Engineering a safer world: Impact Review 2020

PEOPLE AND PLACES









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Fire Engineering Education for Africa (FEEFA) programme, Stellenbosch University

Lloyd's Register Foundation (LRF) is an independent global charity with a unique structure and an important mission: engineering a safer world.

We focus on the most pressing global safety challenges and enhance the safety of life and property at sea, on land, and in the air. We do this by supporting high quality research, accelerating technology to application, and through education and public outreach. Our unique structure comes from the fact that we own a significant trading company, Lloyd's Register Group. We share the same mission and work together to make the world a safer place.

'People and Places', our Impact Review for 2020, demonstrates how we're making the world safer. It explores the places where our work is having an impact, and highlights the people who are delivering our goal of advancing the safety of people and property across the world.

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Foreword

WELCOME TO **'PEOPLE AND PLACES'**

Yet, despite the tragedies created by the pandemic, 2020 was also a year of significant learning. Our global grants community reacted in pioneering and innovative ways, creating new interventions to protect communities – harnessing science and technology to inform pandemic responses, while reinventing ways of working to continue making the world a safer place.

With this in mind, I'm proud to introduce 'People and Places', our Impact Review for 2020. This book celebrates the incredible achievements of the people and projects we have supported in the last 12 months, and provides a small snapshot of the enormous progress made in advancing public safety.

2020 was a year of dramatic and long-lasting changes to

the way society operates. Driven by COVID-19, human behaviours, systems and processes, ways of working, and how we understand and perceive risk have been transformed – quite possibly forever.

As a global charity, we aim to identify safety challenges wherever they exist, seeking out willing collaborators who share our strong social purpose and then building coalitions that deliver long-term impact for people and property across the planet.

The stories featured in this review are shining examples of our charitable mission in practice. The individuals and projects featured are truly remarkable success stories of how we can work together to improve and enrich our world. On behalf of LRF, I'd like to extend my thanks to the photographers, writers and individuals who made this project possible.

We hope you enjoy reading these stories – and that they inspire you to work with us and support our mission to make the world a safer place.

Professor Richard Clegg

Chief Executive, Lloyd's Register Foundation

REBECCA BOSTON

LLOYD'S REGISTER FOUNDATION INTERNATIONAL CONSORTIUM OF NANOTECHNOLOGIES



Dr Rebecca Boston Researcher, Lloyd's Register Foundation International Consortium of Nanotechnologies

"NANOTECHNOLOGY IS TRANSFORMING THE WORLD, ONE MINUSCULE STEP AT A TIME"

"Nanotechnology is the study of extremely small things, and it's at the heart of many of the most exciting developments in engineering and science," comments Rebecca Boston, a research fellow responsible for supervising two of the 51 PhD students currently supported financially by the consortium. Funded by Lloyd's Register Foundation, ICON is working across six different areas of nanotechnology and has already connected over 200 individuals and 47 industrial stakeholders – including big companies such as Airbus and LR Group – across 16 countries.

Imagine working with materials so small the human eye

can't even see them. It might sound like the stuff of science fiction but thanks in part to the work of the International Consortium of Nanotechnologies (ICON), it's rapidly becoming science reality.

Rebecca's current research includes how to improve the performance of rechargeable batteries without encountering the scarcity and toxicity issues associated with lithium. But she's quick to point out that nanotechnology has a huge range of potential applications that have an impact on human safety and wellbeing.

"From purifying water to carrying electricity, and from improving the way drugs are absorbed into the body to protecting humans in automated manufacturing processes, nanotechnology is changing the world," she adds. "And that process is now being supported and accelerated by ICON, which is bringing the next generation of researchers together. For the first time, scientists like me can build our research groups and collaborate across continents and institutions to ensure that humanity gains the maximum benefit from these incredible technologies."

BANGLADESH

SAVING THE LIVES OF THE World's poorest fishers



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The death rate among fishers in Bangladesh is significantly higher than the global average. Yet despite worsening storms and rougher seas due to climate change, going fishing isn't optional. With one of the highest poverty rates in Southern Asia and few alternative ways to earn a living or feed a family, it's essential.

Funded by Lloyd's Register Foundation and implemented by the FISH Safety Foundation, the *fish*SAFE 2025 project has identified safety awareness, training and equipment as simple but vital interventions that can cut death and injury rates, and protect property in poor countries across the world. "We've already employed a Master's student from a local university and we're now working with two village communities beside the Bay of Bengal," says *fish*SAFE's Darren Mitchell. "In July 2020, we launched a train-the-trainer programme for around 15 people to kick off a process that will grow organically and ultimately train some 400 fishers, trawler owners and skippers. We're currently translating a suite of training materials to support this programme – and we've developed a promotional campaign to give fishers a basic awareness of safety procedures."

The *fish*SAFE team is also working with re-FISH.org, an initiative of the FISH Safety Foundation that focuses on recycling, repurposing and reusing safety, vessel and fishing equipment from the UK industry and elsewhere.

"We're targeting a 20% reduction in vessels lost, and 25% in serious injuries, ill-health and fatalities by 2025," concludes Darren.
"It's challenging, but with the support of our partners it's achievable – and it will go a long way to bringing some desperately needed security, safety and peace of mind to these fishing families."

Darren Mitchell

Operations Manager for the FISH Safety Foundation and Project Manager for the *fish*SAFE 2025 programme

"COUNTLESS BANGLADESHI FISHERS DIE AT SEA EVERY YEAR, LEAVING COMMUNITIES DEVASTATED AND FAMILIES HEARTBROKEN. It doesn't have to be like this..."









BEN CARTLEDGE

THE 1851 TRUST

Ben Cartledge CEO, The 1851 Trust

Science and technology don't always inspire young

people, as Ben knows from personal experience. "The world is increasingly driven by these subjects, but when I was at school, I had no idea of the enormous possibilities that STEM (Science Technology, Engineering and Maths) can open up," he says. "If I'd had the sort of support that the 1851 Trust is giving today's school students, I think I'd have become an engineer myself."

Today, as the first full-time CEO of the 1851 Trust, he's helping to put matters right. The 1851 Trust is encouraging a new awareness of maritime safety, helping the next generation access the valuable history of Lloyd's Register. Specifically, and thanks in part to funding from Lloyd's Register Foundation's Heritage and Education Centre, the Trust aims to bring science and sport together by harnessing the excitement of Britain's high speed America's Cup yachts to make STEM subjects more accessible to youngsters. By showing how these craft operate right on the edge of possibility - and move faster than the wind itself - the Trust is inspiring youngsters to become the scientists and engineers who can make the world a safer place.

"Lloyd's Register Foundation is funding three modules that help us deliver our vision direct to schools via our STEM Crew digital platform, backed by a wealth of online content, which has been particularly important during the pandemic, and roadshows which will restart in 2021," adds Ben. His enthusiasm is mirrored by feedback from those who have most benefited:

"Getting that particular group of students interested in science is amazing" - a teacher

"I loved it because I never liked STEM before but I like it now" – a pupil

"HIGH SPEED YACHTS OPERATE RIGHT ON THE EDGE OF WHAT'S SAFE - BY SHOWING HOW THEY WORK, WE'RE INSPIRING YOUNGSTERS TO MAKF THE WORLD A SAFER PLACE"

MANIT CHANDER

HILO MARITIME RISK MANAGEMENT



Manit Chander CEO, HiLo Maritime Risk Management

"AN ACCIDENT THAT NEARLY ENDED MY CAREER INSPIRED ME TO DO **EVERYTHING POSSIBLE TO IMPROVE** SAFETY AT SEA"

"My wrist was hanging loose, and I remember thinking that my career was in the balance" is how Manit describes an accident while testing a lifeboat on an oil tanker in 2006. "People called it a 'freak' event – but actually this sort of thing had been happening for years beforehand and was still happening. Why? Because nobody had the data to provide an assessment of different maritime risks."

After two decades on tankers, the final years as Captain, Manit began looking at risk data while working for Shell before HiLo was spun-out as an independent not-for-profit company in 2018, with the support of Lloyd's Register Foundation funding. "We now bring together data from almost 4,000 ships across 50 companies," says Manit. "This web of interconnected events, from minor incidents through to high impact and sometimes fatal ones, means we can provide an objective insight into risk. Customers can see where best to focus their efforts in order to improve health and safety across the fleet."

But while Manit is understandably proud of the analytics, he's equally pleased that HiLo has achieved something never before seen in the industry. "For the first time, lots of different shipping companies are happy to share anonymised but commercially sensitive information. Crunching the data is relatively easy compared to the huge challenge of winning trust," he says.

Manit is confident that the impressive results seen to date will continue to improve safety at sea. "Our customers are experiencing dramatic benefits," he comments. "For example, tanker customers have seen a 32% reduction in explosions, 20% in uncontrolled loads and 10% in fuel spills. We're also pleased to have achieved industry recognition, winning the Lloyd's List Global Safety Award for 2018."

OUR SKIES

PIONEERING THE NEXT WAVE OF AVIATION INNOVATION



Even the smallest commercial airport is hugely complex,

with everything from air traffic control to aprons, gates and hangars all interconnected and interdependent. In areas such as New York, where several large airports all need to work together to keep aircraft and people safe, the complexities multiply.

Stavros Sidiropoulos, who founded Vianair with support from Lloyd's Register Foundation, says that the key issue is that the current processes and systems for planning the flow of aircraft arriving, departing and moving around airports simply don't allow for the simultaneous consideration of multiple objectives. "The resulting inefficiencies lead to a negative impact on the lives of passengers and everybody else in society – more noise, more emissions, more delays, more cost and, crucially, greater risk to life." Vianair software provides a unified design platform to give airports a holistic view of the impact of planning decisions. For the first time, airports can now understand the trade-offs between design objectives – for example fuel burn and emissions versus noise – and make balanced, considered decisions that also result in safer operations.

"We're currently working with the Port Authority of New York and New Jersey, which manages one of the busiest airspaces in the world," explains Stavros. "Early tests found that our software has the potential to result in tens of millions of dollars in annual savings, significantly reducing congestion, delays and environmental impact by between 10% and 20%. Look behind those stats and the benefits are very significant for communities around airports as well as for passengers – we believe this is a massive step forward towards a more sustainable aviation industry."





Stavros Sidiropoulos Founder and Chief Executive, Vianair Inc

"WE'RE NOT ONLY MAKING AIR TRAVEL SAFER... WE'RE REDUCING ENVIRONMENTAL IMPACT AT THE SAME TIME"



KYLE DUPONT

OHALO



Kyle DuPont CEO, Ohalo

"WE'RE HELPING MAKE SURE THAT PEOPLE GO HOME TO THEIR FAMILIES AT THE END OF THE WORKING DAY"

"There are many health and safety accident reports

out there which could give valuable insights into incidents and why they happen - but industry experts are unable to use them to their full potential if they compromise privacy," says Kyle. "So the data has to be anonymised with elements redacted in order to comply with General Data Protection Regulation (GDPR) and other regulations. That's an almost unimaginable task for somebody to undertake manually at scale."

After 10 years in finance, Kyle co-founded Ohalo in 2017. In 2019, they began to work with The Lloyd's Register Safety Accelerator – an initiative that aims to encourage the growth of a global safetytech industry. Ohalo was chosen to deliver a three-month data X-ray pilot to automatically anonymise and desensitise data from 600,000 records gathered by the UK Government's Health and Safety Executive (HSE).

"Having worked on complex data projects, I believed that artificial intelligence (AI) could cut processing time massively," adds Kyle. "In the pilot, we successfully anonymised data with 99% accuracy. Just as importantly, it took us only one machine day compared to around 12.5 years to do the same with manual processes. Our software automated the desensitisation of the data so that the data could be shared legally and safely."

This initial success led to Ohalo winning a two-year contract with the HSE. Kyle and his team are also kicking off several new projects, including with a nuclear site operator, a construction company and, possibly very soon, a major oil and gas company. "We're helping people share data so they can reduce accidents and make sure that people go home to their families safe and sound at the end of the day - and that's something we're very proud of," he says.



HAZEL INGHAM

ENGINEERING X

Hazel Ingham

"More than 70% of the world's ships end up on the beaches of Bangladesh, India and Pakistan," says Hazel. "At any one time, there are hundreds of ships being broken up there - they're often dragged directly onto the beaches and taken apart by workers with little, if any, training, protective equipment or legal protection to do this work safely. As a result, chemicals leach into the ocean, causing untold harm to people and the environment."

Hazel leads one of the programmes within Engineering X, an international collaboration founded by Lloyd's Register Foundation and the Royal Academy of Engineering that brings together some of the world's leading engineers, academics and business leaders to address the great challenges of our age. "When products and structures reach their end of life, they can create real hazards to people and the environment," adds Hazel. "With ships and other large offshore structures, the hazards are particularly acute in those parts of the world least able to manage them. While some do recycle responsibly, a dirty trade continues. Some rich nations export the problem of what to do with their old vessels and structures, and it's people on the sub-continent who often have to clear up the mess and pay the price – in many cases with their health and sometimes with their lives."

"The International Labour Organization has classified shipbreaking among the world's most dangerous occupations. LRF's support means we're able to fund six projects that are using on-the-ground activities, research and community building initiatives to greatly improve safety and reduce the harm to people and the environment."

Safer End of Engineered Life programme, Engineering X

"EVERY DAY OVER 50,000 SHIPS TRANSPORT GOODS AND RESOURCES AROUND THE GLOBE. THE QUESTION IS, WHO DEALS WITH THESE HUGE STRUCTURES AT THE END OF THFIR I IFF?"

SOUTH EAST ASIA

DEVELOPING SAFETY-CRITICAL SKILLS In South East Asia



A welded joint slips, a steel girder shifts, a pipe cracks,

a structure moves... the results can be catastrophic, not just in terms of damaged property but also in lives lost and families destroyed. Across South East Asia, 124,000 people are injured at work every year – and poor welding practices make a significant contribution to that statistic.

Husni Athaillah of The Welding Institute (TWI) is quick to emphasise the importance that welding has on plant and infrastructure. "Too often, you can trace failures back to incorrect welding and ineffective inspection," he says. "The solution is to ensure that international standards are always followed – but that's not easy. Historically, countries such as Indonesia simply don't have enough well-trained engineers to create safer working environments and save lives."

That's where funding from Lloyd's Register Foundation is making a real difference. Our support is enabling Husni's team at TWI to train a new generation of engineers, including empowering many women to follow what has traditionally been a male-dominated career path. Through the SEASEP initiative – the South East Asia Skills Enhancement Programme – TWI has enabled over 1,800 people to date to gain international welding qualifications. Among that number are many women, 80 of whom have received 100% scholarships.

SEASEP aims to upskill a further 2,000 engineers next year, bringing welding and non-destructive training to disadvantaged and underrepresented groups, opening up valuable and important careers in safety-critical industries, raising standards and saving lives.





Husni Athaillah Senior Business Development Manager, TWI Indonesia

"POOR WELDING PLAYS A ROLE IN THOUSANDS OF WORK-RELATED ACCIDENTS IN SOUTH EAST ASIA EVERY YEAR. WE'RE RAISING THE STANDARDS AND SAVING LIVES"

OLIVIA JENSEN

LLOYD'S REGISTER FOUNDATION INSTITUTE For the public understanding of Risk



Dr Olivia Jensen Lead scientist, Lloyd's Register Foundation Institute for the Public Understanding of Risk

"THE DEVELOPED WORLD TAKES WATER FOR GRANTED. BUT IN NEPAL, TURNING THE TAP CAN BE LIKE ENTERING A LOTTERY"

"Access to a steady supply of clean water is just a pipe

dream for a million people living in Kathmandu," says Olivia, from the Lloyd's Register Foundation Institute for the Public Understanding of Risk at the National University of Singapore. "Water flows to each household for only a few hours, once every few days. Because pressure is low, many people further along the line don't receive water at all – and even when the taps do run, the water coming out of them can be unsafe to drink."

Not surprisingly, local people line up to ask the water company to take action. But their claims are frequently dismissed out of hand due to a lack of essential data, such as which households actually receive water and when. To make matters worse, water quality is only tested when it leaves the treatment works, not at the tap.

With the support of a grant from Lloyd's Register Foundation, citizen science is able to make a real difference. An app developed alongside Imperial College London is empowering citizens to collect data which can be used to underpin complaints, while Olivia and her team have also distributed simple kits that can be used by households to test water safety.

"We're arming the people of Kathmandu with the tools to back up their demands, and also providing the water company with data so they can make improvements to both supply and quality," Olivia explains. "So far, the app and testing kits have been piloted with more than 80 households in four districts of the city. We've established the principle and proved that citizen science can engage people and deliver valuable data – now we're working towards winning support from partner organisations to continue our work."

ARNAB MAJUMDAR

LLOYD'S REGISTER FOUNDATION TRANSPORT RISK MANAGEMENT CENTRE



Dr Arnab Majumdar Director, LRF Transport Risk Management Centre

"HUMAN BEHAVIOUR CAN BE THE DIFFERENCE BETWEEN LIFE AND DEATH"

An engineer by profession, Arnab has concluded that maths and engineering are only part of the safety picture: "Transport is fundamentally about people. Look at congestion pricing: the logistics and data may support it, but if people don't agree with the need for it then it won't work. The situation is now being exacerbated by COVID-19 – in aviation, for example, one of the major risks now is not the physical safety of the plane itself but passenger behaviour around air travel in general."

"More than ever before, how people behave is at the heart

of safe transport," says Arnab, the Director of the Transport Risk Management Centre (TRMC) at Imperial, which was established following a grant from Lloyd's Register Foundation. "Whether we're studying buses in Taiwan, trains in the UK or planes in Canada, it's clear that culture and human behaviour are increasingly important aspects of protecting lives and property."

Arnab's enthusiasm for his subject is infectious. And during his time at the TRMC he's inspired 15 PhD students (and counting) to build careers dedicated to improving how societies around the world assess and manage safety risks.

"I'm enormously impressed by the talent and dedication of my students, many of whom come from disadvantaged communities," he adds. "The way we think about safety has been transformed over the last 20 to 30 years - and we're continuing to learn and adapt. Of course, cultural change isn't easy and improvements will take time. But I know that thanks to the backing from LRF, our students will have the skills and opportunities to make the world a safer place."

LONDON

UNDERSTANDING LONDON'S Busyness during covid-19



COVID-19 has changed the way we all live, with society challenged as never before. A return to something approaching 'normal' life – whatever that may look like – will depend on government and local leaders understanding precisely how people are behaving under lockdown or other restrictions.

The Lloyd's Register Foundation Data Centric Engineering Programme at The Alan Turing Institute was already exploring how data from mobile networks and traffic cameras could be brought together to model and understand air pollution in London. But the onset of the pandemic prompted a swift change of direction. "We knew we could reimagine our data sources as a busyness sensor for London," says Theo Damoulas. "So we talked to our partners and offered to help, with the support of Lloyd's Register Foundation. Together, we came up with a plan to learn how people's behaviours change as policy evolves – and Project Odysseus was born." In addition to organisations such as the Greater London Authority, Transport for London and the Office for National Statistics, the project's findings feed directly into Public Health England and, ultimately, the UK Government.

"Data centric engineering facilitates machine-assisted human decision making," comments Theo. "Project Odysseus enables the Government and others to understand the public's response to policy decisions and to tweak actions accordingly, so that London – and ultimately many other cities – can exit this pandemic in a safer way."





Theo Damoulas

The Alan Turing Institute's Deputy Programme Director for Data-Centric Engineering, and Turing AI Fellow

"BY SHOWING HOW PEOPLE ARE BEHAVING, WE CAN HELP LONDON RETURN TO NORMAL, POST LOCKDOWN"



SETH SCHULTZ

THE RESILIENCE SHIFT



Seth Schultz Executive Director, The Resilience Shift

"RESILIENCE IS THE INSURANCE Policy for humankind's future"

"Time's running out for the things that keep us ticking,"

says Seth, who took up his position at The Resilience Shift in January 2020. "Transport systems, digital communications, water networks and energy grids... infrastructure is the lifeblood of our world. It supports every aspect of how we live, work and play – yet it's under threat as never before, from factors including population growth and urbanisation to climate change and the technological revolution."

The facts make for stark reading: 470 million people are expected to face extremely high water stress by 2030; \$94 trillion in global infrastructure funding is needed by 2040; and climate-related disasters have already cost the planet \$650 billion over the last three years.

"To me, The Resilience Shift is an insurance policy for humankind's future," adds Seth. "Thanks to the continuing backing from the Lloyd's Register Foundation, we've made a good start, including engaging directly with more than 5,300 people, a community from 42 countries and projects worth over £3.2 million. But there's a lot more to do – our aim is to make sure that the world's infrastructure can quickly recover from acute shocks and chronic stresses, and adapt to a continually changing world, no matter what those changes might be."

OUR OCEANS

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SAFE SEAWEED TO FEED THE PLANET



By 2050, the global population will be around 10 billion.

With over 800 million of us already going hungry, the challenge facing agriculture is stark. But if Lloyd's Register Foundation's first involvement with a project in the food sector fulfils its potential, the solution could well be not on the land, but beneath the waves.

"Our current reliance on meat and soya has a significant impact on the environment and will become unsustainable," says Vincent. "The world's seas and oceans cover 71% of the planet – that's a huge and completely underused resource for our crowded world. Seaweed is healthy, and while it is common in North Asia, it is little known in the rest of the world. What we need now is a sustained drive to further explore the possibilities of intense seaweed farming, which requires none of the fresh water and chemicals consumed by land-based agriculture."

LRF's initial involvement with the seaweed project began with a challenge to see if a range of economic activities could co-exist in the North Sea, one of the world's busiest seas. We played an active role in founding the Safe Production of Marine Plants and Use of Ocean Space (SOMOS) initiative, with outputs demonstrating that seaweed production could operate safely alongside offshore wind farms. It also led to an EU H2020 grant of €20m, including funding for five pilot projects. In 2020, our experience with SOMOS led us to join with the UN Global Compact's Action Platform for Sustainable Ocean Business, and to launch a ground-breaking manifesto to facilitate the development of an industry that could potentially end global hunger. Two months later, we took our support further and established the Safe Seaweed Coalition, bringing together a set of partners to ensure that production can be scaled up safely and efficiently.

"We need a revolution to feed the world of tomorrow," Vincent adds. "Over the next 50 years, we have to produce as much food as in the previous 10,000 years."

"By farming just 2% of the ocean, we could produce enough protein to feed 12 billion people. Our generation could be remembered as the first to feed the entire population of the planet with safe and sustainable food.





Vincent Doumeizel

Director of Food, Lloyd's Register Foundation & Senior Advisor on Oceans, United Nations Global Impact

"IN ORDER TO FEED THE WORLD AND PROTECT ECOSYSTEMS, OUR GENERATION MUST BE THE FIRST TO FARM THE OCEANS"

DAVID McKEE

SLINGSHOT SIMULATIONS



"The Neville Street tunnel in Leeds has some of the worst air pollution in the UK," explains David. "I drive it every day, but while it's extremely unpleasant for motorists it's worse still for others. A lot of homeless people live there and it's impossible not to link the pollution and the police tape that regularly marks off a place where another person has died."

David's knowledge of the challenges facing Leeds was a major factor behind Slingshot Simulations, one of six Open Data Institute initiatives supported financially by Lloyd's Register Foundation via a joint-stimulus fund. "As a team, we're very passionate about making sure that climate and environmental considerations should be part of every project, everywhere," he says. "In March 2020, we started the 'Breathing City' project to show how open data can be used to create a digital representation of Leeds. Our digital twin gives valuable insights into the impact of pollution and provides reliable What if? data support to local decision makers. We can simulate different scenarios to show how changes to infrastructure - to road systems, for example - can improve the wellbeing and safety of city populations."

The project brings together data from sources including satellites, traffic cameras and NASA, among many others. And it's currently informing and supporting Leeds City Council as it strives to meet its targets of reducing air pollution and improving planning for pedestrians, particularly around Neville Street.

"These are early days, and it'll take time before we see the full impact," says David. "But in Leeds we've already increased awareness of pollution, not only among policy makers but the general public too. We've also won new funding which will allow us to expand the depth and scope of our work, and we've been approached by another council keen to explore how we can help." Dr David McKee

"YOU CAN SMELL AND TASTE THE AIR POLLUTION. I WONDER HOW MANY YEARS OF MY LIFE I'VE LOST QUEUING IN THIS TRAFFIC"

CEO, Slingshot Simulations

SOUTH AFRICA

FIRE SAFETY ENGINEERING Where It's needed most





Fire is an everyday part of life - and death - in South Africa.

A recent mega-fire which rampaged through the town of Knysna, killing seven people and destroying 1,000 homes, only stopped when it reached the ocean. That's just one disaster among many that have caused human and economic misery across the country.

The single greatest challenge is a lack of university training. South Africa simply doesn't have the fire engineering skills to make buildings, mines, ports, power stations and, especially, slums and shanty towns safe. In fact, experts agree that the country is trailing more than 20 years behind countries like the UK and USA.

Supported by a grant from Lloyd's Register Foundation, the Fire Engineering Education for Africa (FEEFA) programme is the first ever postgraduate course in fire safety engineering in Africa. It's a ground-breaking but vital step in the right direction. In addition, FEEFA is awarding bursaries for PhD students to undertake more in-depth research that will form the basis for future expertise, such as how homes built using 'bricks' of recycled plastic could impact fire safety.

During 2019, the programme welcomed its first 20 students and is also about to publish a textbook on fire safety engineering for informal settlements, which was commissioned by the South African Government and co-funded by LRF. Together, FEEFA and LRF are raising the bar on fire safety in South Africa – providing the expertise that will protect property and save lives.



Prof Richard Walls Head of the Fire Engineering Research Unit at Stellenbosch University

"IN TERMS OF FIRE SAFETY, WE'RE MORE THAN TWO DECADES BEHIND THE UK AND USA — AND EVERY YEAR THAT COSTS LIVES"

DONNETTE STREETE

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FRONTIERS DEPARTMENT WITH The Ministry of Foreign Affairs, guyana



Donnette Streete Director, Frontiers Department with the Ministry of Foreign Affairs, Guyana

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"THE COURSE GAVE ME THE SKILLS TO PROTECT GUYANA'S ARINE ENVIRONMENT WHILF HELPING DIFFERENT MARITIME INDUSTRIES TO CO-EXIST SAFELY"

"Guyana's burgeoning oil and gas industry is bringing jobs **and wealth** into the country – but this fast-growing sector is presenting new challenges to our maritime laws," says Donnette. "The issue is how to establish a legal framework that protects our precious marine environment but that also enables our fishing, shipping and oil & gas industries to work together safely."

Every year, Lloyd's Register Foundation supports three students to study at the IMO International Maritime Law Institute (IMLI). Based in Malta, this globally respected organisation trains officers in maritime law and how to promote safe, secure and environmentally sound shipping practices.

With 13 years' experience of maritime law behind her, Donnette was chosen to read for a master's degree in International Maritime Law at IMLI in 2017.

She says that a major offshore oil discovery has changed Guyana's maritime law landscape forever. "Suddenly, we're faced with the prospect of many more large ships entering our waters and a big upsurge in demand for tanker anchorages and bunkering facilities," she explains. "Guyana is a very environmentally aware country with a strong green agenda. How could we maintain that reputation while reaping the benefits of the oil and also helping fishing and shipping to thrive?"

Since graduating with a distinction from IMLI, Donnette has played a key role in a proposal to establish a National Oceans Council in Guyana. In addition, Donnette is proud to have been appointed as Guyana's lead negotiator for the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ). "None of this would have been possible without IMLI and LRF," she adds. "Our seas will be cleaner and safer because of LRF's support."



fishSAFE 2025 project, FISH Safety Foundation

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