

# DISASTER MANAGEMENT

Official Journal: Disaster Management Institute of Southern Africa



Volume 2 No 3





# BEYOND FIRST RESPONSE

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.

## OUR TRAINING AND SERVICES INCLUDES:

### INCIDENT COMMAND SYSTEM (ICS)

- Basic to Advanced ICS (I-100 to I-400)
- Position Specific (All levels)
- Incident Management Teams (IMT)
- Emergency Operations Centre (EOC)
- Control Room Operators/Aviation Dispatch (Expanded Dispatch)
- On Line Incident Command System (per registration – from Mid April 2018)

### FIRE SUPPRESSION AND MANAGEMENT

- Wildland Fire Fighting Training (Basic and Advanced)
- Fire Safety (Awareness, Fire Safety in Buildings and Lodges)
- Prescribe Fire Operations
- Fire Weather
- Wildland Fire Investigation
- Leadership for the Wildland Fire Officer
- Tactical Radio Procedures and Base Radio Operators License

### SKILLS DEVELOPMENT

- Basic Communications and Office Etiquette
- NLP Life/Work Coaching
- Leadership Programme

### INTEGRATED ALL HAZARDS SUPPORT SERVICES

- Training and Fire and Rescue Equipment packages (Wildland Fire and Structural Fire)
- Establishment/upgrade of Fire Emergency Service (Including Wildland Fire Services)
- Established and trained Incident Management Teams

**DYNAMIC INCIDENT MANAGEMENT** (Pty) Ltd  
All Hazard Integrated Incident/Event Management Training

**Michelle Kleinhans**

078 272 9089

michelle@dynamicincident.co.za

[www.dynamicincident.co.za](http://www.dynamicincident.co.za)



# DISASTER MANAGEMENT

Official Journal: Disaster Management Institute of Southern Africa



Volume 2 No 3

## Contents

- DMISA President's message**  
**2** Bafana Mazibuko
- DMISA Councillor: Journal message**  
**5** Schalk W Carstens
- National Disaster Management Centre**  
**6** Words of gratitude from the head of the National Disaster Management Centre, Dr Mmaphaka Tau
- Consequence management**  
**8** A consequence management approach to disaster management: What is preparedness? Part 2 - by Dr Johan Minnie and Schalk Carstens
- Disaster management centre profile**  
**10** Nelson Mandela Bay Disaster Management Centre
- DMISA Conference**  
**16** DMISA Conference 2017  
**20** DMISA holds 2017 annual general meeting DMISA Gold Commendations and Special Awards
- Gold Commendations and Special Awards**  
**21** Gold Commendations awarded by DMISA
- International Day of Disaster Reduction 2017**  
**22** CoGTA Conference commemorates IDDR 2017  
**24** Klapmuts smoke alarm installation initiative  
**25** UNISDR International Day of Disaster Reduction
- Climate**  
**26** 2017 is set to be in top three hottest years, with record-breaking extreme weather
- Advertorial**  
**30** Planning for 'Day Zero' mini conference
- Upcoming events**  
**32** Disaster and risk reduction events across the globe
- DMISA contact details**  
**33** Contact details for the DMISA office



# DISASTER MANAGEMENT

## DMISA

### President

Bafana Mazibuko

### Deputy President

Mduduzi Nxumalo

### Councillor: Portfolio - Journal

Schalk W Carstens

### Disaster Management Journal Editor

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

### Journalist

edit@fireandrescue.co  
Cell 071 641 3884

### Advertising

advertising@fireandrescue.co  
Cell: 079 107 3967

### Design and layout

Marc Raath  
marc@fireandrescue.co

### Finance

Vicki Jacob  
accounts@fireandrescue.co

### Circulation

Vicki Jacob  
subs@fireandrescue.co

### Secretary

Vicki Jacob

### Administration

Miriam Moroane

### Contributions

Dr Mmaphaka Tau  
Dr Johan Minnie  
Schalk Carstens  
Tinus de Beer

### Publisher

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

### Subscriptions

4 editions per annum

#### South Africa

R145 per annum incl VAT

#### Non-subscribers

R25 incl VAT per issue

#### Southern Africa (airmail)

R265 per annum

#### International (airmail)

R350 per annum

### Copyright

All rights reserved



*Bafana Mazibuko*

### Dear Reader

We are almost at the end of the year again. The festive season's mood has already started. Most of us will be heading to different holiday destinations to celebrate the holiday season with our families. To all those of our readers that will be taking any kind of holiday trips, I will like to wish them safe journeys. On the other hand, I will also like to wish all of you a blessed and happy festive season after a long and demanding year behind us.

On matters of the Institute, I am pleased to inform our readers that our 34th Disaster Management Institute of Southern Africa (DMISA) Conference of 2017 in the city of Port Elizabeth under Nelson Mandela Bay Metropolitan Municipality, Eastern Cape went very well. I must say that the success of the conference exceeded our expectations as the executive committee. Firstly, the Nelson Mandela Bay Metropolitan Municipality and COEGA Vulindlela Accommodation and Conference Centre made our conference a pleasant one to attend. Secondly, it was our traditional partners the National Disaster Management Centre (NDMC) and the South African Weather Service (SAWS) that made a huge contribution to this event to be successful as always. As the DMISA executive committee, we would like to thank them for their involvement in our past conference. We hope that these collaborations will be sustained even in future. Special thanks should also go to the Executive Mayor of Nelson Mandela Bay Metropolitan Municipality, Councillor Athol Trollip, for being a good host to our event. Lastly, our gratitude goes to all the speakers, conference attendees and every one that helped the coordinating team to realise the successful conference.

During our stay in the Friendly City ie Port Elizabeth, as the Institute, we also managed to host our annual general meeting wherein I delivered



my maiden presidential report. In the report, I specifically mentioned the worrying trends when it comes to the disaster impacts in the world. I stated that disasters in recent times seem to know no boundaries. They affect wealthy nations. They also impact the poorest nations everywhere situated in our world. Therefore, the lessons that we need to take out from the real-life stories of disasters, are that all the nations of the world, regardless of their economies, have underlying vulnerabilities, which makes them susceptible to disaster hazards. The call, therefore, is for disaster risk reduction and resilience to be a global agenda that is nationally implemented by all nations.

In the same report, I have also mentioned that the disaster risk reduction and resilience should take a centre stage in terms of policy formulation and policy implementation, especially development planning. The private sector must also take some responsibility in assisting governments with disaster risk reduction. Moreover, it is indicated that individual citizens also have to start to realise that the ultimate responsibility to mitigate, prepare and prevent the impacts of disaster lies with oneself. In other words, disaster management professionals and practitioners should change the individual mental orientation at the community level.

On the yearly activities of the executive committee, I reported the following: Under the portfolio, 'Partnership, international relations, public relations and media liaison', the portfolio holder, the executive committee chairperson, immediate past president and administrator, held a fruitful meeting on the 13 July 2017 with the newly appointed head of the National Disaster Centre (NDMC) ie Dr Mmaphaka Tau and his team. The matters for discussions were as follows:

- The DMISA Memorandum of Understanding (MoU) with NDMC
- The DMISA meeting with the Minister of Corporative Governance and Traditional Affairs (CoGTA)
- The implementation of the 2016 Conference Resolutions
- SADAC Trans-border Discourse on Disaster Risk Reduction
- Multi-hazards Incident Management System and
- Letter from Southern Gauteng Region etc.

In relation to South African Local Government Association (SALGA)



*Nelson Mandela Bay councillor, John Best, with the DMISA presidency at the DMISA Conference 2017*

MoU, subsequent to the meeting held on the 27 February 2017, a follow up meeting and after numerous electronic communiques was held on 5 September 2017. The meeting was a Disaster Risk Management Technical Committee involving key stakeholders that have MoUs with SALGA. Part of the discussions in the meeting was to streamline and introduce all present institutions to one another and, more importantly, was for each organisation to articulate its top priority in terms of their MoUs for SALGA to include in its Annual Priority Program (APP) 2017/18. DMISA stressed the priority for SALGA to capacitate and monitor the implementation of the Disaster Management Act, specifically concerning the linking of Disaster Risk Reduction programmes to the Integrated Development Plans (IDP) and professionalisation of local government in the country.

Due to limitations in the agenda of the technical committee, the matter concerning the signing of the MoU between the institute and SALGA was discussed with the disaster management national coordinator, Mr Favourite Khanye. He gave the undertaking that SALGA intends to conclude the assessment of all received MoUs from the different stakeholders before the end of this financial year.

Some of the developments that can be reported under this portfolio are as follows:

- The institute issued a media release on the 29 July 2017 extending condolences to the victims of FNB Stadium stampede

- The president and the executive chairperson met with the Head of Centre of Gauteng Provincial Disaster Management Centre and Grazzitz Institute on the possible partnership on the 10 August and
- The president made an article contribution to the Disaster Management Journal as usual on the 7 September 2017.

#### **Regional matters, equity and recruitment**

The portfolio holder reported that an induction workshop was conducted for the newly elected national council and regional secretaries on the 23 November 2016. On 23 March 2017, he attended an inaugural meeting of the Technical Training Board. An opportunity to raise regional challenges was also offered to the regional representatives at the membership coaching sessions in Cape Town.

At the past conference, a recruitment desk was established to promote and recruit new members to join the Institute. On equity matters, regions were encouraged to ensure that equity targets becomes a driving force in terms of transforming DMISA and when electing new leaders to stand nationally. The portfolio holder was pleased to report that in the regional leadership there was an increase in terms of equity and gender compliance.

#### **Professionalisation of DMISA and website management**

Under professionalisation, DMISA was continuing to make good progress with



DMISA Conference 2017

increased applications for professional registration in the South African Qualifications Authority (SAQA)-approved Technician, Associate, Practitioner and Professional designations.

The website was noted as an important supporting source of information for professionalisation and was continually updated with relevant information.

On the disaster management content development, DMISA, in partnership with NDMC, gave comments on the draft Municipal Staff Regulations. On the same matter, the institute was in contact with Local Government Sector Education and Training Authority (LGSETA) and Department of Higher Education and Training (DHET) around disaster management qualifications and the organising framework of occupations curated by the Department of High Education.

The governance of the designations was going well under the care of the interim registrar and administrator. The code of conduct for the profession had been updated and the whole suite of documents used for the management of the designations had undergone a review.

There was progress on Continuous Professional Development, where conversations with academic institutions and service providers were going well and institute would be publishing updated schedules of approved Continuing Professional Development (CPD) activities in the near future.

The portfolio holder reported that DMISA remains committed to providing opportunities for learning, development, networking and alignment within the disaster management profession.

#### **Finance, administration, sponsorship and conference**

The portfolio holder for 'Finance, administration, sponsorship and conference', Mr Pat Adams, ensured that the office was administered in accordance with the rules of the Institute. The Council received the financial statements for the 2016/17 financial year from the auditors for approval on 26 September 2017.

The portfolio holder reported that the preparation for DMISA's Annual Conference 2017 went well. He also mentioned that three new designations were approved by SAQA, namely Disaster Management Practitioner, Disaster Management Associate and Disaster Management Technician.

Training, skills development, standards and tours

Under training, skills development, standards and tours, the portfolio holder reported as follows:

- An induction course was conducted for the newly elected national council and regional secretaries of DMISA
- An inaugural meeting of the Technical Training Board was held
- Membership coach's training was conducted with seven regional committees with members of Mpumalanga region in attendance to observe and
- A draft Scope of Practice for Risk Reduction and Event Safety was prepared.

#### **Journal production and marketing**

The portfolio holder for 'Journal production and marketing' reported that the latest publication was circulated to all members during December 2016/January 2017 and that this publication was well received and members were especially thankful for the report regarding 2016 Conference as well as photos in the publication. He reported that in this portfolio, the outstanding matter was a meeting with the NDMC (Training Education Research and Marketing) Directorate to draft a combined agreement with all tertiary training institutions (universities). The main reason for this marketing activity is to ensure that DMISA is recognised as the Professional Body for Disaster Management by all training institutions and that all students (as far as possible) register as Technicians in Disaster Management.

#### **Protocol, legislation and policy writing**

The portfolio holder was actively involved in ensuring the presentation and adoption of policies for the institute. There have been a number of policies that had been tabled to the EXCO through Dr Greyling; some of these policies are CPD, Crisis Communication and Public Communication policies. The code of practice and the CPD activity proposal had also been under consideration during the month of August.

In closing colleagues, I want to reiterate my best wishes to all the readers of this journal for the festive season and the happy New Year. God willing, I hope I will be given the same space next year to communicate with you again. Have blessed and safe holidays.

**Bafana Mazibuko**  
DMISA President 

Since our publications circulated during the DMISA Conference, which was recently held in Nelson Mandela Metro, a lot has happened in the field of disaster management. Southern Africa is currently in a grip of two extremes. The South Western area is experiencing the worst drought in recorded history, whilst in other areas severe storms and rain have caused tremendous flood damage to infrastructure, as well as extreme hardship for those affected.

The 2017 DMISA Conference has again been a huge success. Presentations were of high quality and the interaction between the delegates, especially at the functions after hours, will be long remembered. Well done to Mr Pat Adams and his team for a job well done.

Now back to business. As a full time disaster management official, a part time lecturer, as well as a member of this institute, on several occasions I had to explain:

- how disaster funding is provided
- what funding is provided
- when the funding can be accessed
- how long it takes to get the required funding and
- most importantly, what procedure to follow?

Needless to say, it is not an easy topic to explain. If we would have asked the heads of disaster management centres in the country to provide their own view on this matter, we most probably would get different views and answers. Herewith some of the uncertainties to be highlighted:

- What is the difference between the funding applicable for a local, provincial and national disaster declaration? Is there a different funding mechanism if another sphere of Government is responsible to coordinate/manage the disaster?
- Exactly what funding is to be utilised in a rapid onset disaster to provide immediate relief and repair vital and essential services and installations; do the same principles apply to a slow onset disaster?
- Lastly, what funding mechanism could be utilised and how could the authority utilise these funds in a declared disaster?

I have conducted some personal research into the disaster management funding mechanisms and procedures that are applicable in South Africa. Below are a few personal conclusions, which have been derived from the

research. This was not academically tested, only assumptions.

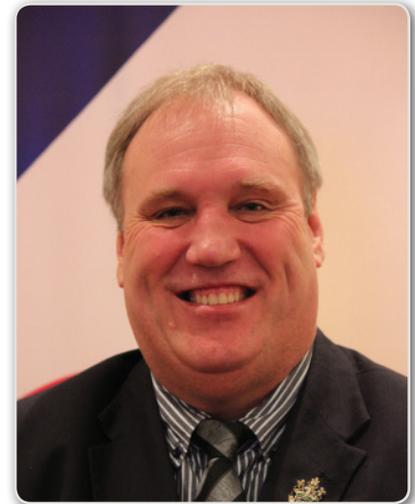
In the past, South Africa has been acknowledged by the United Nations for having the most progressive disaster management legislation and policy framework in the world. The only problem was and still is how to implement this legislation. Firstly, to ensure that there is adequate disaster management line function capacity that includes capable human ability, adequate facilities, infrastructure, equipment as well as enough operational funds to ensure the required implementation of the said legislative mandate. We all know that these processes are happening very slowly and many authorities lack the minimum requirement.

The other uncertainty is implementation of the threshold percentages applicable to all spheres of government as required the National Disaster Management Framework (par.7.7.1.2). Each sphere of government should ring fence a certain threshold percentage for disaster management.

In practice this requirement only applies when a disaster has been declared and classified. Then National Treasury will automatically apply this formula. However, this process only happens reactively and government entities do not utilise this formula to fund disaster risk reduction, as well as certain immediate response/relief responsibilities.

To complicate the complex funding scenario, there are several disaster funding options that could be utilised in a disaster, mainly:

- The threshold funding already mentioned above.
- Humanitarian relief funding: Fund Raising Act (Act no 107 of 1978), which makes provision, through the Department of Social Development funding, to immediately provide for people who have been affected by disasters to sustain their humanitarian needs for the short to medium term. Currently the functions for provision of humanitarian aid have been delegated to South African Social Security Agency (SASSA).
- Chapter 12 of the Housing Policy provides for, in the event of disasters, the Department of Human Settlements to provide shelter to the individuals and communities that have been affected.
- The Division of Revenue Act (DORA) makes provision to reprioritise budgets. This will allow organs of state and entities to be assisted



Schalk Carstens

through reallocation of funds in their respective spheres. Utilising section 16 and 25 of the PMFA. These sections allow the National Minister of Finance and its counterpart on provincial level to appropriate funds towards disasters.

- The National Disaster Management Centre: Conditional Grant Funding for immediate relief for provinces and municipalities. This fund is jointly managed by NDMC and National Treasury. These funds are available and could be accessed when the threshold percentage, reallocation of budget and all possibilities of using the PMFA or the MFMA have been expedited.
- The National Emergency Reserve Account: Each organ of state should have adhered to the applicable threshold and all other means, already mentioned above, to utilise this fund, should other options be exhausted.
- Lastly the only other option that could be applied in these circumstances is exceptional widespread or frequent disasters within a single fiscal year, causing the exhaustion of the national emergency reserve. The application of the central contingency fund is the ultimate last resort to acquire funds.

In summary, the sequence of disaster funding is as follows:

1. Municipal budget
2. Humanitarian Relief (Department of Social Development)
3. Emergency housing (Department of Human Settlements)
4. Municipal contingency fund (not mentioned above)
5. Provincial contingency fund (not mentioned above) ▶

# WORDS OF GRATITUDE FROM THE HEAD OF THE NATIONAL DISASTER MANAGEMENT CENTRE, DR MMAPHAKA TAU



**T**he year 2017 passed with its sweet and bitter experiences the nation went through.

For us in the disaster management fraternity, like all other years, it has been a year characterised by the celebration of our collective achievements to date, consolidation of the future disaster risk management agenda and a reflection on our strategic role in supporting the realisation of sustainable service delivery and sustainable development goals in the context of the 2030 agenda. As we performed this public service, disaster risk management, we always departed from the premise that our successes depend on how effective we galvanise efforts of other role players and stakeholders including the communities we serve. Accordingly, I wish to express my profound appreciation to all stakeholders and role players who contributed to our collective disaster risk

reduction and management efforts and the realised service impact. Evidently, the management of the effects of incidents and disasters such as the Dineo Tropical Cyclone, the drought disaster, the Knysna fires, the Ugu Oil Spillage, to name but a few, will not have been effective without the contribution of all relevant stakeholders and role players. We, however, note that there is still room for improvement as disaster risk challenges are on an exponential trend due to inter alia, the effects of climate change, the increasing population and the consequent expanding built environment, infrastructural shortfalls and quality, pressure on environmental resources.

To this end, I wish to remind and call upon all role players and our communities to remain vigilant in their areas of responsibilities and localities and carefully promptly deal with any threats, incidents and disasters, which might occur in order to ensure no loss of life, no damage to property, the environment and sustained community services. This will ensure that we co-exist with hazards and that our nation remains resilient for a better South

Africa and Africa we want as underpinned by sustainable and inclusive socio-economic development planning and practices. The theme of the United Nations Global Platform for Disaster Reduction 2017 notably: from “Commitment to Action” will remain a mantra for all of us as we implement all policies, programmes and projects to realising effective service delivery and sustainable development.

To this end, I wish everyone a rewarding 2018 year characterised by enhanced disaster risk reduction and management measures for the benefit of the current and future generations.

Remember: Disaster Risk Management is Everybody's Business.

Kind regards

**Dr Mmaphaka Tau (PhD)**  
*Deputy Director-General (Head):  
National Disaster Management  
Centre (NDMC)  
Department of Cooperative  
Governance (DCoG)*



- ▶ 6. NDMC Conditional Emergency Grant for provinces and municipalities
- 7. National Emergency Reserve Account
- 8. Central Contingency Fund

In light of the aforementioned assumptions, it might be beneficial to have a more structured (multi-sectoral) problem solving solution. The uncertainties on how the disaster management funding mechanism works as currently set out in the National Disaster Management Framework

should be refined in more detailed guidelines, as well as regulations. This also should include the funding of disaster risk reduction and not only response and recovery.

Lastly, we also have to mention that if each hazard, through legal mandates, could be allocated to a specific national department/entity, which is then the recognised (official) hazard-based owner, then the complexity of who has to fund what disasters might also be solved.

Hopefully the above mentioned discussions on funding disasters might have stimulated some thought and will encourage further discussions, research and most importantly, articles in our future DMISA publications.

Herewith again my sincere appreciation to all who have contributed towards this edition and the last but not the least, thank our editor and publisher, Lee-Raath Brownie, for her continued support and delivery of a top class Disaster Management publication. 🇿🇦

# TIME TO TURN PRO

**Responsible • Recognised • Respected • Resourceful**

## **DISASTER MANAGEMENT PROFESSIONAL: APPLICATIONS NOW OPEN**

Society deserves the best possible Disaster Management personnel, that is why DMISA is supporting the professionalization of the Disaster Management discipline, has been recognised by SAQA as the professional body for Disaster Management in South Africa, and has successfully applied for the registration of the first SAQA-approved designation for Disaster Management, being that of “Disaster Management Professional (PrDM)”.

Join us on the journey to professionalisation,  
be the best you can, be a pro.



**Tel: 011 822 1634**  
**[www.disaster.co.za](http://www.disaster.co.za)**



# A CONSEQUENCE MANAGEMENT APPROACH TO DISASTER MANAGEMENT: WHAT IS PREPAREDNESS? PART 2

By Dr Johan Minnie and Schalk Carstens



In this series of articles, a consequence management approach to the reactive elements of disaster management is discussed. The basic departure point of the authors is that consequences and the responsibilities for dealing with those consequences forms a logical and useful point of departure and organising framework for dealing with disaster preparedness and response. The first article in this series stated the case for a consequence management approach, while the follow-on articles will unpack the details of a consequence management approach to disaster management.

Although initially planned as an article on response management, the authors have decided to dedicate this second article in the series to the concept of preparedness, which is key to being ready to manage consequences.

Preparedness means to anticipate and prepare for impacts and response to such impacts.

In the context of disaster management, preparedness is a result of the consideration of disaster hazards, options available to avoid or reduce those hazards, a realistic assessment of the possible negative hazard impact remaining and then putting measures in place so that a state of readiness for that hazard impact is achieved. Preparedness in essence means readiness to respond to contingencies and is achieved through the development of possible scenarios that could develop and appropriate actions to deal with those scenarios to protect life, property, critical and essential services, the environment and the functioning of communities.

Preparedness deals with those hazards that cannot be eliminated or sufficiently reduced to totally avoid negative hazard impacts. Preparedness can be achieved at a micro or macro scale, for example having equipment available at a local municipality to contain hazardous spills or having a national heavy urban search and rescue team available to respond at a national or international level.

*...many calculations lead to victory and few calculations to defeat...*

**- Sun Tzu, The Art of War**

The contingencies for which preparedness is required will be identified during risk assessment and the consideration of risk reduction options and their effectiveness. Preparedness deals primarily with residual risk, those possible hazard impacts that cannot be prevented or sufficiently mitigated.

Since an incident in a jurisdiction may take place at any time, it is necessary to maintain preparedness plans, implementing procedures and the organisation involved in a constant state of readiness so that an effective response can be rapidly effected if necessary.

Preparedness involves actions to establish and sustain prescribed levels of capability necessary to execute a full range of incident management operations. Preparedness is implemented through a continuous cycle of planning, training, equipping, exercising, evaluating and taking action to correct and mitigate. Preparedness within a holistic system would focus on guidelines, protocols, and standards for planning, training, personnel qualification and certification, equipment certification and publication management.

Those activities undertaken to ensure constant readiness constitute the preparedness programme and include strategies to developed and implemented including the following:

- Early warning systems
- Management and institutional arrangements
- Emergency and contingency planning
- Aid agreements
- Response planning and
- Training, drills, rehearsals and exercises.

Preparedness requires a coordinated approach. A major objective of preparedness is to ensure mission integration and



interoperability in response to developing incidents across functional and jurisdictional lines, as well as between public and private organisations.

Risk reduction activities are important elements of preparedness and provide a critical foundation across the incident management spectrum from prevention through response and recovery.

Preparedness is the responsibility of individual jurisdictions and organisations but is also a collective concern. The responsibility for preparedness entails coordinating various preparedness activities among all appropriate agencies within a jurisdiction, as well as across jurisdictions and with private organisations. This coordination is effected by mechanisms that range from individuals to small committees to large standing organisations; collectively these can be called preparedness organisations, as they serve as ongoing forums for coordinating preparedness activities in advance of an incident. Typically, such preparedness organisations could be subcommittees or working groups of a jurisdiction-level disaster management advisory forum. Preparedness organisations represent a wide variety of committees, planning groups and other organisations that meet regularly and coordinate with one another to ensure an appropriate focus on planning, training, equipping and other preparedness requirements within a jurisdiction and/or across jurisdictions. The needs of the jurisdictions involved will dictate how frequently such organisations must conduct their business, as well as how they are structured. When preparedness activities routinely need to be accomplished across jurisdictions, preparedness organisations should be multijurisdictional.

Preparedness organisations at all jurisdictional levels should:

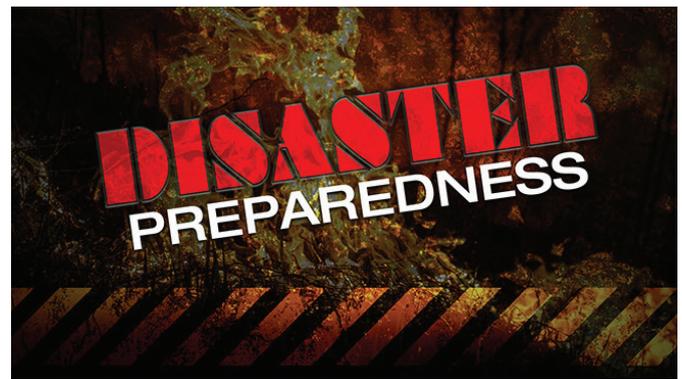
- Establish and coordinate emergency plans and protocols including public communications and awareness
- Integrate and coordinate the activities of the jurisdictions and functions within their area of responsibility
- Establish the standards, guidelines and protocols necessary to promote interoperability among member jurisdictions and agencies
- Adopt standards, guidelines and protocols for providing resources to requesting organisations, including protocols for incident support organisations
- Set priorities for resources and other requirements and
- Ensure the establishment and maintenance of multi-agency coordination mechanisms, including JOCs, mutual-aid agreements, incident information systems, nongovernmental organisations and private-sector outreach, public awareness and information systems and mechanisms to deal with information and operations security.

Preparedness or contingency planning includes anticipating and planning for a specific occurrence but not yet implementing the plan.

When disaster preparedness is discussed, it should of course be remembered that preparedness is not only required of professional emergency and essential services but also of members of the general public as well as commerce, industry and institutions.

Individuals and households in a community at risk of being impacted upon by any specific hazard cannot be mere spectators; they will need to consider what they will do when impact is imminent or is occurring and they will need to go over to action.

Businesses need to maintain a level of preparedness in order to minimise the business impact of known hazards and ensure their sustainability.



Public services and institutions such as hospitals and schools should be prepared to deal with potential hazards so that they can ensure continuity of their service delivery as well as the safety of their clients.

Preparedness planning should consider corrective actions designed to implement adjustments to resources and/or plans and procedures that are based on lessons learnt from actual incidents or from training and exercises. Preparedness planning should also consider the post-incident transition from pure response to recovery, which addresses actions beyond rapid damage assessment and those necessary to provide immediate life support for victims.

In the next article the authors will discuss preparedness planning and the hierarchy of preparedness plans that enable jurisdictions to conduct effective consequence management. 🇿🇦

**Vital Fire**

**Foresight through Technology**

- Online Fire Danger Index Reporting System
- Near Real Time Weather Information
- 10h00 & 14h00 FDI sms's and email Alerts
- Increasing Fire Safety Through Technology
- Provincial and Regional FDI's, Averages and Actual's
- FDI, Wind & Temperature Maps
- Fire Management Risk Assessment
- Forecaster 5 Day Input Feature

Tel: 27 11 805 4720 e-mail: cwp@cwprice.co.za  
[www.vitalweather.co.za](http://www.vitalweather.co.za)

# NELSON MANDELA BAY DISASTER MANAGEMENT CENTRE



*The Nelson Mandela Bay  
Disaster Management Centre*

**N**elson Mandela Bay Disaster Management Centre is situated in Port Elizabeth, one of the largest cities in South Africa. Nelson Mandela Bay Municipality is one of eight metropolitan municipalities in South Africa. It is located on the shores of Algoa Bay in the Eastern Cape Province and comprises of the city of Port Elizabeth, the nearby towns of Uitenhage and Despatch and the surrounding rural area. The city has a population of 1,1 million, making it South Africa's fifth largest city in terms of population and the second largest in terms of area.



*Head of centre: Mr Shane Brown*

The name 'Nelson Mandela Bay Municipality' was chosen to honour former President Nelson Mandela. The Metro has a vibrant industrial sector with two ports namely the Port of Port Elizabeth and the Port of Ngqura, making it essentially a transport nucleus. The 11 500ha Coega Industrial Development Zone (IDZ) was established in 1999 and is a multibillion-dollar industrial development complex customised for heavy, medium and light industries situated adjacent to the Port of Ngqura.

Port Elizabeth, nicknamed 'The Friendly City' or "The Windy City', stretches for 16km along Algoa Bay and is one of the major seaports in South Africa. Three rivers flow through Port Elizabeth ie the Chatty, the Shark and the Baakens.

### **Disaster management centre**

The Nelson Mandela Bay Disaster Management Centre is headed up by Head of Centre, Shane Brown and was established with an initial budget of R1million that was allocated for the setting up of the centre. This has, however, substantially been added to over the years. Its current operating budget is R22million.

The disaster management centre is situated at the South End Fire Station in Port Elizabeth due to the available facilities at the time of establishment. It is a suitable location due to the fact that Disaster Management and Fire Services reside in the same directorate. The

satellite offices are distributed according to the geographical spread of the wards and their boundaries. The location of the satellite offices were determined by available facilities on municipal property, preferably fire stations and clinics.

Brown's team includes assistant directors, Henry Lansdown and Hombile Gume. Lansdown is responsible for corporate planning, administration, logistics, training and major events while Gume is responsible for disaster management operations.

### **History**

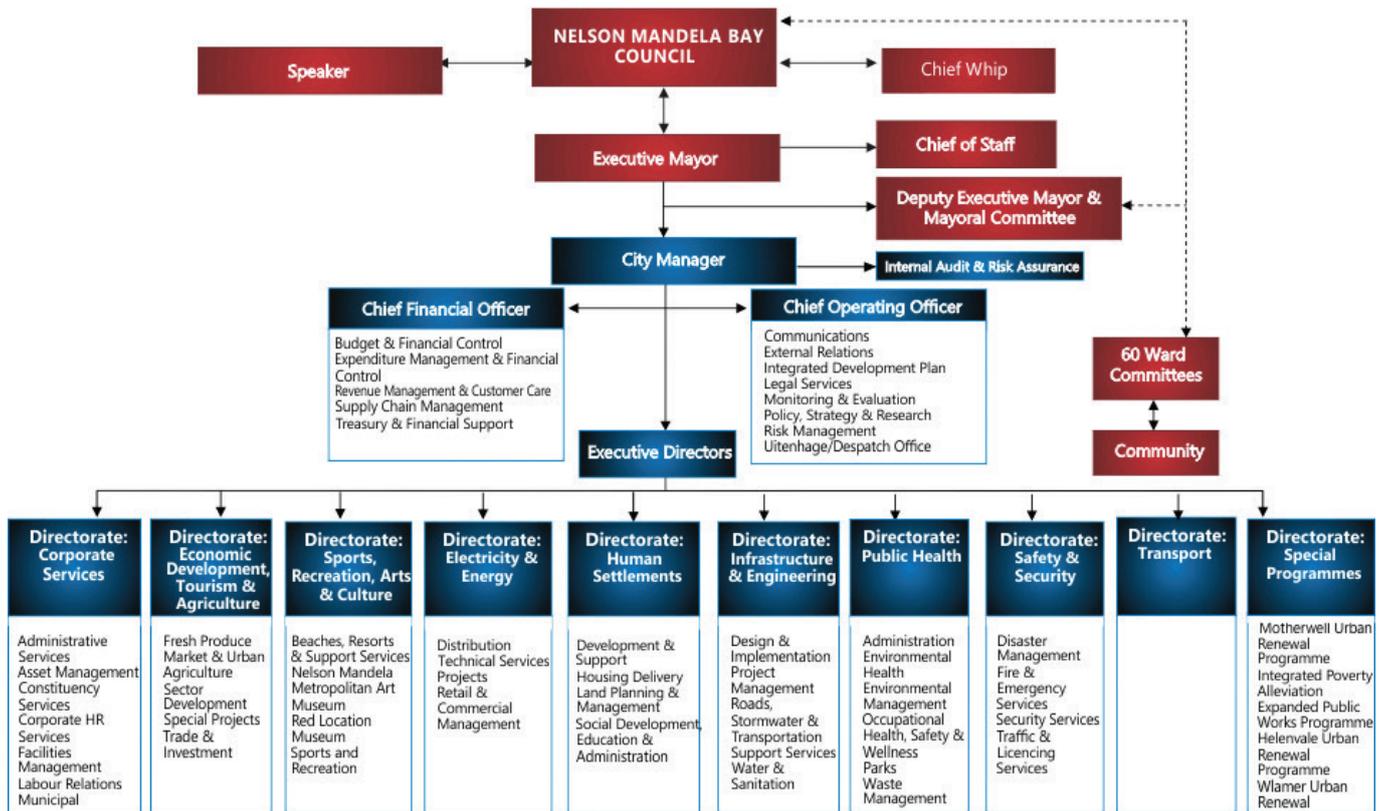
The Nelson Mandela Bay Disaster Management Centre was established on 18 April 2002. The old Port Elizabeth Municipality had a Civil Defence Unit, which later became Civil Protection. These units fell under the control of the Corporate Administration Department. It had a total of five staff members.

In 1998, as a result of the Green and White Papers on Disaster Management, the Civil Protection name was officially changed to Disaster Management and the section was transferred to the Safety and Security Directorate.

### **Organisational structure**

The Disaster Management Centre is a sub-directorate in the Safety and Security Directorate. The Head of the Centre reports to the executive director: safety and security, who reports to the city manager.

ORGANISATIONAL STRUCTURE OF NELSON MANDELA BAY MUNICIPALITY



\* It should be noted that the Micro Structure is currently under review and being refined.

The organogram of the centre makes provision for four sections, namely planning, logistics and training; operations; support services and administrative services, headed by assistant directors who report to the Head of the Centre.

**Operations**

The Nelson Mandela Bay Disaster Management Centre, based at the South End Fire Station in Humewood, Port Elizabeth, is fully functional. All senior- and administrative staff are based at the DMC. The Executive Director: Safety and Security is also situated at the DMC building.

The disaster management centre (DMC) consists of office, storage, kitchen and bathroom facilities, a well-equipped boardroom, which serves as the joint

operations centre during disasters, a second boardroom which serves as a separate meeting room during disasters, as well as an auditorium shared by the DMC and the Fire and Emergency Services for workshops and large meetings. The auditorium can also serve as a media briefing facility during disasters.

Apart from its operational side, the centre also runs a number of awareness campaigns to schools.

**Joint Operations Centre (JOC) and systems**

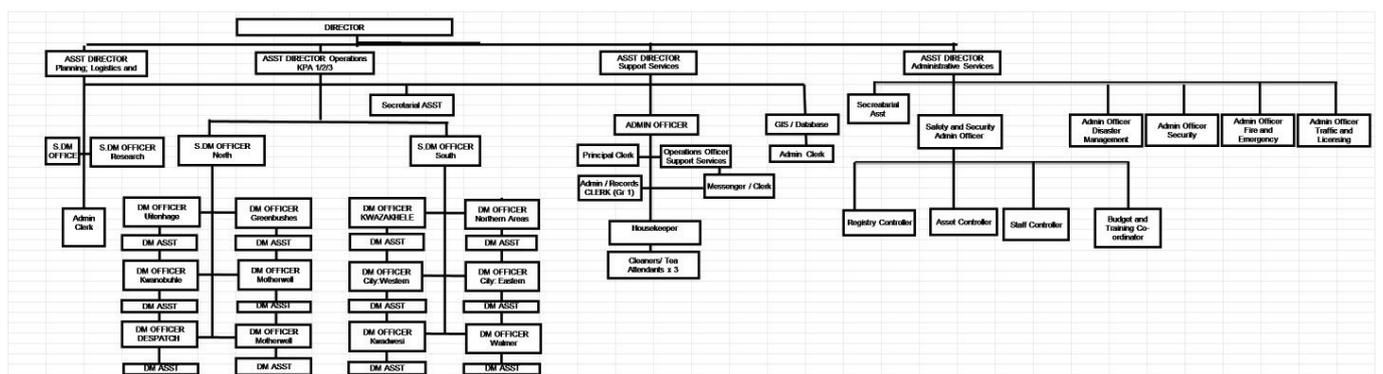
The DMC has a central node boardroom that comprises an appropriate facility for multi-disciplinary strategic management of response and recovery operations during or after disasters. It serves

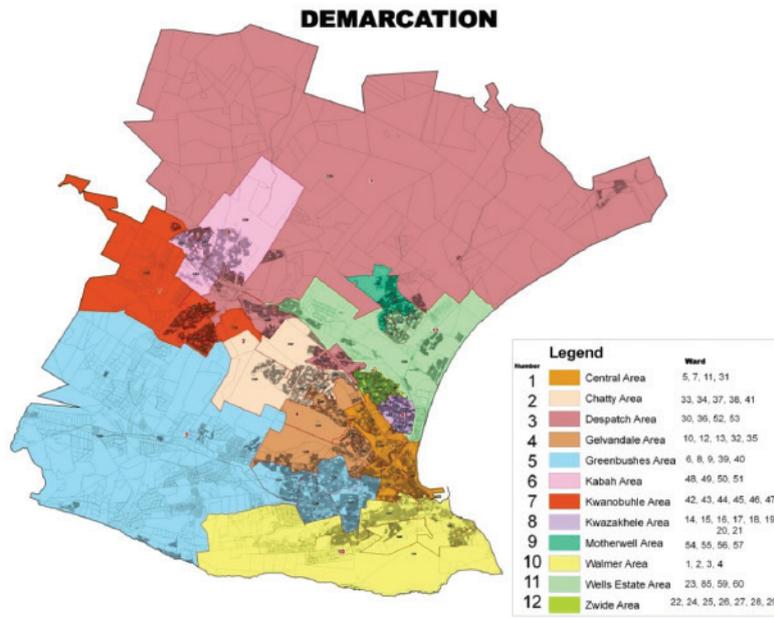
the dual purpose of providing a venue for regular meetings and activities for strategic planning and other disaster management related activities.

Unfortunately, the termination of the CCTV contract with the service provider had a severe impact on the early warning systems and JOC systems of Disaster Management. “Currently we rely on the Safety and Security Control Centre (call centre) to gain information and we use manual systems as alternative systems,” said Brown.

**GIS office**

The centre has a geographical information system (GIS) office for their spatial data. This office is responsible for the disaster-related collection of relevant spatial





- Kwanobuhle Office situated at the Kwanobuhle Fire Station in Ponana Tini Road in Kwanobuhle, Uitenhage
- Kwazakhele Office based at the Kwazakhele Fire House, Qunta Street, Kwazakhele
- Motherwell Office situated at Addo Road Depot, Addo Road, Motherwell
- Wells Estate Office situated at Wells Estate Clinic, Sinthemba Street, Wells Estate

**Centralised control centre**

Because of the fact that disaster management does not have a 24-hour facility/operations centre, the centralised control centre of the Safety and Security Directorate is used for that purpose. Disaster management staff is on a roster to be on 24-hour stand-by. Stand-by staff is called by the control centre in the event of major incidents and disasters.

**Risk profile**

In 2010 a comprehensive disaster risk assessment was undertaken where the following hazards were identified and risks prioritised.

The centre's risk profile includes flooding, fires and hazardous material (Hazmat) explosions. The Nelson Mandela Bay Municipality has a large

information and the analysis of that information, hence putting the information in a readable and understanding manner such as map making. This office hired interns that were from the Infrastructure Skills Development Grant (ISDG) Mentorship Programme who assisted with the projects that were attended to. Disaster management envisages having more GIS intern programmes and/or graduates programmes.

The following seven satellite disaster management offices are fully established:

- Chatty Office based at Chatty Clinic in Bertram Street, Chatty
- Despatch Office situated at 6 Main Street, Despatch
- Greenbushes Office situated at the James Kleynhans Centre, Lakeside Road, Greenbushes

**Satellite disaster management areas (operations)**

For practical purposes, an approach is followed where a centralised main disaster management centre exists to guide and coordinate all disaster management projects and activities, with decentralised satellite centres being established to ensure that 'on the ground' contact within communities is possible. Ultimately, 12 satellite areas are envisaged by the DMC. The demarcation of areas of responsibility per satellite facility is largely based on existing ward boundaries, to allow for closer ward and community liaison. Top management is centralised at the DMC. However, a strategic decision to phase out the physical offices and establish a north and south office complex will require satellite officials to operate from a central office environment and still retain their areas of responsibilities.

Out of the seven established satellite offices, five are operational due to staff turnover. This has a major impact on the operational strength. The five disaster management officers were allocated the additional wards for the two vacant satellite offices. It is envisaged that during the next financial year these staff vacancies will be filled.

Hazard Name	Prioritized Risk Ratings
Hydro-meteorological Hazards - Floods (River, Urban & Dam Failure)	0.85
Hazardous Material - Hazmat: Fire/Explosion (Storage & Transportation)	0.85
Hazardous Material - Hazmat: Spill/Release (Storage & Transportation)	0.82
Hydro-meteorological Hazards - Severe Storms (Wind, Hail, Lightning, Fog)	0.81
Disease / Health - Disease: Human	0.78
Hydro-meteorological - Drought	0.78
Environmental Degradation	0.76
Fire Hazards - Formal & Informal Settlements / Urban Area	0.76
Fire Hazards - Veld/Forest Fires	0.73
Pollution - Water Pollution (Fresh and Sea)	0.72
Major Event Hazards (Cultural, Religious, Political, Recreational, Commercial, Sport)	0.71
Oceanographic - Storm Surge	0.71
Transport Hazards - Road Transportation	0.70
Civil Unrest - Xenophobic Violence	0.69
Structural Failure	0.68
Pollution - Land Pollution	0.68
Civil Unrest - Terrorism	0.67
Oceanographic - Sea Level Rise (Climate Change)	0.67
Pollution - Air Pollution	0.65
Civil Unrest - Demonstrations / Riots	0.65
Oceanographic - Tsunami	0.65
Transport Hazards - Rail Transportation	0.64
Infrastructure Failure / Service Delivery Failure	0.64
Civil Unrest - Armed Conflict (Civil/Political War)	0.61
Disease / Health - Disease: Animal	0.61
Geological Hazards - Earthquake	0.60
Transport Hazards - Air Transportation	0.58
Transport Hazards - Water Transportation	0.57
Civil Unrest - Refugees / Displaced People	0.51
Infestations - Plant Infestations (Intruder Plants)	0.44
Disease / Health - Disease: Plants	0.41
Radio Active Fall-out	NA

number of major hazmat installations (MHIs) including chemical plants, a Manganese ore plant and terminal, tank farms, vehicle manufacturing plants as well as hazmat transportation routes. However, the most common emergency scenarios that the DMC encounters are informal dwelling fires.

### Challenges

“Staff shortages are the biggest challenge,” said Brown. The municipality has also gone through a spell of serious budget constraints over the past years, which resulted in the budget cuts that make the effective operation of the centre difficult.

The centre is also constantly struggling to rid itself from the identity of being a distributor of humanitarian relief. It is also this identity that makes it difficult for the centre to convince municipal organs of state and some other stakeholders of their responsibilities in terms of the Disaster Management Act.

Operational challenges include:

- Focal point officials in directorates are yet to be appointed.
- Directorates do not have their own disaster plans as required.
- Some key positions to execute the institution’s mandate in respect of disaster management are currently vacant on the organogram.
- Initiatives to reduce identified priority risks have not been developed.
- Projects and initiatives related to risk reduction have not been included in the Integrated Development Plans (IDPs).
- No budget provision for the upgrade of the Disaster Management Plan and risk assessment. (Last update was in 2010).
- The disaster management budget makes provision for disaster relief during abnormal relief requirements. The same budget allocation is used on a daily basis for day-to-day relief requirements for incidents where smaller groups of people are in need of social assistance.
- No provision in individual departmental budgets for disaster management, neither for normal disaster management related projects, nor for disaster response. Any disaster related response is covered within the normal budgetary provisions. This situation puts pressure on the response to disasters and ultimately the success of other municipal projects for which funds were originally allocated.



Henry Lansdown and Thomas Cameron



The NMB DMC's management team

### Staffing and personnel

The DMC is fully established with a staff complement of 24 staff members who are divided in terms of designation as follows:

- 1 Director
- 2 Assistant directors
- 4 Senior disaster management officers (SDMOs)
- 6 Disaster management officers (DMOs)
- 2 Secretarial assistants
- 2 Administrative officers
- 4 Principal clerks
- 1 Database administrator
- 3 Cleaners

We asked Brown whether he felt that the centre had enough competent staff for the incidents at hand, to which he replied, “No. Especially during major incidents and disasters as it places a great strain on the staff capacity on our section. With limited

staff it is difficult to attend to all the demands, especially providing relief to disaster victims and assessing the situation at the same time. Most of the senior staff coordinates all disaster management actions from the disaster management centre JOC.”

At present, the only formally enrolled volunteers related to disaster management are those belonging to the Mountain Club of South Africa. They are utilised for rescue work in support of the emergency services.

### Disaster response

The DMC has a good relationship with all emergency services, probably the best in the country. As a member of the emergency coordinating committee, it interacts regularly with emergency services. Resource capabilities and other emergency response capabilities are discussed on a monthly basis. When ▶

## Disaster management centre profile

- ▶ required, the joint operations centre will be activated to coordinate emergency response. Representatives of the emergency services will be part of the JOC from where operations will be monitored.

Disaster management officials are regularly called out to assist victims of dwelling fires in terms of the Disaster Management Relief Policy. The JOC is not activated for these minor incidents. The JOC would normally be activated when a warning is received from the South African Weather Service (SAWS) when heavy rains are imminent.

### Flash Flood Warning System and automatic rain stations (ARSSs)



The SAWS network of ARSSs within the metropolitan area is enhanced with a total of eight ARSSs which effectively covers the entire area and should improve the flood prediction capability of the Port Elizabeth branch of the Weather Services.

### Early Warning: Remote Camera Project (CCTV)

A number of years ago, capital funding was provided for the installation of early warning systems in the Nelson Mandela Bay municipal area. It was decided to strategically place CCTV cameras at



Automatic weather stations connected to CCTV installations (hybrid installations)

potentially high risk areas throughout the metro. These sites are mostly where flooding can occur whilst others are placed at sites that can assist the South African Weather Service (SAWS) to monitor weather conditions.

The DMC is linked via a fibre optic cable with the SAWS office at the Port Elizabeth Airport.

### SAWS CCTV/AWS hybrid systems

In partnership with SAWS and a service provider, a unique early warning system was designed where weather information is displayed in real-time mode on the CCTV live camera footage. Weather data toggles to display all the weather parameters required, which is configurable.

Due to lack of operational funding for maintenance of this equipment in the previous financial years, a large percentage of CCTV sites became inoperable.

### Automatic rain station: Blue Horizon Bay

The termination of the CCTV contract with the service provider had a severe impact on the early warning systems (CCTV) and JOC systems of disaster management. "We trust that this matter will be resolved soon to ensure that these systems can become fully operational again and provide us full value for we invested in these systems," said Brown.

The partnership with the South African Weather Service (SAWS) remains very successful project as they calibrate and maintain all the automatic weather- and rain stations, thus enhancing their weather prediction and early warning capabilities.

"We are currently in the process of reviving the CCTV system," added Brown.

### Mobile operations centre (MOC)

The mobile operations centre (MOC) is an incident command vehicle and an onsite operating centre that is used at events and disasters. From this command vehicle, it is possible to dispatch emergency vehicles and aircraft during a disaster or major incident, where proximity to the incident is vital for viewing, communication or safety purposes. It enhances the decision capabilities of all role-players and provides an invaluable information link.

The concept of a MOC:

- To have a vehicle that can be used in operational circumstances such as major incidents, disasters and major events

- To provide a forward command post in support of the Joint Operations Centre at the DMC for joint decision making
- To provide 'on the scene' operational support

"We are currently in the process of loading data on the Aurecon Disaster Management System, which has been procured by the Eastern Cape Provincial Disaster Management Centre (EC PDMC)," said Brown.

### Interagency involvement

The following task teams form part of the Nelson Mandela Bay Disaster Management Advisory Forum (NMB DMAF) and are functional during the year:

- Provision of Social Relief and Emergency Shelter Task Team
- Nelson Mandela Bay Emergency Services Coordinating Committee
- Disease Outbreak Control and Health Services Task Team
- Response and Recovery Task Team (infrastructure)

### Nelson Mandela Bay Emergency Services Coordinating Committee (NMBESCC)

The Nelson Mandela Bay Emergency Services Coordinating Committee (NMBESCC) is the structure established to deal with multi-agency emergency response. It is a committee established in the 1980s consisting of emergency services and various other organisations involved in emergency management and meets monthly.

The committee was transformed in 2012 to serve as a sub-structure of the Nelson Mandela Bay Disaster Management Advisory Forum. It operates according to its adopted terms of reference, which were reviewed in 2016/2017.

The Nelson Mandela Bay Emergency Services Coordinating Committee also established a water emergency rescue group consisting of all the services that deal with water-related rescues and recoveries. The group had to build on a coordinated response and foster mutual assistance. Since its inception, the group meets regularly to discuss incidents and improve coordination. Today it is a known fact that Nelson Mandela Bay has the best response to water-related emergencies.

### Joint Planning Committees (JPC)

The company representative from the key point as the chairperson of the committee in terms of legislation, the South African Police Services (SAPS) is the co-chair or leading agent in collaboration with Nelson Mandela Bay

DMC, Fire and Emergency and Traffic Services and includes emergency and medical services participates in JPCs for national key points (NKP) to coordinate emergency response and annual simulation exercises.

The current national key points are:  
Four centres are currently secured by JPC:

- South African Broadcasting Corporation (SABC) Umhlobo Wenene
- South Africa Revenue Service (SARS)
- Eskom Grassridge Site
- Reserve Bank

**Events Planning Committee (EPC)**

The relevant departments namely, the SAPS as the authorized member of events legislation, the Nelson Mandela Bay events office, DMC, Traffic Services, Fire and Emergency Services, Emergency Medical Services, Environmental Health Services and Waste Management convene a fortnightly. Event organisers of low risk events are invited to present their events to the panel of services. Presentations are uniform for all organisers and are based on requirement in terms of the events legislation. Services representatives guide the organisers and advise on shortcomings.

**Disease Outbreak Response Committee**

The Nelson Mandela Disease Outbreak Response Team (NMDORT) meets monthly and is chaired by the district health official responsible for communicable disease surveillance. The NMDORT is also one of the best functioning outbreak response teams in the country.

**Head of Centre profile**

Shane Brown joined the Port Elizabeth Municipality in 1984 as a senior accounting assistant in the Treasury Department. He was later appointed as an area manager in the Housing Department. Thereafter, he was appointed as an assistant manager, civil protection in 1993 and was subsequently appointed as the head: disaster management for the Nelson Mandela Bay Municipality in 2003 after acting in the position for five years.

His achievements include:

- Establishment of a disaster management centre and eight satellite offices
- Coordinated the city's response to flood disasters in 2006 and in 2012 as well as many other events

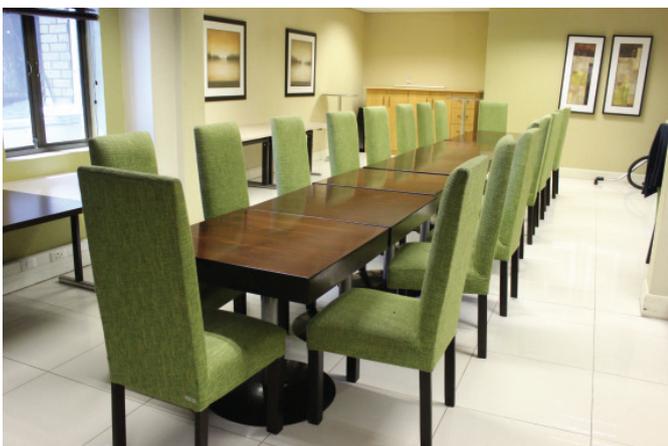
- Submission and approval of the first Disaster Management Plan for the city
- Rugby World Cup disaster planning for the metro
- Cricket World Cup disaster planning for the metro
- Seconded to the Independent Electoral Commission (IEC) to assist with election preparations
- Appointed as safety and security coordinator in 2006 for the 2010 FIFA World Cup for the Nelson Mandela Bay Municipality and was responsible for the planning for Safety and Security for the metro
- Established a 24/7 Operations Centre during the World Cup that ensured that the city was able to successfully respond to all challenges
- Assisted with the roll out of closed circuit television (CCTV) infrastructure throughout city
- Part of a national working group responsible for drafting documents for Early Warning Systems for Storm Surges and Estuary Emergency Management in South Africa
- Delivered presentations at numerous forums within South Africa as well as in Abu Dhabi, United Arab Emirates and Paris, France. 🇷🇺



The DMC's reception



The Joint Operations Centre (JOC)



The boardroom



The mobile operations centre/incident command vehicle

# DMISA CONFERENCE 2017



**T**hemed 'Back to basics through resilience design and innovation: Purpose in action', the Disaster Management Institute of Southern Africa's (DMISA) 2017 conference was held in Port Elizabeth situated in Nelson Mandela Bay Metropolitan Municipality in the Eastern Cape on 27 and 28 September 2017. The two-day conference was supported by the National Disaster Management Centre (NDMC), South African Weather Service (SAWS) and the Nelson Mandela Bay Metropolitan Municipality.

A warm welcome was received from Cllr John Best, MMC for Safety and Security for Nelson Mandela Bay Metropolitan Municipality followed by a presentation by SAWS CEO, Jerry Legoasa, on 'Weather and climate information for disaster preparedness under changing climate. Legoasa detailed SAWS' key value-added services, a history of weather related disasters in South Africa, SAWS' strategic programmes and partnerships and its role in disaster risk reduction with a focus on the Southern African Development Community (SADC).

Anè Bruwer of the NDMC provided insight into the NDMC's highlights on implementation of the disaster risk management function: from commitment to action. Bruwer said, "Let us as South Africa move from commitment to action

in addressing the four priorities of action of the Sendai Framework for Disaster Risk Reduction ie understanding disaster risk, disaster risk governance, investing in resilience and preparedness to build back better, to manage disaster risk effectively in our country."

Dr Jan Kupec, an urban search and rescue volunteer from Christchurch in New Zealand provided an informative presentation about earthquake recovery and rehabilitation by digital innovation, an overview of the technology used to assist rescuers during and after the Christchurch earthquake. Dr Kuper explained the benefits and accuracy of using smart technology such as drones, photogrammetry, laser scanning, geomodelling, virtual reality (VR), augmented reality (AR) and mixed reality (MR) to assist with 3D model development and bulk volume calculation.

Dr Johan Minnie provided Insight into how professionalisation contributes to innovation in the design of resilience and the disruption of disaster risk. Dr Minnie added to the discussion the importance of resilience building and resilience dividend.

Prof Andries Jordaan of the University of the Free State's Disaster Management Training and Education Centre for Africa (DIMTEC) presented on 'Taking the guessing out of drought disaster

declaration: drought indicators for South Africa'. Prof Jordaan detailed drought classification and the different types and stages of drought, drought monitoring through indicators, dry periods are not droughts for all and the implementation of drought risk reduction measures.

Independent consultant, Dr Cindé Greyling, presented on 'When the message goes missing. Considering mistakes that make a simple message go missing when you need it most' while Francis Hoets of DMS discussed 'Community-based early warning systems and disaster risk management: bridging the gap.

Patricia Zweig lecturer at Research Alliance for Disaster and Risk Reduction (RADAR) at Stellenbosch University, discussed fire detection in informal settlements in her presentation, 'Where there's smoke, there's fire'. She detailed the fire simulations and testing involved in determining the most effective and cost efficient early warning system and shared the Wallacedene TRA project results in Cape Town.

Logan Munsamy, Central University of Technology presented on 'Climate change adaptation and disaster risk reduction South African perspective' and Dr Herman Booysen of Aurecon South Africa discussed 'Designing a resilient African city, the smart way'.

Disaster management mutual aid agreements: a structured approach to planning and implementation was a presentation done by Geoff Laskey of Geoff Laskey Risk Reduction wherein Laskey discussed the essential elements in mutual aid and assistance agreements, using the Knysna fires in a case study.

Dr Johannes Belle of DiMTEC spoke about 'Building resilience in natural capital to reduce disaster risks and adapt to climate change: a case of wetlands in the eastern Free State'. Dr Belle highlighted the importance of wetlands management, saying we should be more proactive and less reactive and encouraged the use of natural ecosystems like wetlands to reduce disaster risks and adapt to climate change.

Dr Eugene Poolman, chief forecaster at SAWS discussed 'Innovation in early warning systems: Experiences from the summer and winter pilot phases of the new impact-based severe weather warning system for South Africa. Dr Poolman highlighted the new paradigm in severe weather warning service ie the change from weather prediction to risk prediction, adapted for South African conditions thus enhancing information to DMCs and the public for better decision making.

The use of indigenous knowledge and the role of traditional leadership in disaster management was the topic of Thinus Rabe, emergency response coordinator at De Beers's presentation. Rabe explained indigenous knowledge versus scientific knowledge and said that from a disaster management perspective, it is clear that there is a major responsibility to be prepared for and to understand the functional environment and to use that understanding to the advantage of communities.

Dr Roman Tandlich, senior lecturer at Rhodes University's Division of Pharmaceutical Chemistry, presented on 'An energy, water and disease disaster management module: A techno-economic feasibility analysis. Dr Tandlich said that in the Sustainable Development Goals, improving sanitation and drinking water has been identified as one of the most effective means of reducing fatalities and improving public health. Beside this, access to monitoring facilities that help diagnose waterborne and sanitation-related diseases is critical in the disaster management of epidemics.

Olga Mofokeng of the Department of Geography at the University of the Free State's Qwaqwa Campus, presented on the 'Development of fire moisture index for fire danger assessment in a mountainous area using remote sensing. Mofokeng said

that geospatial tools can be beneficial for mapping potential fire dangers and as the model has an accuracy assessment of 80 percent, it is a useful tool for preventions and mitigation of fire.

Eskom's enterprise resilience assessment manager, Liza van der Merwe, discussed the 'Conceptual framework for assessing and building the resilience of essential services. Van der Merwe said, "We propose formative resilience assessments to become an ongoing process to identify opportunities and collectively agree to build resilience across the complex adaptive socio-technical system that produce the essential service."

Buffalo City Disaster Management Centre's Owen Becker, presented on 'A critical assessment of disaster consequence management. Becker said, "Resilient design in both an urban as well as a rural context requires an innovative and ground breaking paradigm shift that must be informed by the consequences of each decision taken during the planning, design, construction and operation of all development solutions. Two of the greatest challenges facing planners is scarce land and water too little-too much; these challenges apply equally to urban and rural areas."

The National Disaster Management Centre's Jurgens Dyssel, led an interactive panel discussion on the value of mutual assistance agreements for disaster management. Dyssel provided a brief overview of the disaster management guidelines on Mutual Assistance Agreements (MAA's) development process and an overview of the guideline content developed thus far on the guideline for MAA's by the core development team. The key

aspects discussed during the session for consideration and inclusion in the development of the disaster management guidelines on Mutual Assistance Agreements (MAA's) were noted.

DiMTEC's Alice Ncube, presented on 'Using multivariable analysis to evaluate the Sub-saharan African migrant women coping and adaptation in South Africa. The human and social livelihood capitals.'

Eskom's power system resilience manager, Malcolm van Harte, discussed 'Resiliency of critical infrastructure: Power system resilience capabilities and assessment framework. Harte's presentation discussed the physical resilience dimensions as a concept utilised in an electricity sector. It proposed a power system resilience capabilities and assessment framework for assessing disaster scenarios in terms of the resilience thinking. He detailed the major steps required to focus the prioritisation of resilience capabilities in order to contain the impact and restore networks more quickly.

Another panel discussion followed facilitated by Dr Johan Minnie and chaired by Anè Bruwer on 'A journey back to basics: conversations about milestones, experiences and destination.

#### Gala dinner

Executive Mayor of Nelson Mandela Bay Metro Municipality, Athol Trollip, joined the proceedings at the gala dinner, providing insight into recent incidents within the Metro area and reducing disaster risk by increasing resilience.

A photo gallery of the conference and evening is available on the Fire and Rescue International website:

[www.fireandrescue.co](http://www.fireandrescue.co)







# DMISA HOLDS 2017 ANNUAL GENERAL MEETING



The Disaster Management Institute of Southern Africa (DMISA) recently held its 33rd Annual General Meeting (AGM) in Port Elizabeth. The 2017 AGM coincided with the institute's annual conference and was held on 29 September 2017 at the Coega Vulindlela Conference Centre.

## DMISA GOLD COMMENDATIONS AND SPECIAL AWARDS



The Disaster Management Institute of Southern Africa (DMISA) awarded Gold commendations to three of their stalwarts at the recently held DMISA conference in Port Elizabeth. The Gold Commendations were awarded to Dr Maliga (Mal) Reddy, Owen Becker and Dr Johan Minnie.

For the first time, two special awards were presented at the DMISA conference. These were awarded to Johan Stander of the South African Weather Service (SAWS) and Colin Deiner of the Western Cape Provincial Government.

# GOLD COMMENDATIONS AND SPECIAL AWARDS AWARDED BY DMISA



The following people have been awarded for outstanding service in the execution of Disaster Management duties and/or service to the Institute:

1. Pat Adams (2009)
2. Patricia Reid (Posthumous) (2012)
3. André Jansen van Rensburg (2013)
4. Geoff Laskey (2014)
5. Anthony Kesten (2016)
6. Schalk Carstens (2016)
7. Dr Maliga Reddy (2017)
8. Owen Becker (2017)
9. Dr Johan Minnie (2017)

## Extraordinary Service Awards awarded by DMISA

The following people have been awarded for extraordinary service in the execution of Disaster Management duties and/or service to the Institute:

1. Johan Stander (2017)
2. Colin Deiner (2017)



Pat Adams



Patricia Reid



André Jansen van Rensburg



Geoff Laskey



Anthony Kesten



Schalk Carstens



Dr Maliga Reddy



Owen Becker



Dr Johan Minnie



Johan Stander



Colin Deiner

# COGTA CONFERENCE COMMEMORATES IDDR 2017



The Department of Cooperative Governance and Traditional Affairs (CoGTA) and the National Disaster Management Centre (NDMC) commemorated International Day of Disaster Reduction (IDDR) 2017 with a conference held over two days aptly themed ‘Reducing exposure, reducing displacement: from commitment to action’. The first day of the conference was held in Pietermaritzburg and focussed on Resilience and Disaster Risk Reduction and included a technical practitioners session. The second day was held in Durban and featured the commemoration of IDDR 2017 with the signing of the Pledge between Minister of Cooperative Governance and Traditional Affairs, MECs and executive mayors.

Minister Des van Rooyen of Cooperative Governance and Traditional Affairs (CoGTA), in partnership with the MEC Nomusa Dube-Ncube responsible for CoGTA in KwaZulu-Natal and the Mayor

of eThekweni Metropolitan Municipality, Councillor Zandile Gumede led the 2017 IDDR commemorations. The commemoration was attended by representatives of the three spheres of government across the country and a number of stakeholders including the delegation from the United Nations Office for Disaster Reduction who conveyed the United Nations message on the event.

South Africa as a signatory to the UNISDR, has set its target focussed on prevention, protection and reducing the number of people affected by disasters. It concerns the safety of all but particularly those at greater risk of death, injury, ill-health, loss of livelihood, displacement and lack of access to basic services from disaster events including women and children, people living with disabilities and older persons. These groups have varying degrees of exposure to disaster events and also need to be included in disaster risk

management and reduction planning.

The Sendai Seven Campaign is an opportunity for governments, UN agencies and all stakeholders including the private sector, science and technology partners, community groups, civil society organisations, international organisations, to promote and advertise best practice at international, regional and national level across all sectors, to reduce disaster risk and disaster losses.

The 2017 commemoration was held at an opportune time when disasters continue to wreak havoc across the globe and South Africa is not immune to this. The recent events in South Africa such as veldfires, storms and floods resulted in disasters. “These and many disasters across the globe, are a reminder of the work that still lies ahead for all stakeholders to complete”, said Minister van Rooyen.

As a signatory to the UNISDR, South Africa will ensure the implementation of a ten-point checklist dubbed “Ten Essentials for Making Cities Resilient”, which serve as a guiding tool for local governments to undertake actions to reduce risks. These Ten Essentials are important and interdependent for sustainable development and place an emphasis on institutional and administrative arrangements, financing, risk assessment, infrastructure, schools and hospitals, planning, training and awareness, the environment, preparedness and reconstruction.

Minister van Rooyen called on all sectors to join hands to commemorate the International Day for Disaster Risk Reduction 2017 as well as to mainstream disaster risk reduction in their ongoing service delivery



programmes. He emphasised that Disaster Risk reduction is everybody's business thereby not a challenge of one individual or group but everyone has the responsibility to ensure that we ensure safe and resilient communities.

The commemoration also afforded municipalities and stakeholders the opportunity to reflect on the work done thus and share their case studies with delegates in a quest for sustainable service delivery and development.

Speakers included head of the NDMC, Dr Mmaphaka Tau, who provided an overview of the NDMC's perspective on cities resilience: from commitment to action, Mdudizi Nxumalo, DMISA deputy president and Dr Johan Minnie, DMISA EXCO member: professionalisation who presented on 'Building resilience through the application of ten UNISDR essentials: a perspective from DMISA'. Sibongiseni Ngema of the KZN PDMC presented a case study on disaster management and resilience while the South African Weather Service's (SAWS) Mnikeli Ndabambi and the NDMC's Dechlan Pillay discussed 'End to end and impact driven early warning systems' while William Jiy of the Department of Human Settlement detailed 'Building resilience through integrated human settlements planning'. An overview on preparedness and response: practice-

based lessons was presented by Dr Imtiaz Sooliman, founder of the Gift of the Givers. The NDMC's Godiraone Lloyd Phethu discussed 'Building fire safety capacity: the NDMC's perspective' and Legadima Leso of CoGTA presented on 'Communication protocols in disaster risk management: The need for a coordinated vertical and horizontal approach'. Parks Tau provided SALGA's perspective and CoGTA Deputy Minister, Andries Nel, detailed the 2017 IDDR Pledge.

A number of case studies were presented including 'Community emergency response Ekurhuleni Metro'; Integrated Urban Development Framework (IUDF) and cities resilience, 'Community education initiative' by Dr Kenneth Kaunda District Municipality, Response to Knysna veldfires by the Eden District Municipality Disaster Management Centre, Climate change adaptation case study by Vincent Ngubane, head of the eThekweni DMC; Alternative sources of renewable energy by City of Johannesburg.

The commemoration was planned to adopt both an awareness and advocacy approach focused on 'The Ten Essentials of Making Cities Resilient':

1. Put in place organisation and coordination to understand and reduce disaster risk, based on

2. participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role in disaster risk reduction and preparedness.
2. Assigning of budgets towards disaster risk reduction
3. Preparation of risk assessment reports
4. Investment in critical infrastructure that reduces risk of disasters
5. Continuous monitoring and evaluation of safety of schools and health facilities
6. Application and reinforcement of realistic, risk compliant building regulations and land use planning principles
7. Ensuring education and training programmes in disaster risk reduction
8. Protection of ecosystems and natural buffers
9. Availability of early warning systems and emergency management
10. Ensuring the needs of affected population are placed at the centre of reconstruction

The International Day for Disaster Reduction (IDDR) commemoration provided the ideal opportunity for disaster management practitioners and all spheres of government to South Africa to reflect on building safer cities and towns for the sake of our communities. 🇿🇦



# IDDR 2017: KLAPMUTS SMOKE ALARM INSTALLATION INITIATIVE



settlement, incorporating the collection of general demographic information, household energy use, household fire histories, while also establishing the general level of fire risk awareness. Smoke alarms were simultaneously installed in every dwelling in the settlement by another trained community team. The acceptability of the use of smoke alarm technology in the community and its effectiveness in reducing fire risk is currently being monitored, with the household survey providing a baseline against which to measure change in fire risk over time in this community. This winter, no fire-related deaths have been recorded in the Wallacedene TRA, while several fires have been successfully prevented due to the early warnings provided by the smoke alarms.

Recent fire disaster statistics suggest, however, that fatalities in informal backyard dwelling fires are becoming more prevalent than those recorded in informal settlements. The International Day for Disaster Risk Reduction offered an opportunity to launch a project that aims to test the same smoke alarm technology in informal backyard dwellings in Klapmuts, following information gleaned from the student research. The effectiveness of the use of smoke alarm technology in this very different informal dwelling environment will be monitored by the Disaster Risk Studies Honours students next year.

The Western Cape Government, who has been actively supporting the installation of smoke alarms in high fire risk communities throughout the province, provided the technical assistance and resources to install the smoke alarms. In the 2017 budget vote speech, Minister Anton Bredell, Minister of Local Government Environmental Affairs and Development Planning, said that he was convinced that this project will save many lives as it is rolled out across the Province. 🇿🇦

The theme for International Day for Disaster Risk Reduction commemorated on 13 October 2017 was 'Home Safe Home', which highlighted household safety, prevention, protection and reducing the number of people affected by disasters. The day was commemorated in Stellenbosch Municipality with the launch of a collaborative initiative to reduce household fire risk among backyard dwellers living in Klapmuts, using smoke alarm technology. Funded by Santam, the project launch involved a multi-stakeholder partnership, including Stellenbosch Municipality Disaster Management, Western Cape Government, fire and rescue services from Breede Valley and Stellenbosch, Working on Fire and the Research Alliance for Disaster and Risk Reduction (RADAR) at Stellenbosch University. The event emphasised the needs of those at greater risk of death, injury, ill-health, loss of livelihood, displacement and lack of access to basic services from disaster. The importance of protecting the family home as a sanctuary and safe refuge in times of disaster was emphasised through the installation of smoke alarms in the surrounding backyard shacks and homes.

For the last two years, Patricia Zweig of RADAR, has been facilitating the Disaster Risk Studies Honours students to undertake research in Klapmuts to determine the risks associated with backyard living. The project began in 2016, with a survey conducted among backyard dwellers, recording the hazards

and vulnerabilities of backyard living. Last year the project continued, with a survey among local landlords and home owners to determine their perspectives on the challenges and opportunities posed by backyard dwellings. The overarching aim of the project, which was supported by Stellenbosch Municipality housing officials and the local ward councillor, Emily Fredericks, was to determine how the municipality could support backyard dwellers and landlords to reduce the risks that had been identified, such as the lack of basic services, while fire was identified as a critical life-threatening risk.

The smoke alarm installation project that has been launched in Klapmuts to reduce fire risk, has been made possible due to another successful collaborative fire risk reduction project using the same technology, in an informal settlement in Kraaifontein. In 2015, a community risk assessment training undertaken by RADAR in the Wallacedene TRA informal settlement, resulted in the collaborative planning, design and implementation of several risk-reducing interventions. These involved the cooperation of the whole TRA community, coordinated by their leaders, together with officials from the City of Cape Town and the Western Cape Government. The success of these various collaborative interventions encouraged the idea to pilot the use of new smoke alarm technology to reduce the settlements' identified high fire risk. Once again coordinated by the community leaders, members of the community were trained to undertake a survey of the

# UNISDR

## INTERNATIONAL DAY OF DISASTER REDUCTION

**D**isaster Management Solutions (DMS) had the opportunity of collaborating with the Cape Winelands District Disaster Management Centre (CWDMC) in hosting a school initiative in honour of the United Nations International Strategy for Disaster Reduction (UNISDR) International Day of Disaster Reduction (IDDR). The United Nations General Assembly has designated 13 October as International Day of Disaster Reduction, including disaster prevention, mitigation and preparedness. 'Home Safe Home' is the slogan for this year's IDDR, one of the targets of the 'Sendai Seven Campaign' launched in 2016. The Sendai Seven campaign is an opportunity for governments, the private sector, science and technology partners, community groups and civil society organisations to promote and advertise best practice at all levels across all sectors, to reduce disaster risk and disaster losses.

The UNISDR IDDR was hosted at the Noorder-Paarl Secondary School in the Western Cape for Grade 11 learners. The aim of the day was to introduce learners to the concept of disaster management and the priority risks their households and school are exposed to within the Drakenstein Municipality. In addition, the opportunity was taken to introduce disaster management to the learners as a potential career option, providing insight into the day in the life of a disaster manager.

In response to the priority threats identified in the area namely fire, crime, drought and transport accidents, DMS, South African Police Service (SAPS), Cape Winelands Disaster Management and Environmental Health and Drakenstein Municipal Traffic and Fire Services contributed to the activities of the day. Francis Hoets of DMS opened the session by introducing the learners to disaster management. Learners were encouraged (with fun spot prizes) to define disaster management terminology and basic disaster risk assessment steps were outlined to them using maps and imagery of an informal settlement located within Paarl. In addition, the concept of primary and support agents responsible for priority threats was introduced, using the 'Whose disaster is it anyway' exercise.

Shaun Minnies, head of centre at the Cape Winelands Disaster Management



Centre, focussed on disaster management as a career opportunity, taking the learners through a journey of how he came to be in the position he is in now. In addition, the learners were provided information and anecdotes on what it is like to be a disaster manager, both during normal working days and within a disaster scenario.

Warrant officer Lincoln Johnson of the SAPS provided safety tips on issues relating to crime that affect and involve the learners and Gregory Williams from the Drakenstein Municipality Traffic Department briefed the learners on road safety, particularly due to the fact that they are soon to be motor vehicle users. Finally, Dereck Peceur from Drakenstein Municipality Fire Department taught the

learners the emergency number for fire related incidents, which the learners practiced through singing and chanting. Although they could not be present, Cape Winelands Environmental Health pledged brochures to be distributed to the learners regarding safe use and disposal of grey and black water.

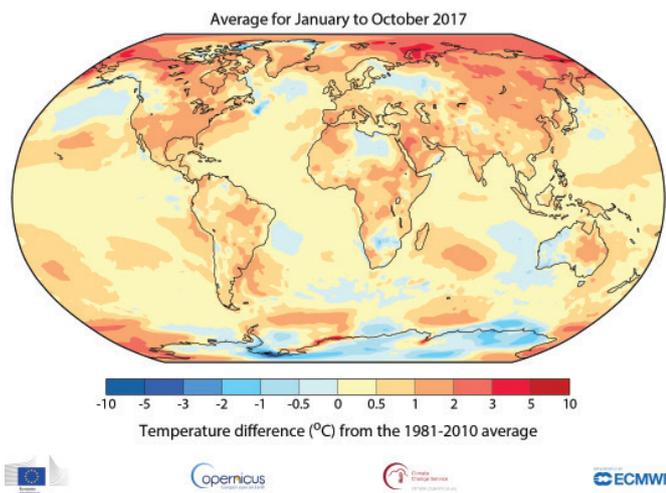
DMS would like to extend a special thanks to Darryl Matthys, principal of Noorder-Paarl Secondary School, for providing the team with the opportunity of raising disaster management awareness among a selection of their pupils. This successful event could not have been done without the collaborative and enthusiastic effort by all the stakeholders involved. Disaster management truly is everybody's business. 🇷🇺

# 2017 IS SET TO BE IN TOP THREE HOTTEST YEARS, WITH RECORD-BREAKING EXTREME WEATHER



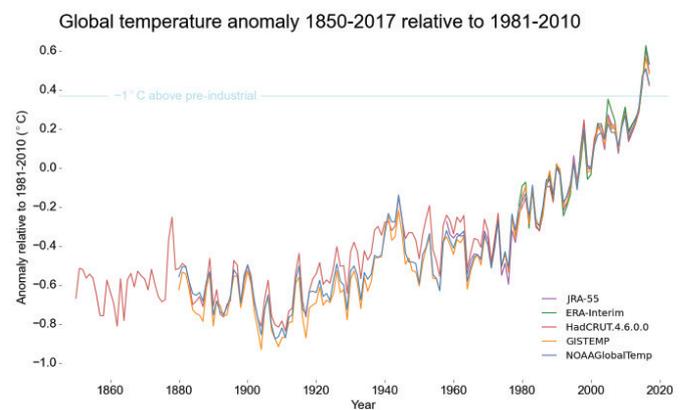
It is very likely that 2017 will be one of the three hottest years on record, with many high-impact events including catastrophic hurricanes and floods, debilitating heatwaves and drought. Long-term indicators of climate change such as increasing carbon dioxide concentrations, sea level rise and ocean acidification continue unabated. Arctic sea ice coverage remains below average and previously stable Antarctic sea ice extent was at or near a record low.

The World Meteorological Organisation’s (WMO) provisional Statement on the State of the Climate says the average global temperature from January to September 2017 was approximately 1,1 degrees Celsius above the pre-industrial era. As a result of a powerful El Niño, 2016 is likely to remain the warmest year on record, with 2017 and 2015 being second and/or third. 2013-2017 is set to be the warmest five-year period on record.



The WMO statement, which covers January to September, was released on the opening day of the United Nations (UN) climate change conference in Bonn. It includes information submitted by a wide range of UN agencies on human, socio-economic and environmental impacts as part of a drive to provide a more comprehensive, UN-wide policy brief for decision makers on the interplay between weather, climate and water and the UN global goals.

“The past three years have all been in the top three years in terms of temperature records. This is part of a long term warming trend,” said WMO secretary-general Petteri Taalas. “We have witnessed extraordinary weather, including temperatures topping 50 degrees Celsius in Asia, record-breaking hurricanes in rapid succession in the Caribbean and Atlantic reaching as far as Ireland, devastating monsoon flooding affecting many millions of people and a relentless drought in East Africa. Many of these events and detailed scientific studies will determine exactly how many, bear the tell-tale sign of climate change caused by increased greenhouse gas concentrations from human activities,” he said.



Patricia Espinosa, executive secretary of UN Climate Change, which is hosting the Bonn conference, said, “These findings underline the rising risks to people, economies and the very fabric of life on Earth if we fail to get on track with the aims and ambitions of the Paris Agreement.”

“There is unprecedented and very welcome momentum among governments but also cities, states, territories, regions, business and civil society. Bonn 2017 needs to be the launch pad towards the next, higher level of ambition by all nations and all sectors of society as we look to de-risk the future and maximize the opportunities from a fresh, forward-looking and sustainable development path,” she added.

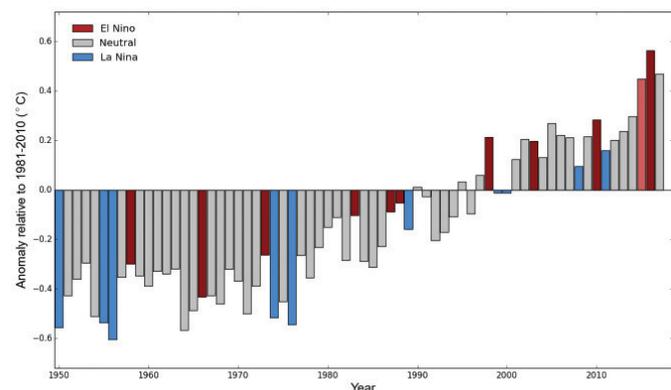
Extreme events affect the food security of millions of people, especially the most vulnerable. A review of the Food and Agriculture Organisation (FAO) found that, in developing countries, agriculture (crops, livestock, fisheries, aquaculture and forestry) accounted for 26 percent of all the damage and loss associated with medium to large-scale storms, floods and drought.

According to the World Health Organisation (WHO), the global health impacts of heatwaves depend not only on the overall warming trend but on how heatwaves are distributed across where people live. Recent research shows that the overall risk of heat-related illness or death has climbed steadily since 1980, with around 30 percent of the world’s population now living in climatic conditions that deliver prolonged extreme heatwaves. Between 2000 and 2016, the number of vulnerable people exposed to heatwave events has increased by approximately 125 million.

In 2016, 23,5 million people were displaced during weather-related disasters. Consistent with previous years, the majority of these internal displacements were associated with floods or storms and occurred in the Asia-Pacific region. In Somalia, more than 760 000 internal displacements have been reported, according to the UN High Commissioner for Refugees and International Organisation for Migration (IOM).

The latest International Monetary Fund (IMF) World Economic Outlook indicates that adverse consequences are concentrated in countries with relatively hot climates and which are home to close to 60 percent of current global population.

### Global temperatures in 2017



Global mean temperature for the period January to September 2017 was 0,47 degrees, ±0,08 degrees Celsius warmer than the 1981-2010 average (estimated at 14,31 degrees Celsius). This represents an approximately 1,1 degrees Celsius increase in temperature since the pre-industrial period. Parts of southern Europe, including Italy, North Africa, parts of east and southern Africa and the Asian part of the Russian Federation were record warm and China was the equal warmest. The northwestern USA and western Canada were cooler than the 1981-2010 average.

Temperatures in 2016 and to an extent, 2015, were boosted by an exceptionally strong El Niño. 2017 is set to be the warmest year on record without an El Niño influence. The five-year average 2013-2017 is provisionally 0,40 degrees Celsius warmer than the 1981 to 2010 average and approximately 1,03 degrees Celsius above the pre-industrial period and is likely to be the hottest on record.

The WMO statement is based on five independently maintained global temperature data sets. WMO now uses 1981-2010 instead of the previous 1961-1990 baseline as it is more representative of current climatic conditions and allows for more consistent reporting of information from satellite and reanalysis systems (some of which do not extend back to 1960) alongside more traditional data sets based on surface-observations. The change in the baselines has no influence on trend analysis.

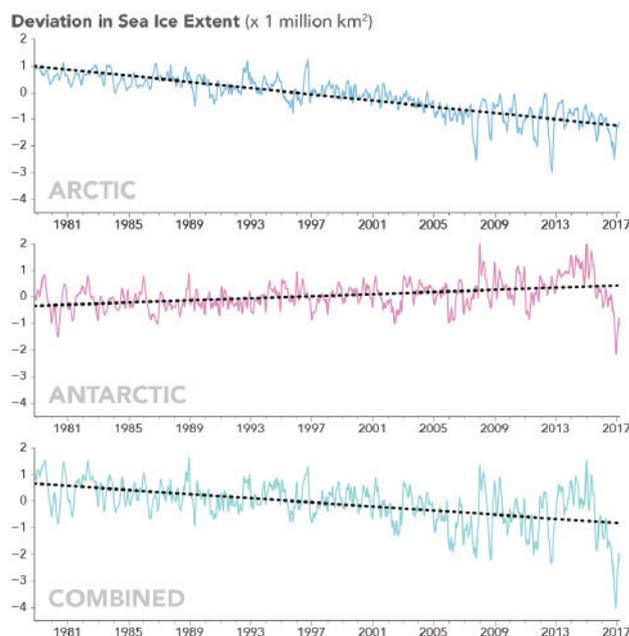
### Precipitation

Southern South America (particularly in Argentina), western China and parts of southeast Asia were wetter than average. January to September was the wettest on record for the contiguous United States. Rainfall was generally close to average in Brazil and near to above average in northwest South America and Central America, easing droughts associated with the 2015-16 El Niño. The 2017 rainy season saw above-average rainfall over many parts of the Sahel, with flooding in some regions (especially in Niger).

All-India rainfall for the 2017 monsoon season (June to September) was five percent below average. However, above-average rainfall in the northeast and adjacent countries led to significant flooding.

The Canadian Prairies, the Mediterranean region, Somalia, Mongolia, Gabon and southwestern South Africa all received lower rainfall than average. Italy had its driest January to September on record.

### Ice and snow



# Vital Weather

Rainfall

Sun

Humidity

Wind

## Foresight through Technology

- Online Weather Reporting System
- Near Real Time Weather Information
- Alerts and Alarms Via SMS and Email
- Increasing Safety Through Technology
- Real Time Weather Conditions Via SMS
- Wind, Temperature and Rain Maps
- Weather Management Risk Assessment
- History Graphs, NOAA Reports, Actual & Averages
- Airports, Industry, Agriculture

**Tel:** 27 11 805 4720    **e-mail:** cwp@cwprice.co.za  
[www.vitalweather.co.za](http://www.vitalweather.co.za)

## Climate

- ▶ Arctic sea-ice extent was well below average throughout 2017 and was at record-low levels for the first four months of the year, according to the National Snow and Ice Data Centre and the Copernicus Climate Change Service. The Arctic annual maximum extent in early March was among the five lowest in the 1979-2017 satellite record, and according to the NSIDC's data was record low. The five lowest maximum extents have occurred since 2006.

A strong and persistent low pressure system over the central Arctic helped to inhibit ice loss during the summer months. The Arctic sea ice extent minimum in mid-September was 25 to 31 percent below the 1981-2010 average and among the eight smallest minimum extents on record. The ten smallest minimum extents have all occurred since 2007.

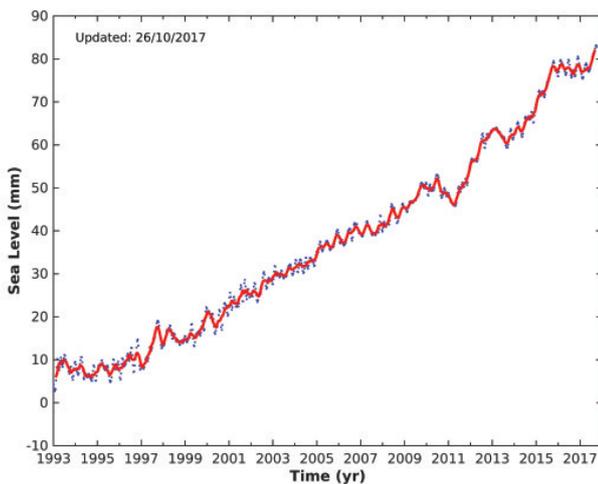
Antarctic sea ice extent was also well below average. The annual minimum extent in early March was record low and the annual maximum extent in mid-October was at or near record low levels. Sea ice conditions in the Antarctic have been highly variable over the past several years with the record large sea ice extents occurring as recently as 2015.

Northern Hemisphere snow cover extent was 10,54 million square km, near the median value in the 1967-2017 satellite record.

The Greenland ice sheet saw an increase of more than 40 billion tons of ice due to above-average snowfall and a short melt season. Despite the gain in overall ice mass this year, it is only a small departure from the declining trend, with the Greenland ice sheet having lost approximately 3 600 billion tons of ice mass since 2002.

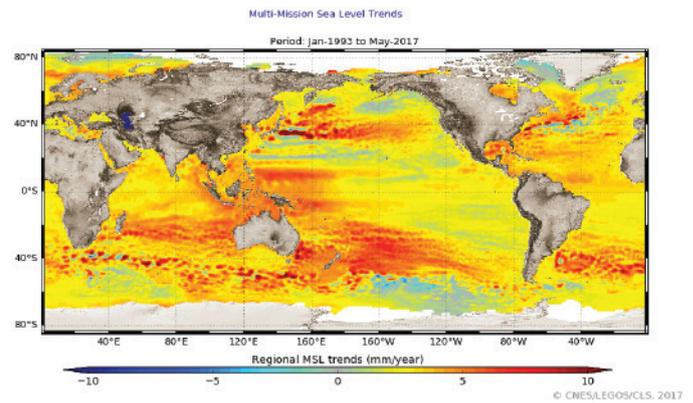
Credit: LEGOS

## Sea level



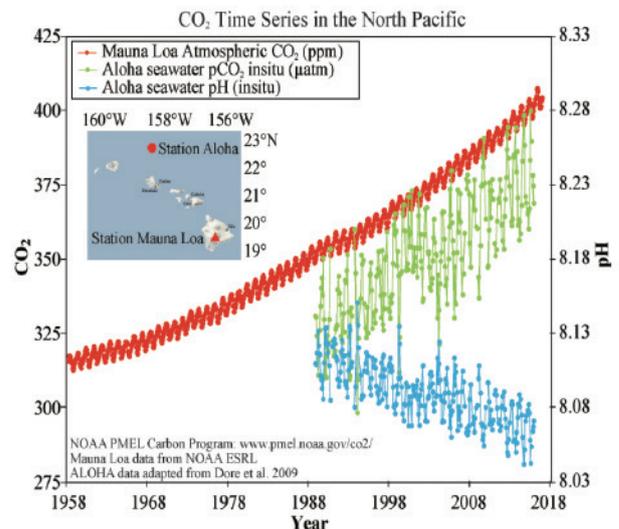
The global mean sea level (GMSL) is one of the best climate change indicators. Global mean sea level has been relatively stable in 2017 to date, similar to levels first reached in late 2015. This is because the temporary influence of the 2015-16 El Niño (during which GMSL peaked in early 2016 at around 10 millimetres above the 2004-2015 trend) continues to unwind and GMSL is reverting to values closer to the long-term trend. Preliminary data indicates that a rise in GMSL may have started to resume from July-August 2017 onwards.

## Ocean heat



Global sea surface temperatures are on track to be among the three highest on record. Global ocean heat content in 2017 to date has been at or near record high levels. Elevated tropical sea surface temperatures which contribute to coral bleaching were not as widespread as during the 2015-16 El Niño. But some significant coral bleaching did still occur, including Australia's Great Barrier Reef. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) reported in June that all but three of the 29 coral reefs with World Heritage listing had experienced temperatures consistent with bleaching at some point in the 2014-2017 period.

## Ocean acidification



Data: Mauna Loa ([http://ftp.cgd.noaa.gov/products/trends/co2/mlo\\_mlo\\_tsi](http://ftp.cgd.noaa.gov/products/trends/co2/mlo_mlo_tsi)) ALOHA ([http://hahama.soest.hawaii.edu/bof/products/HOT\\_surface\\_CO2.txt](http://hahama.soest.hawaii.edu/bof/products/HOT_surface_CO2.txt))  
Ref: J.E. Dore et al. 2009. Physical and biogeochemical modulation of ocean acidification in the central North Pacific. *Proc Natl Acad Sci USA* 106:12215-12240.

According to the Intergovernmental Oceanographic Commission of UNESCO the ocean absorbs up to 30 percent of the annual emissions of anthropogenic CO<sub>2</sub> in the atmosphere, helping to alleviate the impacts of climate change on the planet. However, this comes at a steep ecological cost, as the absorbed CO<sub>2</sub> changes acidity levels in the ocean. Since records at ALOHA station (north of Hawaii) began in the late 1980s, seawater pH has progressively fallen, from values above 8,10 in the early 1980s to between 8,04 and 8,09 in the last five years.

Ocean acidification is directly influencing the health of coral reefs and the survival and calcification of several key organisms. These have cascading effects within the food web and impact aquaculture and coastal economies.

## Greenhouse gasses

The rate of increase in CO<sub>2</sub> from 2015 to 2016 was the highest on record, 3,3 parts per million/year, reaching 403,3 parts per

million. Global average figures for 2017 will not be available until late 2018. Real-time data from a number of specific locations indicate that levels of CO<sub>2</sub>, methane and nitrous oxide continued to increase in 2017.



## Extreme events and impacts

### Tropical cyclones

The North Atlantic had a very active season. The Accumulated Cyclone Energy (ACE) index, a measure of the aggregate intensity and duration of cyclones, had its highest monthly value on record in September 2017.

Three major and high-impact hurricanes occurred in the North Atlantic in rapid succession, with Harvey in August followed by Irma and Maria in September. Harvey made landfall in Texas as a Category 4 system and remained near the coast for several days, producing extreme rainfall and flooding. Provisional seven-day rainfall totals reached as high as 1 539mm at a gauge near Nederland, Texas, the largest ever recorded for a single event in the mainland United States.

It was the first time two Category 4 hurricanes (Harvey and Irma) made landfall in the same year in the USA. Irma had winds of 300km/h for 37 hours; the longest on the satellite record at that intensity and spent three consecutive days as a Category 5 hurricane, also the longest on record. Like Irma, Maria also reached Category 5 intensity and caused major destruction on a number of Caribbean islands. In mid-October, Ophelia reached major hurricane (Category 3) status more than 1 000 kilometres further northeast than any previous North Atlantic hurricane. It caused substantial damage in Ireland, whilst winds associated with its circulation contributed to severe wildfires in Portugal and northwest Spain.

The WMO Expert Team on Climate Impacts on Tropical Cyclones found that, whilst there is no clear evidence that climate change is making the occurrence of slow-moving, land-falling hurricanes such as Harvey more or less frequent, it is likely that human-induced climate change makes rainfall rates more intense and that ongoing sea-level rise exacerbates storm surge impacts.

### Flooding

Exceptionally heavy rain triggered a landslide in Freetown, Sierra Leone in August, killing more than 500 people. Freetown received 1 459,2mm of rain in two weeks, about four times higher than average. Heavy rainfall contributed to a landslide in Mocoa, southern Colombia, in April, with at least 273 deaths reported.

Many parts of the Indian subcontinent were affected by monsoonal flooding, despite overall seasonal rainfall being near average. The most serious flooding occurred in mid-

August in eastern Nepal, northern Bangladesh and nearby northern India. Mawsynram (India) received more than 1 400mm from 9 to 12 August. Rangpur (Bangladesh) received a month's worth of rain (360 mm) on 11 and 12 August. More than 1 200 deaths were reported in India, Bangladesh and Nepal, whilst more than 40 million people were displaced or otherwise affected. The World Health Organisation indicated that in Bangladesh alone, more than 13 000 cases of waterborne diseases and respiratory infections were reported during three weeks in August, whilst extensive damage was reported to public health facilities in Nepal.

Flooding affected many parts of Peru in March, killing 75 people and making 70 000 homeless. The Food and Agriculture Organisation of the United Nations (FAO) reported that there were significant crop production losses, particularly maize. Flooding of this type typically affects Peru during the late phase of El Niño events. Whilst there was no Pacific-wide El Niño during 2017, sea surface temperatures near the Peruvian coast in March were two degrees Celsius or more above average and similar to El Niño values.

Major flooding occurred mid-year in parts of southern China, especially within the Yangtze River basin. Peak totals from 29 June to 2 July topped 250mm. Fifty-six deaths were reported and economic losses were estimated at more than US\$ 5 billion.

Heavy rain affected the western United States in January and February caused substantial flooding, numerous landslides and the evacuation of tens of thousands of people. It was the wettest winter on record for Nevada and the second-wettest for California.

### Drought

Parts of east Africa continued to be seriously affected by drought. Following well-below-average rainfall in 2016, the 2017 "long rains" season (March to May) was also dry in many parts of Somalia, the northern half of Kenya and southeastern Ethiopia.

The Food and Agriculture Organisation reported that in Somalia, as of June 2017, more than half of the cropland was affected by drought, with herds reduced by 40 to 60 percent since December 2016. The World Food Programme (WFP) estimates that the number of people on the brink of famine in Somalia has doubled to 800 000 since February 2017, with half the country needing assistance. WFP has confirmed that more than 11 million people are experiencing severe food insecurity in Somalia, Ethiopia and Kenya.

From November 2016 to mid-June 2017, more than 760 000 drought-related internal displacements in Somalia were recorded by the Protection and Return Monitoring Network (PRMN), a United Nations High Commissioner for Refugees (UNHCR) led project.

Kenya declared the 2017 drought a national disaster. Nairobi faced water shortages that compelled city authorities to ration water, whilst cereal prices rose and GDP figures were hit.

An above-average wet summer season eased drought conditions in southern Africa. But localised drought intensified in the Cape Province.

Heavy winter rains in early 2017 eased long-term drought conditions in California but resulted in some flooding and contributed to vegetation growth which may have influenced the severity of wildfires later in the year.

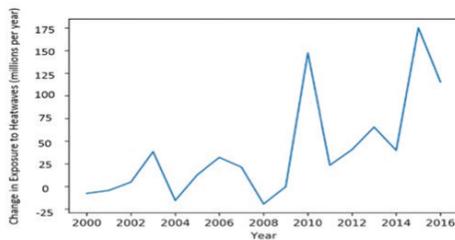
## Climate

- ▶ Many parts of the Mediterranean experienced dry conditions. The most severe drought was in Italy, hitting agricultural production and causing a 62 percent drop in olive oil production compared to 2016. Rainfall averaged over Italy for January to August 2017 was 36 percent below average. It was also Italy's hottest January-August on record, with temperatures 1,31 degrees Celsius above the 1981-2010 average. Other dry areas included many parts of Spain and Portugal.

The Democratic People's Republic of Korea was affected by below-average rains, impacting key staple crops such as paddy and maize. In the Republic of Korea, rainfall from January to June was 51 percent below average, the lowest since national records began in 1973.

### Major heatwaves

#### More people exposed to heatwaves



Source: World Health Organisation (WHO)



An extreme heatwave affected parts of South America in January. In Chile, numerous locations had their highest temperature on record, including Santiago (37,4 degrees Celsius). In Argentina, the temperature reached 43,5 degrees Celsius on 27 January at Puerto Madryn, the highest ever recorded so far south (43 degrees South) anywhere in the world.

Much of eastern Australia experienced extreme heat in January and February, peaking on 11 to 12 February when temperatures reached 47 degrees Celsius.

Exceptional heat affected parts of southwest Asia in late May. On 28 May, temperatures reached 54,0 degrees Celsius in Turbat, in the far west of Pakistan near the Iranian border, and also exceeded 50 degrees Celsius in Iran and Oman. A temperature of 53,7 degrees Celsius was recorded at Ahwaz, Iran on 29 June, and Bahrain experienced its hottest August on record.

The Chinese city of Shanghai and the Hong Kong Observatory reported new records of 40,9 degrees Celsius and 36,6 degrees Celsius during summer.

In the Mediterranean, Cordoba in southern Spain experienced 46,9 degrees Celsius on 12 July and Granada 45,7 degrees Celsius on 13 July. An extensive heatwave in early August led to temperature records in northern and central Italy, Croatia and southern France.

California had its hottest summer on record and extreme heat affected other western states. This culminated in a major heatwave at the end of August and early September,

which included a record high temperature (41,1 degrees Celsius) at San Francisco.

### Wildfires



Extreme heat and drought contributed to many destructive wildfires.

Chile had the most significant forest fires in its history during the 2016-2017 summer, after exceptionally dry conditions during 2016 followed by extreme heat in December and January. 11 deaths were reported and a total of 614 000 hectares of forest were burnt, easily the highest seasonal total on record and eight times the long-term average. There were also significant fires during the 2016-2017 Southern Hemisphere summer in various parts of eastern Australia and in the Christchurch region of New Zealand, whilst the southern South African town of Knysna was badly affected by fire in June.

It was a very active fire season in the Mediterranean. The worst single incident occurred in central Portugal in June, with 64 deaths. There were further major fire outbreaks in Portugal and northwestern Spain in mid-October, exacerbated by strong winds associated with Hurricane Ophelia. Other significant fires affected countries including Croatia, Italy and France.

The area burned in the contiguous United States from January to 19 October was 46 percent above the 2007-2016 average. The area burned in Canada was about 51 percent above the seasonal average and contributed to heavy smoke pollution. A wet winter, which allowed the heavy growth of ground vegetation, followed by a dry and hot summer, provided ideal conditions for high-intensity fires in northern California in early October. At least 41 deaths were reported, the worst loss of life in a wildfire in the United States since 1918.

### Other noteworthy events

Severe cold and snow affected parts of Argentina in July. After heavy snow had fallen the previous day, the temperature reached -25,4 degrees Celsius in Bariloche on 16 July, 4,3 degrees Celsius below the previous lowest temperature on record there. Other regions where record low temperatures occurred in 2017 included some locations in inland southeastern Australia in early July, where Canberra had its lowest temperature (-8,7 degrees Celsius) since 1971 and the Gulf region in the Middle East in early February.

The United States had its most active tornado season since 2011, with a preliminary total of 1 321 tornadoes in the January to August period, including the second-most active January on record.

Source: World Meteorological Organisation (WMO) 🌐

# PLANNING FOR 'DAY ZERO'

## MINI CONFERENCE

In light of the Western Cape's water crisis and the imminent threat of 'Day Zero', Disaster Management Solutions (DMS) arranged and facilitated a mini conference in Moorreesburg at the West Coast District Disaster Management Centre (DMC) on 8 November 2017. The aim of the conference was to engage stakeholders from both the public and private sectors and encourage discussion on the complexity of the water crisis and the multiple disasters it could potentially leave in its wake. In addition, both conventional and short, medium and long term solutions were presented by various specialists in the field.

The conference opened with a weather outlook presented by the South African Weather Service's senior forecaster, Riaan Smit, who reported that the rainfall months from June to October 2017 were the only months that reached the average yearly rainfall. The other months barely reached 50 percent of the average total. Although there may be relief approaching with expected higher than average summer rainfall, the Western Cape would require at least three or four consecutive seasons of above average winter rainfall to have any impact on the water crisis.

Francis Hoets, director at DMS, presented on the complexity of the water crisis, expanding on the multiple likely associated secondary threats, including social, economic, health, agricultural and environmental impacts. Without water, commerce is not possible, construction of critical facilities (schools and roads) becomes a challenge, food security is threatened, clinics face closure, civil unrest and conflict over water resources becomes a reality. The question posed is, whose disaster(s) is this anyway and who is daring enough to act before the emergency to avert the emergencies it will leave in its wake?

Felicia Ngwasheng, assistant general manager, Western Cape for Working on Fire, presented on the implications for veld fire and fire services amidst the water crisis. Working on Fire already have a number of mitigation plans in place, including the reduction in use of clean water for mop up operations following a

fire, using grey water as an alternative. In addition, aviation will be making more use of sea water for fire suppression moving into the fire season, team sizes will be doubled up to reduce dependence on water, by reducing the size of fires and through increased control burning.

Dr Danie Schoeman, deputy director, Department of Health (manager of professional support services), presented on the health implications of the water crisis. According to Dr Schoeman, the Department of Health faces many challenges resulting from the shortage of water. The Department of Health is currently preparing for three scenarios namely drastic reduction in water consumption (soft activation), water rationing preparedness (potential closure of clinics) and total loss of municipal water (patients redirected across the platform where necessary). The consequences are far reaching in this sector with massive changes and initiatives required to ensure uninterrupted water supply in case of 'Day Zero'.

Tinus de Beer, managing director of DMS, presented on necessary requirements for business continuity in the face of 'Day Zero'. A business disaster would be marked by a sudden unplanned calamitous event that causes loss and hardship, both financial and non-financial, to all or part of an enterprise. This could significantly impact its ability to deliver essential services for some period of time and requires more capacity than is provided or planned for. As a business owner, one must identify mission critical activities likely to be interrupted or impacted by water loss and ensure measures are in place to ensure swift recovery of activities and continuation of business as usual.

Ferdie Mocke, CEO and founder of DMS, presented on the immediate short term solutions required to mitigate the impact of 'Day Zero'. These includes measures to ensure continued supply of water to critical facilities and that the minimum standards in line with Sphere Standards are adhered to, in ensuring average water use of drinking, cooking and personal

hygiene in any household is at least 7,5 to 15 litres per person per day. Solutions presented included water recycling, ground water extraction, funding assistance from the public, mass water transport (overland pipelines/trucks/trains/ships), river mouth water harvesting and mobile water purification units. All this cannot be successfully achieved in line with Sphere requirements unless an integrated and coordinated approach is adopted in response to the water crisis.

Finally, Stephan Pretorius, director at AGES Group of Companies and managing director of Touch Africa Development, presented on medium to long term sustainable solutions to ensure water resilience for the province and the country as a whole. Pretorius highlighted that climate change exhibits growing variability of weather conditions and intensity of variation, which means we cannot base future water planning on averages anymore. Essentially we need to move our focus from prevention and preparedness to adaptation and survival. This will require resilience thinking, changing the attitudes, contributions and technology implementation of water users, the government and other services providers. Technical options for enhanced water resilience presented include, groundwater development, resource development and management eg surface water and clearance of alien invasives, system development such as integrated systems, water re-use options etc and enhancing local and personal household options ie water harvesting and storage.

The conference successfully stimulated discussion around current thinking and application processes in regards to the water crisis, while also addressing the need to consider out-of-the-box solutions to fuel adaptation in the way we think about and use water. DMS would like to thank all the speakers and delegates that attended and the West Coast District Municipality, who provided the facilities. We are looking forward to hosting more of these participatory and relevant conferences and discussion sessions. 🇷🇺

# UPCOMING EVENTS

MARCH 2018 - DECEMBER 2018

## 5 – 6 March 2018

### ICDEM 2018 : 20th International Conference on Disaster and Emergency Management

The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of disaster and emergency management. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted

**Venue:** Rome, Italy

For more information visit:

[www.waset.org/conference/2018/03/rome/ICDEM](http://www.waset.org/conference/2018/03/rome/ICDEM)

## 18 – 21 March 2018

### Geoinformation for Disaster Management (Gi4DM) 2018

The conference will demonstrate the last international advances in geoinformation regarding the disaster management

**Venue:** Istanbul Technical University, Turkey

For more information visit: [www.gi4dm2018.org/](http://www.gi4dm2018.org/)

## 26 - 28 March 2018

### Regional DRR Conference

The overall aim of this regional DRR conference, is to review progress achieved by the SADC Regional DRR Programme, towards the goal of managing uncertainty, reducing vulnerability and building resilience for SADC Member States and communities in view of the global and regional frameworks on DRR, resilience and sustainable development

**Venue:** Protea Fire and Ice, Menlyn, Pretoria

For more information visit:

<http://gisportal.sadc.int/drr-ims/conference/1/>

## April 18, 2018 – April 19, 2018

### 2018 Emergency Preparedness Conference

If you are charged with managing your organisation's disaster planning and emergency preparedness, this is a can't-miss event. Staff that will benefit from this event include, chief compliance officers, chief operating officers, chief nursing officers, chief medical officers, facility managers, emergency management managers, risk managers and supply chain managers

**Venue:** Lake Buena Vista, Florida, US

For more information visit: [www.hsdl.org/c/event/2018-emergency-preparedness-conference-april-18-19-2018/](http://www.hsdl.org/c/event/2018-emergency-preparedness-conference-april-18-19-2018/)

## 6 - 8 June 2018

### 11th International Conference on Risk Analysis and Hazard Mitigation

The conference covers a series of important topics of current research interests and many practical applications. It is concerned with all aspects of risk management and hazard mitigation, associated with both natural and anthropogenic hazards

**Venue:** Seville, Spain

For more information visit:

[www.wessex.ac.uk/conferences/2018/risk-analysis-2018](http://www.wessex.ac.uk/conferences/2018/risk-analysis-2018)

## 11 - 13 June 2018

### Emergency Management Summit

The inaugural Emergency Management Summit is the only emergency management conference in the country where you will find four of the five former FEMA Directors assembled to share their experiences

**Venue:** Midwest City, Oklahoma, US

For more information visit:

[www.emergencymanagementsummit.org/](http://www.emergencymanagementsummit.org/)

## 26 – 27 July 2018

### Natural Hazards and Disaster Management 2017

The conference provides a forum for the exchange of information between academics and practitioners, and a venue for presentation of the latest developments. The corresponding volume of WIT Transactions on Ecology and the Environment containing the papers presented at the meeting has been published in paper and digital format and widely distributed around the world.

**Venue:** Melbourne, Australia

For more information visit:

[www.naturalhazards.conferenceseries.com/](http://www.naturalhazards.conferenceseries.com/)

## 13 Oct 2018

### International Day for Disaster Reduction

The UN General Assembly sees International Day for Disaster Reduction as a way to promote a global culture of risk-awareness and disaster reduction. That includes disaster prevention, mitigation and preparedness

## 5 – 7 December 2018

### RES/CON 2018

RES/CON is the premier annual international conference on the practice of successful resilience and disaster management in an evolving global environment.

**Venue:** New Orleans Ernest N Morial Convention Centre

For more information visit: [www.resconnola.com](http://www.resconnola.com)

# THE DISASTER MANAGEMENT INSTITUTE OF SOUTHERN AFRICA (DMISA)

## DMISA office

### Contact details

**Tel:** 011 822 1634    **Fax:** 011 822 3563

### Email address

disaster@disaster.co.za

### Postal address

PO Box 7130  
Primrose Hill  
1417

### Physical address

Suite 5  
123 Rietfontein Road  
Primrose  
Germiston, Gauteng  
South Africa

### Office hours

08h00 to 13h00

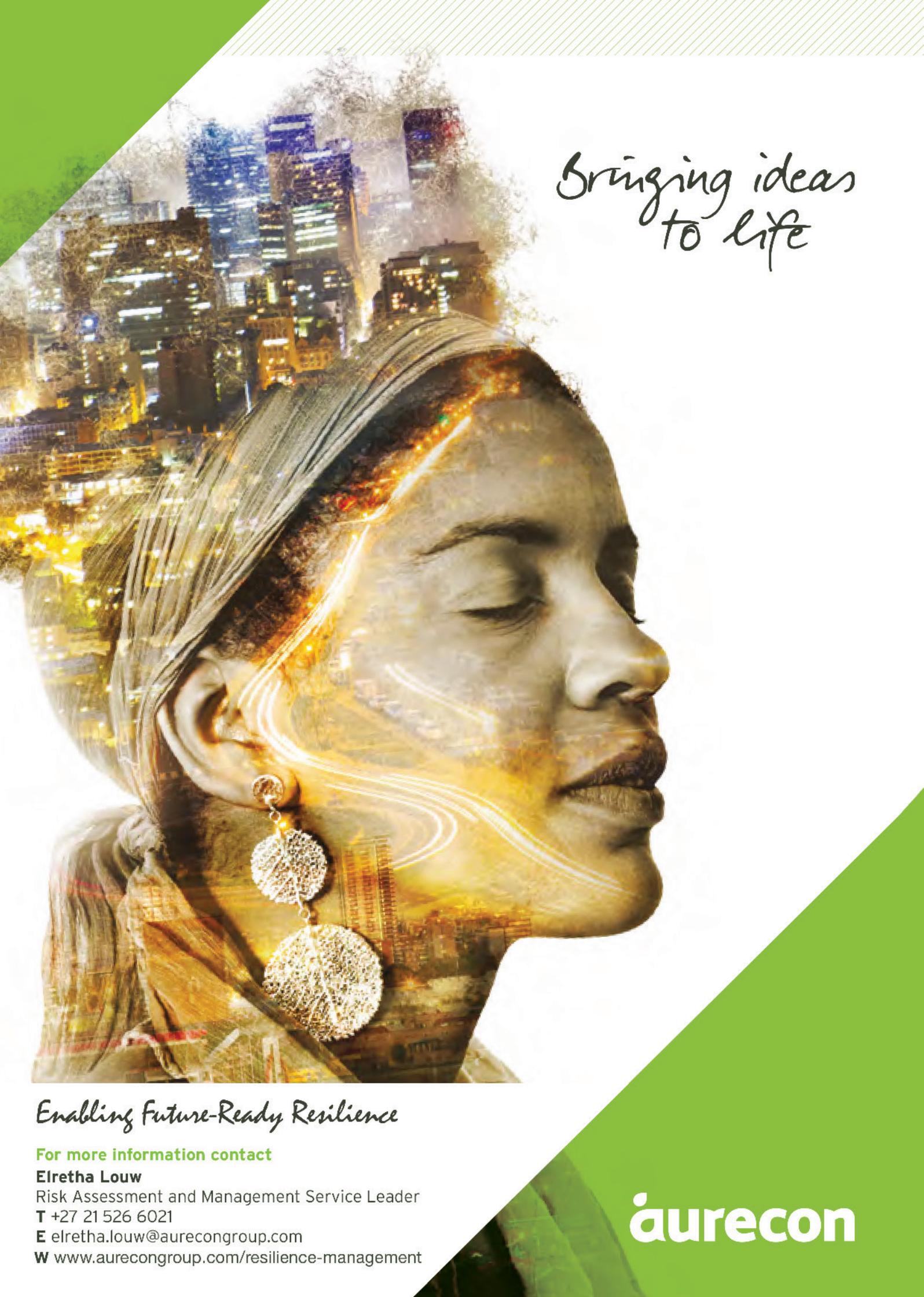
### Website

[http: www.disaster.co.za](http://www.disaster.co.za)

### Institute administrator

Karin Muller  
Email: [karin@disaster.co.za](mailto:karin@disaster.co.za)





*Bringing ideas  
to life*

*Enabling Future-Ready Resilience*

**For more information contact**

**Elretha Louw**

Risk Assessment and Management Service Leader

**T** +27 21 526 6021

**E** [elretha.louw@arecongroup.com](mailto:elretha.louw@arecongroup.com)

**W** [www.aurecongroup.com/resilience-management](http://www.aurecongroup.com/resilience-management)

**aurecon**