sodium chlorate is a good example of a powerful oxidising agent, while although Calcium carbonate and Calcium sulphate contain at least as much oxygen as Sodium chlorate, they are not capable of transferring their oxygen to another substance.
Oxidising agents can further be classified into organic and inorganic

oxidising agents. The most common of these is the inorganic. Although they are classified as non-flammable, certain types ie Sodium chlorate and Ammonium nitrate, will decompose rapidly and present a major risk when stored or transported in an enclosed area in large quantities.

Products classified as organic oxidising agents are organic peroxides, which are commonly used as catalysts used in the manufacture of plastics ie Dibenzol peroxide, methyl ethyl ketone peroxide. Where inorganic oxidising agents are non-flammable and only provide the one side of the fire triangle ie oxygen, organic peroxides are also capable of burning and therefore provide two sides of the triangle ie oxygen and fuel.

Hazards

The main fire hazard related to inorganic oxidising agents is when the agent comes into contact with flammable materials. The oxidising agent will slowly provide oxygen to the fuel at first. This exothermic reaction will cause the temperature to rise gradually until it reaches its ignition temperature and then starts to burn. As when highly concentrated Hydrogen peroxide comes into contact with wood, the spontaneous combustion occurs almost immediately. Other spontaneous combustion reactions can take slightly longer eg glycerol coming into contact with Potassium permanganate and finally, the well-known example of rags soaked in linseed oil being exposed to atmospheric oxygen can take quite a while to combust.

The risk is not only limited to spontaneous combustion but can manifest when a fuel starts to burn in the presence of an oxidising agent. The fire is then not reliant on ambient atmospheric oxygen to burn but is fed by the oxidising agent, which ensures the presence of oxygen in a highly concentrated form eg if a cellulose material such as a wooden floor or shelving becomes impregnated with an oxidising agent such as Sodium nitrate.

The heat energy generated through the self-decomposition of an organic peroxide such as methyl ethyl ketone peroxide exceeds 50 degrees Celsius. Others are significantly lower and must be stored in refrigerated conditions. These peroxides, if heated, can become sensitive to heat, shock and friction. Due to the instability of these products, they are normally stored in a diluted state by adding a chemically inert material, generally at 50 percent relations. This is also how they will in all possibility be encountered. Even in this state, certain products can still ignite and burn fiercely.

Fire fighters died in Tianjin explosion because they didn't know what was inside

In addition to its fire risk, several concentrated oxidising agents also hold a corrosive and toxic risk. The skin and eyes are specific areas, which could be affected.

Responding to the incident

Incidents involving organic peroxides and oxidising agents will require a full hazmat team response and access to a comprehensive database of the products you might encounter.

The most important consideration will be to appreciate the unpredictability of the product involved. As with most hazmat incidents, approach the incident in a defensive mode. Be alert for possible violent container failure eg perecetic acid could detonate if its concentration exceeds 56 percent; this could happen if the container is stored incorrectly and the product is allowed to evaporate.

If it is possible, efforts must be made to separate the affected product from the fuels. Water streams can be used to cool down containers and consider ventilation if the containers are in a confined area. If the product is involved in a fire, the choice of extinguishing agent must be carefully considered. The challenges that certain water reactive products may provide, must be an important consideration. Also take into account the potential environmental impact of any fire fighting operations.

Fire fighting of organic peroxides must be done from a safe area. The surrounding area should be evacuated of all non-essential personnel. Placement of ground monitors should also be considered.

Note the danger of mixing combustible products with water containing dissolved oxidising agents, which might spontaneously combust later on after the water evaporates.

In closing

Incidents involving flammable solids, oxidising agents and organic peroxides will not happen often. It is generally fairly easy to identify the sites where these incidents might take place. Transport route response planning will also give you an indication of what hazardous materials might be travelling through your area of jurisdiction. As mentioned a few times in this article, knowing the properties of the products you are dealing with and understanding their reactivity with water, air and other elements is what will give you the critical advantage when responding to this type of hazmat incident.

The changing environment

of world technology

By Neville van Rensburg and Julius Fleischman,
World Rescue Organisation (WRO) assessors and members

With this discussion we want to focus on how new vehicle technology development can affect emergency services and how training departments need to prepare for the new car materials and challenges rescuers will experience.

These days, handbooks go out of date very quickly but some basic approaches are timeless. The world of technology changes at a fast pace and rescue instructors need to practice and do research on a daily basis to enable them to stay abreast of technology development.

According to reports in the Financial Times, venture capital investment into batteries has hit a record $1bn this year as companies race to develop better technology to power electric cars and store renewable energy from the wind and the sun. The funding highlights the surge of interest in battery technology as carmakers race to develop the next generation of electric vehicles that can compete with their petrol counterparts. The new battery technology would allow for an increase in distances travelled with reduced charging times compared to current lithium-ion packs.

The popularity of electric and hybrid vehicles has increased over the last few years, with more plug-in vehicles on the road internationally. This huge increase in electric and hybrid vehicles in 2018 has come about because of a wider choice available for drivers, a shift in the public's attitude towards electric cars and a constantly improving public recharging network.

The future is bright too with the number of plug-in vehicles dramatically increasing, which means that it has become imperative for rescue instructors to stay abreast of this changing environment and for students to study and train in this field, especially those dealing with vehicle extrication at accident scenes.

These days we encounter a wide variety of car body materials in the vehicles involved in accidents. Manufacturers focus more on reducing overall vehicle mass/weight cars and trucks that are cost effective and safer for the people when involved in accidents. Emergency staff needs to understand the advantage and disadvantage of each of the manufacturing materials when disentangling vehicles while responding to motor vehicle accidents. Knowledge of the variety of composite materials, foams high-strength steels, light alloys such as aluminium and magnesium alloys, is essential.

These materials and reinforcements add great strength in key areas of the vehicle and yet the vehicle's construction allows the vehicle to crumple, crush and absorb energy from the front and rear, further reducing

the already limited interior space for rescuers to work. The developments in the manufacturing materials used in new vehicle technology over the past couple decades has resulted in more light-weight, stronger, harder and improved performance characteristics. This is also not just the materials in the vehicle body but include the engine, chassis, wheels and many other parts.

The past several years have seen steady increases in the use of high-strength steels that are referred to as high-strength, low-alloy steels. These materials formed the basis of ultra-light steel auto body (ULSAB). The ULSAB car body demonstrated a 19 percent mass reduction in a body structure that had superior strength and structural performance. Comparable mass reductions and other benefits were achieved for doors, bonnets and the hatchbacks.

There are a wide variety of aluminium used in the manufacturing of vehicles including the engine, gearbox, chassis and body structure. Audi is a good example. The use of aluminium can potentially reduce the weight of the vehicle body. Aluminium usage in automotive industry has grown within past years. In the automotive powertrain, aluminium castings have been used for almost 100 percent of pistons, about 75 percent of cylinder heads, 85 percent of intake manifolds and transmission. For chassis applications, aluminium castings are used for about 40 percent of wheels as well as for brackets, brake components, suspension, steering components and instrument panels. Aluminium is used for body structures, closures and exterior attachments such as crossbeams, doors or bonnets.

We can also look at magnesium, which is another light metal that is becoming increasingly common in automotive manufacturing to lessen the overall vehicle mass. Magnesium is 33 percent lighter than aluminium and 75 percent lighter than steel/cast iron components.

These are just some of the new developments in vehicle manufacturing that we need to consider as rescuers. What is clear is that we, as educators who train emergency staff that respond to vehicle accidents, continue researching and learning about new developments in vehicle technology. It is vital that we train and teach on both new technology but also on older technology as many older vehicle models are still on South Africa's roads.

Emergency responders need to understand both old and new technology developments when dealing with extrication and accidents scenes.

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Credit: Photos by Ron Moore

New Sapphire Plus 70 bar system

launched by Johnson Controls for improved fire safety

Johnson Controls introduced an innovative 70 bar gaseous fire suppression system, enabling higher fill densities at an increased pressure, reducing footprint, installation costs and service time. Part of the proven Hygood Sapphire range, Sapphire Plus is designed to optimise fire safety performance in high value areas, such as power plants, telecommunications, aviation, transport, IT, medical facilities and museums. In addition, Sapphire Plus is UL Listed, FM approved and European Standard (EN) compliant, allowing complete confidence in its fire suppression capability.

Leading the market, the Sapphire Plus system will deliver an increased container pressure rating of 70 bar, a substantial increase from traditional Sapphire 25 and 42 bar pressures. The greater pressure allows fill densities of up to 1,4kg/l, reducing the number of containers required. It also enables extended pipe runs, above 100 metres, meaning the containers can be stored further away from the protected space. As a result of the increased pressure capability, multiple hazards can be protected from a single container bank, through the use of selector valves, helping plant and facility managers save valuable costs and reduce installation time.

The new system has also been developed to include all approvals and listings in one single global platform, without the need to switch to a different equipment range to suit regional variations in the accepted approvals and listings. Benefits therefore include compliance with all national and international standards such as EN 15004, ISO 14520 and NFPA 2001.

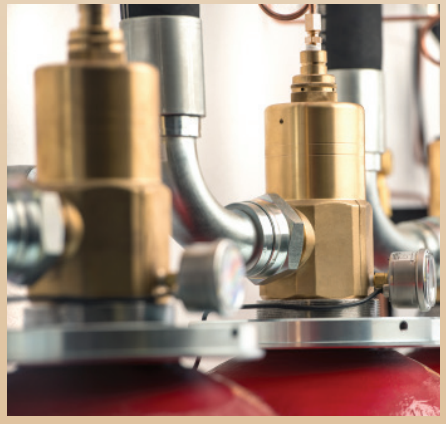
The new Sapphire Plus gaseous fire suppression system has been specifically developed to help suppress fires quickly and easily in areas with valuable equipment, where other technologies could be less effective. Sapphire Plus provides protection to high value assets, resulting in less damage, reduced downtime and lower installation costs. With zero ozone depletion potential, a global warming potential of just one and a high margin of safety, it is also a safe choice for both people and the environment.

Sapphire Plus delivers 3M Novec 1230 Fire Protection Fluid, a clear, colourless agent that vaporises on discharge, absorbing heat and providing total flooding to suppress fire. With automatic detection and an extended temperature range, from –18 degrees Celsius to 65 degrees Celsius, the new system is ideal for use in the protection of high value assets, such as in power generation plant control rooms across the world, 24 hours a day, seven days a week.

The Sapphire Plus system offers a greater degree of flexibility than with lower pressure systems, helping with the design of selector valves systems and offering opportunities for the containers to be stored remote from the protected hazards. The high safety margin of Novec 1230 Fire Protection Fluid would be particularly useful if standardised container fills are used in a selector valve system designs, resulting in more agent being deployed in some of the protected hazards.

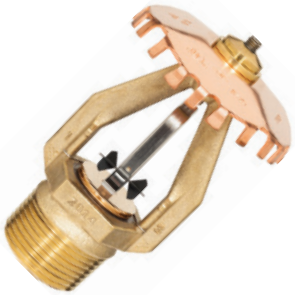
Miguel Coll, product director for Engineered Systems, Johnson Controls, comments, "With the launch of Sapphire Plus, we aim to set new standards in fire protection. An extension of our reliable Sapphire range, the new system will allow greater design flexibility in high value assets while offering the same proven fast acting fire suppression."

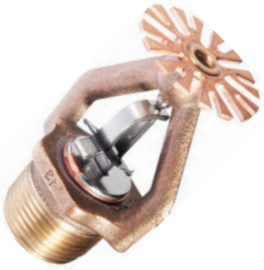
To coincide with the launch of the new system, Johnson Controls is also introducing an interactive tool, to demonstrate how Sapphire Plus can bring benefits to both large and small high value areas. Users can apply the tool to help plan the best fire suppression solution for the environment.

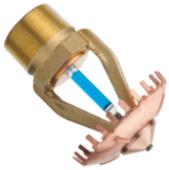


tyco

The whole spectrum of fire suppression.







Now you can have it all from one trusted partner.

Coverage for the tallest ceilings and narrowest aisles. Compliance with the highest safety standards and regulations. Designs that consider the future requirements of your facility. Meet all your fire protection and suppression needs with our comprehensive storage solutions, including the new **ESFR-22** sprinkler.

See the entire lineup at www.Tyco-Fire.com/Storage

Johnson Controls

NDMC holds fifth annual National Fire Safety and Prevention Summit in Potchefstroom, North West

The Department of Cooperative Governance's National Disaster Management Centre (NDMC) held its fifth annual National Fire Safety and Prevention Seminar in Potchefstroom, JB Marks Local Municipality, from 27 February to 2 March 2018 in the North West Province in South Africa.

Aptly themed, 'The strategic role of fire services in building community resilience to hazards in a changing climate', the objective of the seminar was to provide a platform for interactive dialogue amongst fire safety and prevention practitioners and professionals in order to contribute to the national fire risk reduction agenda.

The four day seminar, which was attended by over 130 delegates, saw the first day being spent training on bylaw-making powers and the duties of local government and passive fire protection systems, which was presented by the North West University and Hilti respectively.

The following three days were bumper-packed with presentations and an afternoon spent visiting sites around the JB Marks Local Municipality with groups having a chance to inspect the buildings for fire safety compliance/ irregularities and reporting back on their findings.

While several topics were presented at the seminar, the following are some of the notable ones:

- The legal status of SANS 10400 and an overview of Rational Design (BS7974)
- The threats posed by mine waste water to communities and the environment
- Local capability to manufacture personal protective equipment (PPE) for fire fighters
- Lightning safety
- Encroachment on Eskom servitudes
- The impact of drought on fire fighting function and fixed water based fire suppression systems
- Incident management systems
- National building regulations
- Dolomite risks
- Veld fires and landscape planning
- Veldfire law enforcement;
- Community risk reduction: A case for the use of smoke alarms in informal settlements
- School Emergency Response Team (SERT) and
- Lessons from the Knysna fires.

As part of this seminar, fire safety officers inspected several high fire risk facilities within the JB Marks Local Municipality. Facilities that were inspected include the local magistrate court, boarding schools, old age homes, hospitals and other fire prone establishments. Fire safety reports with key recommendations emanating from the assessments were handed over to hosting municipality, JB Marks, for further processing to ensure improved compliance that will result in reduced fire risks and losses within the municipality.

The rising tide
lifts all boats, sometimes

By Wayne Bailey

Just recently, I was river boating down the Danube River that ran through Budapest. The ship's length was 110 metres, its width 11,4 metres with a load draft of 1,6 metres and a crew of approximately 35 men/women and 150 passengers. We were constantly going through river locks.

As we motored down the river, we would pull into a lock with concrete sides and metal gates front and back. Once inside, both gates locked in place, the gate would then open slightly in front, allowing the water to rush out down river to the new lower level so to equalise and allowing us to continue our trip down river. When we returned back up the river, the reverse happened and then that's when it hit me.

We were not the only boat in the lock. There were four other boats our size in the lock. As the boats were lifted to the new water level, water was forcing the boats upwards to the river level, sometimes three times the height of the boat itself. The water lifted our boats with the same effort it lifted the other three boats. Much like the old saying, "The rising tide lifts all boats." What can we learn from this?

The effort to raise one boat versus four boats is the same. When everything is going well in your department, everyone is getting along, a lot of this has to with leadership over the entire department, engine, rescue, EMS and or ladder company. Your smile, being positive, being upbeat lifts everyone, just like the ships in the lock, not just one person.

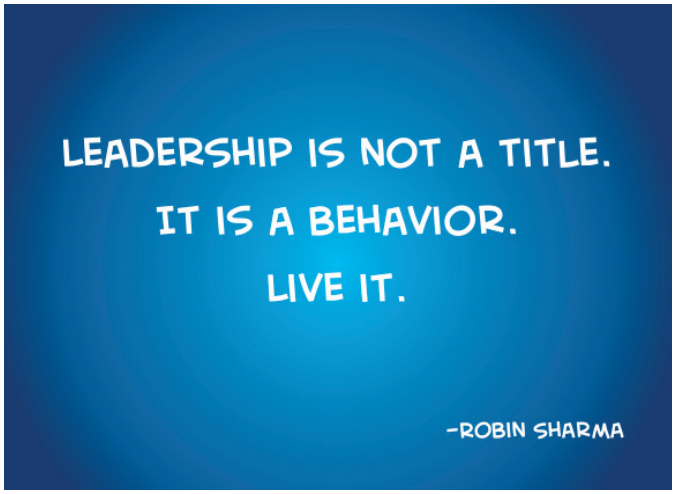
The knowledge and attitude you bring to work every day should be uplifting to everyone or at least the ones that want to be lifted. In the quote, "The rising tide lifts all boats" should read, "The rising tide lifts all boats and there will be ones left on dry land" and that's okay. Some will come along and some will not.

When you are teaching someone new knowledge, it takes as much effort to teach one as it does to teach 10. Whenever the opportunity shows itself, make teaching opportunities available to others in a classroom, entire engine company or by using online


Wayne Bailey

platforms such as Facebook Live and zoom to other stations. Work smart, not hard.

In closing, study the picture with this article. All tides do raise all ships; however, make sure you're in a safe location when you go to low tide. Don't isolate yourself or neglect to take directions otherwise you will find yourself stranded on dry land.



Smokejumpers

The training, versatility and agility enable smokejumpers to provide leadership capable of establishing command structure, situational assessment and tactical and logistical support for extended fire and all-risk operations

Smokejumpers are wildland fire fighters who parachute to the site of a forest fire. Through this method, fire fighters are able to reach remote areas quickly and combat wildfires before they get out of control. Smokejumpers must be in top physical condition and attend regular training courses. While smokejumping is risky business, it's an effective tactic in many wildfire cases.

Smokejumpers are a highly skilled, rapid response and operationally focused fire resource that provide initial attack suppression on emerging fires and fill a variety of roles on longer duration project fires and wildland-urban interface fires. Their training, versatility and agility enable them to provide leadership capable of establishing command structure, situational assessment and tactical and logistical support for extended fire and all-risk operations.

Smokejumpers are employed in large numbers by the Russian Federation and the United States Forest Service and Bureau of Land Management. Russia maintains more smokejumpers than any other nation in the world (several thousand) and claims the longest history of established smokejumping of any nation, reportedly established in 1936 while smokejumping in the United States was established in 1939.

Russia

The Avialesookhrana, Russia's aerial fire fighting organisation, first began experimenting with paratroopers in 1934 under the direction of GA Mokeeva. Initially, these smoke jumpers landed in populated areas to alert local communities and mobilise local fire fighting services to combat the wildfires; these experiments were very successful. The agency replaced their outdated PO-2 and W-2 aircraft with the multipurpose An-2 in 1952 and has used it since. This new plane allowed the Avialesookhrana to carry both smokejumpers and aerial fire retardants in the same craft, significantly reducing the time it took to effectively suppress a wildfire.

Holding a quarter of the world's forest, Russia faces a daunting number of wildfires; between 20 000 and 35 000 each year. With more moxie than money, the world's first and largest aerial fire fighting force snuffs wildfires across 11 time zones. Fires may burn undetected and unchallenged in the most remote areas but the country's 4 000 smokejumpers put out thousands that no one else can reach.

As many as 20 fire fighters can rappel to a fire from a turbo-powered Mi-8 helicopter but the Russians haven't forgotten their roots. They also parachute from decades-old biplanes, much as they did when they pioneered smokejumping in the 1930s.

USA

In the USA, prior to the full establishment of smokejumping, experiments with parachute insertion of fire fighters were conducted in 1934 in Utah and in the Soviet Union. Earlier, aviation fire fighting experiments had been conducted with air delivery of equipment and 'water bombs'. Although this first experiment was not pursued, another began in 1939 in Washington's Methow Valley, where professional parachutists jumped into a variety of timber and mountainous

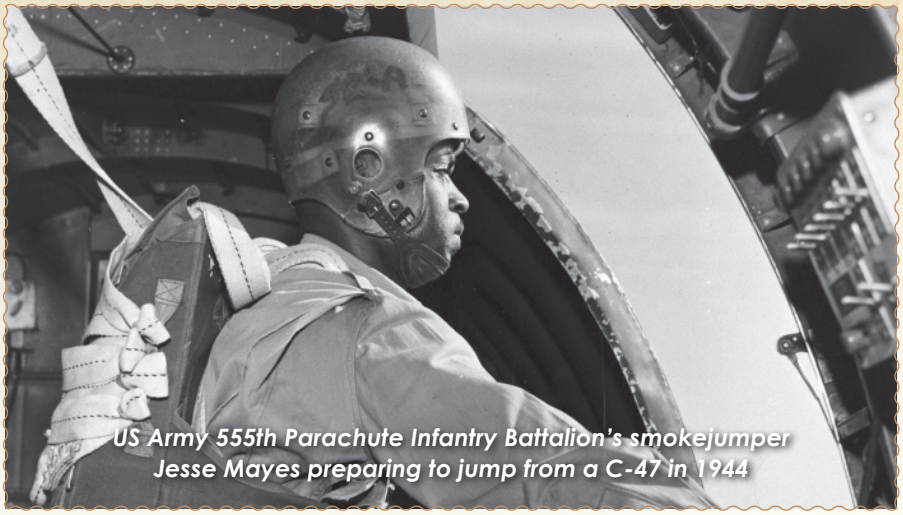
Francis Lufkin ready for his first jump during the 1939 experiment in pioneer smokejumping. A local fire guard, Lufkin controlled the North Cascades Base from 1940 until his retirement in 1972.

terrain, proving the feasibility of the idea. This also saw the first US Forest Service employee jumper, Francis Lufkin, who was originally hired as a climber, to extract the professional parachutists from the trees. It is believed that he made this first jump on a dare from the parachutists.

The following year, in 1940, permanent jump operations were established at Winthrop, Washington and Ninemile Camp, Montana, about thirty miles northwest of Missoula. The first actual fire jumps in the history of smokejumping were made by Rufus Robinson and Earl Cooley at Rock Pillar near Marten Creek in the Nez Perce National Forest on 12 July 1940, out of Ninemile, followed shortly by a two-man fire jump out of Winthrop. In subsequent years, the Ninemile Camp operation moved to Missoula, where it became the Missoula Smokejumper Base. The Winthrop operation remained at its original location, as North Cascades Smokejumper Base.

The first smokejumper training camp was located at the Seeley Lake Ranger Station, over 100 kilometres northeast of Missoula. The training relocated to Camp Menard in July 1943. Here, when not fighting fires, the men spent much time putting up hay to feed the hundreds of pack mules that carried supplies and equipment to guard stations and fire locations. In order to work fires, men, organised into squads of eight to fifteen, were stationed at six strategic points, also known as 'spike camps'.

Much time and energy was spent on developing equipment and parachutes. There were a number of frustrating, agonizing situations that had to be worked out. In the end, the training outfit that was selected consisted of a nine-metre Eagle backpack chute and a eight-metre emergency chestpack chute, with quick-attachable harness. A two-piece felt-padded suit, with a pocket on one trouser leg to hold a rope for letdowns from trees and obstacles, a football helmet with a wire mesh face mask, athletic supporter, ankle braces, a wide leather and elastic belt to protect against back and abdominal injuries, and heavy logger boots completed the jumper outfit and provided protection for the hazards of jumping into timber.



US Army 555th Parachute Infantry Battalion's smokejumper Jesse Mayes preparing to jump from a C-47 in 1944

US history

1917-1933: Aircraft is first used in fighting fires

Before the idea of smokejumping even entered anyone's mind, the US Forest Service was already using aircraft to detect and survey wildfires. During the 1920s, several attempts were made to put out wildfires by dropping water or foam from planes. Unfortunately, the results were less than impressive but with new technologies came new hope. By 1925, fire fighters were using aerial photography and in 1929, departments were sending free-falling supplies to fire fighters on the ground.

1934: Smokejumping is first suggested

By 1934, the military and thrill-seekers were already employing parachutes for non-emergency jumps. It was in this year that TV Pearson, the US Forest Service intermountain regional forester, suggested parachuting in fire fighters to combat fires in remote locations. After a few demonstrations, however, the idea was abandoned as it appeared too risky.

1935-1939: Smokejumping proves more practical

In 1935, the US Forest Service established the Aerial Fire Control Experimental Project. This involved experimenting with dropping water and cargo via parachute onto a wildfire site. While these experiments proved impractical, the tests on parachuting in cargo paved the way for advances that would make smokejumping an ideal tactic.

By 1939, The Aerial Fire Control Experimental Project had realised the potential of parachuting and in the spring of that year, David Godwin led the parachute jumping project in Winthrop, Washington. At that time, seven experienced jumpers and two other locals joined the project and they completed 60 successful live jumps in the forest near their base.

1940-1941: Smokejumping sees its first operational seasons

In 1940, the Parachute Project was in full swing with six smokejumpers based in Winthrop and another crew of seven in Moose Creek, Idaho. Over the course of that year, nine fires were jumped that resulted in saving an estimated $30 000 worth of damage.

By 1941, the program totalled 26 jumpers and the entire project was moved to a centralised location at ▸

- Missoula, Montana, home of Johnson's Flying Service, which supplied pilots and aircrafts for the project.

1942-1945: WWII reduces access to qualified personnel but the programme prevails

Thanks to the demands of WWII, the smokejumper project slowed down during the 1940s and involved a lot of training for inexperienced jumpers. While more smokejumper bases were established during this time, qualified personnel were limited. In 1942, only five of the previous years' jumpers returned and another 33, mostly without any fire experience, were trained.

By 1943, personnel were depleted to a point where only five jumpers including the instructor were available. However, inquiries from draftees in public service camps rolled in, allowing the programme to train 70 more smokejumpers from the Civilian Public Service and another 25 from the US Coast Guard, the Canadian Air Observers School and the US Air Force for pararescue work.

By 1944, the Civilian Public Service smokejumper programme had a team of 110 jumpers. In the same year, the US Forest Service officially adopted the smokejumper project.

1946-Present: The Smokejumper Programme grows in popularity and acquires new resources

After the war ended and thanks to the US Forest Service adopting the programme, smokejumping grew in popularity. By 1958, the project grew to 398 smokejumpers. While new bases have been established since then, the number of smokejumpers at any given time has consistently hovered around 400. Throughout this time, technological advances have improved the programme. In the 1970s, for instance, the Bureau of Land Management experimented with Ram-Air style parachutes, which were better for the Alaska terrain.

During the 1980s, smokejumpers were being utilised nation-wide, the US Forest Service employed the first woman smokejumper and smokejumper pilot and the 200 000th parachute jump was made.

Today, the US Forest Service and the Bureau of Land Management, among other organisations, rely on the skills of smokejumpers. While technological advances have helped make smokejumping a reliable tactic for fighting wildfires, smokejumpers are using many of the same concepts first suggested back in the 1930s.

The key differences between the United States Forest Service (USFS) smokejumper and Bureau of Land Management (BLM) smokejumper programmes are the size and types of fires they theoretically set out to combat. The US Forest Service (USFS) jumpers typically work on land managed by the Forest Service, including national forests and big timber in the lower 48 states.

The BLM jumpers in Alaska work on BLM land in the black spruce trees of Alaska, where thousands of square kilometres of wilderness are managed by the BLM. The USFS programme is also hundreds of jumpers larger.

In the Great Basin, the smokejumpers go on 'range' fires, where short, stubby sagebrush or Piñon Juniper burns on more open terrain. The terrain that's home to the Great Basin Smokejumpers includes


Smokejumper training photo by Phil Stanley, 1945

Nevada, Utah, Western Colorado, Southern Idaho, Wyoming and Eastern Oregon.

However, during a busy season, any smokejumper from any base and from either the US Forest Service or Bureau of Land Management will jump a fire depending on need and fire activity. Flexibility is key to being a smokejumper. In fact, flexibility is why the Great Basin Smokejumpers grew from BLM jumpers in Alaska. The first BLM jumpers in the lower 48 states came from Alaska to Boise to provide manpower boosts to the lower 48 and eventually they formed a permanent base. While the first smokejumpers in the United States jumped in 1940 under the US Forest Service, BLM's smokejumper programme was only founded in 1959 in Alaska, the same year Alaska became a state. It wasn't until 1986 that the Great Basin Smokejumpers came to be, situated at the National Interagency Fire Centre (NIFC) in Boise. The NIFC is the national nerve centre in coordinating wildland fire fighting efforts and it houses eight different fire fighting agencies.

Parachutes

The BLM smokejumper programme leads the way in parachute innovation, having long ago adopted the Ram-Air parachute system. Some of the ideas were imported from the Russian smokejumper programme but they have been uniquely adapted for the BLM smokejumpers. The USFS smokejumper programme is currently phasing in the new parachute as well.

The Ram-Air parachute allows for more control while flying in the air but it must be deployed with a ripcord when a jumper is in the air. The older, round-style parachutes automatically inflate with a static line when jumping out of an aircraft but offer less manoeuvrability and speed.

No matter what parachute gets used, the job can come with long weeks and months away from home during fire season. Some smokejumpers end up in Alaska all summer.

Their helmets have a steel mesh face cage designed to protect jumpers from tree branches and impact, yet it allows enough visibility for a smokejumper to manoeuvre his/her parachute during a jump

Aircraft

Utilising a fleet of fixed wing aircraft including a Twin Otter, Dornier, Casa and a Shorts Sherpa, smokejumper and paracargo operations can reach anywhere in the country. The DH-6 300 series Twin Otter is a short-take-off-and-landing (STOL) aircraft ideal for demanding smokejumper missions in the back country. The Twin Otter has a cruise speed of 150 knots, providing an initial attack capability of eight smokejumpers with a two day supply of food, water and fire fighting supplies within a range of 340 nautical miles from the base of operation. The STOL capability of this aircraft enables it to operate from more primitive landing fields. Shorts Sherpa C-23, Dornier and Casa aircraft are also used for the delivery of smokejumpers and their cargo and to transport paracargo and equipment.

Gear

Most smokejumper gear is distinctively oriented to their job and made by them. The small number of smokejumpers in the US doesn't generate enough demand for commercial manufacturers to produce such gear. Thus, besides jumpsuits, smokejumpers make and sew their own backpacks, parachute harnesses and all the other fabric based equipment. The jumpsuits are made from padded Kevlar, the same material as used in bulletproof vests. They don't, however, make their own parachutes. Glowing embers can burn holes in a parachute canopy and tree branches can snag them. Thus, smokejumpers become adept at repairing their own chutes.

Their helmets have a steel mesh face cage, designed to protect jumpers from tree branches and impact, yet it allows enough visibility for a smokejumper to manoeuvre his/her parachute during a jump. Once the smokejumpers are on the ground, their jump helmets and jump suits come off and they wear hardhats, gloves and normal fire fighting gear.

Mann Gulch Fire

Despite the seemingly dangerous nature of the job, fatalities from jumping are infrequent, the best-known fatalities in the United States being those that occurred at the Mann Gulch Fire in 1949 and the South Canyon Fire in 1994. The fire with the most line-of-duty smokejumper deaths was the Mann Gulch Fire, which occurred north of Helena, Montana, at the Gates of the Mountains area along the Missouri River. Thirteen fire fighters died during a blowup, 12 of them smokejumpers. This disaster directly led to the establishment of modern safety standards used by all wildland fire fighters.

Sources: US Forest Services, Missoula Smokejumpers, US Army, Mashable, Escapees, Daily Kos.

2018

May

4 May 2018
International Fire Fighters Day 2018
International Fire Fighters' Day is observed each year on 4 May. On this date you are invited to remember the past fire fighters who have died while serving our community or dedicated their lives to protecting the safety of us all. At the same time, we can show our support and appreciation to fire fighter's worldwide who continue to protect us so well throughout the year
Venue: George, Western Cape
Contact: Cjjbarnard@george.gov.za

22 - 24 May 2018
Securex and A-OSH Expo
Securex will be the largest and most comprehensive show of its kind in Africa and the only show exclusively dedicated to the very latest developments in security, safety, fire and protection.
Venue: Gallagher Convention Centre, Johannesburg, South Africa
For more information visit:
www.securex.co.za

29 - 31 May 2018
Africa Health 2018
Africa Health is the largest platform in the African healthcare market for international and local companies to meet, network and do business. Africa Health provides an opportunity for you to see the latest healthcare technologies, products, equipment and services, as well as the chance to network with more than 10 000 of your healthcare industry peers
Venue: Gallagher Convention Centre, Johannesburg
For more information visit:
www.africahealthexhibition.com

June

7 - 10 June 2018
International Hazardous Materials Response Teams Conference
The selection of PPE during an offensive Hazmat response is one of the most critical tasks you must undertake. At Hazmat 2018, join David Berry as he breaks down what's in your closet and compares it to chemicals of the challenge using a process that has been successful for 20 years
Venue: Baltimore, Maryland, US
For more information visit: www.iafc.org/

July

22 - 27 July 2018
53rd Annual GSSA Congress
The annual congress will be hosted by the Gauteng Province and will be incorporating the highly acclaimed research skills workshop to be held from 22 to 23 July 2018 and the second policy and practice workshop focussing on ecological infrastructure on 27 July 2018
Venue: ARC Training Centre, Roodeplaat Vegetable and Ornamental Plant Institute, KwaMhlanga/Moloto Road (R573), Pretoria
For more information visit:
http://grassland.org.za/events/upcoming-events/annual-congress-2018

August

10 – 11 August 2018
Toughest Fire Fighter Alive, 2018
The South African Toughest Firefighter Alive Championships will be hosted by the fire fighters for Excellence Foundation in Cape Town, South Africa
Venue: Roeland Street Fire Station, Cape Town
Contact: Mark Smith
Email: tfa@fireandrescue.co

September

10 – 17 September 2018
The 13th World Firefighters Games Chungju, 2018
The World Firefighters games was established to promote international fire fighting information exchange in addition to fostering friendship between current or retired fire fighters(including soldiers) and their families through sports. Unlike elite sports events, fire fighters from all over the world can participate in the event, rather than competition. In order to create a festive atmosphere, the competition differs according to age and gender
Venue: Chungju, South Korea
For more information visit:
http://wfg2018.chungbuk.go.kr/eng/sub.php?code=01_abou04

19 – 23 September 2018
Africa Aerospace and Defence (AAD)
The Africa Aerospace and Defence (AAD) is Africa's only aerospace and defence expo that combines both a trade exhibition and an air show
Venue: City of Tshwane
For more information visit:
www.aadexpo.co.za/contact-us

25 – 27 September 2018
Medic East Africa
The show aims to provide an exclusive platform for the healthcare and medical laboratory market and will bring together more than 4 000 of the region's most influential decision makers
Venue: Visa Oshwal Centre Westlands, Nairobi, Kenya
For more information visit:
www.mediceastafrica.com/en/

27 – 28 September 2018
ICFSST 2018 : 20th International Conference on Fire Safety Science and Technology
The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of fire safety science and technology. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of fire safety science and technology
Venue: Holiday Inn London, Wembley, UK
For more information visit:
www.waset.org/conference/2018/09/london/ICFSST/home

19-20 September 2018
Disaster Management Institute of Southern Africa (DMISA) Annual Conference
Disaster Management Institute of Southern Africa's (DMISA) 34th annual conference. This year's theme is Mobilising Future Ready Resilience. DRR 2018 will focus on reducing direct disaster economic losses, aligning with the UNISDR Sendai 7 Campaign's 2018 Target 3 priority
Venue: Kopanong Hotel and Conference Centre, Benoni, Ekurhuleni
Contact: Karin Muller
Tel: 011 822 1634
Email: Karin@disaster.co.za

October

3 – 5 October 2018
Veldfire Management Symposium
The underlying theme for this year's symposium is: "From commitments to action: Ecosystems based fire management for effective disaster risk reduction"
Venue: Nelson Mandela University George Campus
Contact: Tiaan Pool
Email: Tiaan.Pool@mandela.ac.za

17 – 19 October 2018
4th Biennial Conference of the Southern Africa Society for Disaster Reduction
The conference theme is stop disaster risk creation in SADC, covering various subthemes as Urban risk and development, Climate smart agriculture, Socio-ecological resilience and Hazard and risk governance among others
Venue: Coastlands Umhlanga Hotel, KwaZulu-Natal
For more information visit: http://sasdir.org

21 – 27 October 2018
World Rescue Challenge 2018
The bid to host the 2018 World Rescue Challenge has been won by WRO member Organisation, the South African Medical Rescue Organisation (SAMRO), South Africa. Details of the event will be made available on the website when they become available, however those interested in attending should note that the proposed may be subject to change at this early stage
Venue: Cape Town
For more information visit:
www.wrescue.org

November

26 – 30 November 2018
Wildfire Ready Convention
Official opening of the Western Cape's wildfire season, hosted by Western Cape Umbrella Fire Protection Association
Venue: Lourensford Wine Estate, Somerset West
Email: sue@wcufpa.co.za

Just an ambulance driver

Standing in chest deep water
Freezing rain falling and stinging as it hits the exposed parts of my body
Holding her head above water to keep her from drowning
Until rescue can get here to cut her free
But I'm just an ambulance driver.

Comforting an 89-year old woman who just watched me and my partner
Cover the face of her husband of 64 years
As he lays dead on their bathroom floor
But I'm just an ambulance driver.

On scene at an MVA with a mother trapped upside down in her car
And her dead son's body lying on top of her
And without a second thought for my own safety
I crawl into the wreckage to take C-spine and calm the frantic lady
But I'm just an ambulance driver.

Called away from my just-prepared meal to respond to a house with no numbers
No porch light on, nobody waiting to signal us in and they bitch because we took too long
Only to find out the patient left POV ten minutes ago...
So, we smile and walk away from the verbal lashing
Only because we are just ambulance drivers.

Standing in the middle of the street at midnight, on the 'wrong side' of town
Trying to patch the holes and stop the bleeding of a 19-year old shooting victim
With the occasional bullet whizzing past our heads
We never break stride because this kid's life is in our hands
But I'm just an ambulance driver.

Doing chest compressions on a 16-year old girl
Who decided this life was more than she could take.
Her family screaming at us to help as though we are the ones who did this to her.
Her lifeless body flailing about as the tube goes in and IV is started
My arms and back burning from the pain of 30 minutes of CPR, never once giving up
Hoping she could make it through and overcome whatever led her to this bad decision
But I'm just an ambulance driver.

Death is all around me and still I go home to live my life.
I get kicked, hit, spit on, bled on, puked on...
I look into the eyes of a lifeless child at 7am and by 8am
I'm holding my child a little tighter and they know nothing about what happened.

I have hundreds of hours of classroom time
Years of in-the-field experience
I have challenged death and won
I've helped the helpless
I've neglected my family for yours
I find comfort in complete chaos...
I eat cold meals, if i eat at all!
I work with no sleep for days at a time
I miss birthdays, holidays and school functions
I put myself in harm's way for a total stranger on a daily basis
All because I am just an 'ambulance driver'

By Alan Torbet, paramedic

ULTIMATE INDUSTRIAL SYSTEM

HYDRANT, VALVES, MONITOR AND TRUCK CONNECTION

ALL IN ONE

The above ground hydrant is easy to access and service if needed. The valve system allows for use as a traditional ground hydrant monitor or boost the pressure and flows by adding lines from an apparatus. Foam can even be added to the system from the truck, eliminating the need to store and transport foam totes.

VANGUARD
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www.vanguardfire.co.za
Durban: +27 (0)31 564 3200
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