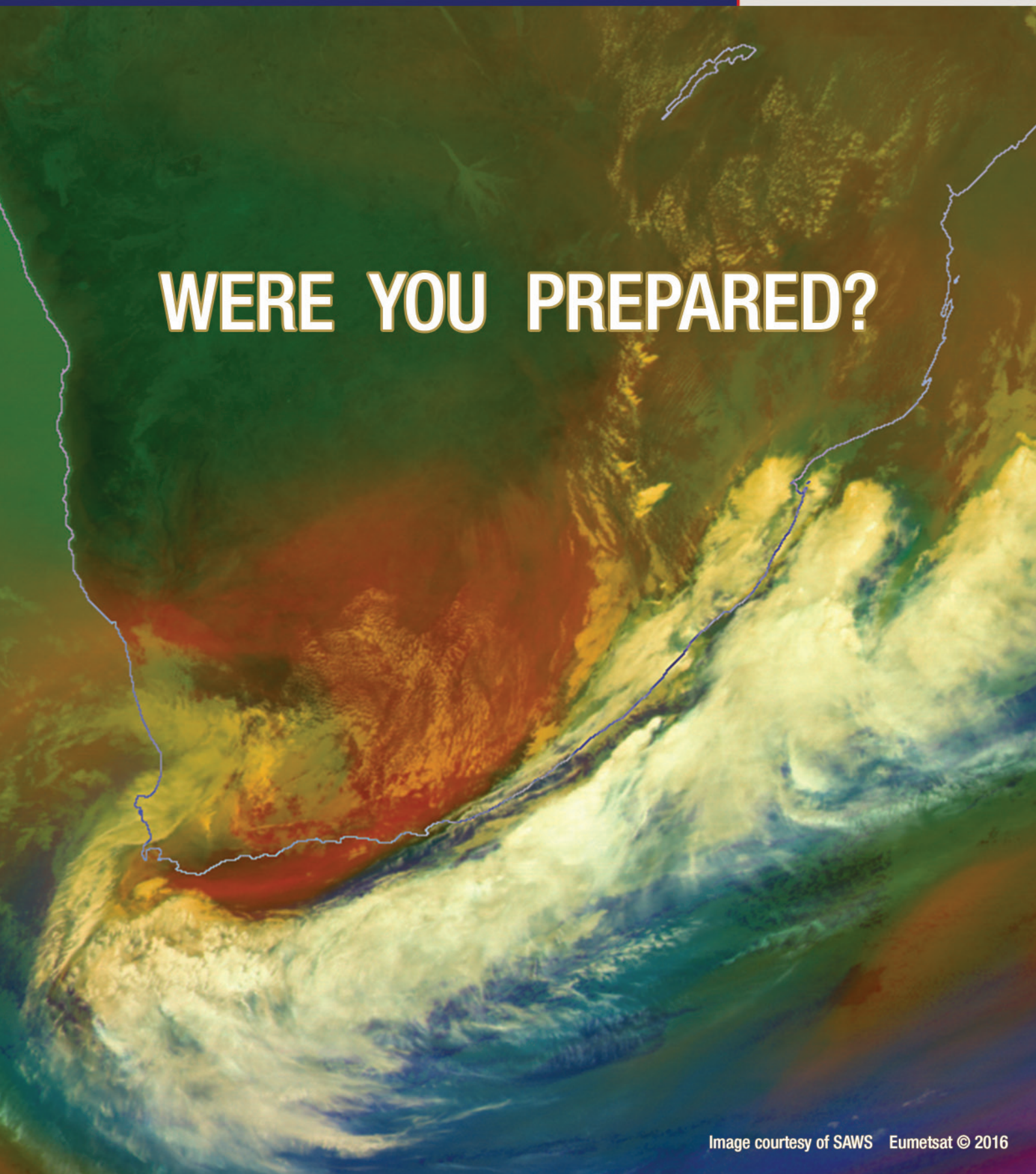
# DISASTER MANAGEMENT

Official Journal: Disaster Management Institute of Southern Africa

DMISA

Volume 1 No 6



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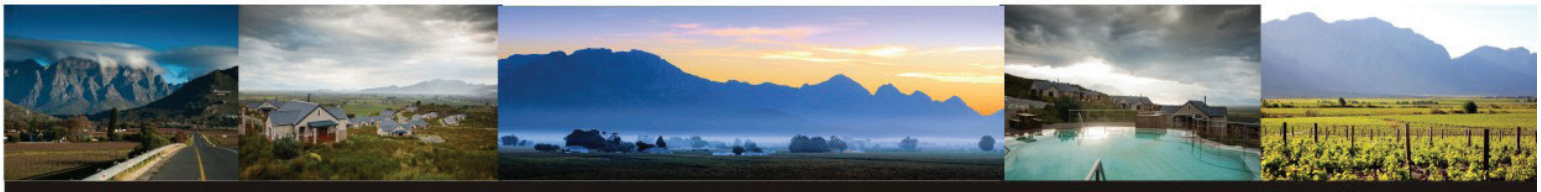

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DISASTER MANAGEMENT

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**Subscriptions**
6 editions per annum
**South Africa**
R145 per annum incl VAT
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R350 per annum



*Dr Johan A Minnie*

Each edition of the Disaster Management Journal is really a cause for celebration because each edition allows DMISA to get down to our core business, which is supporting our members and the Southern African Disaster Management fraternity with learning and networking opportunities.

It is a wonderful privilege to read through the variety of articles and contributions contained within this publication and to share the valuable information gathered here. The Journal allows us to hear from our colleagues around our region and around the world, not only the latest information about our discipline but also the human stories about the people behind the scenes, the trials and tribulations of the disaster managers toiling towards reducing disaster risk and softening the impact of disasters.

In recognition of the fact that we are all working towards disaster resilience and owing to the observation that resilience is not stable but a dynamic set of conditions, I think it is safe to say that the Disaster Management Journal is one of DMISA's contributions to maintaining and building resilience.

I want to congratulate the editor, Lee Raath-Brownie as well as the DMISA EXCO portfolio holder responsible for the journal, Schalk Carstens with the quality product they are delivering and want to thank them for making such a considerable contribution to realising DMISA's goals and objectives.

I also want to invite all DMISA members and all the readers of this publication to continue learning for and working towards reducing disaster risk by getting involved in the activities of DMISA and making active contributions to this Journal as well as the wider activities of DMISA.

Please enjoy this edition of the Journal and join us in building resilience and preparedness through expertise.

**Dr Johan Minnie**
**President: Disaster Management Institute of Southern Africa**

The Disaster Management Amendment Act is now, since 1 May 2016, a legislative requirement. This places an enormous responsibility on especially the sphere of municipal Government to comply with. Herewith, again a special word of appreciation to Ken Terry and the staff of the National Disaster Management Centre (NDMC) for their role in ensuring that this new disaster management legislation became a reality.

The big question that is now raised, is whether we could make the Disaster Management Amendment Act functional, for the first Disaster Management Act was promulgated almost 14 years ago and the Disaster Management Framework (Policy) document published more than 10 years ago, yet there are still prevailing challenges relating to them? However, to this date, we as practitioners in the Disaster Management fraternity, experience huge frustrations regarding the implementation of the said legislation. Those frustrations mostly revolved around the following factors:

- Firstly , at present, there exist a wide ranging lack of capable and competent disaster management human capacity, adequate facilities and funding, which should have been provided for as to ensure the effective and efficient implementation of the line function disaster management as required in legislation
- Secondly, that some of the provincial and national entities ignore their respective responsibility in the 'disaster management' environment, ie risks reduction as well as preparedness, response, relief and rehabilitation. Still to this date, some national departments have not yet provided the NDMC with these required disaster management plans. No specific reference to any specific authority will be made at this stage.

Although we always prefer the 'Disaster Management Plan', in practice, to have a bottom-up approach, the municipalities cannot at present, as required in the new Amendment Act, provide such a proper plan even if all the necessary municipal disaster management components are well in place. Some of the above aspects lacking and possible solutions are referred to, as follows:

- Municipalities are solely reliant on a proper disaster risk profile of their area of responsibility. This municipal risk profile should include national, provincial, metropolitan risk profiles that must be made available to municipalities by the primary hazard owner of a specific national (sectoral) line departments and or their provincial counterparts.
- The above mentioned 'risk profile', based on proper scientific Hazard, Risk and Vulnerability Assessments (HRAVAs), should be made available to the municipal sphere of Government. The municipalities then could add their own line function risk assessment, which in turn, again should be based on their own proper community based risk assessment.
- Only when the above mentioned processes are concluded, each identified sphere of Government, including the municipalities, can then be informed of what their specific risks are that they must address as well as what their specific responsibilities are as Governmental entities, with regard to the implementation of the new Amended Disaster Management Act. For example, without a properly formulated National Communicable Disease Disaster Management Plan, how will the national, provincial and municipal spheres of Government know exactly what their role and function would be if there is an epidemic outbreak? The recent Ebola epidemic in 2014 – 2015 has reference. The Department of Health has in the past and should in the future take the lead with this specific disaster ie take ownership for this specific hazard. In practice the Department of Health should take the mantle as the primary responsible entity (hazard owner) and this responsibly should include the risk identification, prevention and mitigation plans for epidemics and not only the 'contingency' (preparedness and response) plans as it has been referred to in the past.

The above mentioned National Health Communicable Disease Disaster Plan should now specify exactly what the National Department of Health's responsibilities as well as both Provincial Department of Health's and their applicable disciplines are on municipal level. The municipality cannot fully execute their own disaster management responsibilities without being properly guided and informed of their actual and prevailing disaster risks. The emphasis should thus be on all three spheres of Government to acknowledge their respective responsibility regarding the mentioned

*Schalk Carstens*

hazard. There must be a strategic (ie national) disaster hazard approach that in turn will inform the tactical and operational (ie provincial and municipal) approach regarding the development and implementation of an epidemic disaster plan on municipal level.

The same principle applicable to the 'Communicable Disease Disaster Plan' should now be applied similarly to national disaster management line function or sectoral responsibilities taken by the 'primary hazard owner' (national or provincial entities) to effectively manage all hazards such as 'drought', 'flood', 'nuclear', earthquake' 'aircraft accidents' etc, in the same manner. All three spheres of Government's disaster management centres must ensure the effective coordination and implementation of the new 'Disaster Management Amendment Act' and this outcome should include all the requirements of both the original and the amended Disaster Management Act, as well as the National Framework.

Important aspects that need to be in place are as follows:

- Proper funding mechanisms to be instituted to ensure the immediate establishment of properly equipped disaster management centres on national, provincial and municipal spheres of Government.
- Trained and qualified disaster management professionals must be appointed in all these centres, as well as disaster management professionals that will be responsible for the line function (sectoral) coordinating of a specific hazard in an appropriate line department on national and provincial level.

These line function disaster management professionals will then be responsible to manage their respective disaster management line function activities and or a specific disaster hazard as mentioned earlier. Only when all the necessary disaster management systems and functions are in place, then the municipalities will be able to produce the disaster management plans as required in the new and old disaster management legislation and policies.

Municipalities, as per the new legislation, must, however, make sure that all their ducks are in a row. Each and every hazard in the municipality should be identified through a proper risk and vulnerability assessment, which again, as mentioned above, should be informed by the 'national', 'provincial' and 'district/metropolitan municipal' RHAVAs. Without the macro perspective, the micro (municipal) picture of risk is not possible. This principle will also apply to the disaster risk reduction, preparedness and response responsibilities. For example, if we use the National Communicable Disease Plan as an example, this plan should inform the provincial, district as well as the municipal spheres. Municipalities would only have to ensure that the macro communicable disease risk is confirmed in their respective area of responsibility and appropriately addressed within their own applicable disaster management plans. The same principle will now also apply to all other disaster hazards in a specific geographical area.

In almost all of my previous inputs in this publication, I have referred to the importance of the establishment of the National Disaster Management Inter-Governmental Committee on Disaster Management, which is compulsory as per Section 4 of the Disaster Management Act. The President of the country must appoint the members of the said committee and therefore should be seen as the most important inter-governmental structure (IGR) to ensure that all applicable disaster management coordination and implementation mechanisms are in place. The establishment of this committee and the specific role and functions of each and every appointed member, will hopefully in future clarify the current uncertainty regarding what specific Governmental entities are responsible for and what hazard, as well as the necessary funding stream is needed for them to be utilised. In a recent conversation with senior officials at the NDMC, it was confirmed that the establishment of the above mentioned committee is already in an advance stage.

It is also good to know as a practitioner that the other South African Qualifications Authority (SAQA) four levels of registration as a Disaster Management Professional are in its final stage of approval. If the disaster management function comes to its full implementation, as prescribed in disaster management legislation, almost each municipality, provincial and national Governmental entity would have to appoint a SAQA-registered disaster management official. The appointments of competent SAQA registered officials will in future be an advantage for disaster management colleagues who already acquired the necessary DMISA and SAQA accreditation. This might be a minimum requirement in future for these officials to be appointed in disaster management posts. Please colleagues get your act together and act proactive in this regard!!!

In future comments in this publication, I would like to focus more and discuss the implementation of the Civil Protection Act versus the Disaster Management Act. What is the difference between these two acts and did we actually succeeded the transition process? I would at the same time also like to focus on the general principles as embedded in the Green and White Paper on Disaster Management and ask the question if we have achieved the goals and objectives, as what we as the disaster management fraternity set for ourselves?

Some of our fellow disaster and DMISA colleagues such as Pat Reed, Henk van Elst as well as Jorrie Jordaan, who have all passed away, were very instrumental in drafting the mentioned policy documents and I wonder what their reaction would have been on the above questions? This statement is with the greatest respect to all our other colleagues, that are still with us but are already retired and nearing the end of their disaster management careers. It is therefore essential for these officials that were part of transition processes of civil protection to disaster management and who still have the historical and institutional knowledge; to assist us with this much needed reality check. It will thus be appreciated if fellow practitioners could please provide this publication with their input on their views in this regard.

Lastly, I would also like some inputs from colleagues regarding their view on the 'per-capita' ratio of the disaster management practitioners versus other emergency, safety and security and/or essential services as well as the medical and safety and security fraternities. I have a suspicion that 'disaster management' is far below the average of the mentioned professions. The two above mentioned topics would hopefully stimulate some discussions in near future.

Enough said for now. Herewith I just again want to convey my sincere appreciation to all who have contributed towards this addition. Without Lee Raath-Brownie as our publisher and her ongoing support, this publication would cease to exist. Thank you Lee; and lastly to our President, Dr Johan Minnie; Deputy President, Mr Bafana Masibuku and Mr Pat Adams, our chairperson of EXCO, as well as all the other EXCO and councillor members, thank you for your commitment and continued support. Please continue to provide this publication with the necessary quantity articles as to ensure the sustainability of this publication in future.

# UNISDR LAUNCHES 'SENDAI SEVEN'

## CAMPAIGN TO SAVE LIVES IN DISASTERS

The United Nations (UN) Secretary-General's special representative for disaster risk reduction, Robert Glasser, on 11 July 2016 launched 'The Sendai Seven Campaign: Seven Targets, Seven Years', an advocacy initiative to encourage implementation of the Sendai Framework for disaster risk reduction with the goal of saving lives, reducing disaster losses and improving management of disaster risk.

Glasser said, "Despite many successes there are still far too many lives being lost in predictable events because of failures to deploy early warning systems, learn lessons from past events and to grasp the growing threat of climate change and its impact on extreme weather events including storms, floods and drought. Risk awareness among the general public is a vital theme running through this seven year campaign that is centred around the seven targets, which UN Member States have agreed on. These include substantial reductions in loss of life, numbers of people affected, economic losses and damage to infrastructure."

"The Sendai Framework also has targets focussed on increasing national and local disaster risk reduction strategies by 2020, enhanced international cooperation to developing countries and increased availability of multi-hazard early warning systems," continued Glasser.

This year's target is reducing mortality and 'Live to Tell' is the slogan for International Day for Disaster Reduction, held on 13 October. The UN Office for Disaster Risk Reduction (UNISDR) is inviting submissions, which demonstrate best practice in reducing mortality from natural and manmade hazards. The best nominees will be recognised as Sendai Target Champions for Reducing Mortality. Closing date for submissions is 1 September 2016 and entries should be no longer than 500 words. Submissions should be sent to iddr2016@un.org.

The Sendai Seven Campaign: Seven Targets, Seven Years (2016 to 2022)
The United Nations General Assembly has designated 13 October as the date to celebrate International Day for Disaster Reduction (IDDR) to promote a global culture of disaster reduction, including disaster prevention, mitigation and preparedness. Since it began 25 years ago, the day has grown into a major global awareness event celebrated in many ways to encourage efforts to build more disaster-resilient communities and nations.

Following the Step Up Campaign, which started in 2011 and was dedicated each year to a particular group of vulnerable people exposed to disasters including, Children and Youth (2011), Women and Girls (2012), People Living with Disabilities (2013), Older Persons (2014) and Indigenous People (2015). UNISDR is now launching the Sendai Seven Campaign to promote each of the seven targets of the Sendai Framework for Disaster Risk Reduction adopted in Sendai, Japan in March 2015.

As was the case throughout the Step up Campaign, the success of the Sendai Seven Campaign depends on engaging and connecting with a wide range of stakeholders to promote awareness of the Sendai Framework and actions required to implement it and to achieve its targets.

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

Gender is a critical issue in reducing mortality. Worldwide, women and children are up to 14 times more likely than men to die in a disaster and roughly 60 percent of preventable maternal deaths and 53 percent of preventable ▶


under-five deaths take place in conflict and disaster settings. Other groups affected disproportionately include persons living with disabilities, older persons and indigenous people.

- 2016: Target one: Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020 to 2030 compared to the period 2005 to 2015
- 2017: Target two: Substantially reduce the number of people affected globally by 2030, aiming to lower the average global figure per 100 000 in the decade 2020 to 2030 compared to the period 2005 to 2015
- 2018: Target three: Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030
- 2019: Target four: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030
- 2020: Target five: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020
- 2021: Target six: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030
- 2022: Target seven: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030

International Day for Disaster Risk Reduction 2016 - Live To Tell Campaign: Raising Awareness, Reducing Mortality. “Everything can be rebuilt but lives cannot be recovered and that's what hurts the most," - President Rafael Correa, Ecuador, after the April 2016 earthquake that killed 661 people.

Use International Day for Disaster Reduction on 13 October 2016 to provide an advocacy platform for all governments, local governments, disaster management agencies, UN agencies, nongovernmental organisations (NGOs), Red Cross and Red Crescent societies, civil society groups, businesses, academic and scientific institutions and other interested groups to demonstrate support for implementation of the Sendai Framework and to highlight achievements and challenges in so doing with a particular focus on lifesaving measures in 2016.

The 2016 campaign will seek to create a wave of awareness about actions taken to reduce mortality around the world.

UNISDR wants you to use the opportunity of 13 October to tell the world what you are doing to implement the Sendai Framework in order to reduce mortality and improve health outcomes from disasters.

Are you improving how people are becoming more risk informed? How are you doing it? Have you become more inclusive in your outreach with early warnings?

Example: The Metropolitan Manila Development Authority held its second Metro Manila Shake Drill on 22 June 2016. According to one study, a 7,2 magnitude earthquake in Metro Manila may destroy 40 percent of residential buildings, cause 34 000 deaths, injure 114 000 individuals and the ensuing fires may also result in 18 000 additional fatalities.

Example: Following what may be Canada’s costliest disaster, the Fort McMurray fires earlier this year, the Canadian Forest Service proved the case for generating fire risk maps as a reliable tool for ensuring safe evacuation in fire prone areas or designating such areas as unsafe for human habitation.

Example: This year the Pakistani city of Karachi has opened 179 heatstroke centres to keep down the death toll from heatwaves, which killed over 1 000 people last year.

Example: The governments of Australia, Canada, France, Germany, Luxembourg and The Netherlands have agreed to give more than US$80 million to equip up to 80 countries with better climate risk early warning systems.

Example: United Nations Children's Emergency Fund (UNICEF) and the Children in a Changing Climate coalition have developed the Sendai Framework for Disaster Risk Reduction, for children. It is a great educational tool for children exposed to disaster events.

Example: In May 2016, World Health Organisation (WHO) established a new health emergencies programme designed to deliver rapid, predictable and comprehensive support to countries and communities as they prepare for, face or recover from emergencies caused by any type of hazard to human health, whether disease outbreaks, natural or manmade disasters or conflicts.

We will share your stories, photographs and videos online through our social media channels, www.unisdr.org and PreventionWeb. Please send submissions to iddr2016@unisdr.org

### Live to Tell Campaign

There will be a press release to announce the theme of the day. The IDDR2016 website will be launched and there will be an appeal to partners to help fill it with examples of risk reducing, lifesaving activities undertaken at local and national level with a focus on the most vulnerable.

UNISDR will develop branding for the page, which will be a resource for the entire disaster risk reduction community to use for posting details of their planned events for the day

including photographs, posters and commentary. UNISDR will also work with the Centre for Research on the Epidemiology of Disasters, based in Louvain, Belgium, to examine mortality trends. A report will be published on 13 October 2016.

In the lead up to the day, there will be a special focus on early warning, enhanced preparedness and pre-emptive action undertaken in advance of sudden and slow onset disasters.

There is a clear link also with World Tsunami Awareness Day, which will be marked for the first time this year in November. There will also be a focus on actions taken to make the health sector more resilient and to put public health to the fore in disaster risk management.

State authorities and the private sector are invited to submit case studies, which demonstrate their concern for safety in high risk industries such as the nuclear, oil and petroleum, coal and other extraction industries.

A blog section will be set up on the page to include expert opinion and insights on reducing mortality in disaster zones. UNISDR will use the Twitter THUNDERCLAP platform to engage and generate support from as many organisations and individuals as possible for the theme of the day, requesting they share the following message, accompanied by a suitable image, with their followers.

'Live to Tell', a life saved is the greatest benefit of reducing disaster risk #switch2sendai on 13 October #IDDR2016. UNISDR Communications will produce a public service announcement for the day, available for broadcast a month in advance.

## Mortality trends

The average recorded global mortality rate from 2005 to 2014 was 76 424 deaths per annum, according to the Centre for Research on the Epidemiology of Disasters (CRED). In 2015, CRED recorded 22 773 deaths. The following is a list of the main natural hazards with decadal average deaths and deaths for 2015 in brackets: Floods, 5 938 (3 310); Storms, 17 778 (996); Drought, 2 030 (35); Landslide, 1 369 (923); Earthquake/tsunami, 42 381 (9 525); Wildfire, 73 (66); Volcanic activity, 46 (0); Mass movement (dry), 373 (0).

Technological disasters killed 5 884 people in 2014 and the annual average for the previous decade was 7 514. Such events include ferry boat sinkings, transport accidents account for 74 percent of deaths from technological disasters in the CRED database.

Major public health emergencies of international concern occur on a regular basis. Most recently the Ebola epidemic in the impoverished West African countries of Guinea, Liberia and Sierra Leone claimed some 11 000 lives and caused widespread trauma and economic losses. The rapid global spread of the Zika virus is another example.

## Outcome

1. Greater global awareness of the Sendai Framework by presenting it as a lifesaving agenda for building resilience to disasters caused by both manmade and natural hazards
2. Greater inclusion of representatives of vulnerable groups in national disaster risk reduction programmes
3. Public discourse to promote attitudinal and behavioural change towards disaster risk management

# EAST AFRICA PASSES
## LANDMARK DISASTER RISK BILL


The House in full session on 10 March 2016

East African Legislative Assembly (EALA) on 10 March 2016 passed the Disaster Risk Reduction and Disaster Management Bill 2013, paving way for the region to take necessary disaster preparedness, management, protection and mitigation measures as well as in handling disasters in a more coordinated way.

The Bill sailed through smoothly at the committee stage with members adopting clause after clause of the same or with amendments before it came up for third reading. Debate on the Bill had commenced on 9 March 2016 before the speaker ruled that it be finalised on 10 March 2016.

The object of the East African Community (EAC) Disaster Risk Reduction and Disaster Management Bill 2013 is to provide a legal framework for the intervention and assistance for people affected by climate change and natural related hazards and to protect the natural environment through integration of comprehensive disaster risk reduction and management practices in the EAC. The passage of the Bill is a culmination of about two years of work during which time the assembly has consistently advocated for it.

Debate on the Bill, originally moved for second reading in August 2013, was halted following a request by the council of ministers to consult and consider its policy implications. At the same time, the move was to allow for pursuit of the ratification of the EAC Protocol on Peace and Security, which among other objectives, provides for cooperation in disaster risk reduction management and crisis response. The Protocol on Peace and Security has since been ratified by all partner states.

At the sitting in January 2016 in Arusha, debate was once again adjourned. This was occasioned by a motion moved by the chair of the council of ministers, Honourable (Hon) Dr Susan Kolimba. The motion sailed through but after further amendment tabled by chair of the Regional Affairs and Resolution Committee, Hon Abdullah Mwinyi, under Rule 30(a) to have the Bill brought back to the house at the March sitting.

The Chairperson of the Committee on Agriculture, Tourism and Natural Resources, Hon Christophe Bazivamo said the Bill anticipates support for both natural and man-made disasters. The Minister for EAC, Republic of Burundi, Hon Leontine Nzeyimana informed the House the Council of Ministers had no objection to the passage of the Bill.

At debate time, Hon Judith Pareno said the Bill had been before the house for a period of two years. “I recall that at time of public hearings and immediately thereafter, we had several disasters including the fire at Jomo Kenyatta International Airport, the Central Market in Bujumbura and even the Westgate tragedy”, the legislator said.

“Disasters do not come knocking on doors or give notice, it is necessary that we pass the Bill”, she added.

Hon Mike Kennedy Sebalu said the passage of the Bill was timely so as to mitigate the different disasters that have befallen the region. “The frequency of disasters that have befallen our partner states cannot be overemphasised. We must create an environment that is less of disasters and thus a legal framework is the right way to go,” Hon Sebalu noted.

Hon Adam Kimbisa said fire, drought and terrorism were some of the disasters the region continued to face. “All disasters care less about when to occur, where or when to hit,” the legislator said. He remarked that countries in the west had invested better in coping mechanisms than in the continent. “We must equally invest in risk reduction activities”, he added.

Hon Martin Ngoga said the passage of the law was urgent. “It is a reflection of how prepared we are to protect the lives of the citizens”, Hon Ngoga said.

Also rising in support of the debate was Hon Saoli Ole Nkanae, Hon Dora Byamukama, Hon Sarah Bonaya and Hon Valerie Nyirahabineza.

The passage of the Bill, whose original mover is Hon Patricia Hajabakiga, is a culmination of a process whose idea began five years ago. In December 2010, EALA Committee on Agriculture Tourism and Natural Resources held key discussions with a delegation from the United Nations International Strategy for Disaster Reduction (UNISDR). The meeting was called to raise awareness within the legislature on the importance of disaster risk reduction as an instrument for achieving the Millennium Development Goals (MDGs). EALA and UNISDR further agreed to collaborate to develop a model legislation, which can be used to support the efforts of the EAC partner states in building disaster resilience in East Africa.

The next stage is the process of assent by the EAC heads of state in line with Article 63 of the treaty for the establishment of the East African Community.

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# SANTAM HANDS OVER FIRE FIGHTING

## EQUIPMENT TO MAKANA LOCAL MUNICIPALITY IN GRAHAMSTOWN

*Back: William Welkom, manager: fire services; Frans Mapaling, fire fighter; Vuyokazi Sam, station commander; Nigel Scheepers, platoon commander; Nombulelo Mkele, fire fighter; Robert Brooks, platoon commander, Nontsikelelo Ngqokotya, fire fighter. Front: Ted Pillay, municipal manager: Sarah Baartman District Municipality; John Lomberg, head: stakeholder relations at Santam; Temba Mvusi, executive head: market development at Santam; Nomhle Gaga, mayor: Makana Municipality and Mandisi Planga, director: public safety and community services*

*Back: Ted Pillay, municipal manager: Sarah Baartman District Municipality; John Lomberg, head: stakeholder relations at Santam. Front: William Welkom, manager: fire services, Nomhle Gaga, mayor: Makana Municipality and Temba Mvusi, executive head: market development at Santam.*

In an extension of its proactive risk management initiatives in municipalities across the country, Santam, South Africa's largest short-term insurer, handed over much needed fire fighting equipment to the value of R220 000 to the Makana Local Municipality Fire Department in Grahamstown. The equipment handed over included skid units, fire branches, spades, hammers, protective clothing for fire fighters, torches, spotlights and foam cans.

The handover was preceded by a successful stakeholder event in partnership with the Sarah Baartman District Municipality and the Makana Local Municipality to share details of Santam's holistic risk management partnerships.

Temba Mvusi, executive head: stakeholders relations at Santam, said the engagement created the platform to discuss the impact of these risk management initiatives in the communities where the partnerships have been established.

"Santam has heeded the call to take the lead to promote climate risk adaptation and improve the resilience of communities. Over the last few years we have secured significant successes with our shared risk management approach to address climate-related risks through partnerships with a wide range of stakeholders including business, land owners and local government. We are very proud of the momentum and milestones our Partnership for Risk and Resilience, previously known as Business-Adopt-A-Municipality (BAAM), has gained since 2012."

"Through this partnership we drive risk mitigation and risk reduction interventions and initiatives with 10 district municipalities, which comprise 54 local municipalities in South Africa. As an example, we've had huge successes in the Ehlanzeni District Municipality (EDM) in Mpumalanga with a joint implementation plan for disaster risk management already established and flood data obtained from the Mbombela Local Municipality and analysed by Santam's risk services. Access to this data allowed Santam's risk services to identify and classify all flood risks, identify exposed clients within this risk pool and apply flood risk mitigation measures. By partnering with the local authority, Santam saved R4,2 million that would have been spent on conducting scientific studies to obtain the same data."

According to Mvusi municipalities bear the responsibility of managing the ramifications of a disaster when it strikes. "Their ability to not only respond but more importantly, to mitigate the risks is required. We have greatly improved the provision of disaster management in the respective 53 local municipalities and remain committed to creating a better life for all South African citizens.

"Fire and fire protection systems, safety and security, building regulations and building accessibility, adaptation to climate change and an increase in natural disasters, all form a suite of systemic risks, which must be addressed in a collaborated effort," Mvusi concluded.

William Welkom, manager, fire services at Makana Municipality said that the Makana Municipality has experienced financial difficulties in recent years and were therefore unable to provide a capital budget for fire services to procure equipment. "This equipment will greatly assist us to achieve our objectives by providing an efficient and effective quality firefighting service to the community of Makana," said Welkom.

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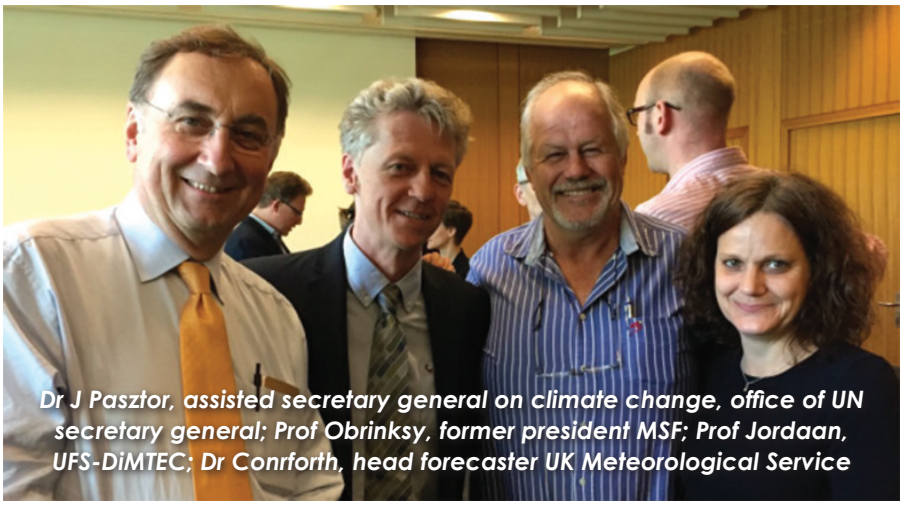
# DISASTER MANAGEMENT TRAINING
## AND EDUCATION CENTRE FOR AFRICA (UFS-DIMTEC)



*Dr J Pasztor, assisted secretary general on climate change, office of UN secretary general; Prof Obrinksy, former president MSF; Prof Jordaan, UFS-DiMTEC; Dr Conrforth, head forecaster UK Meteorological Service*

University of the Free State (UFS) DiMTEC celebrated its 10th anniversary in 2015, which involved various internationally renowned scientists in centenary lectures and workshops. The block course presented in Durban during February 2016 was once again a highlight, showcasing the latest research on vulnerability and disaster reduction. UFS-DiMTEC is also proud to have had students assisting in Nepal after the earthquake in April 2016. Towards the end of 2015, UFS-DiMTEC played a major role in establishing disaster management as a professional designation by facilitating the training of assessors required for designation approval. The year was concluded by the publication of 'Book of Abstracts', which reflects the research conducted by students during the past ten years.

In June 2015, Professor Andries Jordaan, DiMTEC director, was one of 23 international experts invited by the office of the Secretary General of the United Nations to participate in a climate resilience workshop in Genève, Switzerland. Johannes Belle, lecturer at DiMTEC, was elected to the executive committee of the Disaster Management Institute of Southern Africa (DMISA) as chairperson of the Free State branch.

Students excelled on many levels, among them was a Doctor of Philosophy (PhD) student, Cinde Greyling, who participated in the Three Minute Thesis competition, founded by the University of Queensland and presented by the UFS Postgraduate School. She was one of the top PhD presenters at the regional competition and was consequently invited to the national competition, where she came in fourth place.

Activities at UFS-DiMTEC included workshops organised and facilitated as part of DiMTEC's centenary celebrations,

- Working with nature to build resilient communities
- Building resilient communities through media and communication
- Global resilience through insurance and index-based risk transfer products
- Climate and global resilience: challenges for science and education
- PhD block course from vulnerability to resilience

Where community service is concerned, Schalk-Willem van der Merwe, one of the DiMTEC students, formed part of the Gift of the Givers response team that assisted victims of the Nepal earthquake. Another community service project included the Water Research Commission (WRC) Drought Research Team, under leadership of Prof Jordaan, where they trained 190 emerging and small-scale farmers and 120 extension officers in the Eastern Cape on drought resiliency.

During the month of May 2016, an international study tour was arranged for UFS-DiMTEC personnel, of whom each is enrolled for their PhD, to meet with specialists and professors in their own field of study and an opportunity to work at different top universities in Europe. Among these universities were Freie Universitat, Berlin; Vrije Universiteit, Amsterdam and United Nations University, Bonn. The aim was to ensure and strengthen a personal network in each field of study and also to create linkages between UFS-DiMTEC as a multi-disciplinary centre and these universities. The personnel were able to demonstrate in practice, the multi-disciplinary nature and teamwork within the centre as well as presenting the ▸


*Johannes Belle; Prof Andries Jordaan, Olivia Kunguma, Annelene van Straten at the United Nations building in Bonn*

# DiMTEC – Disaster Management Training and Education Centre for Africa

**UFS-DiMTEC** is entering a new phase with a focus on research through our new PhD program. Our post-graduate diploma in disaster management is also registered and students have a wider choice of modules at Masters level. We invite prospective students and practitioners to become part of our vision for disaster risk reduction.

## Post Graduate Diploma in Disaster Management (PGDip DM) *120 credits*

Our PGDip is at NQF level 8 with an entrance level of NQF level 7. It entails 8 subjects, 4 in the first semester and 4 in the second semester. This qualification will equip a leaner with fundamental and introductory knowledge on the basic principles and practices of disaster risk reduction and disaster response. On completion of this qualification the student will be able to work as a practitioner at a managerial level within a government, private sector or non-governmental organisation.

### First Semester

| | |
|---|---|
| Research design and methodology | 15 |
| Introduction to disaster management | 15 |
| Theoretical models for disaster management | 15 |
| Legal and institutional arrangements for disaster managers | 15 |

### Second Semester

| | |
|---|---|
| Strategic disaster management | 20 |
| Information Technology in disaster management | 10 |
| Public health in disaster management | 15 |
| Management of natural and man- made disasters | 15 |

## Masters in Disaster Management (MA DM) *180 credits*

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| Subject | Credits *Choose 60* |
|---|---|
| Disaster mental health | 30 |
| Political strategic planning | 30 |
| Geographical information systems and remote sensing | 30 |
| Ethnic and cultural conduct | 30 |
| Management of media relations | 30 |
| Disaster vulnerability and impact assessment | 60 |
| Water related disasters | 60 |
| Ecosystems in disaster risk reduction | 60 |

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# INDIA TO PLAY LARGER ROLE
## IN COMBATING DISASTERS

*Union minister of state in charge of disaster management, Kiren Rijiju*

India envisages a bigger role for itself in building capacity against disasters in the Asia-Pacific region, Union Minister of State for Home Kiren Rijiju said on 2 February 2016.

Speaking at the All India Regional Editors conference, he said, "India envisages a bigger role in capacity building in the Asia-Pacific region and looks forward to build sustained regional and international partnerships under the Sendai Framework 2015-2030."

The minister said the country, in this pursuit, will also hold the first Asian Ministerial conference in Delhi in November 2016 for disaster risk reduction.

He listed a number of steps taken by India in order to prepare better defences and responses against disasters like raising of the National Disaster Response Force (NDRF), bolstering its capacities by providing better logistics and training and deployment of military assets and personnel in friendly countries in the recent past when they were struck with such tragedies.

Highlighting India's size and its huge diversity in terms of physiography, climate, socio-economic and culture, Rijiju said these factors make the country rank high in terms of reported number of disasters and risk to natural hazards. "Keeping in view the vulnerability of India to various disasters, the government has brought about a change in the approach to disaster management. The change is from a relief-centric to a holistic and integrated approach covering the entire gamut of disaster management encompassing prevention, mitigation, preparedness, response, relief, reconstruction and rehabilitation," he said.

The Sendai Framework for Disaster Risk Reduction 2015-2030 is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action.

It is a 15-year, voluntary, non-binding agreement, which recognises that the state has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders including local governments, private sector and other stakeholders.

different universities with the opportunity to expose their personnel to a multi-disciplinary environment. The trip opened multi-disciplinary research opportunities for the centre.

During May to June 2016, an additional international study tour was arranged for UFS-DiMTEC personnel, to different universities in Europe. Universities included the University of Public Service in Budapest, Hungary, where staff attended a week training conference on the Erasmus programme and international liaison. Presentations and participation at the International ELSIDEMA conference was presented at Babes- Bolyai University in Cluj-Napoca, Romania. A follow up meeting was undertaken with the University of Pannonia in Hungary to cement the research prospects. The staff also participated and made some presentations at the symposium on international population movements held at the University of Ljuljana, Slovenia. It was an eye opener as they managed to get first-hand information on the recent migrant crisis in the European Union (EU) region and how the stakeholders are managing the crisis. There was also the opportunity to visit the Northern Italy Disaster Management Centre. The trip opened multi-disciplinary research opportunities for the centre.

*Rosamaria Pavesi, Erasmus student, University of Calabria; Primoz Banovec, Aldo Primiero, civil protection of Friuli Venezia Giulia; Prof Andries Jordaan, Alice Ncube, Germie van Coppenhagen, Francesco Galati Erasmus student, University of Calabria*

# MEET BAFANA ALFRED MAZIBUKO,
## DEPUTY PRESIDENT OF DMISA

*By Anthony R Kesten*

*Bafana Mazibuko, vice-president of DMISA*

*A relaxed Bafana*

Bafana Mazibuko was elected as the deputy president of the Disaster Management Institute of Southern Africa during 2014. Anthony Kesten provides some insight into Bafana's career to date.

Bafana Alfred Mazibuko was born on 25 April 1973. He is married with two daughters and one son and lives in Ekurhuleni.

He completed his first degree, a Bachelor of Arts, at the University of the Western Cape in 1995. He then completed his Honours Degree in Human Resources in 1997 at the University of Johannesburg, previously known as the Rand Afrikaans University (RAU).

In 2004, Bafana completed his Disaster Management Diploma with the University of South Africa (UNISA), formerly the Technikon South Africa. During 2009 he completed a course entitled, 'Managing Integrated Development for Service Delivery' at the Wits University: Graduate School of Public and Development Management Diploma and the Diploma in Humanitarian Assistance while completing the external examination of the Liverpool School of Tropical Medicine as part of this course. Bafana then enrolled at the University of the Free Sate to complete a Master's Degree in Disaster Management.

He has to date completed the Advanced University Diploma (Honours level) in Disaster Management and has completed all the content subjects towards achievement of the Master's Degree except for the finalisation of his dissertation, which work he has temporarily suspended. He has gone on to complete the Municipal Financial Management courses required by National Treasury for senior managers.

Bafana started his work in local government at the former Germiston City Council (now part of the Ekurhuleni Metropolitan Municipality) as a superintendent on a shift in the emergency and service emergency call taking and dispatching centre in the communications and disaster management division in 1999, where he ran a tight ship. In December of 2006, he was successful in being appointed to the position senior disaster management officer at the Ekurhuleni Metropolitan Municipality where he was responsible for the implementation of disaster management within communities, local government departments and other stakeholder organisations. These tasks he carried out with great diligence.

In June 2008, he was appointed to the position of manager: disaster management centre at Ekurhuleni. In this function Bafana directed the activities of volunteers, awareness, research and the disaster management centre. In November 2013, he was again successful in his application and was appointed to the position of senior manager: disaster management and is currently the acting divisional head: disaster management after the early retirement of the former divisional head.

Bafana Mazibuko has proven that he is a diligent worker and a man of high ethical standards. He is conscientious and always has given 100 percent in all that he has done. This has resulted in him being recognised as a man of integrity and as a result of the aforementioned was elected as the deputy president of the Disaster Management Institute of Southern Africa (DMISA) during 2014. As is the custom in the Disaster Management Institute, he should be elected and inaugurated as the new President during the Institute's Annual Conference during September 2016.

# CITY OF CAPE TOWN
## DISASTER MANAGEMENT CENTRE


*The City of Cape Town Disaster Management Centre is strategically situated in Goodwood*

Strategically situated in Goodwood, the City of Cape Town Disaster Management Centre was established in July 2005.

*Head of the centre, Greg Pillay*

The centre has 24-hour operation functionality and is staffed by three to four personnel per 12-hour shift. The most common incidents that are responded to are fires and floods. Disaster Management Journal visited the DMC and spoke to Greg Pillay, head of centre for the City of Cape Town Disaster Management Centre, to gain insight into the DMC's history, operational aspects and challenges.

### History

"The centre came into being with my appointment as head of the Disaster Risk Management Centre of the Metropolitan City of Cape Town, on 1 July 2005," said Pillay. The building that constitutes the centre was officially opened on 10 October 2011, which fell on International Disaster Risk Reduction Day.

Cape Town became a Unicity in December 2000, which led to the amalgamation of the surrounding metropolitan local councils (MLCs) that included of the erstwhile City of Cape Town, ie Tygerberg Municipality, Oostenberg Municipality, Helderberg Municipality, South Peninsula Municipality, Blaauwberg Municipality and the Cape Metropolitan Council (CMC) into the now City of Cape Town Metro.

### Budget

"In the last financial year, the DMC had an operating budget of R111 million and a capital budget of R8,183 million," said Pillay.

The actual building of the centre was accomplished in various stages and on a piece meal basis over a period of three to five years. The total cost of the outlay for the building of DMC headquarters (HQ) at Goodwood amounted to R25 million. In addition to the DMC HQ at Goodwood, there are four decentralised area offices situated at the Civic Centre in the central business district (CBD) Cape Town (Area West), Brackenfell (Area North), Ottery (Area Central) and Melton Rose, Eersteriver (Area East) respectively. The training centre is situated at Alphen Centre, Constantia.

## Organisational structure and staff

The organogram of the DMC consists of a flat structure of 83 staff members, with the head of the centre at the apex and 11 persons reporting to him. These 11 functionaries consist of four area heads and seven specialised portfolio heads. The area offices and specialised portfolio divisions consist of disaster management officials, emergency communicators, logistics personnel, finance and human resources administration personnel. There is in-house and on the job training as well as attendance of external training courses.

When asked whether he had enough competent staff for the incidents at hand, Pillay confirmed that the centre was adequately staffed.

As the head of the centre, Pillay is responsible for the coordination of disasters and emergencies and in terms of the Disaster Management Act 57 of 2002, is charged with undertaking the powers and duties of a municipal disaster management centre.

*The team on duty: Gavin Gordon, Ilona Petersen, Llewellyn Stevens and Kim Schoon*

Pillay started his career in the emergency services as an ambulanceman, with the Port Elizabeth Municipal Ambulance Service in 1977. He was part of the group that undertook the Ambulance Medical Assistant (AMA) Training in Cape Town in 1979, under the supervision of Dr Alan MacMahon, the erstwhile emergency services consultant for the then Cape Province. Following the expansion in the neighbouring Divisional Council Dias Ambulance Service, which later became the Algoa Regional Services Council, he progressed through the ranks as an officer to the appointment of deputy chief officer of the service in the early 1990s. He had in the interim commenced part- time studies through the University of Port Elizabeth, obtaining his BA Degree in Public Administration and Psychology in 1987 and his Honours Degree in Public Administration in 1988. He was appointed chief ambulance officer of the Cape Town Ambulance Service in 1996 and transferred to the post as the head of disaster management of the City of Cape Town in 1998. He obtained his Masters Degree in Public Management through the Cape Peninsula University of Technology in 2006.

*Gavin Gordon and Ilona Petersen on shift, in the 24-hour disaster operations centre*

"I have enjoyed an illustrious career in the emergency services and my background has equipped for my current position as head of centre," said Pillay.

## Operations

The disaster operation centre (DOC) is a 24/7 centre, resourced by emergency communicators that monitors emergency incidents taking place in the city that could escalate into disasters. At short notice, SMSs can be sent en masse to members of the disaster coordinating team (DCT), requiring their attendance to deal with a disaster at hand with the activation of the disaster operations centre (DOC). In addition, disaster management personnel are on call after normal office hours and can be activated according to the standby roster to respond to emergencies.

The centre's headquarters at Goodwood consist of a suite of offices, a disaster operations centre comprising a tactical section and strategic section. This is complemented further with a large auditorium that can be utilised for briefing sessions or training or media conferences. In addition, there are boardrooms available that can be used for meetings or, in an event of emergencies/disasters, can serve as break-away rooms for specialised groupings to meet away from the plenary section.

The headquarters houses a logistics section that has equipment, vehicles, etc in storage at this facility as well as a decentralised facility at Ottery. ▶

*Strategic disaster operations centre*

There are four satellite area offices, respectively at the Civic Centre in Cape Town CBD, Brackenfell, Ottery and Melton Rose in Eersteriver, as part of the decentralisation of staff resources, as well as a training centre at Alphen Centre in Constantia. Furthermore, the area office at Civic Centre Cape Town CBD is the Alternative Disaster Operation Centre, as part of contingency arrangements.

The DMC HQ at Goodwood is centralised and is close to the epicentre of Cape Town whilst the four satellite area offices provide decentralised facilities close to communities and businesses, as is the case for the training centre situated at Alphen Centre in Constantia that is situated in tranquil surroundings, ideal for the training environment.

The City of Cape Town DMC is fairly well resourced with 73 vehicles and 43 specialised trailers in its fleet. Specialised vehicles include two mobile onsite joint operation centres (JOCs) including one that has 4x4 wheel drive capability, 4x4 vehicles SUVs and LDVs, motorcycles, high-powered lighting plants, emergency generators, bilge pumps, fire fighting trailers, emergency signage trailers, etc.

## Software

The centre will shortly be implementing the Emergency Policing Incident Control (EPIC) system, which is an electronic system that will allow for spacial recognition of emergency resources with computer aided dispatching within the city and enhance deployment of such resources.

Provision is made for backup hard copies, as well as an IT redundancy process, as part of the contingency arrangements.

## Preparedness

"There are various hazard specific emergency plans and standard operating procedures (SOPs) to guide one in dealing with a disaster," stated Pillay. "In addition, there are regular emergency exercises organised with multiple roleplayers to test and assess workability of these plans and where

*Personnel and fleet of DMC*

CONFERENCE • EXHIBITION • TRAINING • CHALLENGES

# SAESI 2017

## Southern African Emergency Services Institute

## 29 Oct - 3 Nov

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- Conference
- Exhibition
- Gala dinner
- Cocktail evening
- SAESI EXCO meeting
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- Vehicle extrication
- High angle rescue
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- Badge swopping evening
- Fun run
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Conference programme, exhibition layout and details on the training events and challenges will be released shortly.

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*The DMC's 111 seater auditorium*

necessary, adjust these plans and SOPs accordingly."

## Challenges

Cape Town is a growing Metropolis with in-migration that has led to the formation of large informal settlements in the City. These informal settlements are affected by the hazards of fires and floods. In addition, during the summer dry months, the hazard of wildfires exists.

## Incidents

We asked Pillay to mention some of the notable incidents during which the centre was activated. "The tornado in 1999 affected 15 000 people. On 29 August 1999, a powerful tornado struck the Cape Flats causing damage along a path at least 1,6km long and 910m wide. Approximately 5 000 people were left homeless. In 2000 we experienced a major oil spill when The Treasure, a bulk carrier, sank in heavy seas off Cape Town, spilling at least 200 tons of heavy fuel oil. The incident severely affected two large breeding colonies of African penguins on Robben and Dassen Islands and resulted in the evacuation of 21 000 penguins that had to be cleaned."

Another major incident was the Joe Slovo informal settlement fire on Saturday, 15 January 2005. Seven people, including two children, were seriously injured and thousands of houses destroyed leaving about 12 000 people homeless.

## Interagency involvement

Stakeholders that are involved in the DMC includes all municipal departments within the City of Cape Town and external role players such as Provincial Disaster Management, Koeberg Nuclear Power Station, Metro EMS, the South African National Defence Force (SANDF), the South African Police Service (SAPS) and various national and provincial departments, non-governmental organisations (NGOs), etc.

## Volunteers

The City of Cape Town has a proud legacy of maintaining an active disaster management volunteer corps over the years. There are currently over 400 active disaster management volunteers in service who are trained in first aid, fire fighting as well as other relevant training courses. The volunteers do weekend duty at functions and events and are activated during times of emergency for eg the Cape Peninsula fires in March 2015 and the Somerset West floods in November 2013.

"They fill the gap with the multiplier effect by being a useful, trained resource that can be of assistance during times of emergency and so contribute towards building a resilient city. The 400 active volunteers are spread through 12 disaster management volunteer corps that are strategically situated throughout the city," added Pillay.

Besides training, the volunteers are supplied with uniform, vehicles, equipment and be activated at short notice to respond to emergencies/ disasters. Provision is also made for the supply of meals when they are on duty.

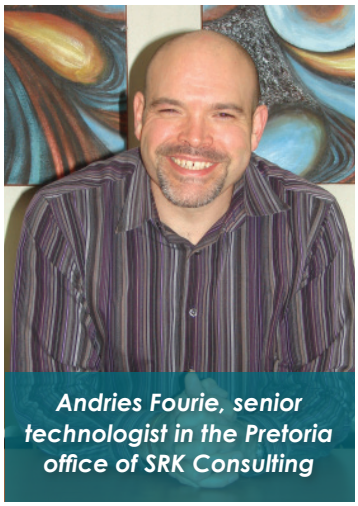
Over the last two financial years, ten disaster management volunteer facilities costing R1 million each were erected as a means to boost the morale of the volunteers, replacing previous, old facilities that were used. These disaster management facilities consist of a large meeting/training room with overhead projector and air-conditioning, kitchenette, ablution facilities, storeroom and office for the coordinator.

We asked Pillay what he would do better if he had the opportunity and he responded, "There is always the need to improving service delivery and reworking your SOPs to achieve maximum benefit for the organisation and the community it serves. The City of Cape Town Disaster Management Centre yields good results and has proven itself to date as a service rendering organisation.

*The kitchen and dining area of the auditorium*

# WHY DISASTER MANAGEMENT PROJECTS ARE OFTEN NOT COMPLETED?

*By Andries Fourie, senior technologist, SRK Consulting*



*Andries Fourie, senior technologist in the Pretoria office of SRK Consulting*

Why are there so many disaster management projects that are initiated but not brought to completion? To answer this troubling question, you need to understand what documents or policies should be in place to make your organisation compliant with all relevant legislation and policy.

It has to be noted that there is increasing pressure to be effective and efficient with more restricted budgets, making funding of new projects a major challenge for disaster management; so it is of upmost importance to bring projects to fulfilment if funds have been approved.

## Legal context

Disaster management is governed by the Disaster Management Act 57 of 2002, the Disaster Management Amendment Act 16 of 2015 (promulgated 15 December 2015) and the National Disaster Management Framework of 2005. The acts provide the overall policy that states what should be done, and the framework gives clear guidelines on how it should be accomplished.

The following documents or policies are required to form the basis of institutional capacity and commitment to comply with Disaster Management legislation and policy:

- Disaster Management Framework;
- Disaster Management Plan and
- Disaster Risk Assessment.

The following table summarises which of these three documents are required at different levels of government:

| | Disaster Management Framework | Disaster Management Plan | Disaster Risk Assessment |
|---|---|---|---|
| **National Government** | Required | Required | Required |
| **National organs of state** | Not required | Required | Required |
| **Provincial Government** | Required | Required | Required |
| **Provincial organs of state** | Not required | Required | Required |
| **District and metropolitan municipalities** | Required | Required | Required |
| **Municipal organs of state** | Not required | Required | Required |
| **Local municipalities** | Not essential | Required | Required |

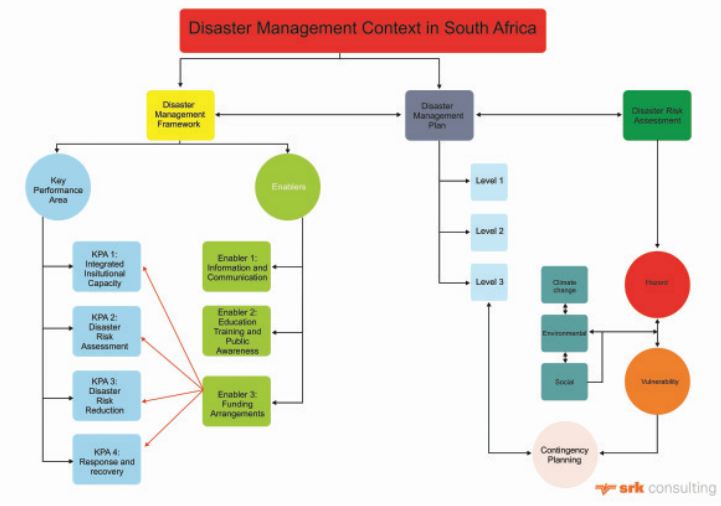
The Disaster Management Framework stipulates disaster management plans on three levels. Level one is the lowest (entry level plan) and level three is the highest, reflecting more institutional capacity and a more detailed disaster risk assessment is in place. The main point here is that the framework supports a phased approach, with each higher level obtained through a systematic building and maintenance of requirements.

## Why do projects not materialise?

It has been the experience of the author, from both a consultant and disaster management practitioner for government's perspective, that project budgets for developing the above-mentioned documents often do not match the expectations reflected in the scope of work reflected within 'request for proposals'. The end result is that tender prices do not match available budgets and that projects are either re-advertised or not taken further due to the impression that the project is too expensive and insufficient or no funds are available.

## How can you make your project a reality?

Disaster management projects duration can vary from months to years, depending on the size and scope of the assignment; so it is important to be realistic about your expectations.




*Disaster management context in South Africa*

Here are some points to keep in mind if you want to make your project a reality:

- Get opinions from others who have already undertaken similar projects; this will give you an understanding of duration and budget.
- Call one or more of the consultants and ask for a budget estimate of different segments of your project. They often participate in tenders can give you an estimate of time and budget based on previous experience (don't expect an official quotation but rather an informed estimate).
- The projects can be extended over a number of financial years or segmented to reduce budget amounts required within one financial year. The relevant municipality or department may also undertake some of the tasks themselves (with the guidance of consultants) to reduce budget requirements. Examples of these tasks could be community consultation for disaster risk assessment or data gathering for disaster risk assessment.
- Limit the number of workshops and meetings where consultants will be required.
- Stipulate the number of contingency plans required, as this will allow for a specific budget instead of having to deal with unknown quantities.
- Be as specific as possible with all items you require from bidders, so that bids are comparable. If you list specific items, it is possible to remove single items if you need to reduce the price so that the project fits within your budget. This can be done by compiling itemised pricing tables in bid documents.

## Where to start?

These three steps will put you on the starting block for your disaster management project:

- Draft a plan of action with goals and timeframes; it is important to understand where your organisation is and where you are going.
- Get commitment from management or council clearly indicating the requirements and the estimated future financial planning.
- Make sure that your organisation is covered by a clear record of decisions and documents, especially if you request funds from outside the organisation to assist with realising these requirements.

## Conclusion

This article has highlighted some of the challenges in planning and implementing a disaster management project and has given some possible solutions to overcoming them. Remind yourself how important your work in disaster management really is. Ask yourself, 'How do you attach a value to the lives of people'? Do you still realise the importance of what we are doing, and the consequences of failure? Can the severity of a disaster be mitigated and possibly even be prevented? Think again when you initiate your disaster management project: What are the possible risks to the project? What can I do differently to make it work?

*Municipal employees conducting community consultation during a disaster risk assessment project*

# RUSSIA LAUNCHES EUROPEAN SATELLITE
## TO SPEED DATA ON DISASTERS

*The EDRS-A node*

Europe has launched the first part of a new space 'data highway' that will pave the way for faster-than-ever monitoring of natural disasters such as earthquakes and floods.

The EDRS-A node, which was carried into space by a Russian Proton-M rocket, is the first building block of the European Data Relay Satellite, which will cost nearly 500 million euros ($545 million). The satellite will considerably improve transmission of large amounts of data, such as pictures and radar images, as it will no longer have to wait for a ground station on Earth to come into view.

The satellite, which blasted off from the Baikonur Cosmodrome in Kazakhstan, is to orbit Earth at an altitude of around 36 000 kilometres.

It will relay data on sea ice, oil spills and floods from Europe's multi-billion euro Copernicus Earth observation project to users in Europe, Africa and the Atlantic area. Its services will also be available to other paying customers.

The satellite was created through a partnership between the European Space Agency and Airbus. The European Space Agency (ESA), Airbus Defence and Space and other partners is implementing a first-regional, then global laser communications system. EDRS, also known as the SpaceDataHighway, is a public-private partnership (PPP) between ESA and Airbus Defence and Space, with ESA and the European Commission as the system's first customer and Airbus Defence and Space responsible for commercialisation.

EDRS is capable of beaming 1,8 Gbps using laser communications terminals (LCTs) developed largely by Tesat Spacecom in Germany under funding from DLR, the German aerospace centre. The new telecommunications system is designed to speed up access to imagery collected by earth observation (EO) satellites that, situated in low earth orbit (LEO), often have limited access to their associated ground stations.

ESA EDRS project manager, Michael Witting, said that an EO satellite in a 90-minute orbit typically only has visibility with its own ground station for about 10 minutes, meaning it can only transmit data during that brief window, limiting the amount of data collected and introducing latency between the time of observation and when images are accessed on the ground. EDRS works by connecting with EO satellites from geostationary earth orbit (GEO), where the telecom satellite can see the EO spacecraft. Data from the observing satellite is transferred to the EDRS payload using lasers and an RF beam retransmits the information to the ground.

"The data relay satellite, depending on where it sits on the geostationary arc, has visibility of the imaging satellite for a very large part of the orbit, at least half of the time if you have one relay satellite," said Witting. "If you have several of them, we can achieve situations or configurations where you have 100 percent of the time visibility, so you can have access to the data immediately, you can get it to the ground in what we call near-real time, and because of the high speed of the link, we can get much more data down than we can get down with the classical scenario."

The second node, EDRS-C, is planned for launch in 2017, with OHB of Germany integrating the payload into its satellite platform now. By slashing the time between observation and access, EDRS is expected to enhance services such as information, surveillance and reconnaissance (ISR) disaster response and more.

# RED ANTS

## EMPOWERING OUR PEOPLE THROUGH INITIATIVE AND SUSTAINABLE BUSINESS

Never before has the world been so interconnected, every region and every nation so dependent on other regions and other nations. It pleases us that many companies such as Red Ant Security Relocation and Eviction Services (Red Ants) have thrived in this environment. The lack of understanding and perspective of the roles of the corporations in this increasingly competitive economic and social environment is a cause for concern especially in connection with the lack of understanding of ethical business and investment in corporate social responsibility.

The Red Ants, a company founded by local entrepreneurs to support the social, economic and infrastructure development requirements of South Africa has shown tremendous growth since its formation in 1998. From our humble beginnings as a single security outfit, to a well-diversified corporation participating in many sectors of the South African economy. To date we provide the following services;

- AgriPark services
  - Crop and vegetable production
  - Aquaculture and fish farming
  - Animal husbandry and livestock farming
  - Food processing
  - Moringa farming and processing
- Training
- Security and armed reaction services
- Construction
- Disaster management
- Civil engineering
- Turf specialist
- Cleaning and refuse removal

### Red Farms AgriPark

Notable in the above services is the development of our Red Farms AgriPark. Red Farms has initiated a farming project where the company has partnered with local farmers in various places to start and nurture a crop and livestock production business. The intention of this program is to encourage local communities to participate in farming to boost local production of crops such as vegetables and maize. This programme will also assist communities to gain skills through the Red Ants Training College. Through our training college, we will also provide skills training in food processing in our newly built factory. The emerging entrepreneurs will also acquire skills in packaging and marketing. This will help develop entrepreneurs to grow into small businesses that will remain sustainable



and profitable. Red Ants launched a Social Food Security Farming Project, which was adopted by the Honourable MEC of the City of Johannesburg. This programme has to date donated 244 134 food parcels consisting of carrots, beetroot, spinach, cabbage, potatoes, onions and turnips to the needy communities and has trained 500 farmers. Weekly delivery of 7 000 food parcels is ongoing.

On 25 July 2016, the Red Ants CEO Mr Johan Bosch , who is an Honourary member of IMPSSA and DMISA, launched the Entrepreneurial and Empowerment Project, an initiative that will help actualise the objectives and goals of the Red farms AgriPark Project. Attending the event were members of the public and numerous government officials including the Gauteng MEC for social development Ms Nandi Mayathula-Khoza and deputy minister of small business development Ms Elizabeth Thabethe. They all spoke on the importance of developing young entrepreneurs especially in the field of agriculture as it speaks to the food security of the country as a whole. They commended the Red Ants in pursuing such a noble initiative.

At Red Ants, continuous positive development is essential to human progress - it creates jobs, fuels innovation and powers virtually every element of the global economy. Over the past few decades, our economy has changed dramatically. New technology and advanced skills have combined to unlock new production and growth in areas once beyond our reach. This progress is undoubtedly intertwined with the communities that we serve in delivering our service.

Great business at Red Ants begins with empowering people in our immediate area. We recognise that business success is deeply linked to society's progress. Our investments in communities, developed in partnership with those communities, also are investments in the long-term success of Red Ants. This approach delivers mutual benefit and shared progress. This is a typical example of the Red Ants' approach to meaningfully plough back to the communities we work in. It is also envisioned that through our commitment to education, entrepreneurs such as those that will emanated from the entrepreneurial and empowerment project will ultimately contribute economically to society as a whole and deliver on a better life for all.

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# CASE STUDY: EXPLORING VULNERABILITY

## ASSESSMENT TECHNIQUES TO BETTER ESKOM'S DISASTER MANAGEMENT PLANNING FOR SNOW INCIDENTS

*By MA van Harte, DA Forbes and G Francis*

Eskom approved a programme to address compliance with the Disaster Management Act and the threat of snow was identified as a priority 1 for certain provinces. Given the decision, a disaster risk assessment was undertaken to understand vulnerabilities experienced within three of the snow-prone provinces. The aim of the assessment was to estimate the disaster risk experience on electrical infrastructure, exposure and the capability to respond to an extreme snow incident. Furthermore, it assisted Eskom to prepare for, adapt to and respond at the most vulnerable areas within the provinces.

This study explores five steps adopted to determine the snow disaster vulnerability rating for the impacted areas namely:

- Initial assessment
- Design questionnaire
- On-line survey
- Analysis
- Map results

Eskom's network performance and resilience in the face of extreme snow incidents were estimated from the analysis results. This was achieved through a number of workshops, an online snow disaster risk survey and network/customer impact analyses. A total of 91 customer network centre (CNC) supervisors responded in the areas initially identified at the outset of the research.

The aim of this study is to demonstrate the application of the disaster risk assessment to identify and prioritise the most vulnerable areas and electricity infrastructure. The application of the methodology enables Eskom to better determine and prioritise disaster risk reduction efforts for the prone areas to extreme snow conditions.

### Introduction

In recent years, a number of extreme snow incidents have occurred that have resulted in interruption of electricity supply within certain areas. Eastern Cape is among the identified provinces where snow is a concern, along with the Western Cape, Free State and KwaZulu-Natal. An extreme snow incident in 2012 negatively affected the electricity infrastructure due to the weight of the snow on conductors and wind pressure, causing widespread power supply interruptions in these provinces.

Line design parameters traditionally did not consider snow loading conditions. Therefore, the South Africa national code of practice introduced an ice load risk map for South Africa that identified the areas where design had to cater for extreme snow loading. Given this, national and international design philosophy concurs that it is accepted that it is virtually impossible to design a power line that will never fail but that there are various degrees of reliability of continuity of service and safety. Executing refurbishment and strengthening of these areas requires significant investment decisions and time.

These extreme incidents satisfy the discounting criterion for severe weather conditions. However, they require adequate coordination and planning to respond and to restore supply to affected areas eg broken structures and conductors.

### Disaster Management Act

Electricity plays an essential role in the South African economy and in society, in general. A major electricity-related incident can, therefore, have a significant impact on the country/province. The preparedness of and planning for such incidents, as well as the ability to effectively respond to and recover from such incidents, are essential requirements for effective disaster management. In terms of the Disaster Management Act (No 57 of 2002), coordinated provincial planning is required in order to manage electricity-related disaster threats or incidents.

### Eskom obligation

As an organ of state, Eskom is required to comply with the requirements of the Act and the National Disaster Management Framework (NDMF). The National Disaster Management Framework is comprised of four key performance areas (KPAs) and three supportive enablers required to achieve the objectives set out in the KPAs. Eskom's disaster planning for a provincial disaster scenario is required to address the KPAs defined in the NDMF, that is:

- KPA 1: Institutional arrangements
- KPA 2: Risk assessment
- KPA 3: Risk reduction
- KPA 4: Response and recovery

### Eskom's priority disaster scenarios

Extreme snow incidents are one of the electricity provincial disaster scenarios for which Eskom Disaster Management Planning is required. These disaster plans will be achieved through the provincial integrated teams within each province, to deliver compliance to the requirements of the Disaster Management Act and Framework. Table 1 tabulates the disaster scenarios on which Eskom focuses at a provincial level.

| Priority Levels | Provincial Disaster Risk |
|---|---|
| 1 | Major system contraint<br>Snow/Ice Storms<br>Floods<br>Regional blackout<br>Social unrest |
| 2 | Tropical cyclone/Anticyclone<br>Air/water pollution/contamination |
| 3 | Earthquake<br>Tsunami/Storm surge |

*Table 1: Eskom Disaster Plannings scenarios*

## Historical snow impact

### Study area

The Eastern Cape Province is located 32.0000° S, 27.0000° E, with a highest altitude of 3 019m above sea level and the climate

is highly varied. The western side is dry, with sparse rain during winter or summer and frosty winters and hot summers, with some areas such as that from Tsitsikamma to Grahamstown receiving more precipitation of about 495mm per year, which is also relatively evenly distributed; temperatures are mild. The interior can become very cold in winter, with heavy snowfalls occasionally occurring in the mountainous regions between Molteno and Rhodes. Buffelsfontein is one of the small towns in the Eastern Cape, with the lowest temperature ever recorded in South Africa of ¬20 degrees Celsius on 23 August 2013. Figure 2 illustrates Eskom Eastern Cape operating unit with 35 customer network centres (CNCs) servicing the province.

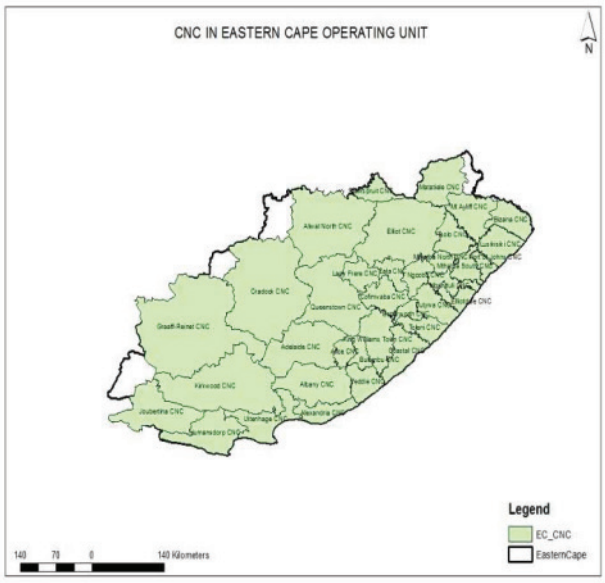



*Figure 2: Eskom Eastern Cape Customer Network Centres (CNCs)*

## Snow incident 2012

On 8 August 2012, the entire Republic of South Africa experienced a severe cold front. This was the first time in recorded history that all nine provinces in the country experienced snowfall on the same day. The provinces of KwaZulu-Natal, the Eastern Cape and the Free State experienced the heaviest snowfall in the country. In KZN operating units (OU) particularly, the impact of the snowfall was extremely severe, impacting not only the distribution and transmission electrical infrastructure but also affecting national roads and resulting in a provincial emergency. Figure 3 is a radar image of the snow incident in August 2012.

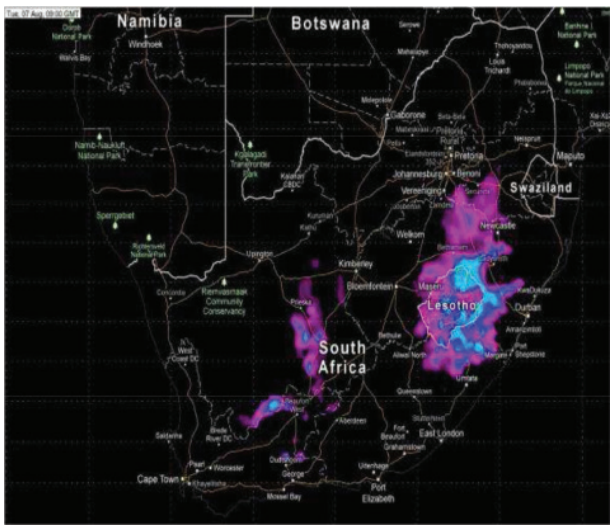



*Figure 3: Image from www.unseenworld.co.za*

## Methodology

Disaster risks assessment will inform disaster risk management planning and the reduction programme undertaken by Eskom to manage, contain, respond to and recover adequately from, extreme snow incidents. The methodology adopted consists of five steps to derive the CNCs vulnerable to extreme snow incidents within the Eastern Cape Province:

- Initial assessment
- Design of questionnaire
- On-line survey
- Analysis
- Map results

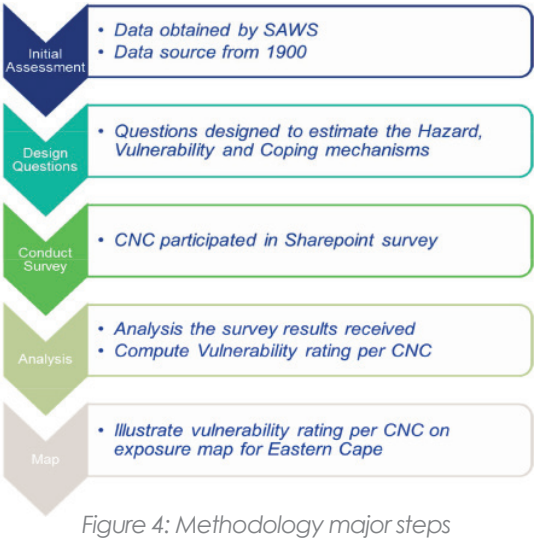



*Figure 4: Methodology major steps*

## Initial assessment

Extreme cold conditions in winter are a serious issue, especially in regions of high altitude in South Africa. An initial vulnerability assessment was first undertaken to identify where the high-priority areas were. This was achieved by looking into past snow events that had happened across South Africa from 1900 to 2011. Figure 5 denoted with data obtained through the South African Weather Services (SAWS) and historic news reports. Source: Caleum Data.

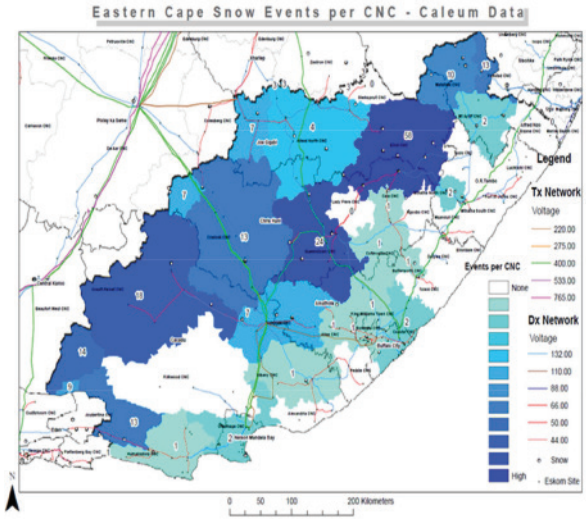



*Figure 5: Initial SAWS assessment – sum of snow incidents per CNC*

The Eastern Cape was among the identified vulnerable provinces, along with the Free State and KwaZulu-Natal. Further analysis was then done per province, with the focus being on the number of events as counted per municipal district as well as customer network centre (CNC) in the SharePoint survey and using the disaster risk assessment equation.

## Electricity affected

The Eastern Cape Province experienced 80 events on 14 July and between 7 and 12 August 2012 that were related to snow damage. These snow-related events affected a total of 142 098 customers, reflecting 14 percent of the operating units customer base being affected by the impact of the snow and 92 faults have been experienced. The 2012 snow incident has collectively qualified as a major event. Table 2 tabulates the key performance indicator impact for August 2012. Table 3 tabulates the number of networks and customers affected for August 2012.

| No. | KPI | Year end target | Included events | Delta |
|---|---|---|---|---|
| 1 | SAIDI3 | 55 | 57.8 | 1.87 |
| 2 | SAIFI4 | 26.3 | 25.97 | 0.33 |
| 3 | RSLI5 | 3.6 | 3.16 | 0.12 |
| 4 | DSLI6 | 12.5 | 12.5 | 0.39 |

*Table 2: Snow impact on August 2012*

| Impact | Quantification |
|---|---|
| Total number of networks affected (sub-Tx and reticulation faults) | Transmission = 0<br>Sub-transmission = 6<br>Reticulation faults = 86<br>Total = 92 |
| Total number of customers affected (sub-Tx and reticulation faults) | Transmission = 0<br>Sub-transmission = 56 376<br>Reticulation faults = 85 722<br>Total = 142 098 |

*Table 3: Number Electricity infrastructure affected*

## Survey

Survey questions were designed utilising a number of internal and external factors and reference sources for example, the South African Weather Service (SAWS) and US Metrological Services. Disaster risk criteria such as hazard, vulnerability and coping capability, were utilised to derive the vulnerability. Each category contained multiple questions, rated 1 to 5, with risk increasing according to the following criteria:

- Hazard = Used to determine actual measurement and severity of snow event.
- Vulnerability = Duration and customers affected, used to determine exposure.
- Coping mechanisms = Associated with coping ability, communication, equipment, warning systems, etc.


*Figure 6: Snow Survey parameters*

## On-line survey

A snow vulnerability assessment survey was then conducted, where risks from past snow events were identified by CNC senior supervisors through workshops. The questions designed assessed the CNCs' exposure and capability to respond to extreme snow conditions.

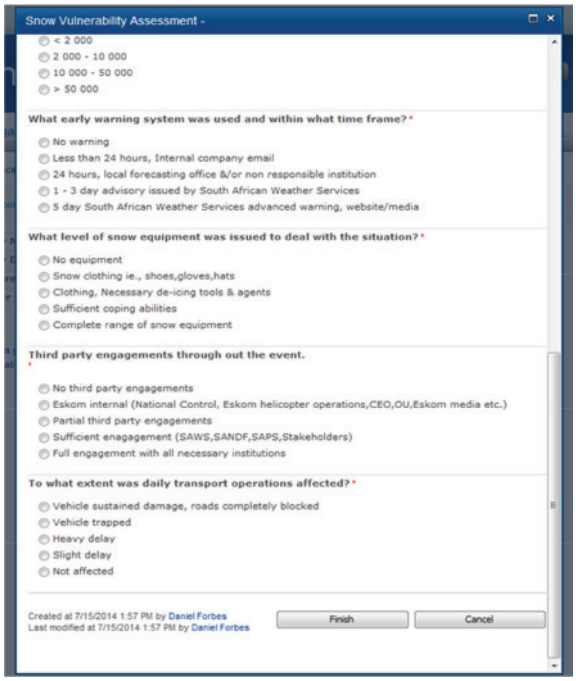



*Figure 7: SharePoint snapshot of snow survey*

## Analysis: disaster risk equation

The identification of the most vulnerable areas was the first step in planning an effective disaster risk reduction programme. The estimation of the level7 of the disaster risk was achieved utilising the survey results to derive the vulnerability rating. The disaster risk equation below was used to compute the disaster vulnerability rating:

$$Vrating = \frac{H1 + H2}{C5} X \frac{[\in (V3 + V4)]}{[\in C6 + C7 + C8]}$$

Where:
H is the hazard (Type and measurement)
V is the vulnerability (Duration and customer interrupted)
C is the coping capability (Early warning, equipment, engagement and transportation)

## Results

The CNC vulnerability rating was computed considering the survey results. Figure 8 illustrates the results by means of a geographical information system (GIS) per CNC.

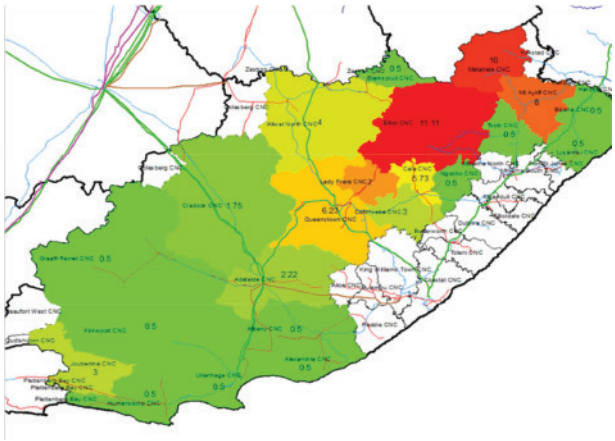


*Figure 8: Vulnerability rating in the EC per CNC*

# TANZANIA:
## PLANS AFOOT TO FORM DISASTER MONITORING, MANAGEMENT BODY

Plans are underway to establish an agency that will be well equipped to monitor and manage disasters in the country. Tanzania's prime minister, Kassim Majaliwa, reported on the development during the 'Questions- to-the Prime Minister' session in Tanzania's National Assembly, adding that discussions were going on to have the agency in place.

The agency will coordinate all emergency responses to disasters all over Tanzania. It will be equipped with enough resources to respond to disasters, including providing emergency shelters, food and drugs. "It will receive enough funding to respond to disasters across the country. They will be equipped with all facilities needed, including tents to provide emergency shelters and food," Majaliwa explained.

He was responding to a question from Maria Nasoro Kisanga (Special Seats-CCM), who wanted to know government's plans to safeguard the public from disasters and food shortage following heavy rains across the country that have caused floods and destroyed crops.

Majaliwa stated the government was prepared to assist all Tanzanians affected by the heavy rains and, already an evaluation of the extent of the damages is underway under the district councils, which form parts of the disaster committees.

The premier said government experts on the matter were already on site evaluating the extent of damage with a view to providing emergency response where needed. "Experts on site will present a report to the disaster management department in my office and we will supply the assistance requested," he reported.

Majaliwa noted that the government had enough food reserves to cater for those affected and the distribution exercise had already begun, adding that the government is also preparing for future disasters. "We will specially use this season to buy food for storage purposes from areas that were not affected by the floods in readiness for future disasters. I call upon the public to cultivate more crops so that we can have enough food reserves to cater for such disasters," he urged.

The premier warned those living in valley and lowland areas to move out of the places, directing local leaders to help relocate them to better areas. Majaliwa extended his sympathy to all Tanzanians who have been affected by the recent rains that claimed some lives and destroyed properties.

### Vulnerability risk rating

The Eastern Cape was found to be prone to snow from the records provided by the SAWS. The vulnerability risk rating was ordered in descending order to rank the most to the least vulnerable CNCs prepared to respond to and recover effectively from, an extreme snow incident. The equation also evaluated the coping capability of the CNC to manage the effects of the snow conditions such as establishment of early warning capability, specialised equipment and material, preparedness effort before the winter session, etc.

Table 4 below tabulates the rank of CNCs from highest to lowest, considering the survey results for the snow-prone areas.

| No. | CNC | Risk Rating |
|---|---|---|
| 1 | Elliot | 11.11 |
| 2 | Matatiele | 10 |
| 3 | Mount Ayliff | 8 |
| 4 | Lady Frere | 7 |
| 5 | Queenstown | 6.23 |

*Table 4: Results of the vulnerability risk rating for the CNC above 5*

### Disaster risk reduction efforts

These analyses assisted the Eastern Cape Snow Disaster Management Team to focus its efforts and investment decisions on prioritised CNCs. Eskom Eastern Cape adopted a response strategy and/or proactive plan to reduce vulnerability and/or increase coping capability of the identified CNCs to respond to the snow disaster threat. The identified CNCs shall be trained against the Eastern Cape Snow Disaster Management Plan and preparing for snow disaster threats before the winter season for the most vulnerable CNCs within the province.

Appropriate investment, design and operational strategies should be deployed to contain and manage the consequences of extreme snow conditions. These operational strategies must be enforced with appropriate training of field staff. They also include community awareness programmes and the initiation of new employees to improve the coping capability to reduce possible damage and/or death.

### Conclusion

The latest research suggests that the frequency, intensity and weather variability will increase. This may suggest that preparedness plans for extreme weather conditions are becoming even more relevant; therefore, extreme snow conditions should be a disaster scenario we should consider. It requires significant coordination and integration of disaster planning between state institutions and role players to contain and coordinate the response and recovery of critical infrastructure.

Furthermore, the Disaster Management Act and Framework require Eskom to plan for a range of disaster scenarios, including those that have a high impact but low probability of occurring. In addition to undertaking regular tests and exercises, Eskom continues to review its technical and non-technical vulnerabilities to prevent and recover for a number of national and provincial disaster scenarios.

This study presented the results of an assessment conducted within the Eastern Cape that was helpful in preparing and responding in an integrated manner within Eskom. Furthermore, integration and planning should be extended to provincial preparedness for extreme snow conditions.

### Acknowledgments

The authors acknowledge the Eskom Eastern Cape Snow Disaster Task Team for guidance and support and the co-authors contribution to the paper. In addition, we acknowledge the SAWS for providing snow incident data for the country.

# NATURAL DISASTERS SINCE 1900:

## OVER 8 MILLION DEATHS AND 7 TRILLION US DOLLARS DAMAGE

The CATDAT database contains socioeconomic loss and metrics from natural disasters globally: Floods have caused the highest damage, earthquakes and storms show an increasing role in recent times. Studies help catastrophe management.

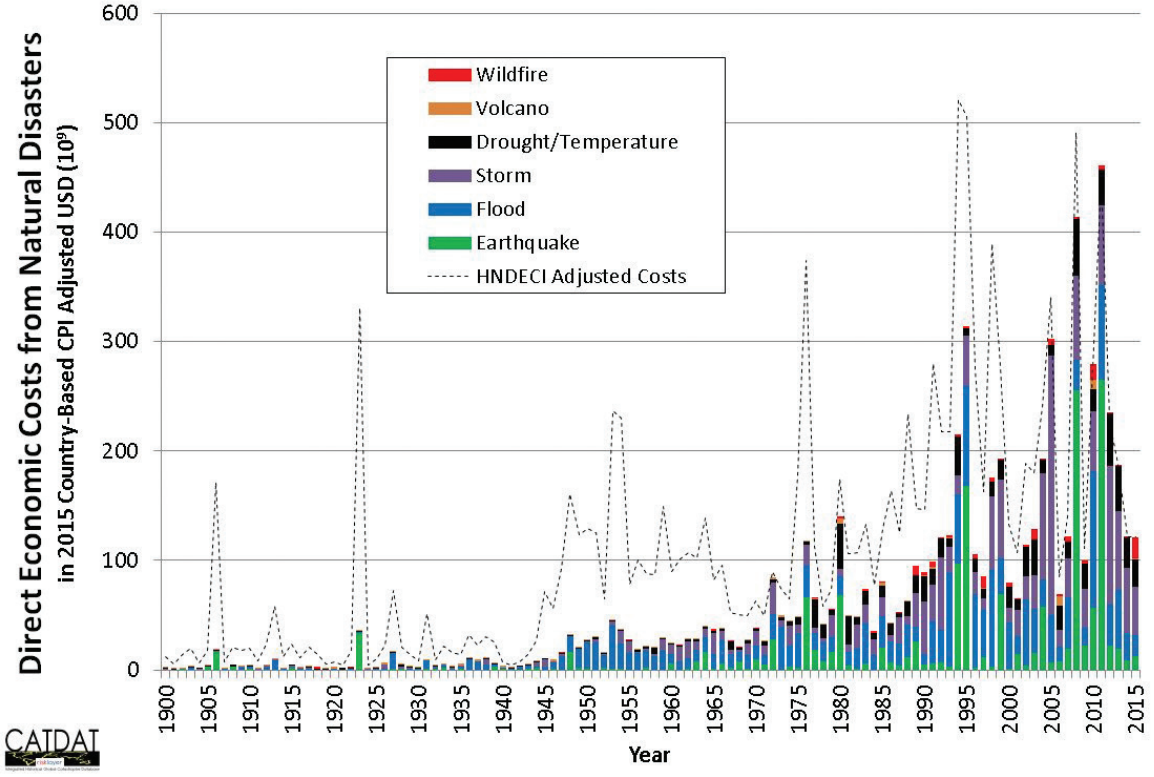
More than seven trillion United States Dollars (USD) economic damage and eight million deaths via natural disasters since the start of the 20th century: These figures have been calculated and collected by the risk engineer Dr James Daniell from Karlsruhe Institute of Technology (KIT). His database CATDAT looks at examining socioeconomic indicators as well as collecting and evaluating socioeconomic loss data through time and has built a massive base for his post-disaster risk model, which helps governments and aid organisations with catastrophe management and assessing rapidly the scale of a disaster. James will present his results today at the 2016 European Geosciences Union General Assembly in Vienna.

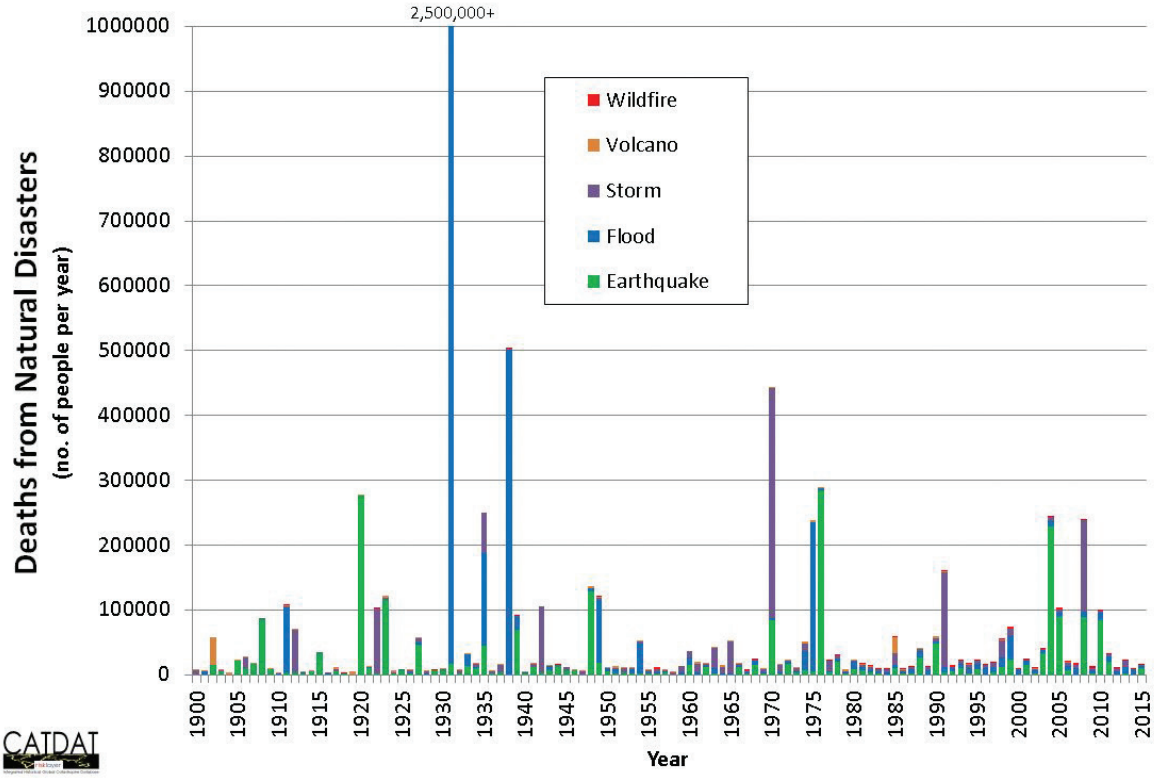
As part of CATDAT, James Daniell has collected and evaluated over 35 000 natural disaster events since 1900 globally. Around a third of economic losses between 1900 and 2015 have been caused via floods. Earthquakes have caused around 26 percent of losses, storms around 19 percent, volcanic eruptions around one percent. “Over the last 100+ years the economic losses via natural disasters, in absolute terms, have increased“, said Dr Daniell, who conducts research at KIT as a John Monash Scholar is at the Geophysical Institute as well as the Centre for Disaster Management and Risk Reduction Technology (CEDIM). Over the whole time period, floods have caused the highest amount of economic losses, however, in recent times, since 1960, the highest percentage has switched to storm (and storm surge) with around 30 percent of losses.

In relation to the current capital value of infrastructure and buildings in each country, the damage is reducing from natural catastrophes. “Less developed nations are often more vulnerable towards catastrophes, that means relative to population and capital, more deaths and higher economic losses are expected post-event”, says the civil/structural engineer and geophysicist. One common reason is the building quality itself, in that building regulations and disaster codes even if present, are often not adhered to. In addition, the locations where people work (like in Bangladesh on the coasts), are economic centres and highly populated due to this and the financial gains or livelihoods, often outweigh the potential disaster risks.

For his analyses, he has created and collected many socioeconomic indices for the world, countries and often even provinces like human development, gross domestic product (GDP), capital stock, exchange rates, price indices and data on security, building inventory and vulnerability in all countries exposed to disasters. In order to examine the trend of vulnerability over time, he normalised the losses to the year 2015 by examining the effect of historic events for today’s conditions. “Here there is a clear trend, that many (but not all) countries are protecting themselves better against disasters by building better, and therefore and are reducing their risk of high losses”, says Dr Daniell. The improvements in flood protection are the most prominent when looking at the trends, as through the 1900-1960 time period, many huge events occurred but from 1960 onwards, the normalised losses steadily reduce. The most visible reduction is seen in China and Japan.

Depending on the metric used to convert event-year dollars to current 2015 dollars (ie consumer price index, building cost index or otherwise), the natural disaster damage bill is between 6,5 and 14 trillion USD. The 7 trillion USD bill from Dr Daniell is based on a country-by-country GDP-deflator based price index; however, the components






of loss from natural disasters often differ significantly in addition to the loss estimate itself. "It is often impossible to get one exact value for a disaster event, as economic losses are often difficult to quantify and death tolls are often overestimated (for example, the Haiti earthquake in 2010) or underestimated (like Uzbekistan in 1966)", he says and therefore provides a lower and upper bound to his estimates of each past events from literature.

Looking at the largest economic losses, the year 2011 with major earthquakes in Japan and New Zealand is the highest loss to date, "with around 335 billion USD direct damage, the Tohoku earthquake-tsunami-nuclear sequence on 11 March 2011 is the highest single-event natural catastrophe loss", says James Daniell. From the earthquake and following tsunami, around 18 500 people died and around 450 000 became homeless.

## Deaths by natural disasters

Over eight million deaths are shown in the CATDAT database since 1900 for earthquake, flood, storm, volcano and bushfires (without counting deaths due to long term effects or drought/famine).

The amount of deaths due to earthquake between 1900 and 2015 from the database at around 2,32 million (with a range of 2,18-2,63 million). Around 59 percent of them died as a result of the collapse of masonry buildings and 28 percent of them due to secondary effects such as tsunami or landslides. Volcanic eruptions in the same time period have killed only 98 000 people (range: 83 000-107 000). However, volcanic eruptions before 1900, like the Tambora 1815 event, have the possibility to cause massive death tolls and also cause lower temperatures around the world leading to food security issues. "The absolute total of deaths through natural catastrophes has remained reasonably constant with a slight decrease. Around 50 000 people on average die each year. However, relative to population, death tolls have decreased significantly from 1900-2015", explains Dr Daniell. "Over the entire time period, half of people died due to flood. However, with better planning, warnings and preventive measures, the death rate due to floods is significantly decreasing. Since 1960, earthquakes have caused the highest death percentage with around 40 percent of disaster deaths. Compared to the global death rate due to all causes, the rate of deaths due to natural disasters has remained quite constant.

With each event over 100 000 deaths, the 2004 Indian Ocean tsunami (around 230 000) and 2008 Cyclone Nargis (around 140 000) in Myanmar are the largest disasters since 2000 in terms of deaths. The event with the highest death toll to date is the Great Floods of 1931 in China with a mean estimate around 2.5 million deaths.

## The CATDAT Database

Since 2003, James Daniell has built the CATDAT Database from information out of online archives, books, reports from institutions, publications and other databases around the world, with original sources in over 90 languages. In his PhD dissertation, he developed a global rapid loss estimation model for earthquake, using empirical data from over 8 000 earthquakes since 1900 and the associated socioeconomic climate over time. Using this basis, he has calculated a death toll estimate and economic loss estimate for each event since late 2009. At the start of 2016, Dr Daniell received one of three KIT Doctoral Awards from KIT awarded to dissertations finished in 2014. The model works very well for other disaster types and he has continually updated his model with other natural catastrophes with over 35 000 events collected since 1900 and many additional events pre-1900.

James Daniell is a John Monash Scholar. This title is given to outstanding young Australian researchers. Dr Daniell was among eight Australians in 2009 to win Australia's most prestigious postgraduate scholarship and continues his research and work in conjunction with the foundation.

## European Geosciences Union – 2016 General Assembly in Vienna

James Daniell will present the results of his research today at the annual European Geosciences Union in Vienna. At the assembly he is also the co-convener of two sessions on the theme of Natural Hazards in conjunction with CEDIM.

KIT pools its three core tasks of research, higher education and innovation in a mission. With about 9 300 employees and 25 000 students, KIT is one of the big institutions of research and higher education in natural sciences and engineering in Europe.

**Source: Karlsruhe Institute of Technology**

# UPCOMING EVENTS

## AUGUST - OCTOBER 2016

**15 -17 August 2016**
**5th International Symposium on the Effects of Surface Geology on Seismic Motion (ESG5)**
The symposium will discuss the effect related topics especially focus on main theme, which is 'Challenges of Applying Ground Motion Simulation to Seismology and Earthquake Engineering'
**Venue:** Taipei City, Taiwan
For more information visit:
http://www.unisdr.org/we/inform/events/

**28 August - 1 September 2016**
**6th International Disaster and Risk Conference IDRC Davos 2016**
IDRC Davos 2016 attempts to find solutions to today's challenges by managing risks, reducing disasters and adapting to climate change. Focusing on a multi-sectors, multi-stakeholders and multi-disciplines approach IDRC helps to build stronger ties with adequate public-private partnership models among risk management communities and sectors, enabling a move towards a truly integrative way of thinking about disasters and risks.
**Venue:** Davos, Switzerland
For more information visit:
www.unisdr.org/we/inform/events/

**30 August - 1 September 2016**
**AFAC16: Mitigation, Response, Recovery - Getting the balance right**
The Australasian Fire and Emergency Service Authorities Council (AFAC) and Hannover Fairs Australia, are delighted to announce a new partnership. Combining the strengths of both organisations the partnership will deliver AFAC16 under a renewed focus to embrace and support all fire and emergency agencies to achieve their goals and preserve public safety.
**Venue:** Brisbane, Australia
For more information visit: www.unisdr.org/we/inform/events/

**7 - 9 September 2016**
**6th International Conference on Building Resilience 2016: Building Resilience to Address the Unexpected**
The Building Resilience Conference is a an annual international conference exploring resilience as a useful framework of analysis for how society can cope with the threat of natural and human induced hazards. This is the sixth event in the Building Resilience Conference series and follows on from previous successful events.
**Venue:** Auckland, New Zealand
For more information visit: www.buildresilience2016.nz/

**21 - 22 September 2016**
**Disaster Management Institute of Southern Africa (DMISA) Annual Conference**
Climate, disaster risk, early warning and response: Re-evaluating resilience
**Venue:** Breede Valley Municipality, Cape Winelands District, Western Cape Province, South Africa
**Contact:** Karin Muller
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**1 – 4 October 2016**
**7th International Conference on Integrated Disaster Risk Management Disasters and Development: Towards a Risk Aware Society**
IDRiM 2016 builds on the strength of its predecessor conferences, and features a broad scope of topics and partners. The conference also aims to bring the implementation of the Hyogo Framework for Action forward, followed by the Sendai Framework for Disaster Risk Reduction in the next few years.
**Venue:** Hotel Abbasi, Isfahan, Iran
For more information visit:
http://www.unisdr.org/we/inform/events/

**5 – 6 October 2016**
**Critical Infrastructure Protection & Resilience Asia**
Southeast Asia has seen a rise in insurgency-related attacks and terrorist activities, creating uncertainty and insecurity on critical national infrastructure. Climate change has also seen more extreme weather patterns, creating additional hazardous, unseasonal and unpredictable conditions and a severe strain on infrastructure.
**Venue:** AVANI Atrium Hotel, Bangkok
For more information visit: www.unisdr.org/we/inform/events/

**6 – 8 October 2016**
**Florian 2016**
Trade fair for fire brigades, fire and disaster control.
**Venue:** Dresden, Germany
For more information visit: www.messe-florian.de/en/

**13 October 2016**
**International Day for Disaster Reduction 2016**
International Day for Disaster Reduction, held every 13 October, celebrates how people and communities around the world are reducing their exposure to disasters and raising awareness about the importance of reining in the risks that they face. The 2016 edition marks the launch of the new "Sendai Seven" campaign, centred on the seven targets of the Sendai Framework.
**Venue:** Worldwide
For more information visit: www.unisdr.org/we/campaign/iddr

**17 - 20 October 2016**
**Habitat III: United Nations Conference on Housing and Sustainable Urban Development**
Habitat III is the United Nations Conference on Housing and Sustainable Urban Development. In resolution 66/207 and in line with the bi-decennial cycle (1976, 1996 and 2016), the United Nations General Assembly decided to convene, the Habitat III Conference to reinvigorate the global commitment to sustainable urbanization, which is essential in creating long term resilience and reducing urban risk.
**Venue:** Ecuador
For more information visit: www.unisdr.org/we/inform/events/

**17 - 21 October 2016**
**3rd European Conference on Flood Risk Management**
The conference will consider all aspects of flood risk and will cover the causes of floods, their impacts on people, property and the environment and portfolios of risk management measures.
**Venue:** Lyon, France
For more information visit: http://floodrisk2016.net/

# THE DISASTER MANAGEMENT INSTITUTE OF SOUTHERN AFRICA (DMISA)

## DMISA office

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aurecon

Aurecon applies advanced modelling and planning tools to the integrated management of scarce resources such as water. Our environmental baseline studies, spatial mapping and analysis of ecological systems on a regional scale inform city and regional environmental and development planning policies. Aurecon has extensive expertise in disaster risk and resilience management and management of natural resources such as water.

Our disaster risk management advisory services and infrastructure and asset development services enable cities to build their resilience and improve their responsiveness to the climate change challenge.

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**www.OurAfricanCity.org**

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